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Original Article

Sputum microRNA-screening reveals Prostaglandin EP3 receptor as selective target in allergen-specific immunotherapy

Running head: Induction of miR-3935 and reduction of PTGER3/PGE$_2$ upon AIT

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Conflict of Interest Statement:

Dr. Jakwerth has a patent "A ratio of immune cells as prognostic indicator of therapeutic success in allergen-specific immunotherapy: 17 177 681.8" that is pending. PD Dr. Chaker reports on grants and other from Allergopharma during the conduct of the study; grants and/or other from ALK Abello, Bencard / Allergen Therapeutics, ASIT Biotech, Lofarma, GSK, Novartis, LETI, Roche, Zeller, Sanofi Genzyme/Regeneron, European Institute of Technology, AstraZeneca, Immunotek, all outside of the submitted work. In addition, PD Dr. Chaker has a patent "A ratio of immune cells as prognostic indicator of therapeutic success in allergen-specific immunotherapy: 17 177 681.8" that is pending. Prof. Dr. Schmidt-Weber reports personal fees from Bencard and personal fees from Allergopharma during the conduct of the study. In addition, Prof. Dr. Schmidt-Weber has a patent on nasal secretions that is pending, and a patent "A ratio of immune cells as prognostic indicator of therapeutic success in allergen-specific immunotherapy: 17 177 681.8" that is pending. Dr. Zissler reports grants and personal fees from German Center for Lung research (DZL), grants and personal fees from German Research Foundation (DFG), grants from Helmholtz I&I Initiative, during the conduct of the study. In addition, Dr. Zissler has a patent "A ratio of immune cells as prognostic indicator of therapeutic success in allergen-specific immunotherapy: 17 177 681.8" that is pending and Dr. Zissler received payment for manuscripts

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Abstract

Background: Several microRNAs (miRs) have been described as potential biomarkers in liquid biopsies and in the context of allergic asthma, while therapeutic effects on the airway expression of miRs remain elusive. In this study, we investigated epigenetic miR-associated mechanisms in the sputum of grass pollen-allergic patients with and without of allergen-specific immunotherapy (AIT).

Methods: Induced sputum samples of healthy controls (HC), AIT-treated and -untreated grass pollen-allergic rhinitis patients with (AA) and without asthma (AR) were profiled using miR-microarray and transcriptome-microarray analysis of the same samples. miR-targets were predicted *in silico* and used to identify inverse regulation. Local PGE_2 levels were measured using ELISA.

Results: 259 miRs were upregulated in the sputum of AA patients compared to HC, while only one was downregulated. The inverse picture was observed in induced sputum of AIT-treated patients: while 21 miRs were downregulated, only 4 miRs were upregulated in asthmatics upon AIT. Of these 4 miRs, miR-3935 stood out, as its predicted target *PTGER3*, the prostaglandin EP_3 receptor, was downregulated in treated AA patients compared to untreated. The levels of its ligand PGE_2 in the sputum supernatants of these samples were increased in allergic patients, especially asthmatics, and downregulated after AIT. Finally, local PGE_2 levels correlated with ILC2 frequencies, secreted sputum IL-13 levels, inflammatory cell load, sputum eosinophils and symptom burden.

Conclusions: While profiling the sputum of allergic patients for novel miR expression patterns, we uncovered an association between miR-3935 and its predicted target gene, the prostaglandin E_3 receptor, which might mediate AIT effects through suppression of the PGE_2-*PTGER3* axis.

Key Messages:

- AIT induces miR-3935 in sputum of allergic asthmatics. mRNA of its target, prostaglandin-E_3-receptor, is downregulated.
- EP_3 ligand PGE_2 is reduced in sputum supernatants of patients with AIT.
- PGE_2 correlates with local clinical parameters, like eosinophils and inflammatory cell load.

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Keywords: allergic asthma/rhinitis, allergen-specific immunotherapy, induced sputum, microRNA, prostaglandin E2

Abbreviations:

AA	allergic rhinitis with concomitant asthma
AIT	Allergen-specific immunotherapy
AR	allergic rhinitis without concomitant asthma
CCL	CC-chemokine ligand
COX	cyclooxygenase
EP3	Prostaglandin EP3 receptor
FC	fold change
FEV_1	Volume that has been exhaled at the end of the first second of forced expiration
FEV_1/FVC	Tiffeneau-Pinelli index
FVC	Forced vital capacity
HC	healthy control
IgE	immunoglobulin E
IL	interleukin
ILC2	group 2 innate lymphoid cells
miR	microRNA
mRQLQ	mini quality of life questionnaire
PGE_2	prostglandin E2
PCA	principal component analysis
PTGER3	prostaglandin EP3 receptor gene
Th	T helper

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Text

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Introduction

Allergic asthma (AA) comprises different disease forms, that are classified either according to their clinical manifestations into phenotypes[1] or to their biological mechanisms into endotypes[2,3]. One of the best-described endotypes is the eosinophilic or type-2 endotype[4]. A number of sputum markers associated with type-2 endotypes were found to be elevated at both the protein and transcript levels, including secreted mediators of allergic inflammation such as IL-4, IL-5, IL-13, CCL17, CCL26[5,6], IL-24[7], and periostin[8]. The concept of the "united airway" postulates that the pro-inflammatory mediator signature is also present and regulated in the airways of patients with allergic rhinitis without concomitant asthma (AR), suggesting that upper and lower airways are interdependently regulated[6,9]. This concept postulates that the upper and lower airways form a morphological and functional unit, sharing common features related to physical barrier, mucociliary clearance and immune processes. These mechanisms can be studied in the lower airways using induced sputum samples, which consists of components derived from the respiratory epithelium of the central airways[10-12].

MicroRNAs (miRs) are small nucleic acid molecules that suppress gene expression post-transcriptionally and therefore via an epigenetic mechanism[13]. Individual miRs can have wide-ranging regulatory functions, as they can each target multiple mRNA transcripts along a particular signaling pathway[14]. As microRNAs are quite resistant to degradation, they can be easily be detected in body fluids including samples from the lower airways (induced sputum). Along this line, deregulated microRNAs have been described in asthma as well as in allergic rhinitis (reviewed in: [15]). For example, levels of miR-122-5p were increased in sputum and serum of severe, uncontrolled asthmatics in comparison to healthy controls[16] and miR-223-3p was associated with increased neutrophil counts and T-helper cells of type 17 signaling in the sputum of asthmatics[17]. In allergic rhinitis, miR-206, -338-3p, -329, and -26a, were found to be elevated in patients with AR, but not in healthy individuals or those with asthma[18]. Recent studies underscored the importance of miRNAs in the regulation of airway epithelial responses in asthma. MiR-23a was postulated to target IL-4 in epithelial cells[19]. Finally, also airway epithelium-derived miRs (miR-34a, miR-92b, and miR-210) were implicated to play a role in the early development of the local immune processes in asthma[20].

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Interestingly, miR-mediated expression inhibition also plays a role in eicosanoid biosynthesis[21]. Eicosanoids are key mediators of type-2 inflammation[22-25], with miRs intervening at different steps on the eicosanoid pathway. In fact, it has been reported for the cyclooxygenase-2 (COX-2) that 28 miRs intervene in its gene regulation and thereby affect subsequent PGE2 production[26,27], in particular, miR-155, the expression of which is increased in smooth muscle cells of the asthmatic airways[28]. In addition, miR-155 is systemically increased in severe asthmatics with cockroach allergy compared to non-asthmatics and has been shown to enhance COX-2 and the concomitant Th2/Th17-associated lung inflammation in asthmatic mice as well as in patients allergic to cockroaches[29].

IL-13, produced by Th2 cells, but also by group 2 innate lymphoid cells (ILC2)[30-33], was found to increase neutrophil-derived PGE_2 levels through upregulation of COX-2 gene expression[34]. The suppressive effects of allergen-specific immunotherapy (AIT) on type-2 immune responses not only affect Th2 cells but also induce a shift from ILC2 to ILC1[35].

The effect of allergen-specific immunotherapy on local miR expression and the corresponding gene transcript level, however, remains to be studied in patients, particularly in the mucosal context. In order to resolve local miR-related mechanisms including regulatory and anti-inflammatory mechanisms of allergic airway diseases, in this study, we profiled the genome-wide miR and simultaneously predicted miR-target mRNA signatures in induced sputum of patients with allergic rhinitis with (AA) and without (AR) concomitant asthma.

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Methods

Patients and IRB statement. All interventions were performed in the Allergy Section, Department of Otolaryngology, TUM School of Medicine, Munich, Germany. We used pooled data from two observational, non-interventional studies within three subsequent years, which were approved by the Institutional Review Board (IRB), namely the local Ethics Commission of the TUM School of Medicine, Munich, Germany (5534/12 and 5156/11). Each participant gave informed, written declaration of consent. Samples were taken from 44 healthy individuals and from 37 patients with grass pollen-related allergic rhinitis without concomitant asthma (AR), from whom, 21 had received grass pollen-specific AIT (patient characteristics; Table 1). In addition, 43 patients with grass pollen allergic rhinitis who suffered from concomitant asthma (AA) were included, for whom the GINA scores were evaluated. In the group of 43 AA patients, 22 patients had received grass pollen-specific AIT. Further patient details can be found in the Supplemental Information. Asthma patients were classified as asthmatic based on a previous doctor's diagnosis and a reported history of shortness of breath, tightness in the chest, and coughing during natural allergen exposure, i.e. during pollen flight, and / or a previously documented positive bronchodilation test. A GINA score was assessed from asthma patients. Patients with a grass pollen allergy with a history of moderate and chronic persistent allergic rhinitis according to the definition of allergic rhinitis and its effect on asthma (ARIA) criteria[36] for more than two years during the grass pollen season, a wheal with a diameter of more than three millimeters and grass pollen-specific IgE levels above 0.70kU/l, were included. To avoid effects of e.g. inhaled corticosteroids, patients were asked to stop medication intake 7 days before sampling to have an adequate washout period. AIT treatment was not interrupted for the study. All patients had good lung function (FEV_1%> 70%). Patients in the AIT-treated groups received AIT for at least one year. All subjects completed a questionnaire on the quality of life in rhinoconjunctivitis (mRQLQ), received a pulmonary function test, and underwent a sputum induction using the method described below.

Data collection and statistical analysis. All experiments were performed by researchers blinded to the diagnosis. Significant miR/mRNA expression changes of sputum cells were identified in the microarray data analysis by an initial principal component analysis (PCA) with a homogeneous component distribution, and by subsequent filtration by means of Volcano plot analysis using the moderated T-test with the cut-off criteria of FC≥1.5 (fold change) and p≤.05 using the GeneSpring Software GX 14.9 (Agilent Technologies, Santa Clara, CA, USA). In the Genespring software, the

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miRNA microarrays were normalized using the percentile shift method. According to the manufacturer, it normalizes the microRNA array data using the 90th percentile. False-positive intensity values will most likely to fall into the lower percentile range of the array and are rated as noise, according to the manufacturer. Therefore, in this case, the 90th percentile is used as a robust intensity value to normalize the data. The details of the microarray analysis and all remaining techniques are described in detail in the supplemental information. The relative expression levels (log2 fold change) in the range from low in blue to high in red were shown as color codes for the heat maps of the microarray analyses. Data in Figures 1A-G, 5A and 5B were tested statistically using Mann-Whitney U tests calculated with the GraphPad Prism software (GraphPad Software Inc., La Jolla, CA, USA). In Figures 4G, 5C-F and in Supplemental Figures 1A-C, Spearman correlation was used to correlated sputum PGE_2 levels with clinical parameters and sputum cell counts. All statistically significant differences are shown as *p≤.05, **p≤.01, ***p≤.001, ****p≤.0001.

Data availability statement. The data discussed in this publication are accessible via the pending accession number of the GEO Series and will be deposited in NCBI's Gene Expression Omnibus. All other methods are described in the supplemental information.

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Results

Induced sputum was obtained from allergic rhinitis patients with (AA) and without (AR) concomitant asthma, some of whom had received AIT for more than a year (AA+AIT; AR+AIT), and some of whom did not (AA-AIT; AR-AIT) as well as from healthy controls (HC) in order to gain access to local mediators of the lower airways.

Treatment-associated patient cohort characteristics and symptoms

The patients who were recruited for this study were identified based on clinical parameters and the symptom score was assessed by the validated disease-related mini quality of life questionnaire (mRQLQ) (Fig.1A). Successful AIT was confirmed both in AR and AA patients by reduced total serum IgE levels (Fig.1B). The local inflammatory cell load, identified by sputum leukocytes per milliliter, showed a pattern similar to total serum IgE and mRQLQ, with untreated AR and AA patients having an increased IgE titer, but reduced quality of life compared to controls and to AIT-treated patients (Fig.1C). The composition of sputum macrophages and neutrophils did not differ among the groups (Fig.1D,E), except for the frequency of lymphocytes, which was reduced in AIT-treated AR patients compared to untreated and was slightly decreased in treated AA patients (AR+AIT and AA+AIT; Fig.1F). Sputum eosinophils were practically absent in healthy subjects, while their number was strongly increased in AR-AIT patients and even more so in AA-AIT patients (Fig.1G). As expected, these numbers were reduced in AR+AIT and AA+AIT compared to untreated patients. These data confirm that the patient cohort in this study was clearly defined not only on the basis of the symptom burden and the clinical picture, but also on the basis of local inflammation parameters.

miR-target networks involve extracellular matrix-organization, chemotaxis and antigen-presentation in allergic rhinits with concomitant asthma

Since miRs are important regulators of airway epithelial responses, we focused on the differential analysis of the expression of miRs in sputum cells from patients with allergic rhinitis with and without concomitant asthma. The cellular miR expression profile of induced sputum cells was measured using human microRNA microarray technology. Interestingly, 259 miRs out of 2549 miRs analyzed were upregulated in sputum cells of AA-AIT patients, but only one miR was downregulated in comparison to healthy controls (Fig.2A; fold change (FC) $\geq$1.5; p$\leq$.05). Figure 2B shows the top upregulated miRs with the cut-off at FC$\geq$10 in AA-AIT samples compared to HC samples (Table S1; Suppl.Fig.2; Table S27). Next, in order to put the detected miRs into functional context in this disease background, we used an open source miRNA database (mirdb.org) to predict transcript targets of the identified 259 cellular miRs. A whole-transcriptome microarray analysis of the same samples was performed and the results from the miRdb database were inversely merged with significantly altered mRNA transcripts. The resulting cut-set was mapped in order to

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define a potential miR-mRNA-network. 7552 mRNA transcripts were downregulated in AA-AIT patients compared to HC (FC≥1.5; p≤.05), of which 2507 were predicted targets of the 259 upregulated miRs (Fig.2C, Table S2). Using a GO-term filter, 126 out of this cut-set were considered as secreted factors, which were then subjected to string network analysis to identify enriched cellular mechanisms (Fig.2D, Table S3). In AA-AIT patients, target genes formed enriched networks that are involved in extracellular matrix organization, in antigen-processing/cross-presentation and in chemotaxis. All of those genes were significantly downregulated in sputum cells from AA-AIT patients compared to HC (Fig.2E; Table S4; Suppl.Fig.3; Table S28; FC≥1.5; p≤.05) and 10 of them were predicted targets of miRs that were upregulated more than 10-fold.

Overlapping miR-associated gene regulation underpins the united airway concept in patients with allergic rhinitis

Similar to AA-AIT patients, in the sputum cells of AR-AIT patients, 97 miRs were increased and one miR was decreased compared to HC. Almost two-thirds of the elevated cellular miRs were also increased in asthmatic patients (Fig.3A, Tables S5-S6), although the main site of clinical manifestation of allergic rhinitis is the upper respiratory tract. The downregulated miR-6508 in the sputum of AR patients differed from the one downregulated miR in AA patients, miR-3935. We focused on the miR targets, which showed a patient group-specific expression pattern, as well as on the genes that were synergistically downregulated in both patient groups. We identified 12630 predicted targets of locally upregulated miRs using the miRdb and 7089 downregulated mRNA transcripts in AR-AIT patients compared to HC (Fig.3B, Tables S7-S8). In this analysis, 2272 transcripts met both conditions. In a similar analysis in AA-AIT patients, 18428 predicted targets of upregulated were identified and 7552 mRNA transcripts were downregulated in the same samples, of which 2507 mRNA transcripts met both criteria. Next, a Venn analysis of the gene lists resulting from the analyzes of AA-AIT versus HC and AR-AIT versus HC was performed to identify mRNA transcripts that are supposedly downregulated by miR (Fig.3C, Tables S9-S10), filtered for secreted genes and submitted to string network. The focus of this analysis was set on the above-mentioned regulated pathways in AA-AIT patients within the three subdivisions: targets only changed in rhinitis patients, targets changed in both patient groups and targets only changed in asthmatic patients (Fig.3D-I, Tables S11-S16; Suppl.Fig.4-6; Tables S29-S31).

AIT-related induction of miR-3935 corresponds to suppression of transcripts of its target PTGER3

In comparison to miR regulation comparing allergic patients and healthy subjects, the analysis of the effect of AIT on cellular miR regulation revealed the opposite. Only four cellular miRs were locally upregulated, while 21 cellular miRs were downregulated in AA+AIT patients compared to AA-AIT patients (Fig.4A-C; Tables S17-S18; Suppl.Fig.7-8; Tables S32-33). In total, a number of 6677 genes were predicted as targets

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of the downregulated miRs (Fig.4D, Table S19; Suppl.Fig.9; Table S34), of which 42 were significantly upregulated in AA+AIT patients compared to AA-AIT patients. On the other hand, 661 genes were predicted as targets of the upregulated miRs (Fig.4E, Table S20; Suppl.Fig.10; Table S35), of which only one gene (PTGER3) was also significantly downregulated on the mRNA level in the same samples. PTGER3, the prostaglandin EP_3 receptor (EP_3), is one of four receptors for prostaglandin E2 (PGE_2) and is involved in bronchoconstriction[37,38]. PTGER3 showed a counter regulation to miR-3935 as expected (Fig.4F, Suppl.Fig.1E-F), which was underlined by the inverse correlation between miR-3935 and its predicted target *PTGER3* (Fig.4G; r=-0.57; p=.0294). Of the four known PGE_2 receptors EP_1, EP_2, EP_3 and EP_4, only EP_3 was significantly changed on the mRNA level upon AIT. Although EP_2 mRNA in sputum cells of asthmatics was slightly, but not significantly increased and EP_4 was significantly reduced in comparison to healthy controls, no significant regulation was found comparing AA+AIT with AA-AIT patient samples (data not shown). In addition, immunofluorescence microscopy of the EP_3 protein was performed on cytospin samples of the induced sputa of AA-AIT and AA+AIT patients, which revealed on the one hand that EP_3 was mainly detected in macrophages and on the other hand, however, mainly in specimens from AA-AIT patients, while the staining of samples of the treated asthma group (AA+AIT) was weak (Suppl.Fig.11). This reflects the above-described results on the mRNA expression levels of *PTGER3* (EP_3) (Fig.4F, Suppl.Fig.1E&F).

Reduction of sputum protein levels of EP_3 ligand PGE_2 correlates with clinical parameters and symptoms in AIT-treated patients

Finally, we measured the levels of the EP_3 ligand PGE_2 in the sputum supernatants of the same samples using ELISA. PGE_2 was increased in the supernatants of AA-AIT patients compared to HC and were decreased upon AIT in AA and AR patients (Fig.5A). Since PGE_2 has been reported to be induced via IL-13 and COX-2, we examined the frequencies of IL13-expressing ILC2s using flow cytometry (ILC2: $CD45^+Lineage^-CD127^+CRTh2^+IL\text{-}13^+$; Gating strategy: Suppl.Fig.1D) and found that these cells were indeed increased in AR-AIT and AA-AIT patients compared to HC and decreased in AIT-treated compared to untreated AR and AA patients (Fig.5B). IL-13 and IL-22 protein levels in the sputum supernatants of the same samples also correlated positively with sputum PGE_2 levels (Fig.5C; Suppl.Fig.1). Notably, the PGE_2 levels in sputum supernatants further correlated positively with local inflammatory cell load (Fig.5D; r=0.52, p<.0001) and sputum eosinophil frequencies in the same sputum samples (Fig.5E; r=0.67, p<.0001; for neutrophils, macrophages: Suppl.Fig.1) as well as with symptom burden assessed with the mRQLQ (Fig.5F; r=0.48, p<.0001).

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Discussion

The global profiling of miRs in local inflammation of the lower airways of allergic rhinitis and asthma reveals novel local miR expression patterns and confirms previously described disease-related miRs. These data were collected in the context of therapeutic interventions using allergen-specific immunotherapy.

Known allergy-associated miRs detected in the lower airways

The miRs detected comprise previously reported miRs in the context of asthma, such as miR-15b-5p, whose systemic levels are associated with lung function[39], miR-16-5p, whose circulating levels correlated with hyper-responsiveness of the airways [18,40,41], miR-19a-3p, which has been reported to be expressed in local T cells[42], and miR-21-3p, which was found in exhaled breath condensate from asthmatics, however in reduced levels compared to healthy controls[43]. In addition, we detected elevated levels of miR-191-5p, the serum levels of which also correlated with lung function, measured with FEV_1/FVC, in a recent pediatric study[39], and miR-210-3p, which is involved in mast cell activation[44], and, finally, miR-223-3p, which was increased in asthmatics compared to healthy controls and correlated with lung function parameters[45]. It has further been published that miR-223-3p is involved in the maturation and function of neutrophils[46].

In order to understand the role of so far unknown miRs in the regulation of airway diseases, we also performed a transcriptome analysis on the same samples. This transcriptome analysis was then limited to predicted target transcripts of upregulated miRs, which were reversely regulated in the same sample. This analysis revealed a large number of genes whose mRNA levels were downregulated. Since the function of the luminal sputum cells is critically determined by their secreted factors, we focused on the bioinformatic analysis of secreted and extracellular entities. The unsupervised network analysis revealed three principal mechanisms, namely those of extracellular matrix organization (including genes like *DCN, ADAM10, MMP20, TIMP2, LOXL3, FGF2, CTSK, ADAMTS3, COL6A3, CTSL, COL15A1, LAMA1, ADAM9, SERPINH1*), antigen-processing/cross-presentation (*LNPEP, CALR, CTSL, CD36, B2M*) and chemotaxis (*CXCL16, CXCL5, CXCL12, CXCL2*).

miRs in upper and lower airways

MiR target genes involved in extracellular matrix reorganization were mainly repressed in asthmatic patients only, which was expected as asthma mainly manifests in the lower respiratory tract and has frequently been associated with extracellular matrix remodeling [47-50]. Similarly, the factors *CALR, B2M*, *CTSL* and *LNPEP* associated with antigen-processing/cross-presentation were only affected in sputum cells from AA-AIT patients, but not from AR-AIT patients, while CD36 (predicted target of miR-629-3p, miR-3180-5p, miR-485-3p and miR-3605-5p) was downregulated in both groups. However, this could be also due to inflammatory processes that are reflected by a shift from a macrophage-dominated toward leukocyte- and eosinophil-dominated in cell composition of the sputum. The scavenger receptor CD36 is

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known to be an important factor for macrophage recognition and phagocytosis of apoptotic fibroblasts[51] and to promote house dust mite allergy development[52]. Notably, CD36 was also increased in exosomes from asthmatics and associated with leukotriene production[53]. On the other hand, the reduction in the chemokine expression was common to both diseases. While *CXCL2* (predicted target of miR-192-5p, miR-215-5p, miR-7-1-3p, and miR-582-5p) and *CXCL16* (predicted target of miR-451a and miR-7-1-3p) were only affected in asthmatics, *CXCL12* (predicted target of miR-141-3p, miR-200a-3p, miR-5100, miR-222-3p, miR-5587-5p, miR-3928-5p, and miR-3605-5p) and *CXCL5* (predicted target of miR-25-3p, miR-363-3p, miR-3163) were also affected in AR-AIT patients. *CXCL2* is known to regulate airway smooth muscle cell migration[54] and is a predicted target of multiple miRs, including miR-192-5p, which is upregulated more than 10-fold in this data set. *CXCL16* on the other hand exhibits a direct chemoattractant effect on ILC2[55], while *CXCL12* levels were reported to correlate with decreased ILC2 numbers in blood of asthmatic patients[56]. Thereby rhinitis patients share not only the reduction of an ILC2-attractant chemokine, but also of the scavenger receptor *CD36* and *ADAM10* with asthmatic patients, which underscores the united airway concept mentioned above. In addition, our data show a decrease of *IFNA8* (predicted target of miR-642b-3p) and *IFNAR2* (predicted target of miR-6765-3p and miR-4286) in allergic rhinitis patients only, which is in line with the observation that allergic rhinitis is related to the dominance of type-2 cytokines, which is reversed by allergen-specific immunotherapy[5,7]. We have previously shown that in the upper airways of AR patients the interferon expression levels (*IFNGR2*) were restored after more than three years of AIT.

miR-3935-target PTGER3 and associated PGE_2 regulation

Studying miR expression in AIT-treated patients compared to untreated patients, we found that the AIT-associated upregulated miRs unexpectedly targeted structural genes rather than immunoregulatory factors. However, the AIT-associated downregulated miR-3935 targets prostaglandin EP_3 receptor (*PTGER3*), the receptor for prostaglandin E2 (PGE2). It was originally described to have bronchodilatory effects mediated through an inhibitory effect on smooth muscle cells[57-59] and mast cells that mainly depends on EP_2 signaling[60]. However, PGE_2 also influences the behavior of several immune cells, namely macrophages[61], T cells[62], and B cells[63], thus suppressing type-2 inflammation. In this study, the levels of secreted PGE_2 in the sputum supernatant of the same samples resembled the mRNA levels of its receptor *PTGER3*. Depending on tissue and condition, PGE_2 has either pro- or anti-inflammatory effects[64-71]. In this study, sputum PGE_2 was associated with a pro-inflammatory state in patients with allergic asthma, since it correlated with pro-inflammatory clinical parameters like sputum inflammatory cell load and sputum eosinophil counts. Furthermore, sputum PGE_2 levels were decreased in patients who had undergone AIT. Further research is needed to elucidate the bilateral roles of PGE_2 in inflammatory processes in the airways in different diseases. It might even present itself as a critical factor in controlling inflammation in one versus the other

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direction. Future research needs to focus on the question, how lipid mediators can contribute to allergen tolerance and selective inhibitors can be utilized to promote tolerance re-induction.

As mentioned above, PGE_2 exerts its action via its four G-coupled protein receptors EP_1, EP_2, EP_3 and EP_4[72]. Previous studies have mainly focused on the effect of PGE_2 in inflammatory processes exerted through the EP_2 and EP_4 receptors, however its effect via the EP_3 receptor is not well understood and remains to be elucidated in further detail. Studies in human and guinea pig systems suggest a broncho-constrictive effect of PGE2-EP_3 signaling[37,38], thus suggesting that miR-mediated downregulation of EP_3 expression upon AIT may have beneficial effects on lung function in asthmatic patients.

The finding that the levels of PGE_2 were regulated synergistically to EP_3, leads us to believe that the pro-inflammatory, bronchoconstrictor effects of the PGE_2 via EP_3 are suppressed in AIT-treated patients upon upregulation of miR-3935 and downregulation of EP_3 and PGE2. An indication of the pro-inflammatory characteristics of PGE_2 in this disease context is the finding that the sputum PGE_2 levels correlate positively with clinically assessed parameters such as sputum inflammatory cell load, sputum eosinophil infiltration and symptom burden. We therefore assume that this potential miR-3935-related mechanism suppresses the local pro-inflammatory effects of the PGE_2 signaling via EP_3, which in turn could represent one novel mechanism of AIT in allergic asthma. This hypothesis is supported by a recent publication describing reduced spontaneous release of PGE_2 by PBMCs a few months after venom-specific immunotherapy, which negatively correlated with the tolerogenic cytokine IL-10[73]. As PGE_2/EP_3 signaling can trigger mast cell degranulation and pro-inflammatory mediator release[74,75], miR-3935-mediated down regulation of EP_3 may contribute to mast cell desensitization following AIT. Thus, future studies should assess potential correlations between miR-3935, EP_3 and markers of mast cell activation (e.g. histamine, CysLTs) in patients undergoing AIT.

In summary, this study shows a one-sided AA-associated upregulation of miR expression in sputum cells, whereas the AIT-associated miR expression revealed the opposite picture. These data provide first evidence for a negative regulatory association of miR-3935 and its predicted target gene, the PGE_2 receptor EP_3, as a potential AIT-mediated mechanism in the airways of AA patients. In this study, sputum PGE_2 correlates with pro-inflammatory cellular and clinical parameters. Sputum PGE_2 levels also drop in AIT-treated patients, which provides evidence for an involvement of the prostanoid PGE_2 in local inflammatory processes mediated by AIT.

This study therefore provides evidence, that associate AIT with epigenetic processes in the lungs of allergic asthmatic patients. Future studies are needed to determine whether miR-3935 is a candidate biomarker for AIT efficacy.

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References

1. Miranda C, Busacker A, Balzar S, Trudeau J, Wenzel SE. Distinguishing severe asthma phenotypes: role of age at onset and eosinophilic inflammation. *J Allergy Clin Immunol.* 2004;113(1):101-108.
2. Kuruvilla ME, Lee FE, Lee GB. Understanding Asthma Phenotypes, Endotypes, and Mechanisms of Disease. *Clin Rev Allergy Immunol.* 2019;56(2):219-233.
3. Wenzel SE. Asthma phenotypes: the evolution from clinical to molecular approaches. *Nat Med.* 2012;18(5):716-725.
4. Wenzel SE, Schwartz LB, Langmack EL, et al. Evidence that severe asthma can be divided pathologically into two inflammatory subtypes with distinct physiologic and clinical characteristics. *Am J Respir Crit Care Med.* 1999;160(3):1001-1008.
5. Zissler UM, Jakwerth CA, Guerth FM, et al. Early IL-10 producing B-cells and coinciding Th/Tr17 shifts during three year grass-pollen AIT. *EBioMedicine.* 2018;36:475-488.
6. Zissler UM, Ulrich M, Jakwerth CA, et al. Biomatrix for upper and lower airway biomarkers in patients with allergic asthma. *J Allergy Clin Immunol.* 2018;142(6):1980-1983.
7. Zissler UM, Chaker AM, Effner R, et al. Interleukin-4 and interferon-gamma orchestrate an epithelial polarization in the airways. *Mucosal Immunol.* 2016;9(4):917-926.
8. Robinson D, Humbert M, Buhl R, et al. Revisiting Type 2-high and Type 2-low airway inflammation in asthma: current knowledge and therapeutic implications. *Clin Exp Allergy.* 2017;47(2):161-175.
9. Zissler UM, Jakwerth CA, Guerth F, et al. Allergen-specific immunotherapy induces the suppressive secretoglobin 1A1 in cells of the lower airways. *Allergy.* 2021.
10. Alexis NE, Hu SC, Zeman K, Alter T, Bennett WD. Induced sputum derives from the central airways: confirmation using a radiolabeled aerosol bolus delivery technique. *Am J Respir Crit Care Med.* 2001;164(10 Pt 1):1964-1970.
11. Zissler UM, Esser-von Bieren J, Jakwerth CA, Chaker AM, Schmidt-Weber CB. Current and future biomarkers in allergic asthma. *Allergy.* 2016;71(4):475-494.
12. Baumann R, Untersmayr E, Zissler UM, et al. Non-invasive and minimally-invasive techniques for the diagnosis and management of allergic diseases. *Allergy.* 2020.
13. Gebert LFR, MacRae IJ. Regulation of microRNA function in animals. *Nat Rev Mol Cell Biol.* 2019;20(1):21-37.

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14. Shalgi R, Lieber D, Oren M, Pilpel Y. Global and local architecture of the mammalian microRNA-transcription factor regulatory network. *PLoS Comput Biol.* 2007;3(7):e131.
15. Weidner J, Bartel S, Kilic A, et al. Spotlight on microRNAs in allergy and asthma. *Allergy.* 2020.
16. Bahmer T, Krauss-Etschmann S, Buschmann D, et al. RNA-seq-based profiling of extracellular vesicles in plasma reveals a potential role of miR-122-5p in asthma. *Allergy.* 2021;76(1):366-371.
17. Gomez JL, Chen A, Diaz MP, et al. A Network of Sputum MicroRNAs Is Associated with Neutrophilic Airway Inflammation in Asthma. *Am J Respir Crit Care Med.* 2020;202(1):51-64.
18. Panganiban RP, Wang Y, Howrylak J, et al. Circulating microRNAs as biomarkers in patients with allergic rhinitis and asthma. *J Allergy Clin Immunol.* 2016;137(5):1423-1432.
19. Jin A, Bao R, Roth M, et al. microRNA-23a contributes to asthma by targeting BCL2 in airway epithelial cells and CXCL12 in fibroblasts. *J Cell Physiol.* 2019;234(11):21153-21165.
20. Bartel S, La Grutta S, Cilluffo G, et al. Human airway epithelial extracellular vesicle miRNA signature is altered upon asthma development. *Allergy.* 2020;75(2):346-356.
21. Saul MJ, Emmerich AC, Steinhilber D, Suess B. Regulation of Eicosanoid Pathways by MicroRNAs. *Front Pharmacol.* 2019;10:824.
22. de Los Reyes Jimenez M, Lechner A, Alessandrini F, et al. An anti-inflammatory eicosanoid switch mediates the suppression of type-2 inflammation by helminth larval products. *Sci Transl Med.* 2020;12(540).
23. Henkel FDR, Friedl A, Haid M, et al. House dust mite drives proinflammatory eicosanoid reprogramming and macrophage effector functions. *Allergy.* 2019;74(6):1090-1101.
24. Esser-von Bieren J. Immune-regulation and -functions of eicosanoid lipid mediators. *Biol Chem.* 2017;398(11):1177-1191.
25. Haimerl P, Bernhardt U, Schindela S, et al. Inflammatory macrophage memory in nonsteroidal anti-inflammatory drug-exacerbated respiratory disease. *J Allergy Clin Immunol.* 2021;147(2):587-599.
26. van Zonneveld AJ, Au YW, Stam W, et al. MicroRNA-132 regulates salt-dependent steady-state renin levels in mice. *Commun Biol.* 2020;3(1):238.

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27. Dong H, Cui B, Hao X. MicroRNA22 alleviates inflammation in ischemic stroke via p38 MAPK pathways. *Mol Med Rep.* 2019;20(1):735-744.
28. Comer BS, Camoretti-Mercado B, Kogut PC, Halayko AJ, Solway J, Gerthoffer WT. Cyclooxygenase-2 and microRNA-155 expression are elevated in asthmatic airway smooth muscle cells. *Am J Respir Cell Mol Biol.* 2015;52(4):438-447.
29. Qiu L, Zhang Y, Do DC, et al. miR-155 Modulates Cockroach Allergen- and Oxidative Stress-Induced Cyclooxygenase-2 in Asthma. *J Immunol.* 2018;201(3):916-929.
30. Akdis CA, Arkwright PD, Bruggen MC, et al. Type 2 immunity in the skin and lungs. *Allergy.* 2020;75(7):1582-1605.
31. Neill DR, Wong SH, Bellosi A, et al. Nuocytes represent a new innate effector leukocyte that mediates type-2 immunity. *Nature.* 2010;464(7293):1367-1370.
32. Price AE, Liang HE, Sullivan BM, et al. Systemically dispersed innate IL-13-expressing cells in type 2 immunity. *Proc Natl Acad Sci U S A.* 2010;107(25):11489-11494.
33. Klein Wolterink RG, Kleinjan A, van Nimwegen M, et al. Pulmonary innate lymphoid cells are major producers of IL-5 and IL-13 in murine models of allergic asthma. *Eur J Immunol.* 2012;42(5):1106-1116.
34. Yu CL, Huang MH, Kung YY, et al. Interleukin-13 increases prostaglandin E2 (PGE2) production by normal human polymorphonuclear neutrophils by enhancing cyclooxygenase 2 (COX-2) gene expression. *Inflamm Res.* 1998;47(4):167-173.
35. Eljaszewicz A, Ruchti F, Radzikowska U, et al. Trained immunity and tolerance in innate lymphoid cells, monocytes, and dendritic cells during allergen-specific immunotherapy. *J Allergy Clin Immunol.* 2020.
36. Klimek L, Bachert C, Pfaar O, et al. ARIA guideline 2019: treatment of allergic rhinitis in the German health system. *Allergol Select.* 2019;3(1):22-50.
37. Okazaki A, Hara J, Ohkura N, et al. Role of prostaglandin E2 in bronchoconstriction-triggered cough response in guinea pigs. *Pulm Pharmacol Ther.* 2018;48:62-70.
38. Zhou J, Alvarez-Elizondo MB, Botvinick E, George SC. Adenosine A(1) and prostaglandin E receptor 3 receptors mediate global airway contraction after local epithelial injury. *Am J Respir Cell Mol Biol.* 2013;48(3):299-305.
39. Kho AT, Sharma S, Davis JS, et al. Circulating MicroRNAs: Association with Lung Function in Asthma. *PLoS One.* 2016;11(6):e0157998.

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40. Davis JS, Sun M, Kho AT, et al. Circulating microRNAs and association with methacholine PC20 in the Childhood Asthma Management Program (CAMP) cohort. *PLoS One.* 2017;12(7):e0180329.
41. Yu B, Yao L, Liu C, Tang L, Xing T. Upregulation of microRNA16 alters the response to inhaled betaagonists in patients with asthma though modulating expression of ADRB2. *Mol Med Rep.* 2019;19(5):4027-4034.
42. Simpson LJ, Patel S, Bhakta NR, et al. A microRNA upregulated in asthma airway T cells promotes TH2 cytokine production. *Nat Immunol.* 2014;15(12):1162-1170.
43. Pinkerton M, Chinchilli V, Banta E, et al. Differential expression of microRNAs in exhaled breath condensates of patients with asthma, patients with chronic obstructive pulmonary disease, and healthy adults. *J Allergy Clin Immunol.* 2013;132(1):217-219.
44. Just J, Munk Ipsen P, Kruhoffer M, et al. Human Mast Cell Sensitization with IgE Increases miRNA-210 Expression. *Int Arch Allergy Immunol.* 2019;179(2):102-107.
45. Weidner J, Ekerljung L, Malmhall C, Miron N, Radinger M. Circulating microRNAs correlate to clinical parameters in individuals with allergic and non-allergic asthma. *Respir Res.* 2020;21(1):107.
46. Johnnidis JB, Harris MH, Wheeler RT, et al. Regulation of progenitor cell proliferation and granulocyte function by microRNA-223. *Nature.* 2008;451(7182):1125-1129.
47. Chakir J, Shannon J, Molet S, et al. Airway remodeling-associated mediators in moderate to severe asthma: effect of steroids on TGF-beta, IL-11, IL-17, and type I and type III collagen expression. *J Allergy Clin Immunol.* 2003;111(6):1293-1298.
48. Dolhnikoff M, da Silva LF, de Araujo BB, et al. The outer wall of small airways is a major site of remodeling in fatal asthma. *J Allergy Clin Immunol.* 2009;123(5):1090-1097, 1097 e1091.
49. Johnson PR, Burgess JK, Underwood PA, et al. Extracellular matrix proteins modulate asthmatic airway smooth muscle cell proliferation via an autocrine mechanism. *J Allergy Clin Immunol.* 2004;113(4):690-696.
50. Liu G, Cooley MA, Nair PM, et al. Airway remodelling and inflammation in asthma are dependent on the extracellular matrix protein fibulin-1c. *J Pathol.* 2017;243(4):510-523.
51. Moodley Y, Rigby P, Bundell C, et al. Macrophage recognition and phagocytosis of apoptotic fibroblasts is critically dependent on fibroblast-derived thrombospondin 1 and CD36. *Am J Pathol.* 2003;162(3):771-779.

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Accepted Article

52. Patel PS, Kearney JF. CD36 and Platelet-Activating Factor Receptor Promote House Dust Mite Allergy Development. *J Immunol.* 2017;199(3):1184-1195.
53. Torregrosa Paredes P, Esser J, Admyre C, et al. Bronchoalveolar lavage fluid exosomes contribute to cytokine and leukotriene production in allergic asthma. *Allergy.* 2012;67(7):911-919.
54. Al-Alwan LA, Chang Y, Mogas A, et al. Differential roles of CXCL2 and CXCL3 and their receptors in regulating normal and asthmatic airway smooth muscle cell migration. *J Immunol.* 2013;191(5):2731-2741.
55. Li Y, Chen S, Chi Y, et al. Kinetics of the accumulation of group 2 innate lymphoid cells in IL-33-induced and IL-25-induced murine models of asthma: a potential role for the chemokine CXCL16. *Cell Mol Immunol.* 2019;16(1):75-86.
56. Winkler C, Hochdorfer T, Israelsson E, et al. Activation of group 2 innate lymphoid cells after allergen challenge in asthmatic patients. *J Allergy Clin Immunol.* 2019;144(1):61-69 e67.
57. Ren J, Karpinski E, Benishin CG. Prostaglandin E2 contracts vascular smooth muscle and inhibits potassium currents in vascular smooth muscle cells of rat tail artery. *J Pharmacol Exp Ther.* 1995;275(2):710-719.
58. Chambers LS, Black JL, Ge Q, et al. PAR-2 activation, PGE2, and COX-2 in human asthmatic and nonasthmatic airway smooth muscle cells. *Am J Physiol Lung Cell Mol Physiol.* 2003;285(3):L619-627.
59. Yau L, Zahradka P. PGE(2) stimulates vascular smooth muscle cell proliferation via the EP2 receptor. *Mol Cell Endocrinol.* 2003;203(1-2):77-90.
60. Torres R, Picado C, de Mora F. The PGE2-EP2-mast cell axis: an antiasthma mechanism. *Mol Immunol.* 2015;63(1):61-68.
61. Draijer C, Boorsma CE, Reker-Smit C, Post E, Poelstra K, Melgert BN. PGE2-treated macrophages inhibit development of allergic lung inflammation in mice. *J Leukoc Biol.* 2016;100(1):95-102.
62. Zaslona Z, Okunishi K, Bourdonnay E, et al. Prostaglandin E(2) suppresses allergic sensitization and lung inflammation by targeting the E prostanoid 2 receptor on T cells. *J Allergy Clin Immunol.* 2014;133(2):379-387.

This article is protected by copyright. All rights reserved

63. Fedyk ER, Brown DM, Phipps RP. PGE2 regulation of B lymphocytes and T helper 1 and T helper 2 cells: induction of inflammatory versus allergic responses. *Adv Exp Med Biol.* 1997;407:237-242.
64. Zhang Y, Daaka Y. PGE2 promotes angiogenesis through EP4 and PKA Cgamma pathway. *Blood.* 2011;118(19):5355-5364.
65. Zaslona Z, Flis E, Wilk MM, et al. Caspase-11 promotes allergic airway inflammation. *Nat Commun.* 2020;11(1):1055.
66. Wu D, Meydani SN. Mechanism of age-associated up-regulation in macrophage PGE2 synthesis. *Brain Behav Immun.* 2004;18(6):487-494.
67. Tsuge K, Inazumi T, Shimamoto A, Sugimoto Y. Molecular mechanisms underlying prostaglandin E2-exacerbated inflammation and immune diseases. *Int Immunol.* 2019;31(9):597-606.
68. Ricciotti E, FitzGerald GA. Prostaglandins and inflammation. *Arterioscler Thromb Vasc Biol.* 2011;31(5):986-1000.
69. Minhas PS, Latif-Hernandez A, McReynolds MR, et al. Restoring metabolism of myeloid cells reverses cognitive decline in ageing. *Nature.* 2021;590(7844):122-128.
70. Castellone MD, Teramoto H, Williams BO, Druey KM, Gutkind JS. Prostaglandin E2 promotes colon cancer cell growth through a Gs-axin-beta-catenin signaling axis. *Science.* 2005;310(5753):1504-1510.
71. Casolini P, Catalani A, Zuena AR, Angelucci L. Inhibition of COX-2 reduces the age-dependent increase of hippocampal inflammatory markers, corticosterone secretion, and behavioral impairments in the rat. *J Neurosci Res.* 2002;68(3):337-343.
72. Sugimoto Y, Narumiya S. Prostaglandin E receptors. *J Biol Chem.* 2007;282(16):11613-11617.
73. Lech Z, Chalubinski M, Kosinski S, et al. Prostaglandin E2 and lipoxin A4 in PBMCs are associated with immune tolerance during venom immunotherapy. *J Allergy Clin Immunol.* 2016;138(4):1199-1202 e1192.
74. Kondeti V, Al-Azzam N, Duah E, Thodeti CK, Boyce JA, Paruchuri S. Leukotriene D4 and prostaglandin E2 signals synergize and potentiate vascular inflammation in a mast cell-dependent manner through cysteinyl leukotriene receptor 1 and E-prostanoid receptor 3. *J Allergy Clin Immunol.* 2016;137(1):289-298.

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75. Morimoto K, Shirata N, Taketomi Y, et al. Prostaglandin E2-EP3 signaling induces inflammatory swelling by mast cell activation. *J Immunol.* 2014;192(3):1130-1137.

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Table 1. Characteristics of the Sputum Cohort.

	Controls (n=44)	Allergic rhinitis w/o AIT (n=16)	Allergic rhinitis with AIT (n=21)	Allergic asthma w/o AIT (n=21)	Allergic asthma with AIT (n=22)
Age [years]	24.77 (±0.56)	24.00 (±0.77)	26.75 (±0.92)	25.90 (±1.26)	31.82 (±1.83)
Sex (m/f)	27/17	8/8	10/11	10/11	16/6
GINA score	n.d.	n.d.	n.d.	1.17 ± 0.27	0.38 ± 0.16
mRQLQ Score	0.13 (±0.05)	2.64 (±0.19)	1.49 (±0.19)	2.73 (±0.22)	1.20 (±0.18)
Total IgE [IU/L]	28.44 (±5.10)	208.1 (±51.16)	70.46 (±26.38)	287.0 (±53.94)	107.50 (±27.37)
sIge (kUA/l)	n.d.	20.83 (±5.98)	15.03 (±5.37)	27.34 (±7.62)	19.68 (±4.64)
(PT/CAP) to					
Grass	0	16/16	21/21	21/21	22/22
Birch	0	14/13	15/12	17/15	15/14
HDM	0	10/9	8/9	9/9	6/6
Cat	0	5/3	8/5	13/11	10/8
FVC [L]	4.49 (±0.15)	4.92 (±0.30)	4.64 (±0.17)	4.56 (±0.17)	4.82 (±0.19)
FVC [%]	98.60 (±1.77)	103.40 (±2.69)	104.40 (±3.16)	101.40 (±3.01)	102.60 (±2.69)
FEV [L]	3.88 (±0.14)	4.29 (±0.27)	4.00 (±0.11)	3.78 (±0.11)	3.90 (±0.18)
FEV_1 [%]	98.89 (±1.87)	105.00 (±2.59)	105.00 (±2.32)	98.86 (±2.82)	98.00 (±2.99)
FEV_1/FVC ratio	85.93 (±1.08)	87.06 (±1.23)	87.00 (±1.46)	82.99 (±1.74)	77.66 (±3.48)
Sputum cells / mL ($x10^4$)	89.34 (±12.62)	250.5 (±47.42)	71.29 (±11.72)	282.3 (±61.99)	80.46 (±10.52)
Macrophages (%)	84.15 (±2.07)	83.36 (±2.54)	86.68 (±2.34)	77.00 (±4.71)	79.29 (±4.87)
Lymphocytes (%)	1.09 (±0.21)	1.43 (±0.23)	0.95 (±0.18)	2.81 (±0.97)	0.93 (±0.31)

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Neutrophils (%)	14.79 (±2.05)	12.21 (±1.98)	11.68 (±2.21)	15.38 (±4.48)	18.57 (±4.45)
Eosinophils (%)	0.23 (±0.11)	3.36 (±0.78)	0.79 (±0.33)	5.13 (±1.23)	1.50 (±0.69)

Data are presented as mean±SEM. n.d. not determined.

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Figure Legends

Figure 1. Clinical parameters of patient cohort and AIT effectiveness. (A) Symptom score defined using mRQLQ questionnaire, (B) total serum IgE levels, and (C) local inflammatory cell load measured by sputum cells per mL sputum of the five different patient groups. Sputum cell differentiation: percentage of (D) macrophages, (E) neutrophils, (F) lymphocytes and (G) eosinophils. Results are shown as median with range. Mann-Whitney U tests were used to calculate statistically significant differences, shown as *p≤.05, **p≤.01, ***p≤.001, ****p≤.0001.

Figure 2. Local miR induction in AA-AIT patients and corresponding target gene suppression. (A) Volcano plot of significantly changed miRs in sputum cells of AA-AIT patients compared to HC using human miR microarray technology. (B) Heat map of the highest upregulated miRs in AA-AIT patients compared to HC (FC≥10; p≤.05) across the five patient groups. (C) Venn diagram showing the cut set of predicted targets of all upregulated miRs in AA-AIT versus HC (FC≥1.5; p≤.05) and of downregulated mRNAs identified by mRNA microarray analysis in the same samples (AA-AIT; HC
). Subsequently, cut set entities were filtered for secreted factors using GO-term analysis. (D) String protein interaction network analysis of 126 secreted genes from (C). Enriched RCTM pathways are highlighted: "extracellular matrix organization" (dark purple), "chemokine receptors bind chemokines" (red), "Antigen-processing-Cross-presentation" (green). (E) Heat map of relative expression levels of members of the protein interaction network identified in (D) analyzed by mRNA microarray analysis and significantly downregulated in AA-AIT compared to HC. Duplicate miR or gene names indicate the abundance of two or more isoforms of the same gene in the analysis.

Figure 3. Comparison of locally regulated miRs and their target genes between AA-AIT and AR-AIT patients. (A) Venn diagrams showing the cut sets of predicted targets of all upregulated miRs in AA-AIT patients compared to AR-AIT (FC≥1.5; p≤.05) (upper part) and of all downregulated miRs in AA-AIT patients compared to AR-AIT (FC≥1.5; p≤.05) (lower part). (B) Identification of regulated miR targets: Venn diagram showing the cut set of predicted targets of upregulated miRs in AR-AIT vs HC (upper part) and AA-AIT vs HC (lower part) (FC≥1.5; p≤.05) and of downregulated miR targets on the mRNA level defined in mRNA microarray analysis of the same samples using the same comparisons (FC≥1.5; p≤.05). (C) Venn diagrams showing the cut sets of the two cut sets from (B) thereby depicting the cut set of downregulated targets of upregulated miRs between AR and AA patients. String network analysis of of the results from the comparison depicted in (C), showing secreted factors regulated (D) only in rhinitis patients (AR-AIT vs HC), (E) in both, rhinitis and asthma patients (AR-AIT vs HC AND AA-AIT vs HC), (F) only in asthmatic patients (AA-AIT vs HC). (G) Heat map of relative expression levels of members of the

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protein interaction network identified in (D) analyzed by mRNA microarray analysis and significantly downregulated in AR-AIT versus HC. (H) Heat map of relative expression levels of members of the protein interaction network identified in (E) analyzed by mRNA microarray analysis and significantly downregulated in AR-AIT and AA-AIT compared to HC. (I) Heat map of relative expression levels of members of the protein interaction network identified in (F) analyzed by mRNA microarray analysis and significantly downregulated in AA-AIT versus HC (FC≥1.5; p≤.05). Duplicate miR or gene names indicate the abundance of two or more isoforms of the same gene in the analysis.

Figure 4. Comparison of locally regulated miRs and their target genes upon AIT in AA patients. (A) Heat map of upregulated miRs in sputum cells of AA+AIT versus AA-AIT (FC≥1.5; p≤.05) detected in human miR microarray technology. (B) Volcano plot of significantly changed miRs in AA+AIT versus AA-AIT. (C) Heat map of downregulated miRs in AA+AIT versus AA-AIT (FC≥1.5; p≤.05), detected in human miR microarray technology. (D) Venn diagram defining the cut set of predicted targets of downregulated miRs and upregulated transcripts detected in mRNA microarray analysis of the same samples in AA+AIT versus AA-AIT (FC≥1.5; p≤.05; upper part). Heat map of the 42 genes from the cut set above depicts significantly changed mRNA levels of miR targets of downregulated miRs comparing AA+AIT versus AA-AIT (FC≥1.5; p≤.05; lower part). (E) Venn diagram showing the cut set of predicted targets of upregulated miRs and of downregulated miR targets on the mRNA level detected in mRNA microarray analysis of the same samples in AA+AIT versus AA-AIT (FC≥1.5; p≤.05; upper part). Heat map of the one gene from the cut set above depicts significantly changed mRNA levels of miR-target *PTGER3* of upregulated miR-3935 comparing AA+AIT versus AA-AIT (FC≥1.5; p≤.05; lower part). (F) Heat map depicting the miR-3935 and *PTGER3*-mRNA expression levels of each patient sample individually. (G) Spearman correlation of the normalized total probe signal of miR-3935 and the normalized processed signal of *PTGER3* mRNA. Spearman coefficient r and p values are depicted in the figure. Duplicate miR or gene names indicate the abundance of two or more isoforms of the same gene in the analysis.

Figure 5. Sputum PGE_2 levels are reduced in AIT-treated patients and correlate with clinical parameters and symptoms. (A) PGE_2 levels in sputum supernatants measured by ELISA and (B) sputum ILC2 frequencies (Lin-$CD127^+$$CRTh2^+$$IL\text{-}13^+$ of $CD45^+$ lymphocytes) analyzed by flow cytometry are shown across a subset of the five patient groups (HC: n=22; AR-AIT: n=7; AR+AIT: n=7; AA-AIT: n=8; AA+AIT: n=8). Results are shown as median with range. Mann-Whitney U tests were used to calculate statistically significant differences, shown as *p≤.05, **p≤.01, ***p≤.001, ****p≤.0001. Spearman correlation of (C) sputum IL-13 levels with sputum PGE_2 levels, (D) sputum PGE_2 levels with local

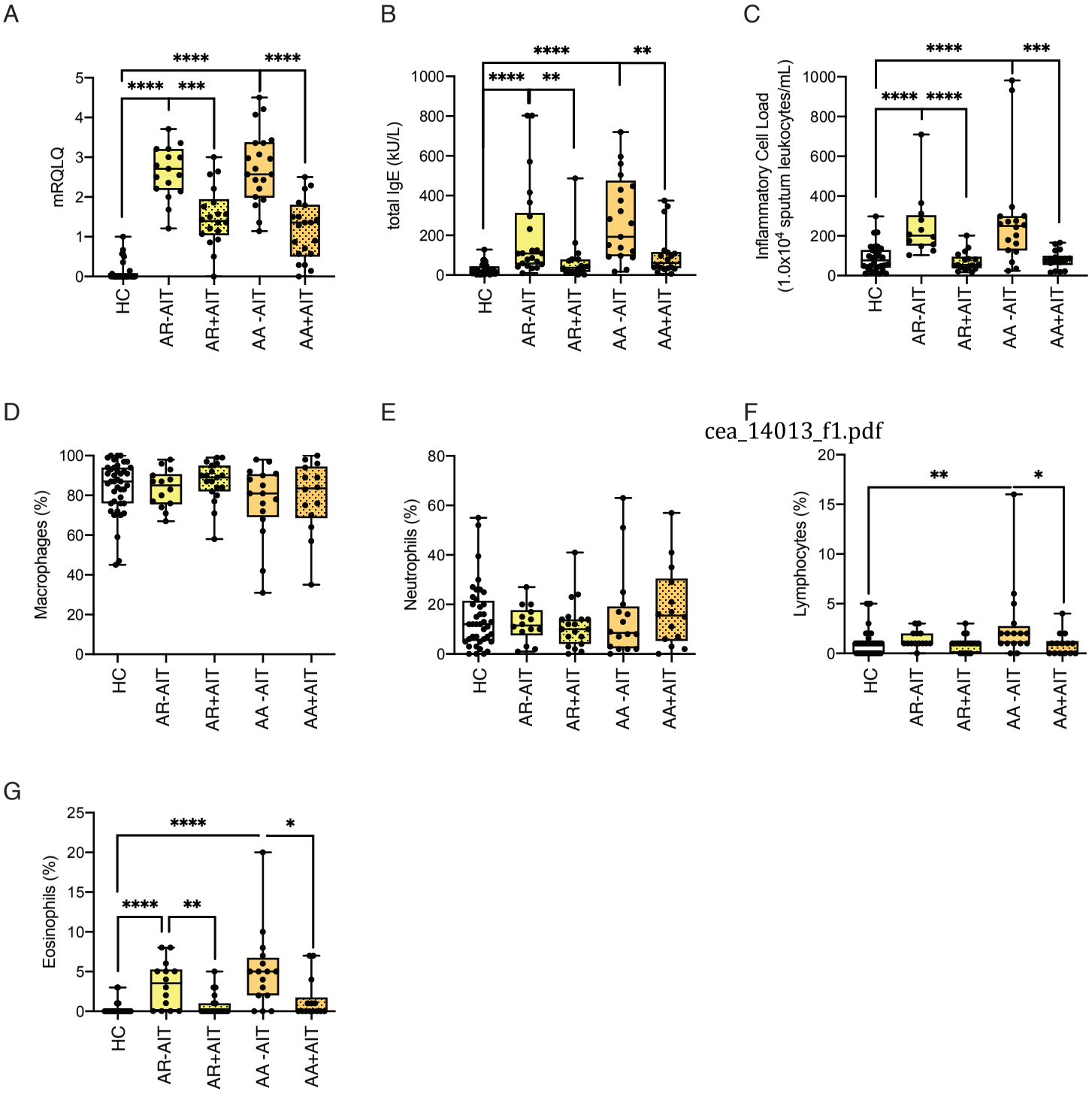
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inflammatory cell load, identified by sputum leukocytes per milliliter, (E) sputum PGE_2 levels with eosinophil frequencies, (F) sputum PGE_2 levels with symptom burden, measured by mRQLQ-Questionnaire. Spearman coefficient r and p values are depicted in each correlation figure.

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FIGURE 1



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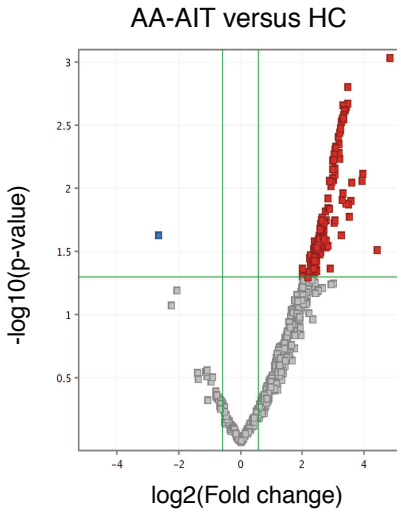
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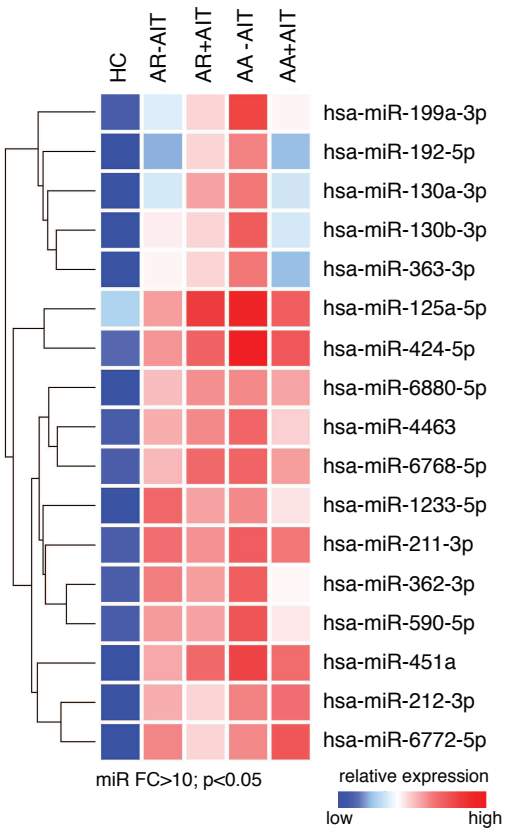
FIGURE 2

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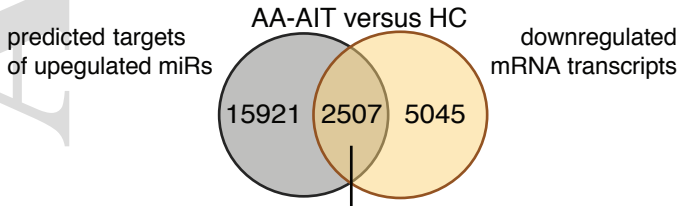
A - Regulated miRs in AA vs HC



B - Upregulated miRs (FC>10) in AA vs HC



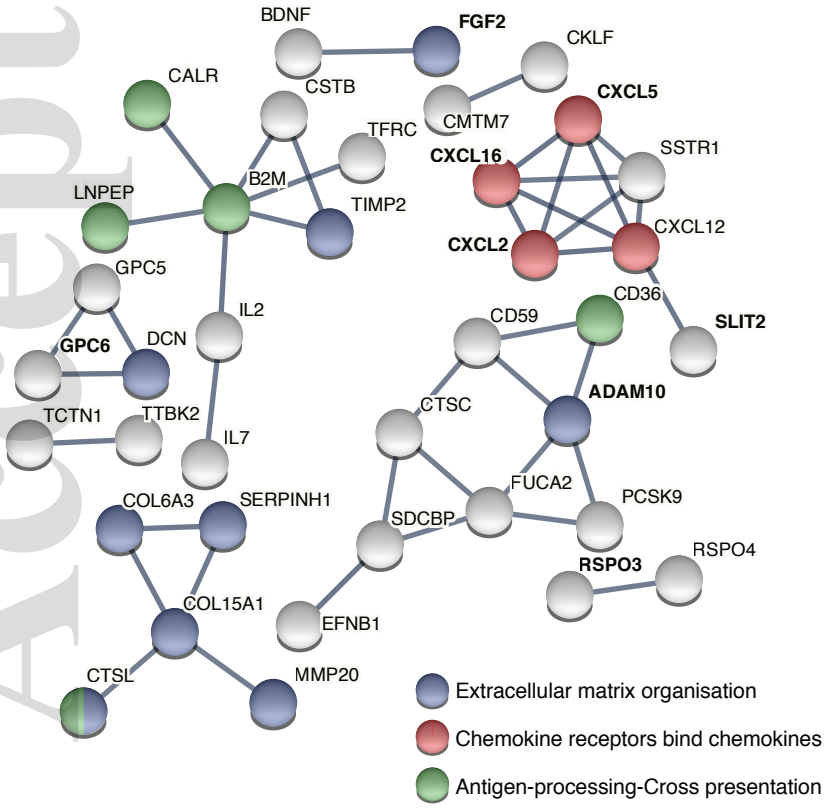
C - Merge of predicted miR-targets and regulated transcripts



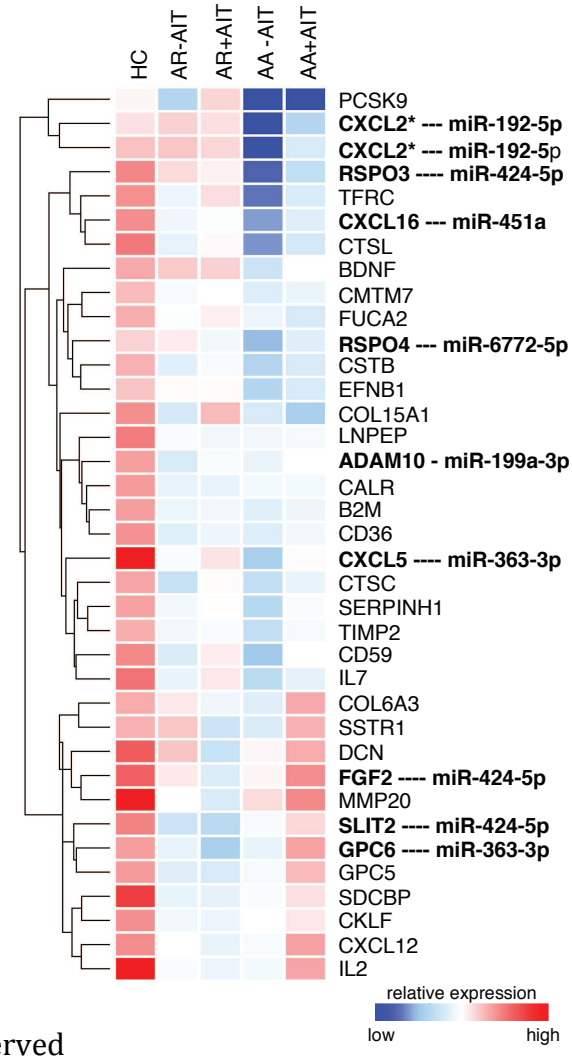
GO analysis: 126 secreted genes

D

String analysis

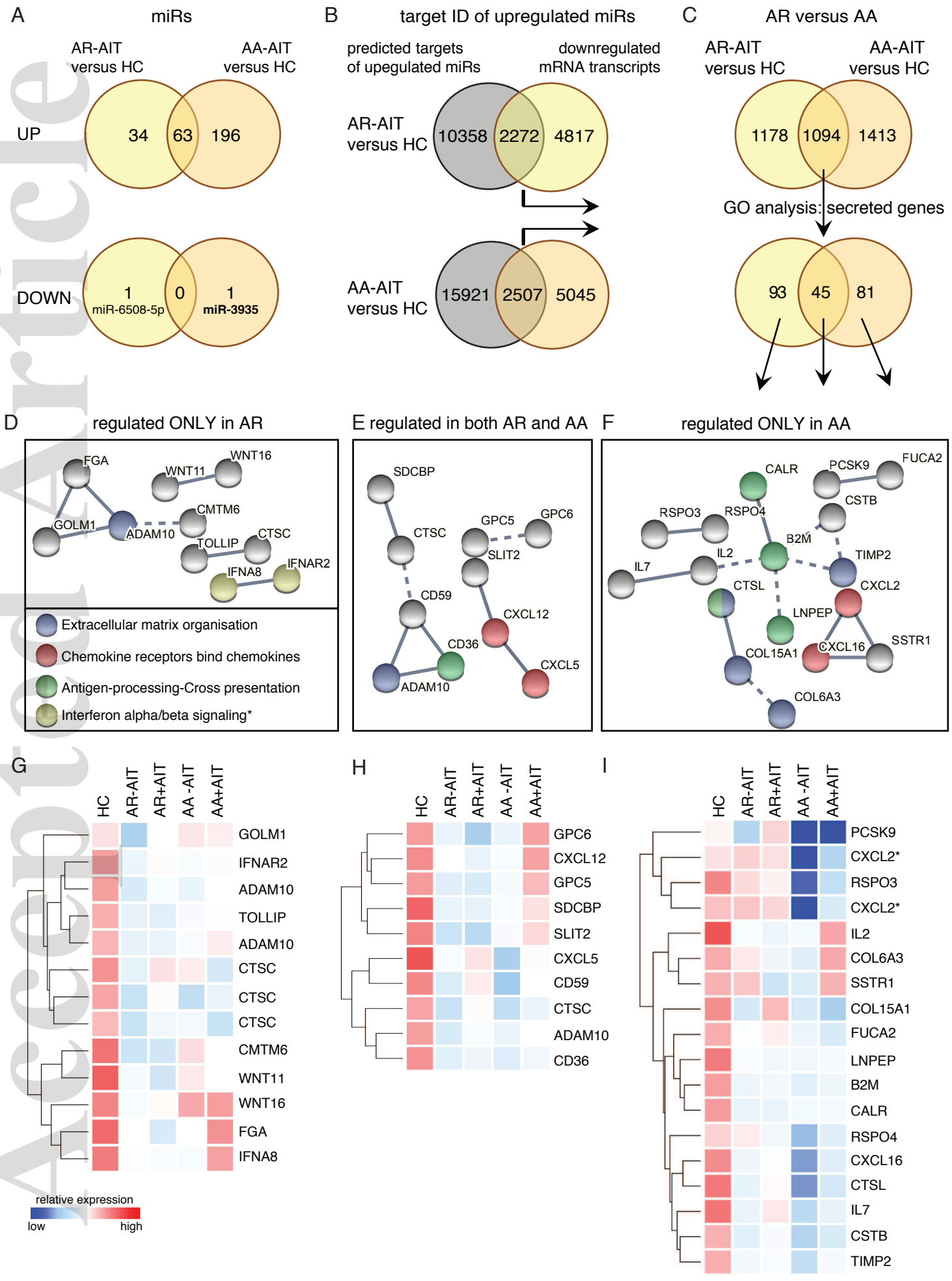


E



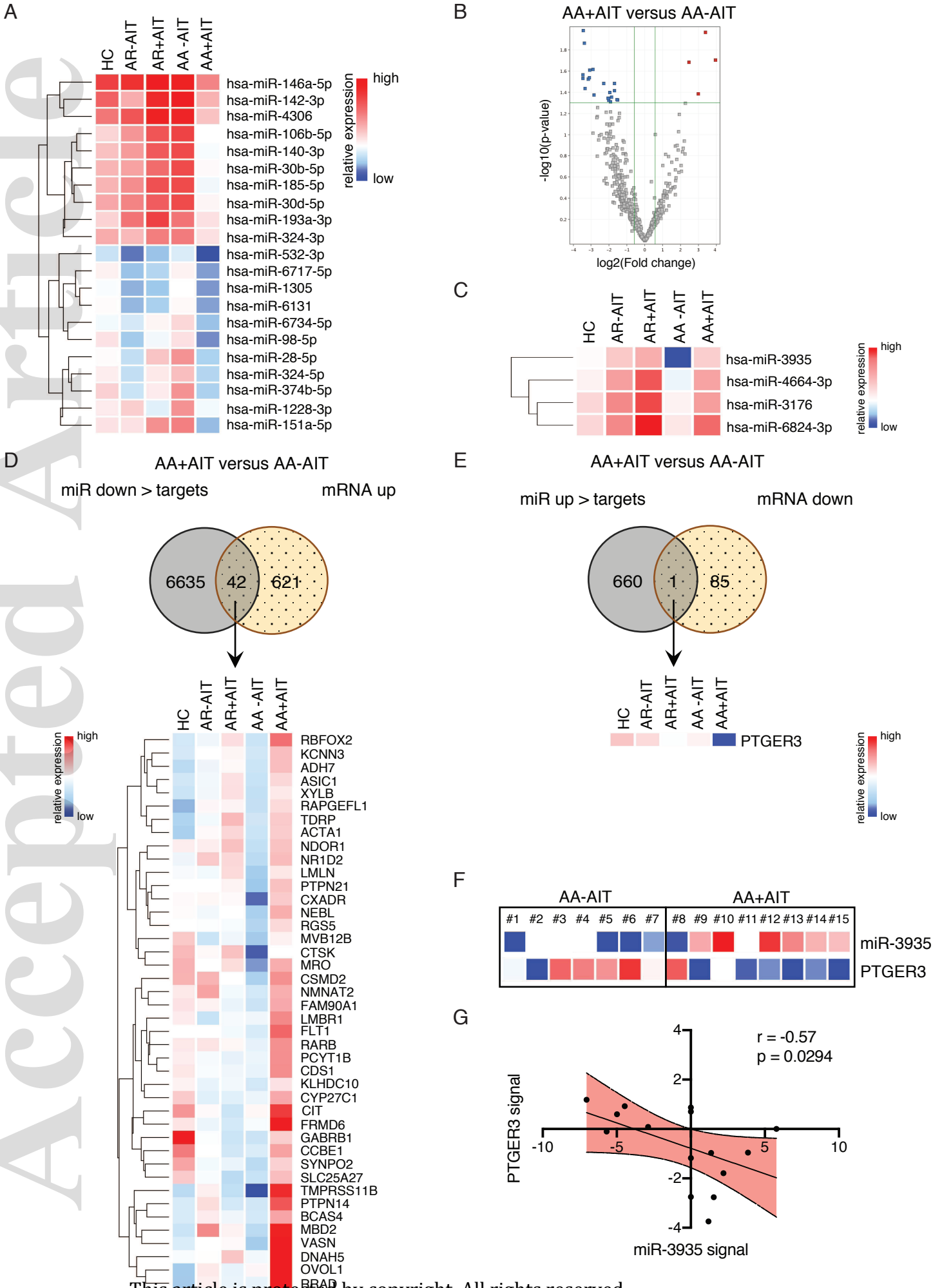
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FIGURE 3



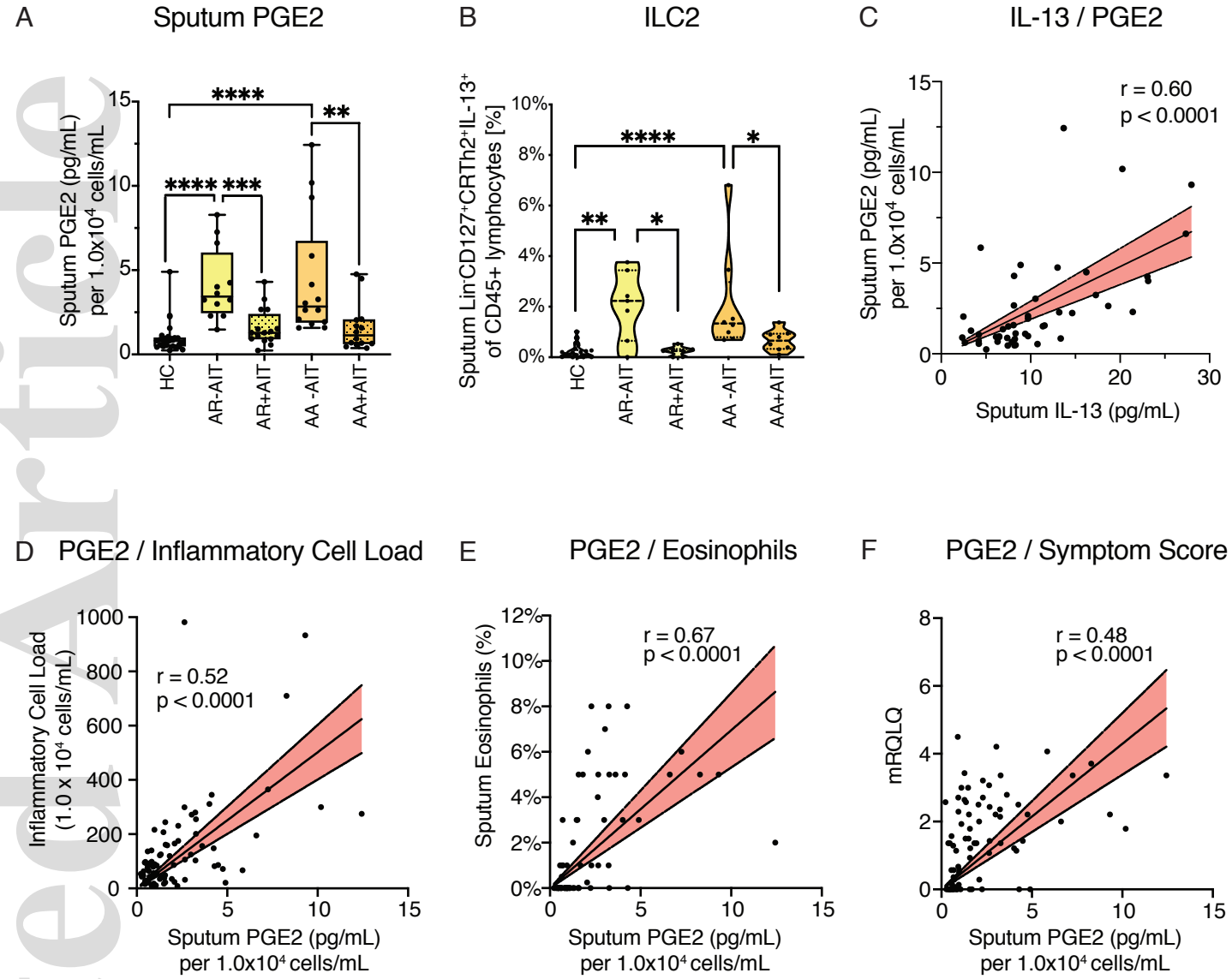
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FIGURE 4



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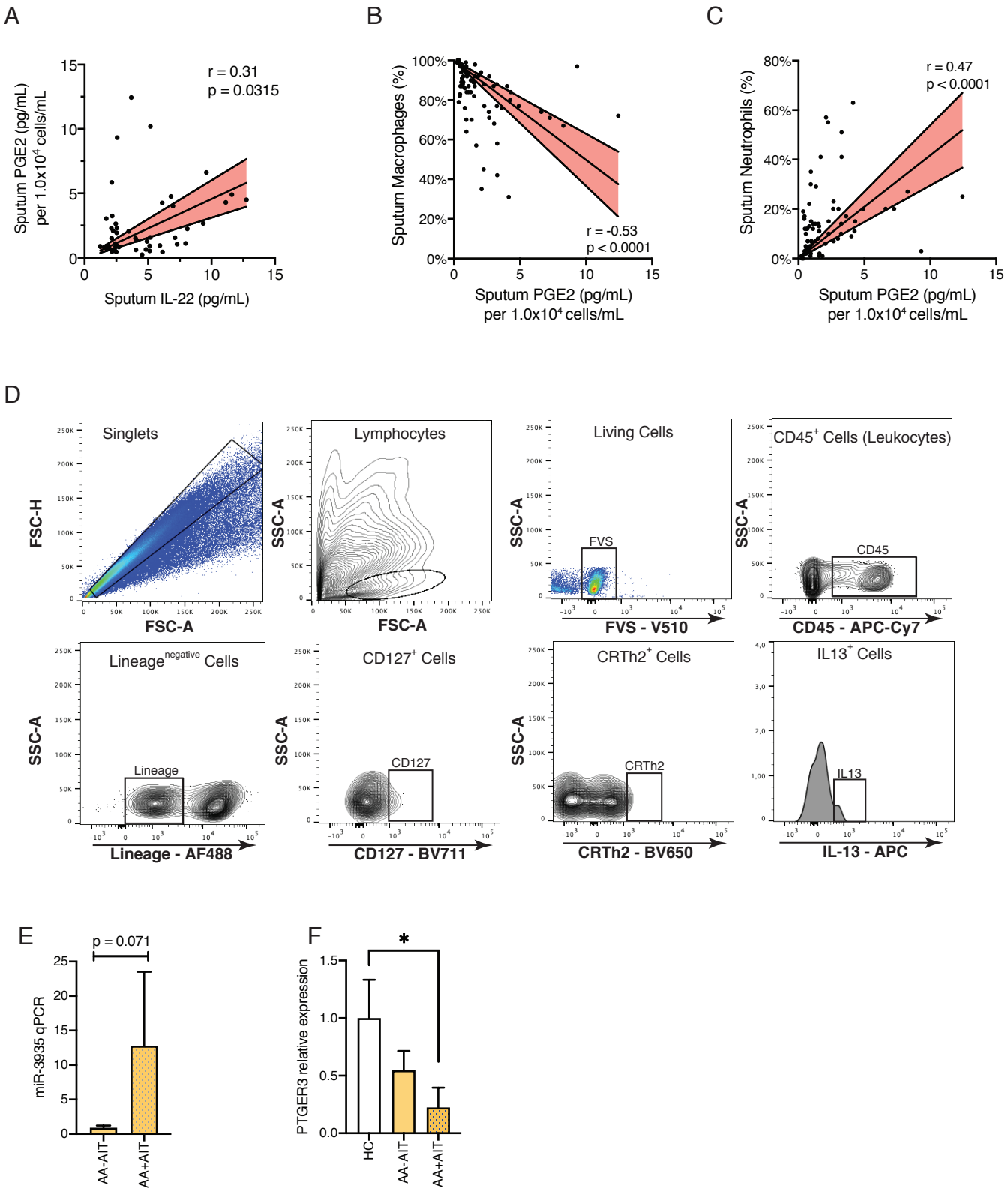
FIGURE 5



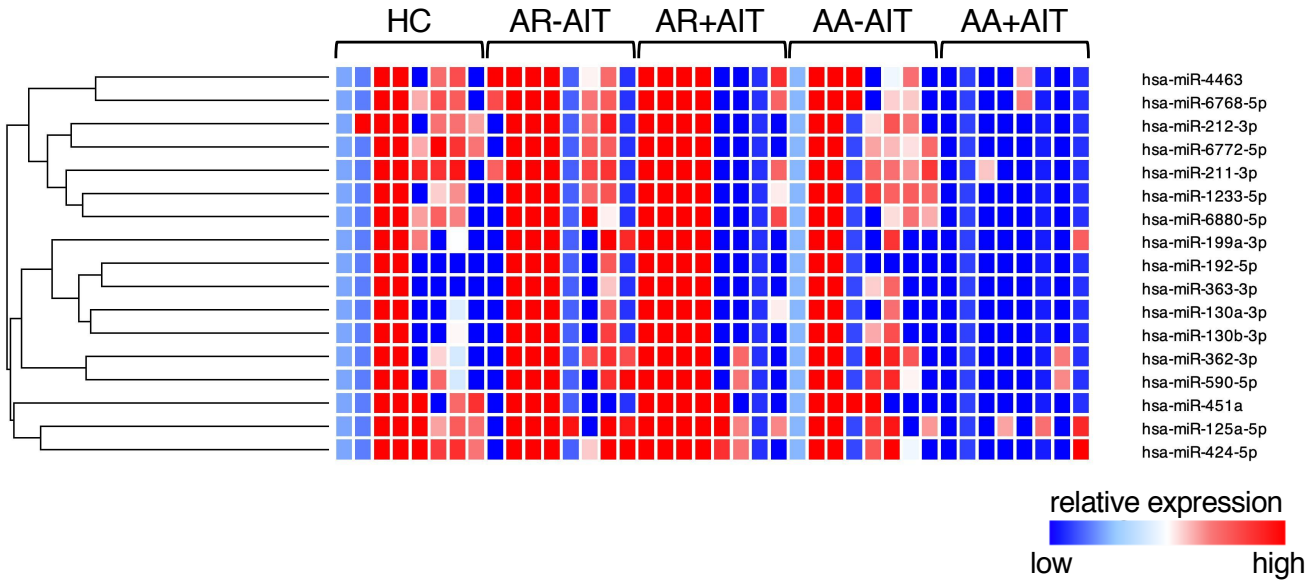
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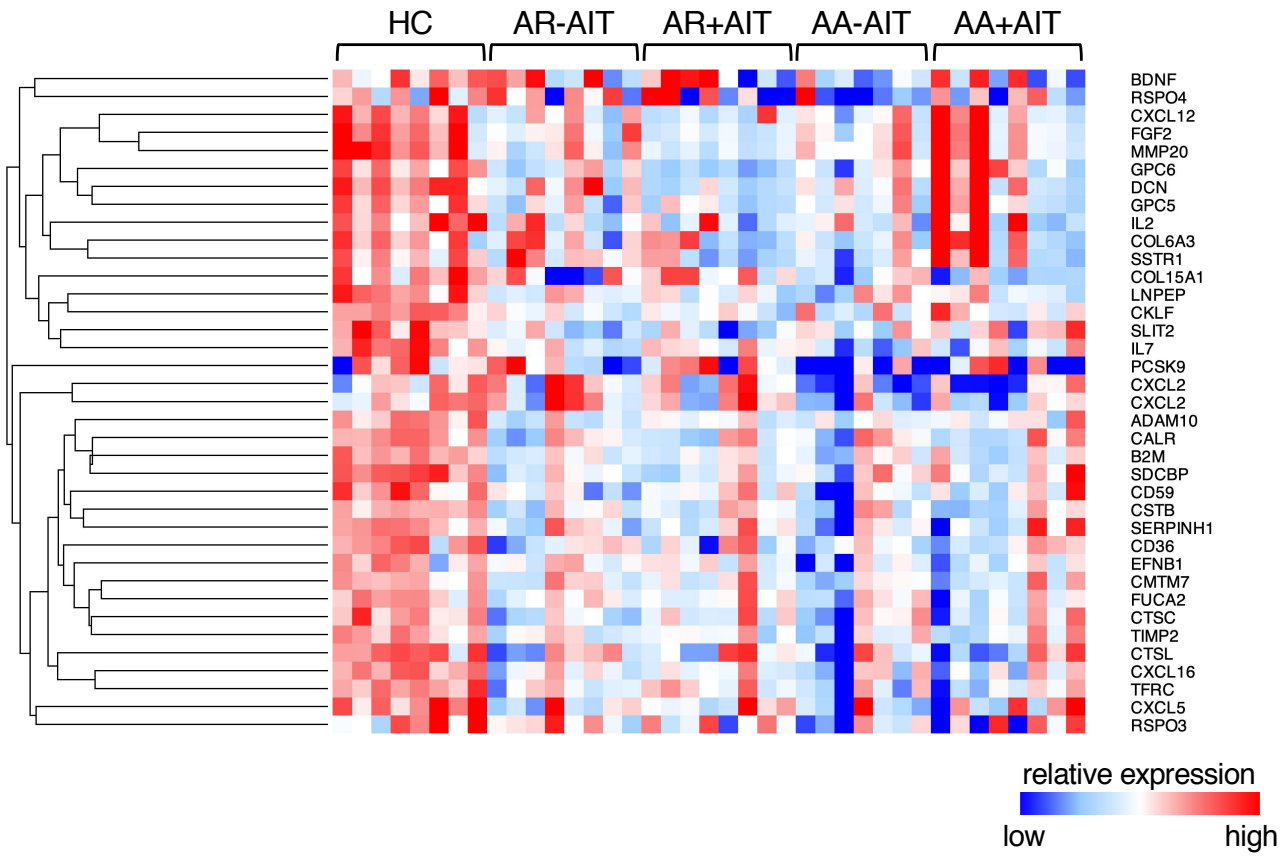
SUPPLEMENTAL FIGURE 1



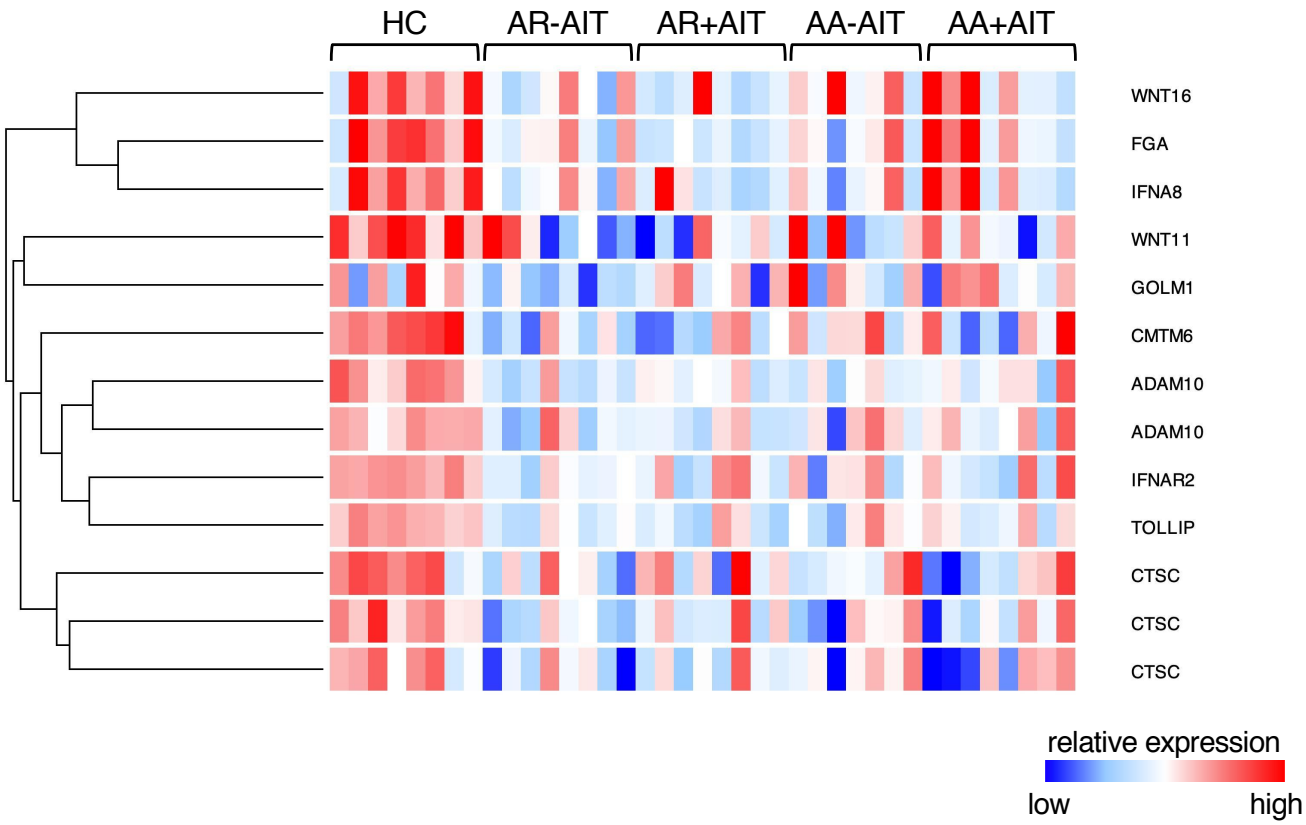
SUPPLEMENTAL FIGURE 2
corresponding to Figure 2B



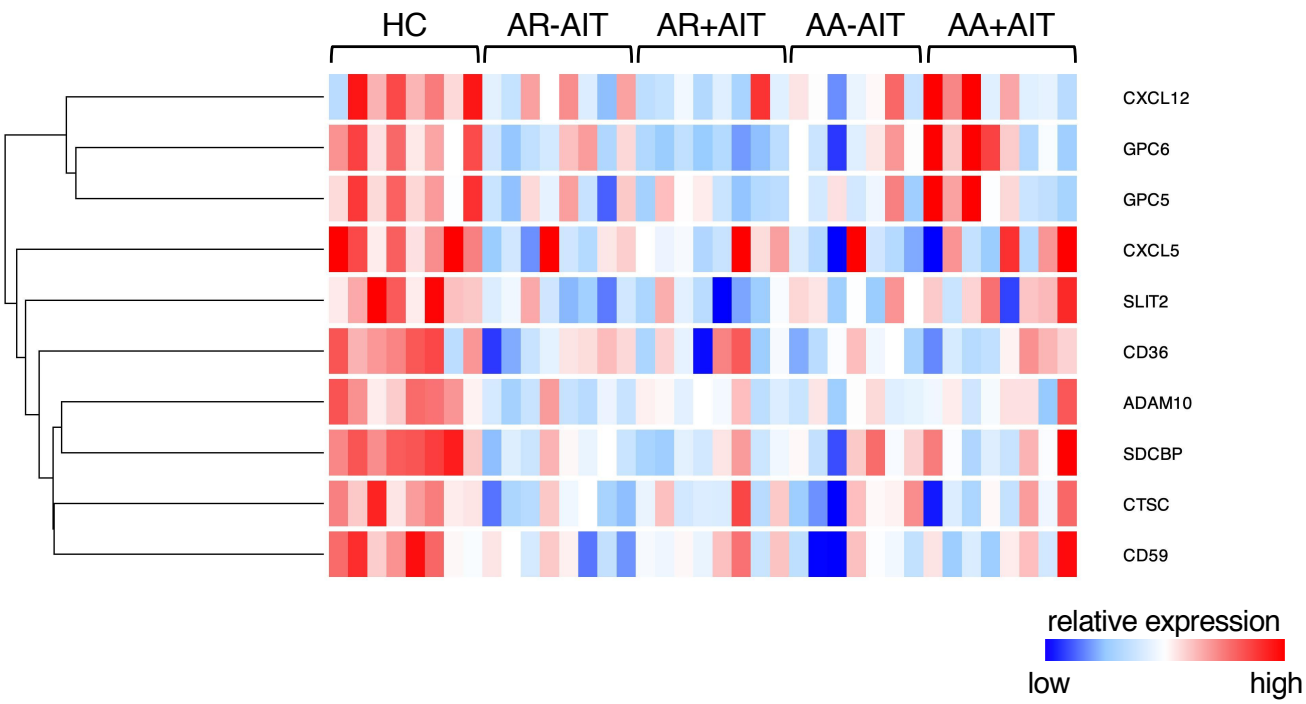
SUPPLEMENTAL FIGURE 3
corresponding to Figure 2E



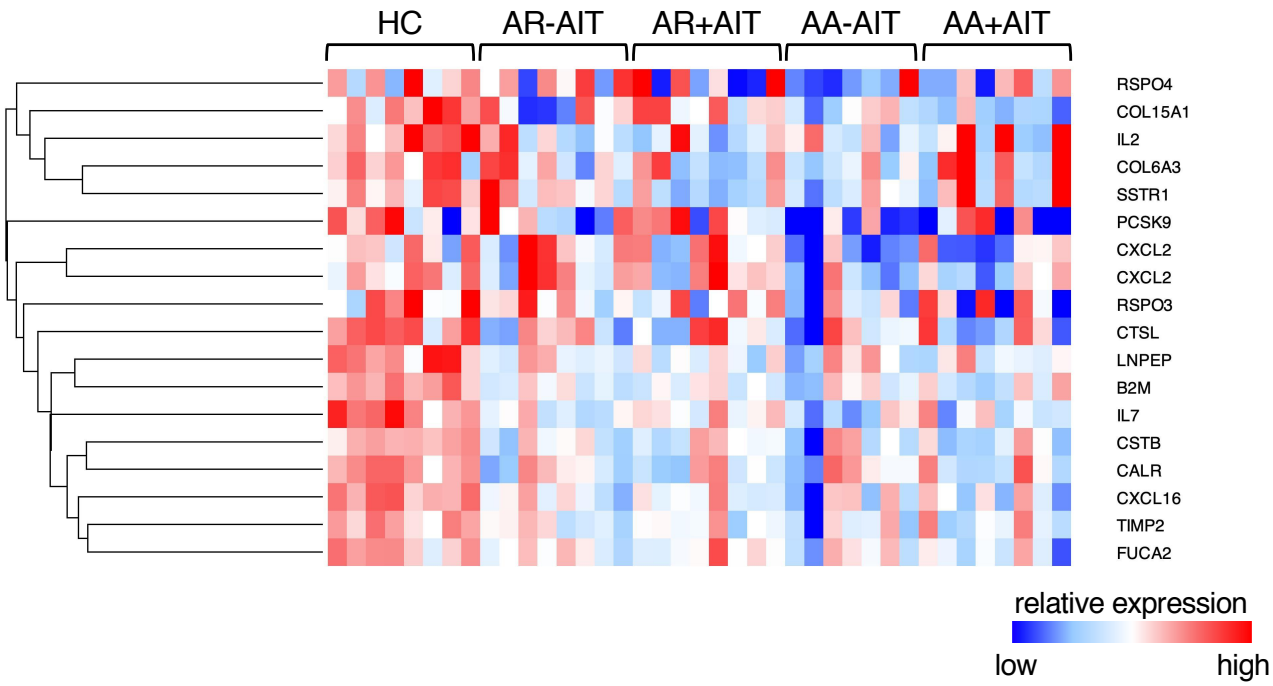
SUPPLEMENTAL FIGURE 4
corresponding to Figure 3G



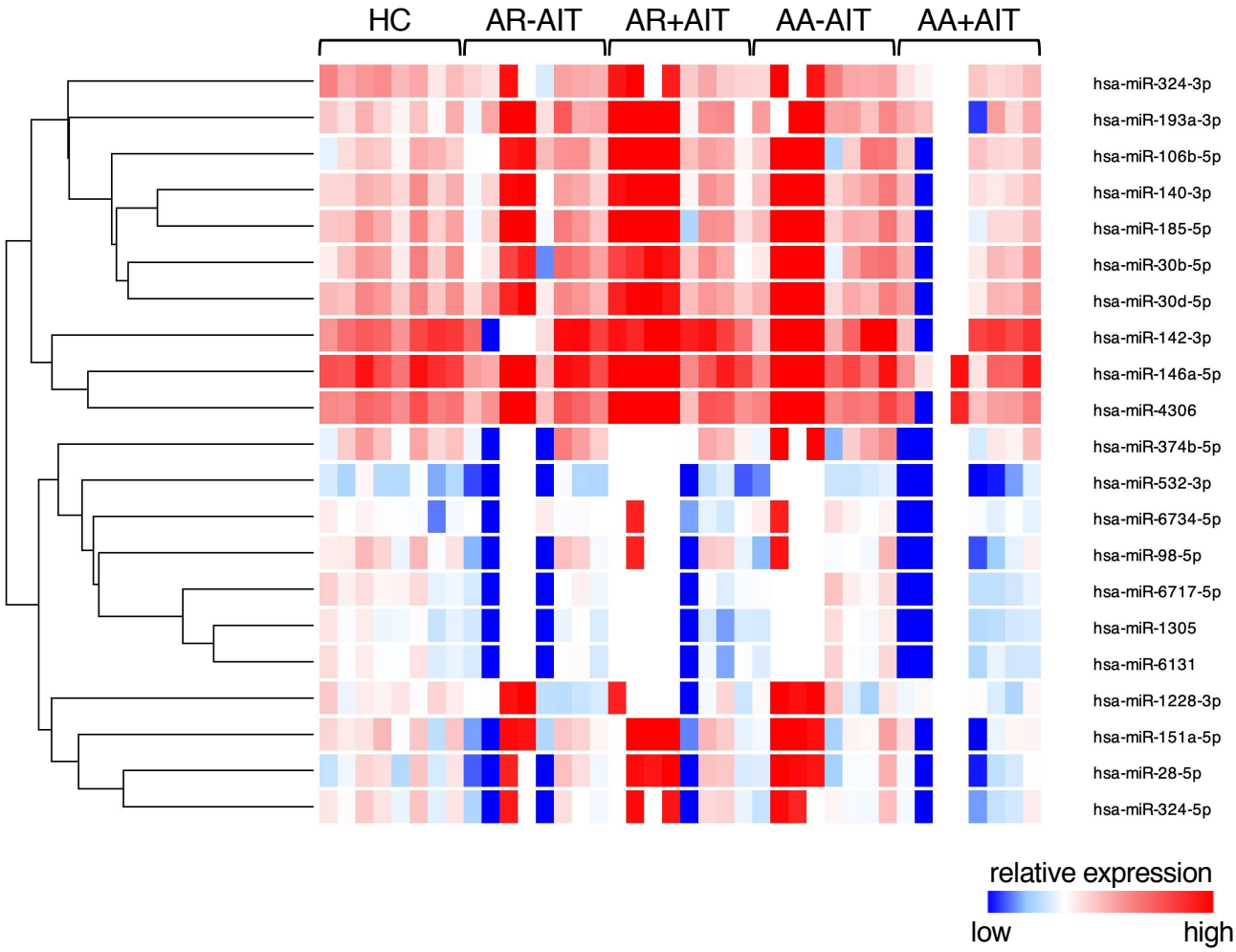
SUPPLEMENTAL FIGURE 5
corresponding to Figure 3H



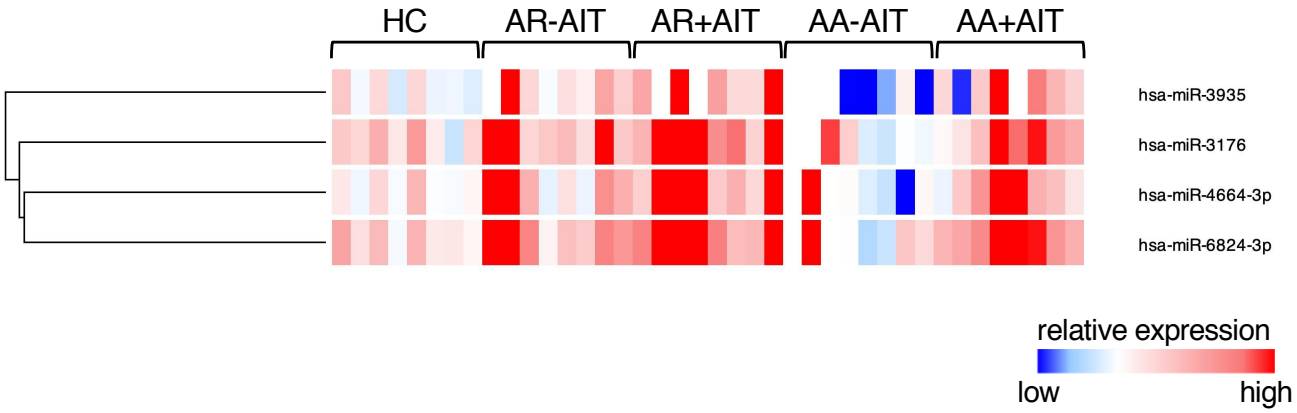
SUPPLEMENTAL FIGURE 6
corresponding to Figure 3I



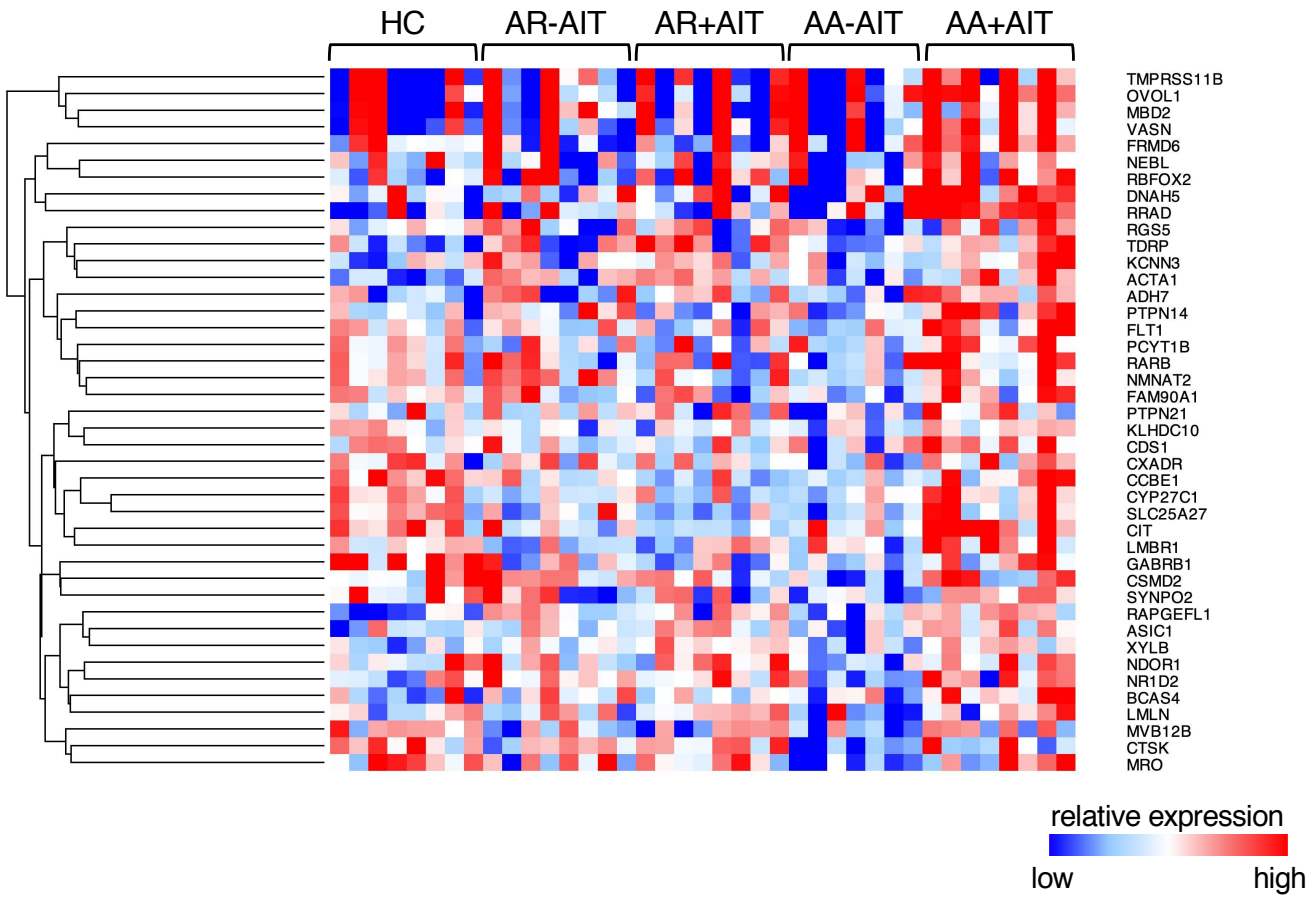
SUPPLEMENTAL FIGURE 7
corresponding to Figure 4A



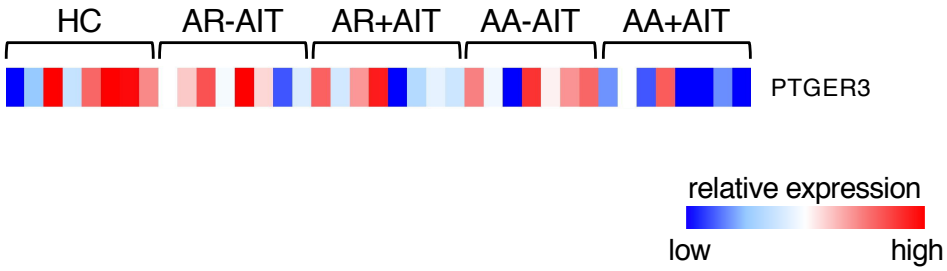
SUPPLEMENTAL FIGURE 8
corresponding to Figure 4C



SUPPLEMENTAL FIGURE 9
corresponding to Figure 4D



SUPPLEMENTAL FIGURE 10
corresponding to Figure 4E



SUPPLEMENTAL FIGURE 11

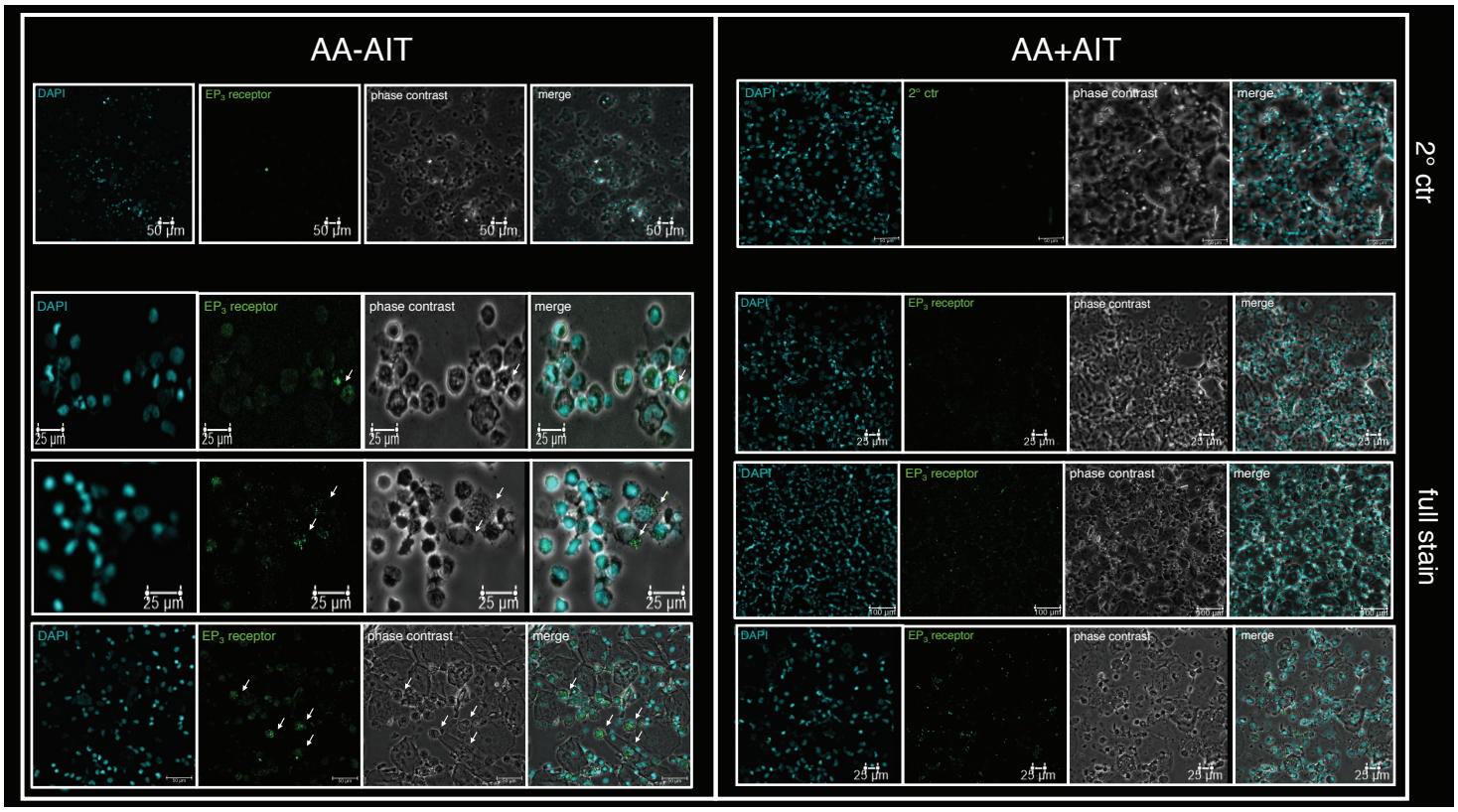


Table S1. Significantly upregulated miRs with FC > 10 in AA-AIT patients versus HC analyzed by miR microarray

systematic_name	p ([AA - AIT] Vs [HC])	Regulation ([AA - AIT] Vs [HC])	FC ([AA - AIT] Vs [HC])	control_type	start	chr	stop	active_sequence
hsa-miR-1233-5p	0.002620704	up	10.037859	0	34674294	chr15	34674283	TGCCGTGCCCTGG
hsa-miR-125a-5p	0.012394682	up	11.810931	0				TCACAGGTTAAAGGGTCTC
hsa-miR-130a-3p	0.013393003	up	11.306049	0	57408729	chr11	57408746	ATGCCCTTTTAACATTGCA
hsa-miR-130b-3p	0.007554296	up	15.6091385	0	22007648	chr22	22007664	ATGCCCTTTCATCATTGC
hsa-miR-192-5p	0.013092756	up	10.644565	0	64658652	chr11	64658635	GGCTGTCAATTCATAGGTC
hsa-miR-199a-3p	0.008666725	up	15.315633	0				TAACCAATGTGCAGACTACT
hsa-miR-211-3p	0.001573525	up	11.126227	0				GCACCCCTTTGCTG
hsa-miR-212-3p	0.002254702	up	10.611317	0	1953655	chr17	1953641	GGCCGTGACTGGAGAC
hsa-miR-362-3p	0.002103268	up	10.970899	0				TGAATCCTTGAATAGGTGTG
hsa-miR-363-3p	0.016679212	up	11.391617	0	133303478	chrX	133303461	TACAGATGGATACCGTGCA
hsa-miR-424-5p	9.31E-04	up	28.406324	0	133680675	chrX	133680655	TTCAAAACATGAATTGCTGCTG
hsa-miR-4463	0.002363124	up	10.404692	0				GGCCCCACCCCA
hsa-miR-451a	0.03072449	up	21.251144	0	27188424	chr17	27188404	AACTCAGTAATGGTAACGGTTT
hsa-miR-590-5p	0.008949685	up	12.158628	0	73243480	chr7	73243500	CTGCACTTTTATGAATAAGCTC
hsa-miR-6768-5p	0.002414774	up	10.242666	0				CAGGGCCCCGC
hsa-miR-6772-5p	0.00259458	up	10.065361	0				CCTCAGCTCCAGCC
hsa-miR-6880-5p	0.002840157	up	10.099302	0				GAGCTGCCCTCTTCC

Table S2. Gene expression changes for secreted genes from cut set in Fig. 2C of AA-AIT versus HC

ProbeName	p ([AA-] Vs [HC])	Regulation ([AA-] Vs [HC]	FC ([AA-] Vs [HC])	GeneSymbol	Description
A_33_P3254136	0.04589422	down	-1.6951239	PKHD1L1	Homo sapiens polycystic kidney and hepatic disease 1 (autosomal recessive)-like 1 (PKHD1L1), mRNA [NM_177531]
A_23_P377299	0.010985544	down	-2.232017	ECE2	Homo sapiens endothelin converting enzyme 2 (ECE2), transcript variant 1, mRNA [NM_014693]
A_23_P120883	0.003061266	down	-2.663732	HMOX1	Homo sapiens heme oxygenase (decycling) 1 (HMOX1), mRNA [NM_002133]
A_23_P34744	3.21E-04	down	-3.5662146	CTSK	Homo sapiens cathepsin K (CTSK), mRNA [NM_000396]
A_23_P167349	0.003025295	down	-2.3656504	GC	Homo sapiens group-specific component (vitamin D binding protein) (GC), transcript variant 1, mRNA [NM_000583]
A_24_P382119	0.01466924	down	-1.5465069	MTMR4	Homo sapiens myotubularin related protein 4 (MTMR4), mRNA [NM_004687]
A_23_P88522	0.035289925	down	-2.3655894	NMB	Homo sapiens neuromedin B (NMB), transcript variant 1, mRNA [NM_021077]
A_33_P3258091	0.008205638	down	-1.7170736	RNPEP	Homo sapiens arginyl aminopeptidase (aminopeptidase B) (RNPEP), mRNA [NM_020216]
A_32_P190769	0.034484852	down	-1.769333	C1QTNF7	Homo sapiens C1q and tumor necrosis factor related protein 7 (C1QTNF7), transcript variant 3, mRNA [NM_031911]
A_23_P127891	0.01149975	down	-1.8091713	BDNF	Homo sapiens brain-derived neurotrophic factor (BDNF), transcript variant 1, mRNA [NM_170735]
A_23_P154894	0.04197503	down	-2.02658	CSTB	Homo sapiens cystatin B (stefin B) (CSTB), mRNA [NM_000100]
A_24_P48723	0.003000776	down	-2.6056206	PTGIS	Homo sapiens prostaglandin I2 (prostacyclin) synthase (PTGIS), mRNA [NM_000961]
A_33_P3221783	0.0438532	down	-1.6394169	TSLP	Homo sapiens thymic stromal lymphopoietin (TSLP), transcript variant 1, mRNA [NM_033035]
A_21_P0014015	0.013375661	down	-1.9720199	CNP	2',3'-cyclic nucleotide 3' phosphodiesterase [Source:HGNC Symbol;Acc:HGNC:2158] [ENST00000592861]
A_23_P165608	0.001799016	down	-2.183463	SEMA4F	Homo sapiens sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4F (SEMA4F), transcript variant 1, mRNA [NM_004263]
A_23_P156061	0.014953146	down	-1.7880483	LNPEP	Homo sapiens leucyl/cystinyl aminopeptidase (LNPEP), transcript variant 1, mRNA [NM_005575]
A_24_P30557	0.04201902	down	-1.7825613	TBX5	Homo sapiens T-box 5 (TBX5), transcript variant 1, mRNA [NM_000192]
A_23_P166269	0.040229946	down	-3.1794202	FAM3B	Homo sapiens family with sequence similarity 3, member B (FAM3B), transcript variant 1, mRNA [NM_058186]
A_24_P223874	0.03814447	down	-1.7687726	SFTPA1	Homo sapiens surfactant protein A1 (SFTPA1), transcript variant 1, mRNA [NM_005411]
A_33_P3319231	0.022389136	down	-1.7922528	AIFM2	apoptosis-inducing factor, mitochondrion-associated, 2 [Source:HGNC Symbol;Acc:HGNC:21411] [ENST00000373248]
A_24_P196528	0.006666233	down	-4.824404	CRB1	Homo sapiens crumbs family member 1, photoreceptor morphogenesis associated (CRB1), transcript variant 1, mRNA [NM_201253]
A_23_P256413	0.014506795	down	-1.546428	CMTM7	Homo sapiens CKLF-like MARVEL transmembrane domain containing 7 (CMTM7), transcript variant 1, mRNA [NM_138410]
A_23_P37441	0.006178621	down	-1.6903744	B2M	Homo sapiens beta-2-microglobulin (B2M), mRNA [NM_004048]
A_33_P3387272	0.016878404	down	-1.5859249	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_33_P3231367	0.026665315	down	-1.55324	ATXN10	Homo sapiens ataxin 10 (ATXN10), transcript variant 1, mRNA [NM_013236]
A_33_P3379886	0.031061854	down	-1.6620039	FGF2	Homo sapiens fibroblast growth factor 2 (basic) (FGF2), mRNA [NM_002006]

A_33_P3351249	0.028651122	down	-2.8922467	CXCL16	Homo sapiens chemokine (C-X-C motif) ligand 16 (CXCL16), transcript variant 2, mRNA [NM_001100812]
A_23_P212617	0.035766084	down	-3.1347427	TFRC	Homo sapiens transferrin receptor (TFRC), transcript variant 1, mRNA [NM_003234]
A_23_P1552	0.03114783	down	-1.9359329	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_33_P3405839	0.014896964	down	-2.2884395	TPO	Homo sapiens thyroid peroxidase (TPO), transcript variant 5, mRNA [NM_175722]
A_24_P179351	0.002013917	down	-1.75119	TPT1	Homo sapiens tumor protein, translationally-controlled 1 (TPT1), transcript variant 2, mRNA [NM_003295]
A_23_P165727	0.021435175	down	-1.7803415	MSTN	Homo sapiens myostatin (MSTN), mRNA [NM_005259]
A_33_P3215277	0.016580919	down	-1.5131134	TTBK2	Homo sapiens tau tubulin kinase 2 (TTBK2), mRNA [NM_173500]
A_23_P105833	0.019694157	down	-1.8237839	BIVM	Homo sapiens basic, immunoglobulin-like variable motif containing (BIVM), transcript variant 1, mRNA [NM_017693]
A_33_P3269203	0.009001244	down	-2.067726	SERPINH1	Homo sapiens serpin peptidase inhibitor, clade H (heat shock protein 47), member 1, (collagen binding protein 1) (SERPINH1), transcript variant 1, mRNA [NM_001207014]
A_24_P202497	0.001532514	down	-2.4436843	TWSG1	Homo sapiens twisted gastrulation BMP signaling modulator 1 (TWSG1), mRNA [NM_020648]
A_33_P3226377	0.02571644	down	-1.5894933	PRH2	Homo sapiens proline-rich protein HaeIII subfamily 2 (PRH2), transcript variant 1, mRNA [NM_005042]
A_23_P18123	0.001012369	down	-3.4714062	NLGN1	Homo sapiens neuroligin 1 (NLGN1), mRNA [NM_014932]
A_24_P276628	0.018577266	down	-1.7116379	PPT1	Homo sapiens palmitoyl-protein thioesterase 1 (PPT1), transcript variant 1, mRNA [NM_000310]
A_24_P940135	0.003254435	down	-1.8294909	CTBS	Homo sapiens chitobiase, di-N-acetyl- (CTBS), mRNA [NM_004388]
A_33_P3292854	0.04606215	down	-1.5553663	CALR	Homo sapiens calreticulin (CALR), mRNA [NM_004343]
A_23_P55544	0.005791944	down	-2.518787	CCBE1	Homo sapiens collagen and calcium binding EGF domains 1 (CCBE1), mRNA [NM_133459]
A_23_P155351	0.029254718	down	-1.5775158	BTD	Homo sapiens biotinidase (BTD), transcript variant 3, mRNA [NM_000060]
A_33_P3280385	0.036897637	down	-1.6241232	COL6A3	Homo sapiens collagen, type VI, alpha 3 (COL6A3), transcript variant 3, mRNA [NM_057165]
A_24_P140405	0.01727693	down	-1.6926756	ADAMTS3	Homo sapiens ADAM metallopeptidase with thrombospondin type 1 motif, 3 (ADAMTS3), mRNA [NM_014243]
A_23_P315364	0.048094835	down	-6.3066316	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_33_P3420900	0.0027628	down	-3.1708844	PATE2	Homo sapiens prostate and testis expressed 2 (PATE2), mRNA [NM_212555]
A_24_P306726	0.004378866	down	-1.7680008	TPT1	Homo sapiens tumor protein, translationally-controlled 1 (TPT1), transcript variant 2, mRNA [NM_003295]
A_23_P79968	0.013670841	down	-1.8257375	PCSK2	Homo sapiens proprotein convertase subtilisin/kexin type 2 (PCSK2), transcript variant 1, mRNA [NM_002594]
A_23_P94533	0.04181123	down	-3.1553388	CTSL	Homo sapiens cathepsin L (CTSL), transcript variant 1, mRNA [NM_001912]
A_24_P277367	0.012249339	down	-3.093352	CXCL5	Homo sapiens chemokine (C-X-C motif) ligand 5 (CXCL5), mRNA [NM_002994]
A_33_P3219651	0.024468817	down	-1.6940436	BMPER	Homo sapiens BMP binding endothelial regulator (BMPER), mRNA [NM_133468]
A_24_P784765	0.004449119	down	-2.5754733	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_23_P322086	0.043955486	down	-2.1909728	SPX	Homo sapiens spexin hormone (SPX), mRNA [NM_030572]
A_23_P39799	0.047228064	down	-1.5178727	LOXL3	Homo sapiens lysyl oxidase-like 3 (LOXL3), transcript variant 1, mRNA [NM_032603]
A_33_P3302255	0.00584417	down	-1.5812622	ITM2B	Homo sapiens integral membrane protein 2B (ITM2B), mRNA [NM_021999]
A_33_P3340769	0.008241517	down	-2.3538065	ADAM9	Homo sapiens ADAM metallopeptidase domain 9 (ADAM9), transcript variant 1, mRNA [NM_003816]
A_32_P97169	0.021822024	down	-1.6407976	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_33_P3791263	0.022454448	down	-1.7147325	OLFM3	Homo sapiens olfactomedin 3 (OLFM3), transcript variant 3, mRNA [NM_001288823]
A_24_P412156	0.042167045	down	-1.6281822	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_23_P112554	0.012973307	down	-1.9025874	COL15A1	Homo sapiens collagen, type XV, alpha 1 (COL15A1), mRNA [NM_001855]
A_24_P365807	0.023668826	down	-1.8524894	EFNB1	Homo sapiens ephrin-B1 (EFNB1), mRNA [NM_004429]

A_23_P4161	0.021640265	down	-1.5776799	ARSG	arylsulfatase G [Source:HGNC Symbol;Acc:HGNC:24102] [ENST00000448504]
A_33_P3264269	0.045214143	down	-1.5820222	MOV10	Homo sapiens Mov10 RISC complex RNA helicase (MOV10), transcript variant 3, mRNA [NM_001286072]
A_23_P119936	0.042211678	down	-1.8051478	REG3A	Homo sapiens regenerating islet-derived 3 alpha (REG3A), transcript variant 2, mRNA [NM_138938]
A_23_P48886	0.006874017	down	-1.6188662	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P111402	0.039168965	down	-3.5393105	RSPO3	Homo sapiens R-spondin 3 (RSPO3), mRNA [NM_032784]
A_23_P128574	0.015405473	down	-2.8411486	ENOX1	Homo sapiens ecto-NOX disulfide-thiol exchanger 1 (ENOX1), transcript variant 1, mRNA [NM_017993]
A_33_P3423570	0.00183353	down	-1.9570544	METRN	Homo sapiens meteorin, glial cell differentiation regulator (METRN), mRNA [NM_024042]
A_23_P167493	0.026438981	down	-1.9005079	CARTPT	Homo sapiens CART prepropeptide (CARTPT), mRNA [NM_004291]
A_21_P0000176	0.030753985	down	-1.9211922	CDH13	Homo sapiens cadherin 13 (CDH13), transcript variant 5, mRNA [NM_001220491]
A_23_P157580	0.004990098	down	-1.8704803	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_33_P3369371	0.042074185	down	-3.077123	GPX3	Homo sapiens glutathione peroxidase 3 (plasma) (GPX3), mRNA [NM_002084]
A_33_P3210965	0.023431147	down	-1.9040838	TCTN1	Homo sapiens tectonic family member 1 (TCTN1), transcript variant 1, mRNA [NM_001082538]
A_23_P139648	0.03437484	down	-1.710147	IAPP	Homo sapiens islet amyloid polypeptide (IAPP), mRNA [NM_000415]
A_33_P3406623	0.010875562	down	-1.6663874	TNFSF12	Homo sapiens tumor necrosis factor (ligand) superfamily, member 12 (TNFSF12), transcript variant 1, mRNA [NM_003809]
A_23_P58396	0.008211567	down	-1.8691097	PDGFC	Homo sapiens platelet derived growth factor C (PDGFC), transcript variant 1, mRNA [NM_016205]
A_23_P160262	0.029616244	down	-1.6896813	ANGPTL3	Homo sapiens angiopoietin-like 3 (ANGPTL3), mRNA [NM_014495]
A_23_P101950	0.002596028	down	-1.9116484	MDH1	Homo sapiens malate dehydrogenase 1, NAD (soluble) (MDH1), transcript variant 2, mRNA [NM_005917]
A_32_P142440	0.03160898	down	-4.4842424	PCSK9	Homo sapiens proprotein convertase subtilisin/kexin type 9 (PCSK9), transcript variant 1, mRNA [NM_174936]
A_33_P3261818	0.009510448	down	-1.6301882	MDH1	Homo sapiens malate dehydrogenase 1, NAD (soluble) (MDH1), transcript variant 2, mRNA [NM_005917]
A_23_P201368	0.025726926	down	-1.5614562	CTBS	Homo sapiens chitobiase, di-N-acetyl- (CTBS), mRNA [NM_004388]
A_23_P73114	0.03639642	down	-2.379509	PROS1	Homo sapiens protein S (alpha) (PROS1), mRNA [NM_000313]
A_24_P381604	0.004748902	down	-1.8375516	ITM2B	Homo sapiens integral membrane protein 2B (ITM2B), mRNA [NM_021999]
A_33_P3282489	0.004181315	down	-2.1059306	GCNT1	Homo sapiens glucosaminyl (N-acetyl) transferase 1, core 2 (GCNT1), transcript variant 1, mRNA [NM_001097634]
A_23_P30122	0.014566761	down	-2.0826333	IL2	Homo sapiens interleukin 2 (IL2), mRNA [NM_000586]
A_33_P3263277	0.012571266	down	-1.6443335	EEF1A1	Human elongation factor 1-alpha (EF1A) mRNA, partial cds. [M29548]
A_32_P313405	0.04550742	down	-3.323531	LAMA1	Homo sapiens laminin, alpha 1 (LAMA1), mRNA [NM_005559]
A_23_P144348	0.025006708	down	-1.6788411	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_24_P245298	0.00444458	down	-1.9409235	TNFSF12	Homo sapiens tumor necrosis factor (ligand) superfamily, member 12 (TNFSF12), transcript variant 1, mRNA [NM_003809]
A_23_P8961	5.10E-04	down	-2.4128914	IL7	Homo sapiens interleukin 7 (IL7), transcript variant 1, mRNA [NM_000880]
A_33_P3397525	0.030981716	down	-1.7912502	WNT4	Homo sapiens wingless-type MMTV integration site family, member 4 (WNT4), mRNA [NM_030761]
A_33_P3382177	0.017115137	down	-1.8615247	TIMP2	Homo sapiens TIMP metallopeptidase inhibitor 2 (TIMP2), mRNA [NM_003255]
A_23_P98382	0.01474834	down	-1.6084414	TIMM8B	Homo sapiens translocase of inner mitochondrial membrane 8 homolog B (yeast) (TIMM8B), transcript variant 1, mRNA [NM_012459]
A_24_P244706	0.02434364	down	-1.6297488	SSTR1	Homo sapiens somatostatin receptor 1 (SSTR1), mRNA [NM_001049]
A_23_P218858	0.002930635	down	-2.970404	ABI3BP	Homo sapiens ABI family, member 3 (NESH) binding protein (ABI3BP), mRNA [NM_015429]

A_33_P3212555	0.029141515	down	-1.623088	PROS1	Homo sapiens protein S (alpha) (PROS1), mRNA [NM_000313]
A_24_P334300	6.87E-04	down	-3.615217	FGF12	Homo sapiens fibroblast growth factor 12 (FGF12), transcript variant 2, mRNA [NM_004113]
A_33_P6517036	0.04687285	down	-1.6152365	CDH13	cadherin 13 [Source:HGNC Symbol;Acc:HGNC:1753] [ENST00000567109]
A_33_P3251552	0.04017219	down	-2.0559099	RSPO4	Homo sapiens R-spondin 4 (RSPO4), transcript variant 1, mRNA [NM_001029871]
A_33_P3256778	0.012414722	down	-2.3242157	CNTF	Homo sapiens ciliary neurotrophic factor (CNTF), mRNA [NM_000614]
A_23_P256473	0.02794775	down	-2.2519164	SEMA3C	Homo sapiens sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3C (SEMA3C), mRNA [NM_006379]
A_24_P257416	0.03703572	down	-3.5145414	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_33_P3256347	0.027520727	down	-1.5385352	TIMM8B	Homo sapiens translocase of inner mitochondrial membrane 8 homolog B (yeast) (TIMM8B), transcript variant 1, mRNA [NM_012459]
A_23_P206396	0.029042121	down	-1.5468429	CKLF	Homo sapiens chemokine-like factor (CKLF), transcript variant 5, mRNA [NM_001040138]
A_24_P295806	0.016435107	down	-1.928913	CHID1	Homo sapiens chitinase domain containing 1 (CHID1), transcript variant 3, mRNA [NM_023947]
A_23_P148297	0.007080677	down	-1.665376	SH3BGRL	Homo sapiens SH3 domain binding glutamate-rich protein like (SH3BGRL), mRNA [NM_003022]
A_23_P36985	0.010447358	down	-2.5990827	PCDH8	Homo sapiens protocadherin 8 (PCDH8), transcript variant 1, mRNA [NM_002590]
A_32_P15320	0.03380439	down	-1.5039843	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_23_P202501	0.00362879	down	-1.8388847	RNLS	Homo sapiens renalase, FAD-dependent amine oxidase (RNLS), transcript variant 1, mRNA [NM_001031709]
A_32_P515088	0.017605368	down	-1.5223204	KDSR	Homo sapiens 3-ketodihydrosphingosine reductase (KDSR), mRNA [NM_002035]
A_23_P135769	0.03930555	down	-1.8032029	ACTB	Homo sapiens actin, beta (ACTB), mRNA [NM_001101]
A_23_P72117	7.42E-04	down	-2.9752638	SMPDL3A	Homo sapiens sphingomyelin phosphodiesterase, acid-like 3A (SMPDL3A), transcript variant 1, mRNA [NM_006714]
A_24_P55295	0.004043915	down	-2.1627452	GJA1	Homo sapiens gap junction protein, alpha 1, 43kDa (GJA1), mRNA [NM_000165]
A_33_P3272580	0.037699625	down	-1.5141863	FUCA2	Homo sapiens fucosidase, alpha-L- 2, plasma (FUCA2), mRNA [NM_032020]
A_23_P47292	0.023319086	down	-1.7285758	MMP20	Homo sapiens matrix metallopeptidase 20 (MMP20), mRNA [NM_004771]
A_23_P62659	0.002188017	down	-1.7937051	PPT1	Homo sapiens palmitoyl-protein thioesterase 1 (PPT1), transcript variant 1, mRNA [NM_000310]
A_33_P3382856	0.01448115	down	-1.6855268	DCN	Homo sapiens decorin (DCN), transcript variant E, mRNA [NM_133507]
A_24_P337239	0.046585385	down	-1.6413264	FGF5	Homo sapiens fibroblast growth factor 5 (FGF5), transcript variant 1, mRNA [NM_004464]
A_24_P205994	0.04735557	down	-1.6505252	EPGN	Homo sapiens epithelial mitogen (EPGN), transcript variant 1, mRNA [NM_001270989]
A_24_P763243	0.007927178	down	-1.5471231	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_23_P111583	0.005921412	down	-1.7987943	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_33_P3422777	0.04453521	down	-1.6527406	PRH2	Homo sapiens proline-rich protein HaeIII subfamily 2 (PRH2), transcript variant 1, mRNA [NM_005042]
A_23_P208208	0.013507194	down	-1.689133	ZNF649	Homo sapiens zinc finger protein 649 (ZNF649), mRNA [NM_023074]
A_23_P12357	0.011540561	down	-2.285458	CRB1	Homo sapiens crumbs family member 1, photoreceptor morphogenesis associated (CRB1), transcript variant 1, mRNA [NM_201253]
A_33_P3368855	0.029727371	down	-1.5539179	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]

Table S3. Interactions output of String network analysis of secreted factors (Suppl.Table S2)

#node1	node2	node1_string_id	node2_string_id	neighborhood_on_chromosome	gene_fusion	phylogenetic_cooccurrence	homology	coexpression	experimentally_determined_interact	database_annotated	automated_textmining	combined_score
ADAM10	FUCA2	9606.ENSP00000260408	9606.ENSP00000002165	0	0	0	0	0.061	0	0.9	0	0.902
ADAM10	PCSK9	9606.ENSP00000260408	9606.ENSP00000303208	0	0	0	0	0.062	0	0.9	0.057	0.903
ADAM10	CD59	9606.ENSP00000260408	9606.ENSP00000379191	0	0	0	0	0	0	0.9	0.104	0.906
ADAM10	CD36	9606.ENSP00000260408	9606.ENSP00000399421	0	0	0	0	0	0	0.9	0.103	0.906
B2M	IL2	9606.ENSP00000452780	9606.ENSP00000226730	0	0	0	0	0	0	0.9	0.588	0.957
B2M	LNPEP	9606.ENSP00000452780	9606.ENSP00000231368	0	0	0	0	0.063	0	0.9	0.097	0.908
B2M	TIMP2	9606.ENSP00000452780	9606.ENSP00000262768	0	0	0	0	0.062	0	0.9	0.214	0.919
B2M	CSTB	9606.ENSP00000452780	9606.ENSP00000291568	0	0	0	0	0	0	0.9	0.438	0.941
B2M	CALR	9606.ENSP00000452780	9606.ENSP00000320866	0	0	0	0	0	0	0.9	0.441	0.941
B2M	TFRC	9606.ENSP00000452780	9606.ENSP00000353224	0	0	0	0	0.061	0	0.72	0.713	0.917
BDNF	FGF2	9606.ENSP00000414303	9606.ENSP00000264498	0	0	0	0	0.11	0	0	0.906	0.912
CD36	CD59	9606.ENSP00000399421	9606.ENSP00000379191	0	0	0	0	0	0	0.9	0.119	0.908
CD59	CTSC	9606.ENSP00000379191	9606.ENSP00000227266	0	0	0	0	0	0	0.9	0.079	0.903
CKLF	CMTM7	9606.ENSP00000264001	9606.ENSP00000335605	0	0	0	0	0.06	0	0	0.902	0.903
COL15A1	MMP20	9606.ENSP00000364140	9606.ENSP00000260228	0	0	0	0	0.061	0	0.9	0.042	0.902
COL15A1	COL6A3	9606.ENSP00000364140	9606.ENSP00000295550	0	0	0	0.558	0.293	0	0.9	0.549	0.943
COL15A1	CTSL	9606.ENSP00000364140	9606.ENSP00000345344	0	0	0	0	0.061	0	0.9	0	0.902
COL15A1	SERPINH1	9606.ENSP00000364140	9606.ENSP00000434412	0	0	0	0	0.098	0	0.9	0.188	0.92
COL6A3	SERPINH1	9606.ENSP00000295550	9606.ENSP00000434412	0	0	0	0	0.161	0	0.9	0.266	0.933
CSTB	TIMP2	9606.ENSP00000291568	9606.ENSP00000262768	0	0	0	0	0.061	0	0.9	0.138	0.912
CTSC	FUCA2	9606.ENSP00000227266	9606.ENSP00000002165	0	0	0	0	0.084	0	0.9	0	0.904
CTSC	SDCBP	9606.ENSP00000227266	9606.ENSP00000260130	0	0	0	0	0.062	0	0.9	0.06	0.904
CXCL12	SSTR1	9606.ENSP00000379140	9606.ENSP00000267377	0	0	0	0	0.076	0	0.9	0.116	0.911
CXCL12	CXCL16	9606.ENSP00000379140	9606.ENSP00000293778	0	0	0	0	0	0	0.9	0.641	0.962
CXCL12	CXCL5	9606.ENSP00000379140	9606.ENSP00000296027	0	0	0	0	0	0	0.9	0.67	0.965
CXCL12	SLIT2	9606.ENSP00000379140	9606.ENSP00000422591	0	0	0	0	0.12	0	0.9	0.412	0.943
CXCL12	CXCL2	9606.ENSP00000379140	9606.ENSP00000427279	0	0	0	0	0	0	0.9	0.668	0.965
CXCL16	SSTR1	9606.ENSP00000293778	9606.ENSP00000267377	0	0	0	0	0	0	0.9	0	0.9
CXCL16	CXCL2	9606.ENSP00000293778	9606.ENSP00000427279	0	0	0	0	0.086	0	0.9	0.543	0.954
CXCL16	CXCL5	9606.ENSP00000293778	9606.ENSP00000296027	0	0	0	0	0.061	0	0.9	0.569	0.955
CXCL2	SSTR1	9606.ENSP00000427279	9606.ENSP00000267377	0	0	0	0	0	0	0.9	0	0.9
CXCL2	CXCL5	9606.ENSP00000427279	9606.ENSP00000296027	0	0	0	0.898	0.319	0	0.9	0.833	0.935
CXCL5	SSTR1	9606.ENSP00000296027	9606.ENSP00000267377	0	0	0	0	0	0	0.9	0	0.9
DCN	GPC5	9606.ENSP00000052754	9606.ENSP00000366267	0	0	0	0	0.061	0	0.9	0.44	0.942
DCN	GPC6	9606.ENSP00000052754	9606.ENSP00000366246	0	0	0	0	0.089	0	0.9	0.443	0.944
EFNB1	SDCBP	9606.ENSP00000204961	9606.ENSP00000260130	0	0	0	0	0	0	0.9	0.554	0.953
FUCA2	PCSK9	9606.ENSP00000002165	9606.ENSP00000303208	0	0	0	0	0	0	0.9	0	0.9
FUCA2	SDCBP	9606.ENSP00000002165	9606.ENSP00000260130	0	0	0	0	0.061	0	0.9	0	0.902
GPC5	GPC6	9606.ENSP00000366267	9606.ENSP00000366246	0	0	0	0.73	0.055	0	0.9	0.8	0.922
IL2	IL7	9606.ENSP00000226730	9606.ENSP00000263851	0	0	0	0	0	0	0	0.92	0.92
RSPO3	RSPO4	9606.ENSP00000349131	9606.ENSP00000217260	0	0	0	0.877	0	0	0.9	0.778	0.909
TCTN1	TTBK2	9606.ENSP00000380779	9606.ENSP00000267890	0	0	0	0	0	0	0.9	0.295	0.926

Table S4. Reactome pathway enrichment analysis output of String network analysis of secreted factors (Suppl.Table S2)

#term ID	term description	observed gene count	background gene count	strength	false discovery rate	matching proteins in your network (IDs)	matching proteins in your network (labels)
HSA-1474244	Extracellular matrix organization	14	298	0.92	1.14E-06	9606.ENSP00000052754,9606.ENSP00000260228,9606.ENSP00000260408,9606.ENSP00000262768,9606.ENSP00000264094,9606.ENSP00000264498,9606.ENSP00000271651,9606.ENSP00000286657,9606.ENSP00000295550,9606.ENSP00000345344,9606.ENSP00000364140,9606.ENSP00000374309,9606.ENSP00000419446,9606.ENSP00000434412	DCN,MMP20,ADAM10,TIMP2,LOXL3,FGF2,CTSK,ADAMTS3,COL6A3,CTSL,COL15A1,LAMA1,ADAM9,SERPINH1
HSA-1442490	Collagen degradation	7	64	1.29	3.37E-05	9606.ENSP00000260228,9606.ENSP00000260408,9606.ENSP00000271651,9606.ENSP00000295550,9606.ENSP00000345344,9606.ENSP00000364140,9606.ENSP00000419446	MMP20,ADAM10,CTSK,COL6A3,CTSL,COL15A1,ADAM9
HSA-1474228	Degradation of the extracellular matrix	9	139	1.06	3.37E-05	9606.ENSP00000052754,9606.ENSP00000260228,9606.ENSP00000260408,9606.ENSP00000262768,9606.ENSP00000271651,9606.ENSP00000295550,9606.ENSP00000345344,9606.ENSP00000364140,9606.ENSP00000419446	DCN,MMP20,ADAM10,TIMP2,CTSK,COL6A3,CTSL,COL15A1,ADAM9
HSA-1474290	Collagen formation	7	89	1.14	0.00013	9606.ENSP00000260228,9606.ENSP00000264094,9606.ENSP00000286657,9606.ENSP00000295550,9606.ENSP00000345344,9606.ENSP00000364140,9606.ENSP00000434412	MMP20,LOXL3,ADAMTS3,COL6A3,CTSL,COL15A1,SERPINH1
HSA-168256	Immune System	26	1925	0.38	0.0022	9606.ENSP00000002165,9606.ENSP00000216117,9606.ENSP00000226730,9606.ENSP00000227266,9606.ENSP00000231368,9606.ENSP00000260130,9606.ENSP00000260408,9606.ENSP00000262768,9606.ENSP00000263851,9606.ENSP00000264498,9606.ENSP00000271651,9606.ENSP00000291568,9606.ENSP00000293825,9606.ENSP00000320866,9606.ENSP00000339063,9606.ENSP00000339804,9606.ENSP00000345344,9606.ENSP00000349960,9606.ENSP00000355370,9606.ENSP00000377456,9606.ENSP00000377783,9606.ENSP00000379191,9606.ENSP00000397082,9606.ENSP00000399421,9606.ENSP00000427279,9606.ENSP00000452780	FUCA2,HMOX1,IL2,CTSC,LNPEP,SDCBP,ADAM10,TIMP2,IL7,FGF2,CTSK,CSTB,TNFSF12,CALR,EEF1A1,TSLP,CTSL,ACTB,CNTF,REG3A,PROS1,CD59,SFTPA1,CD36,CXCL2,B2M
HSA-2022090	Assembly of collagen fibrils and other multimeric structures	5	60	1.17	0.0025	9606.ENSP00000260228,9606.ENSP00000264094,9606.ENSP00000295550,9606.ENSP00000345344,9606.ENSP00000364140	MMP20,LOXL3,COL6A3,CTSL,COL15A1
HSA-1236977	Endosomal/Vacuolar pathway	3	11	1.68	0.004	9606.ENSP00000231368,9606.ENSP00000345344,9606.ENSP00000452780	LNPEP,CTSL,B2M
HSA-168249	Innate Immune System	16	1012	0.45	0.0119	9606.ENSP00000002165,9606.ENSP00000227266,9606.ENSP00000260130,9606.ENSP00000260408,9606.ENSP00000262768,9606.ENSP00000271651,9606.ENSP00000291568,9606.ENSP00000339063,9606.ENSP00000345344,9606.ENSP00000349960,9606.ENSP00000377456,9606.ENSP00000377783,9606.ENSP00000379191,9606.ENSP00000397082,9606.ENSP00000399421,9606.ENSP00000452780	FUCA2,CTSC,SDCBP,ADAM10,TIMP2,CTSK,CSTB,EEF1A1,CTSL,ACTB,REG3A,PROS1,CD59,SFTPA1,CD36,B2M
HSA-380108	Chemokine receptors bind chemokines	4	48	1.17	0.0119	9606.ENSP00000293778,9606.ENSP00000296027,9606.ENSP00000379140,9606.ENSP00000427279	CXCL16,CXCL5,CXCL12,CXCL2
HSA-1236975	Antigen processing-Cross presentation	5	96	0.96	0.0122	9606.ENSP00000231368,9606.ENSP00000320866,9606.ENSP00000345344,9606.ENSP00000399421,9606.ENSP00000452780	LNPEP,CALR,CTSL,CD36,B2M
HSA-3560783	Defective B4GALT7 causes EDS, progeroid type	3	20	1.42	0.0122	9606.ENSP00000052754,9606.ENSP00000366246,9606.ENSP00000366267	DCN,GPC6,GPC5
HSA-3560801	Defective B3GAT3 causes JDSSDHD	3	20	1.42	0.0122	9606.ENSP00000052754,9606.ENSP00000366246,9606.ENSP00000366267	DCN,GPC6,GPC5
HSA-4420332	Defective B3GALT6 causes EDSP2 and SEMDJL1	3	20	1.42	0.0122	9606.ENSP00000052754,9606.ENSP00000366246,9606.ENSP00000366267	DCN,GPC6,GPC5
HSA-6798695	Neutrophil degranulation	10	471	0.57	0.0128	9606.ENSP00000002165,9606.ENSP00000227266,9606.ENSP00000260130,9606.ENSP00000260408,9606.ENSP00000262768,9606.ENSP00000291568,9606.ENSP00000339063,9606.ENSP00000379191,9606.ENSP00000399421,9606.ENSP00000452780	FUCA2,CTSC,SDCBP,ADAM10,TIMP2,CSTB,EEF1A1,CD59,CD36,B2M
HSA-1971475	A tetrasaccharide linker sequence is required for GAG synthesis	3	26	1.31	0.0174	9606.ENSP00000052754,9606.ENSP00000366246,9606.ENSP00000366267	DCN,GPC6,GPC5
HSA-1650814	Collagen biosynthesis and modifying enzymes	4	67	1.02	0.0198	9606.ENSP00000286657,9606.ENSP00000295550,9606.ENSP00000364140,9606.ENSP00000434412	ADAMTS3,COL6A3,COL15A1,SERPINH1
HSA-375276	Peptide ligand-binding receptors	6	183	0.76	0.0198	9606.ENSP00000267377,9606.ENSP00000293778,9606.ENSP00000296027,9606.ENSP00000378089,9606.ENSP00000379140,9606.ENSP00000427279	SSTR1,CXCL16,CXCL5,NMB,CXCL12,CXCL2
HSA-977225	Amyloid fiber formation	4	78	0.96	0.0302	9606.ENSP00000240652,9606.ENSP00000260408,9606.ENSP00000367828,9606.ENSP00000452780	IAPP,ADAM10,ITM2B,B2M
HSA-8939242	RUNX1 regulates transcription of genes involved in differentiation of keratinocytes	2	8	1.64	0.033	9606.ENSP00000271651,9606.ENSP00000345344	CTSK,CTSL
HSA-2682334	EPH-Ephrin signaling	4	91	0.89	0.0446	9606.ENSP00000204961,9606.ENSP00000260130,9606.ENSP00000260408,9606.ENSP00000349960	EFNB1,SDCBP,ADAM10,ACTB
HSA-196025	Formation of annular gap junctions	2	11	1.51	0.0488	9606.ENSP00000282561,9606.ENSP00000349960	GJA1,ACTB

Table S5. Gene expression changes of string output genes from Fig. 2D in AA-AIT versus HC

ProbeName	p ([AA-] Vs [HC])	Regulation ([AA-] Vs [HC])	FC ([AA-] Vs [HC])	GeneSymbol	Description
A_23_P127891	0.01149975	down	-1.8091713	BDNF	Homo sapiens brain-derived neurotrophic factor (BDNF), transcript variant 1, mRNA [NM_170735]
A_23_P154894	0.04197503	down	-2.02658	CSTB	Homo sapiens cystatin B (stefin B) (CSTB), mRNA [NM_000100]
A_23_P156061	0.014953146	down	-1.7880483	LNPEP	Homo sapiens leucyl/cystinyl aminopeptidase (LNPEP), transcript variant 1, mRNA [NM_005575]
A_23_P256413	0.014506795	down	-1.546428	CMTM7	Homo sapiens CKLF-like MARVEL transmembrane domain containing 7 (CMTM7), transcript variant 1, mRNA [NM_138410]
A_23_P37441	0.006178621	down	-1.6903744	B2M	Homo sapiens beta-2-microglobulin (B2M), mRNA [NM_004048]
A_33_P3379886	0.031061854	down	-1.6620039	FGF2	Homo sapiens fibroblast growth factor 2 (basic) (FGF2), mRNA [NM_002006]
A_23_P212617	0.035766084	down	-3.1347427	TFRC	Homo sapiens transferrin receptor (TFRC), transcript variant 1, mRNA [NM_003234]
A_23_P1552	0.03114783	down	-1.9359329	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_33_P3269203	0.009001244	down	-2.067726	SERPINH1	Homo sapiens serpin peptidase inhibitor, clade H (heat shock protein 47), member 1, (collagen binding protein 1) (SERPINH1), transcript variant 1, mRNA [NM_001207014]
A_33_P3292854	0.04606215	down	-1.5553663	CALR	Homo sapiens calreticulin (CALR), mRNA [NM_004343]
A_33_P3280385	0.036897637	down	-1.6241232	COL6A3	Homo sapiens collagen, type VI, alpha 3 (COL6A3), transcript variant 3, mRNA [NM_057165]
A_23_P315364	0.048094835	down	-6.3066316	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_23_P94533	0.04181123	down	-3.1553388	CTSL	Homo sapiens cathepsin L (CTSL), transcript variant 1, mRNA [NM_001912]
A_24_P784765	0.004449119	down	-2.5754733	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_32_P97169	0.021822024	down	-1.6407976	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_24_P412156	0.042167045	down	-1.6281822	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_23_P112554	0.012973307	down	-1.9025874	COL15A1	Homo sapiens collagen, type XV, alpha 1 (COL15A1), mRNA [NM_001855]
A_24_P365807	0.023668826	down	-1.8524894	EFNB1	Homo sapiens ephrin-B1 (EFNB1), mRNA [NM_004429]
A_23_P48886	0.006874017	down	-1.6188662	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P111402	0.039168965	down	-3.5393105	RSPO3	Homo sapiens R-spondin 3 (RSPO3), mRNA [NM_032784]
A_23_P157580	0.004990098	down	-1.8704803	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_32_P142440	0.03160898	down	-4.4842424	PCSK9	Homo sapiens proprotein convertase subtilisin/kexin type 9 (PCSK9), transcript variant 1, mRNA [NM_174936]

A_23_P30122	0.014566761	down	-2.0826333	IL2	Homo sapiens interleukin 2 (IL2), mRNA [NM_000586]
A_23_P144348	0.025006708	down	-1.6788411	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_23_P8961	5.10E-04	down	-2.4128914	IL7	Homo sapiens interleukin 7 (IL7), transcript variant 1, mRNA [NM_000880]
A_33_P3382177	0.017115137	down	-1.8615247	TIMP2	Homo sapiens TIMP metallopeptidase inhibitor 2 (TIMP2), mRNA [NM_003255]
A_33_P3251552	0.04017219	down	-2.0559099	RSPO4	Homo sapiens R-spondin 4 (RSPO4), transcript variant 1, mRNA [NM_001029871]
A_24_P257416	0.03703572	down	-3.5145414	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_23_P206396	0.029042121	down	-1.5468429	CKLF	Homo sapiens chemokine-like factor (CKLF), transcript variant 5, mRNA [NM_001040138]
A_33_P3272580	0.037699625	down	-1.5141863	FUCA2	Homo sapiens fucosidase, alpha-L- 2, plasma (FUCA2), mRNA [NM_032020]
A_23_P47292	0.023319086	down	-1.7285758	MMP20	Homo sapiens matrix metallopeptidase 20 (MMP20), mRNA [NM_004771]
A_33_P3382856	0.01448115	down	-1.6855268	DCN	Homo sapiens decorin (DCN), transcript variant E, mRNA [NM_133507]
A_23_P111583	0.005921412	down	-1.7987943	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_33_P3368855	0.029727371	down	-1.5539179	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]

Table S6. Gene expression changes for upregulated genes from cut set in Fig. 3A of AR-AIT versus HC

systematic_name	p ([AA - AIT] Vs [HC])	Regulation ([AA - AIT] Vs [HC])	FC ([AA - AIT] Vs [HC])	control_type	start	chr	stop	active_sequence
hsa-miR-141-3p	0.04026966	up	5.4070354	0	7073324	chr12	7073339	CCATCTTTACCAGACAG
hsa-miR-210-3p	0.04435761	up	5.5541644	0	568175	chr11	568161	TCAGCCGCTGTCACAC
hsa-miR-132-3p	0.029189989	up	6.8099184	0	1953281	chr17	1953267	CGACCATGGCTGTAGA
hsa-miR-21-3p	0.025903609	up	5.2083707	0	57918679	chr17	57918692	ACAGCCCATCGACTG
hsa-miR-564	0.029540189	up	5.6603575	0				GCCTGCTGACACCGT
hsa-miR-8089	0.020860732	up	5.952117	0				CTGCCCCAATCCCC
hsa-let-7e-5p	0.017494433	up	6.2108426	0	52196050	chr19	52196067	AACTATACAACCTCCTACC
hsa-miR-362-5p	0.044741288	up	5.5566535	0	49660324	chrX	49660339	ACTCACACCTAGGTTCC
hsa-miR-4646-5p	0.03964684	up	5.0251675	0				TCCCTCAGCTCCTCT
hsa-miR-125a-5p	0.012394682	up	11.810931	0				TCACAGGTTAAAGGGTCTC
hsa-miR-222-3p	0.01847131	up	8.187924	0	45606509	chrX	45606498	ACCCAGTAGCCAG
hsa-miR-424-5p	9.31E-04	up	28.406324	0	133680675	chrX	133680655	TTCAAAACATGAATTGCTGCTG
hsa-miR-451a	0.03072449	up	21.251144	0	27188424	chr17	27188404	AACTCAGTAATGGTAACGGTTT
hsa-miR-6768-5p	0.002414774	up	10.242666	0				CAGGGCCCCGC
hsa-miR-7109-5p	0.007003281	up	7.911158	0				AGCAGGGTCTCCTCC
hsa-miR-664b-5p	0.01225342	up	9.818432	0	153996879	chrX	153996894	TACCCAATCATCTCCCT
hsa-miR-6801-3p	0.008235127	up	7.94094	0				GGCCAGTGAGTGGC
hsa-miR-6865-5p	0.00869979	up	7.373112	0				TGAAGTCCCTCCTCTG
hsa-miR-211-3p	0.001573525	up	11.126227	0				GCACCCCTTTGCTG
hsa-miR-3605-5p	0.008572692	up	7.9654956	0				GGCTTCCTTGCTATCC
hsa-miR-4417	0.004446345	up	9.025666	0				CCCTCCGGGAAGC
hsa-miR-10b-3p	0.005821119	up	9.185711	0	177015100	chr2	177015117	ATTCCCCTAGAATCGAATC
hsa-miR-4733-5p	0.04363677	up	5.2618227	0				CACCGGGTCTAGCA
hsa-miR-3911	0.014088881	up	7.106937	0				TGCCTCCTCCAGGA
hsa-miR-429	0.025509337	up	6.7868247	0				ACGGTTTTACCAGACAGTA
hsa-miR-192-5p	0.013092756	up	10.644565	0	64658652	chr11	64658635	GGCTGTCAATTCATAGGTC
hsa-miR-6753-3p	0.004727995	up	8.4662	0				GTGCCAGGGCAGA
hsa-miR-7-1-3p	0.017807836	up	8.289317	0	86584749	chr9	86584732	TATGGCAGACTGTGATTTG
hsa-miR-3907	0.004889822	up	8.3752575	0				TGTGAGCCAGCCTGG
hsa-miR-557	0.007739896	up	8.330387	0				AGACAAGGCCCACCCG
hsa-miR-4768-3p	0.03322499	up	5.383358	0				ATTCTCTCTGGATCTCCT
hsa-miR-6810-3p	0.024915043	up	5.7786007	0				CTGGGGAACAAGGG
hsa-miR-1296-5p	0.024346719	up	5.8261676	0	65132753	chr10	65132740	GGAGATGGAGCCAGG
hsa-miR-4708-5p	0.024786044	up	5.789224	0				AAGGAGCAAGGCGG
hsa-miR-6787-3p	0.019617952	up	6.3223376	0				CTGGAGAGGGCAGC
hsa-miR-6837-5p	0.03024121	up	5.572989	0				ACATTCCCTGCTGGC
hsa-miR-17-3p	0.024748752	up	5.792313	0	92002916	chr13	92002930	CTACAAGTGCCTTCAC
hsa-miR-3613-3p	0.019138321	up	6.386405	0				GAAGGGTTGGGCTTT
hsa-miR-301a-3p	0.025165152	up	5.7582808	0	54583351	chr17	54583331	GCTTTGACAATACTATTGCAC
hsa-miR-4513	0.025107995	up	5.9974537	0				ATGGGCCTCCAGCC
hsa-miR-6801-5p	0.025442135	up	5.964648	0				TCATTTCCTGCTGCCT
hsa-miR-3928-5p	0.02757405	up	5.579358	0				GCAGGCGGAACCT
hsa-miR-663b	0.034670297	up	5.3019543	0				CCTCAGGCACGGC
hsa-miR-3687	0.021957304	up	6.359916	0				ACGTCGCACGAACG
hsa-miR-6757-3p	0.021182938	up	6.134121	0				TGGGGATAGCAAGGC
hsa-miR-4312	0.021364475	up	6.114084	0				TGGGGACAGGAACAA
hsa-miR-6890-3p	0.02142203	up	6.1078024	0				CTGTGGGGCATAGGC
hsa-miR-3622b-3p	0.020486448	up	6.214276	0				CAGGCACGGGAGC
hsa-miR-519d-3p	0.020882001	up	6.168097	0	54216658	chr19	54216675	CACTCTAAAGGGAGGCACT
hsa-miR-16-2-3p	0.031075956	up	5.362068	0	160122586	chr3	160122606	TAAAGCAGCACAGTAATATTGG
hsa-miR-6736-5p	0.033522647	up	5.3660946	0				ACCACAGATGCCCTC
hsa-miR-4710	0.03450159	up	5.3111515	0				AACCACCTGCCCTCA
hsa-miR-6804-5p	0.03443327	up	5.314897	0				CGTCACCTGCTGAC
hsa-miR-1273g-5p	0.033891357	up	5.345078	0	53406017	chr1	53406032	ACTTACTGCAGCCTCAA
hsa-miR-1207-3p	0.034112368	up	5.3326693	0				GAAATGAGGGCCAGC
hsa-miR-204-3p	0.03422679	up	5.3262997	0				ACGTCCCTTTGCCTT
hsa-miR-3659	0.03199917	up	5.9521465	0				TGCCCTCGTAGACAAC

hsa-miR-6866-3p	0.02368567	up	5.884106	0				CTAGAGGACAGATAAAGGG
hsa-miR-5584-3p	0.024831297	up	5.785485	0				AATTGGGCAAAGGGAAG
hsa-miR-371a-3p	0.025170181	up	5.7578773	0	54290974	chr19	54290992	ACACTCAAAAGATGGCGGC
hsa-miR-4633-5p	0.02528625	up	5.748573	0				GAGGAGCTAGCCAGG
hsa-miR-6784-3p	0.025338562	up	5.7444057	0				CTGGGGCAGAGTTGG
hsa-miR-1273h-5p	0.028459268	up	5.7035093	0				ACTGCAGCCTTGACC
hsa-let-7e-3p	0.025748072	up	5.712295	0	122017300	chr11	122017286	GGAAAGCTAGGAGGC
hsa-miR-6878-3p	0.025726663	up	5.713951	0				CTAGGAGAAAGAAGAGGC
hsa-miR-605-5p	0.02561026	up	5.7229986	0	53059355	chr10	53059370	AGGAGAAGGCACCATGG
hsa-miR-634	0.02549446	up	5.7320724	0				GTCCAAAGTTGGGGTGCT
hsa-miR-6786-3p	0.02604653	up	5.689456	0				AGGCAGAATCAGAAGGG
hsa-miR-892b	0.026061315	up	5.6883373	0				TCTACCCAGAAAGGAGCCA
hsa-miR-6867-3p	0.026316267	up	5.6692076	0				CTAGTGGGTAAAGAGGG
hsa-miR-6887-3p	0.026260106	up	5.6733932	0				CTAGGAGGAAAGTGGAG
hsa-miR-6781-5p	0.032347344	up	5.435881	0				ACGCCCTTGACCTC
hsa-miR-1273d	0.030902576	up	5.528112	0				ACTGCAGCCTCAACC
hsa-miR-1469	0.031095482	up	5.5153494	0				GGAGCCCGCGC
hsa-miR-3180-3p	0.026778009	up	5.635375	0				GGCCTCCGGAAGC
hsa-miR-5708	0.026891345	up	5.6272244	0				GGTCAGGCACAGTCG
hsa-miR-6741-3p	0.027606577	up	5.5771275	0				CTAGGGTGAGGGAGA
hsa-miR-6736-3p	0.02771201	up	5.56993	0				CTGTGGGTAGAGAGGA
hsa-miR-6855-3p	0.027707815	up	5.5702157	0				CTGTGGGGTTGAAGG
hsa-miR-4636	0.030333944	up	5.566588	0				CTAAAGGCTTTGAACACG
hsa-miR-6869-3p	0.027758941	up	5.5667405	0				GCTGAGCCGATGCG
hsa-miR-129-1-3p	0.027295178	up	5.5986624	0	127847977	chr7	127847994	ATACTTTTTGGGGTAAGGG
hsa-miR-3622a-3p	0.027277708	up	5.5998836	0				ACAGGCATGGGAGGT
hsa-miR-1296-3p	0.027370121	up	5.593441	0				GGTTAGGGTCGAAGC
hsa-miR-215-5p	0.027438268	up	5.5887136	0	220291241	chr1	220291222	GTCTGTCAATTCATAGGTCAT
hsa-miR-1343-3p	0.02720755	up	5.604798	0	34963445	chr11	34963456	GCGAGAGTGCGGG
hsa-miR-6507-3p	0.025663082	up	5.7188845	0				GGGAAAAATAGGAAGGAC
hsa-miR-6872-3p	0.023386044	up	5.911361	0				GACCGCGGCAGG
hsa-miR-6729-3p	0.026163172	up	5.680657	0				CTGAGAGGGCGAGG
hsa-miR-3192-3p	0.024071747	up	5.849913	0				GAGCTGAGAGGGCG
hsa-miR-718	0.02441564	up	5.8202915	0				CGACGCCCGGC
hsa-miR-485-3p	0.02056052	up	6.205491	0				AGAGAGGAGAGCCGTGT
hsa-miR-6792-3p	0.019864893	up	6.2906194	0				ATGAGCAGGGGCTGT
hsa-miR-8073	0.034109227	up	5.3328457	0				ACGACGCTCCCTGC
hsa-miR-1910-3p	0.03329328	up	5.379374	0				TGTCATCCTGCTTCTGC
hsa-miR-7157-5p	0.034359526	up	5.318957	0				TCTCTGGTGCCAATGA
hsa-miR-508-5p	0.04978184	up	4.989157	0				CATGAGTGACGCCCTC
hsa-miR-1236-3p	0.025052283	up	5.767406	0	31924717	chr6	31924703	CTGGAGAGACAAGGGG
hsa-miR-1199-5p	0.030637885	up	5.5458584	0				CTGCGCGGCCC
hsa-miR-3713	0.034262784	up	5.3243036	0				ACCATCCCCAAACGG
hsa-miR-582-5p	0.014388667	up	7.299523	0	59035226	chr5	59035206	AGTAACTGGTTGAACAACTGTA
hsa-miR-628-5p	0.009559458	up	7.571145	0				CCTCTAGTAAATATGTCAGCA
hsa-miR-4697-3p	0.01914674	up	6.3852525	0				ACCAAGGGGCAGGA
hsa-miR-1910-5p	0.020881062	up	6.168203	0	85775258	chr16	85775247	AGGCGGCAGGCAC
hsa-miR-3184-3p	0.020224737	up	6.2458344	0				TGAGGGGCAGAGAGC
hsa-miR-3132	0.033682533	up	5.356931	0				TCCTCTGAGCTCCTTC
hsa-miR-3163	0.030951709	up	5.524848	0				GTCTTACTGCCCTCATT
hsa-miR-4419b	0.03497397	up	5.285591	0				CCATCTTCCTTCAGCC
hsa-miR-4487	0.021004926	up	6.4940376	0				CTGCCCTTCAGCCA
hsa-miR-4701-3p	0.024448328	up	6.064968	0				ACACCACACCCATCAC
hsa-miR-1291	0.030640444	up	5.545686	0				ACTGCTGGTCTTCAGTC
hsa-miR-4688	0.03413188	up	5.33158	0				CCCAGGTCCTCTGC
hsa-miR-6848-5p	0.034823235	up	5.293682	0				ACCATGGCCCATCCC
hsa-miR-4279	0.03228263	up	5.439853	0				GAAGCCGGGAGGA
hsa-miR-6073	0.03278089	up	5.4096255	0				GTAGCTGATAACTCACTACC
hsa-miR-665	0.029939683	up	5.4279385	0				AGGGGCCTCAGCCT
hsa-miR-769-3p	0.029296976	up	5.4670486	0				AACCAAGACCCCGGAG
hsa-miR-1226-3p	0.032221776	up	5.299489	0	47891106	chr3	47891119	CTAGGGAACACAGGG
hsa-miR-1224-3p	0.03597938	up	5.1168065	0				CTGAGGAGAGAGGAGG
hsa-miR-937-3p	0.034631744	up	5.1787515	0	144895198	chr8	144895184	GGCAGAGAGTCAGAGC
hsa-miR-202-3p	0.032945644	up	5.399808	0	135061097	chr10	135061084	TTCCCATGCCCTATA
hsa-miR-7515	0.034781132	up	5.2959538	0				GTCACCATCTTCCCTT
hsa-let-7f-1-3p	0.026974866	up	5.6212573	0	96938694	chr9	96938712	GGGAAGGCAATAGATTGTAT
hsa-miR-6862-3p	0.025773847	up	5.7103057	0				AGAGGGCCAGAGAGC
hsa-miR-3131	0.036952086	up	5.537821	0				AAGGCCCTTCCACC
hsa-miR-4496	0.031001091	up	5.5215764	0				CCCTCTCAGCTTCAGT
hsa-miR-6759-3p	0.02544559	up	5.735925	0				CTGAGGGGAGAGGC

hsa-miR-6803-3p	0.025567042	up	5.726376	0				CTGAGGGTGAGAAGGC
hsa-miR-939-3p	0.02481979	up	5.786437	0				CTGGGGAGCAGAGG
hsa-miR-4780	0.02776996	up	5.565994	0				GCTAGGGATCAGGCT
hsa-miR-4740-3p	0.026036426	up	5.6902237	0				GCAGGGACGGATCC
hsa-miR-3714	0.02679087	up	5.6344476	0				ACAGGGGAGCACTGC
hsa-miR-7108-3p	0.026663104	up	5.6436996	0				CTGTGGGGAGACGG
hsa-miR-18b-3p	0.035898585	up	5.1204185	0	133304140	chrX	133304128	GCCAGAAGGGGCAT
hsa-miR-4776-5p	0.03449732	up	5.311385	0				AGCCCTTGCCATCCT
hsa-miR-509-5p	0.03466962	up	5.301991	0				TGATTGCCACTGTCTGC
hsa-miR-1233-5p	0.002620704	up	10.037859	0	34674294	chr15	34674283	TGCCGTGCCCTGG
hsa-miR-362-3p	0.002103268	up	10.970899	0				TGAATCCTTGAATAGGTGTG
hsa-miR-590-5p	0.008949685	up	12.158628	0	73243480	chr7	73243500	CTGCACTTTTATGAATAAGCTC
hsa-miR-1288-3p	0.015050294	up	6.759233	0	16185378	chr17	16185392	TCTCCAGATCAGGGCA
hsa-miR-4314	0.023481186	up	5.8579273	0				CTGTCCCATTTCCCA
hsa-miR-542-5p	0.03966619	up	5.182103	0				TCTCGTGACATGATGATCCC
hsa-miR-6840-3p	0.036996875	up	5.026758	0				CACCCCGCACAAAG
hsa-miR-422a	0.002204092	up	9.9606695	0				GCCTTCTGACCCTA
hsa-miR-550a-3-5p	0.016850205	up	6.212165	0				CTCTTACTCCCTCAGGC
hsa-miR-371a-5p	0.04809032	up	4.5468693	0	54290942	chr19	54290953	AGTGCCCCCACAG
hsa-miR-7845-5p	0.017702166	up	6.1231923	0				CCACGACCCTCCC
hsa-miR-4508	0.005306048	up	8.233812	0				CGCGCGCCCAG
hsa-miR-4463	0.002363124	up	10.404692	0				GGCCCCACCCCA
hsa-miR-6808-5p	0.008747818	up	7.6887803	0				CATGGTCCCACCTCC
hsa-miR-6824-5p	0.002730594	up	9.906647	0				TCCCTGGCCCAACC
hsa-miR-6880-5p	0.002840157	up	10.099302	0				GAGCTGCCCTCTTCC
hsa-miR-4651	0.004655303	up	8.510328	0				GCCCGACCTCACC
hsa-miR-629-3p	0.003309491	up	9.354801	0	68158846	chr15	68158831	GCTGGGCTTACGTTGG
hsa-miR-4689	0.005216814	up	8.360668	0				GGCCCCCACCATG
hsa-miR-1185-2-3p	0.005149331	up	9.067846	0				ATGAGAGTCTCCCCCT
hsa-miR-3610	0.002978678	up	9.650203	0				CGGCGCCTCCTT
hsa-miR-2276-3p	0.023213517	up	6.202401	0	24736617	chr13	24736629	CCTCGCCTCTGACA
hsa-miR-6741-5p	0.020151287	up	6.2548413	0				CACGGCTCCCACC
hsa-miR-4253	0.03348227	up	5.368422	0				ACCCCCTGGACATGC
hsa-miR-4707-5p	0.028923629	up	5.6680403	0				CCAGAACCCGCCC
hsa-miR-6753-5p	0.03137967	up	5.496809	0				TCAGCCCTGCTCTGC
hsa-miR-6765-5p	0.02821127	up	5.722906	0				ACACACCCTCCTGGC
hsa-miR-3620-3p	0.021356212	up	6.1149893	0	228285031	chr1	228285042	CTGGGTGCGGGAT
hsa-miR-3934-5p	0.022743568	up	6.2590227	0	33665937	chr6	33665950	CTGCCTCAGTTTCCA
hsa-miR-4732-5p	0.023999415	up	6.1131644	0				AGCTTCCTGCTCCCT
hsa-miR-6788-5p	0.03091071	up	5.5275693	0				TCTTCACCACTCTTCTCC
hsa-miR-6885-3p	0.018839622	up	6.428062	0				CTAGGGGAGCAGGAA
hsa-miR-3682-3p	0.02393786	up	6.1199226	0	54076328	chr2	54076313	CTACCTCCACCTGTATC
hsa-miR-4753-5p	0.023961227	up	6.1173525	0				CTGTTCTCTTCCTTTGG
hsa-miR-4324	0.02419894	up	5.8388677	0				TTAAGGTTAGGGTCTCAGG
hsa-miR-4432	0.04528627	up	5.217047	0				AGGCATCTTGCAGAGTC
hsa-miR-921	0.002726196	up	9.931646	0				GAATCCTGGTTCTGTCC
hsa-miR-212-3p	0.002254702	up	10.611317	0	1953655	chr17	1953641	GGCCGTGACTGGAGAC
hsa-miR-6772-5p	0.00259458	up	10.065361	0				CCTCAGCTCCAGCC
hsa-miR-3654	0.002825525	up	9.80736	0				TTCCTCAGCTTGTCCA
hsa-miR-1909-5p	0.019691462	up	6.31281	0	1816193	chr19	1816182	CAGGGCAGGCACC
hsa-miR-200a-3p	0.022791453	up	5.9674244	0	1103301	chr1	1103317	ACATCGTTACCAGACAGT
hsa-miR-4535	0.019365817	up	6.355598	0				GTCCCAGCCAGGTC
hsa-miR-135b-5p	0.01870949	up	6.446662	0	205417467	chr1	205417446	TCACATAGGAATGAAAAGCCATA
hsa-miR-631	0.027183753	up	5.606469	0				GCTGAGGTCTGGGCC
hsa-miR-4665-5p	0.023324585	up	6.1893888	0				GCTCGCGCTCACG
hsa-miR-4695-3p	0.017981458	up	6.5561795	0				GAAGGAGGCAGCGG
hsa-miR-3940-3p	0.018666664	up	6.452842	0	6416498	chr19	6416485	AAGTGGGCTGGGATC
hsa-miR-6511b-3p	0.019086989	up	6.393465	0				TGCAGGCAGAAGGGG
hsa-miR-1976	0.019367496	up	6.3553734	0				ACAGCAAGGAGGGCA
hsa-miR-7109-3p	0.018613983	up	6.4604926	0				CTGGAAGGGCAGGA
hsa-miR-1471	0.03247887	up	5.4278507	0				ACACCTGGCTCCACA
hsa-miR-3188	0.024831377	up	5.785479	0				CCCCGTATCCGCA
hsa-miR-6758-5p	0.033500336	up	5.3673787	0				ACATCACATCCTTCCCC
hsa-miR-5681b	0.019379744	up	6.3537393	0				ACTAGAAAGGGTGGCA
hsa-miR-6750-3p	0.026433354	up	5.660531	0				CTGGGAGCAGAGGG
hsa-miR-204-5p	0.02560207	up	5.723638	0	73424944	chr9	73424926	AGGCATAGGATGACAAAGGG
hsa-miR-2277-3p	0.025422635	up	5.7377377	0	92956480	chr5	92956469	GAGCCAGGCAGGG
hsa-miR-211-5p	0.018771801	up	6.4377213	0	31357281	chr15	31357262	AGGCGAAGGATGACAAAGGGA
hsa-miR-6511a-3p	0.01783087	up	6.580081	0				GCAGGCAGAAGGGA
hsa-miR-4763-5p	0.018106226	up	6.5367146	0				AGCAGGAGGGCTGG

hsa-miR-3617-3p	0.019075016	up	6.3951178	0				AGAAAGGACATAGGGTGC
hsa-miR-6877-3p	0.019220505	up	6.3751874	0				GGAGGCCAAGGGC
hsa-miR-6782-3p	0.020829484	up	6.174126	0				TGCAGGATGGGGACA
hsa-miR-5587-5p	0.027091585	up	5.61297	0				AGTCCCGGAGGTGA
hsa-miR-487b-5p	0.019995453	up	6.274178	0				CGAACAGGACAGGG
hsa-miR-6825-3p	0.02255396	up	5.990597	0				TGCGGAGAAGGCGG
hsa-miR-6846-3p	0.022953497	up	5.951875	0				CTAGGGAGACAGAAGGG
hsa-miR-6894-3p	0.022707885	up	5.9755263	0				CTGGAGGAAGAGGGC
hsa-miR-615-3p	0.024521818	up	5.8112993	0				AAGAGGGAGACCCAGGC
hsa-miR-4481	0.024885789	up	5.781	0				AACCACCAGCCCAC
hsa-miR-5008-5p	0.025381306	up	5.9705534	0				CCACTGTGCCCCA
hsa-miR-345-5p	0.01885991	up	6.031634	0	100774222	chr14	100774234	GAGCCCTGGACTAG
hsa-miR-550a-5p	0.031030713	up	5.2011766	0	30329439	chr7	30329453	GGGCTCTTACTCCCT
hsa-miR-6789-5p	0.011886146	up	7.105271	0				CCCGCGCGCC
hsa-miR-130a-3p	0.013393003	up	11.306049	0	57408729	chr11	57408746	ATGCCCTTTTAACATTGCA
hsa-miR-370-3p	0.023863288	up	6.313655	0	101377532	chr14	101377544	ACCAGGTTCCACCC
hsa-miR-6722-3p	0.029033003	up	5.7346325	0				CCTGGCCCACCC
hsa-miR-526b-5p	0.00597597	up	7.934882	0	54197666	chr19	54197682	ACAGAAAGTGCTTCCCTC
hsa-miR-3158-5p	0.006892068	up	8.270891	0				GAAGGGCTTCCTCTC
hsa-miR-6516-3p	0.005934903	up	7.949409	0				TGTTTGCAGTATCATACATG
hsa-miR-191-5p	0.0280139	up	5.3363347	0	49058088	chr3	49058075	CAGCTGCTTTTGGGA
hsa-miR-501-5p	0.02983818	up	5.2614923	0	49661088	chrX	49661104	TCTCACCCAGGGACAAAG
hsa-miR-130b-3p	0.007554296	up	15.6091385	0	22007648	chr22	22007664	ATGCCCTTTCATCATTGC
hsa-miR-363-3p	0.016679212	up	11.391617	0	133303478	chrX	133303461	TACAGATGGATACCGTGCA
hsa-miR-199a-3p	0.008666725	up	15.315633	0				TAACCAATGTGCAGACTACT
hsa-miR-3150b-5p	0.003867069	up	8.989869	0				GCTGGGGAGATCCTC
hsa-miR-3180-5p	0.003407051	up	9.351596	0				CGACGTGGGGCG
hsa-miR-199b-5p	0.010795566	up	9.921543	0	130046868	chr9	130046848	GAACAGATAGTCTAAACACTGG
hsa-miR-4522	0.003617093	up	9.227185	0				ACCGGCCTACAGGC
hsa-miR-1273c	0.002967312	up	9.660821	0				GACAGGGTCTCGTTTT
hsa-miR-650	0.005336819	up	8.196045	0				GTCCTGAGAGCGCTGC
hsa-miR-223-3p	0.03829981	up	5.2240996	0	65238781	chrX	65238800	TGGGGTATTTGACAAACTGAC
hur_4	0.04967646	up	4.5615907	1				
hur_6	0.036919903	up	5.2143908	1				
mr_1	0.042913552	up	5.1275754	1				
hur_1	0.024040453	up	6.319014	1				
hur_2	0.024675658	up	6.469756	1				
hsa-miR-16-5p	0.048411675	up	4.7574024	0	160122545	chr3	160122563	CGCCAATATTTACGTGCTG
hsa-miR-4516	0.030257557	up	5.1458044	0				GCCCCGACCCTTC
hsa-miR-6127	0.04299024	up	3.9876077	0				CCTCCCACCCACTC
hsa-miR-4286	0.017679881	up	6.8408685	0				GGTACCAGGAGTGGG
hsa-miR-5100	0.049008764	up	4.6019483	0				AGAGGCACCGCTGG
hsa-miR-22-3p	0.04928056	up	4.438975	0	1617270	chr17	1617253	ACAGTTCTTCAACTGGCAG
hsa-miR-27a-3p	0.040248	up	4.781815	0	13947324	chr19	13947309	GCGGAACTTAGCCACTG
hsa-miR-4485-5p	0.048162304	up	4.2356977	0				TCACTGGGCAGGCG
hsa-miR-15b-5p	0.031606857	up	5.982546	0	160122398	chr3	160122416	TGTAAACCATGATGTGCTGC
hsa-miR-29a-3p	0.03231636	up	5.4856977	0	130561568	chr7	130561550	TAACCGATTTCAGATGGTGC
hsa-miR-29c-3p	0.046740633	up	4.4048157	0	207975271	chr1	207975251	TAACCGATTTCAAATGGTGCTA
hsa-miR-150-5p	0.042706717	up	7.418096	0	50004078	chr19	50004062	CACTGGTACAAGGGTTGG
hsa-miR-106b-5p	0.028587645	up	6.447386	0	99691647	chr7	99691632	ATCTGCACTGTCAGCAC
hsa-miR-140-3p	0.04651442	up	4.5843396	0				CCGTGGTTCTACCCT
hsa-miR-20a-5p	0.033091273	up	5.9461317	0	92003331	chr13	92003348	CTACCTGCACTATAAGCAC
hsa-miR-25-3p	0.041294426	up	5.0316143	0	99691255	chr7	99691239	TCAGACCGAGACAAGTGC
hsa-miR-19b-3p	0.028313067	up	7.101863	0	92003502	chr13	92003521	TCAGTTTTGCATGGATTTGC
hsa-miR-6826-5p	0.045792818	up	4.585167	0				AGGTCCCACCTCTTTC
hsa-miR-4497	0.049309887	up	4.0255284	0				GCCCAGCCGTCC
hsa-miR-4443	0.02851976	up	5.278011	0				AAAACCCACGCCTCC
hsa-miR-4485-3p	0.033750325	up	4.7697577	0	10529866	chr11	10529853	TTAGGGTACCGCGGC
hsa-miR-3935	0.023193784	down	-6.29944	0				GTGGCTGGTGCTCG
hsa-miR-19a-3p	0.023187112	up	9.620313	0	92003196	chr13	92003215	TCAGTTTTGCATAGATTTGCA
hsa-miR-664b-3p	0.031872638	up	5.9220943	0	153996918	chrX	153996931	TGTAGGCTGGGAGGC
hsa-miR-3195	0.035401884	up	4.7078376	0				AACCCGGGCCCG
hsa-miR-320b	0.040609892	up	5.0348024	0				TTGCCCTCTCAACCC

Table S7. Gene expression changes for genes from cut set defined in Fig. 3B of AR-AIT versus HC

ProbeName	p ([AR-] Vs [HC])	Regulation ([AR-] Vs [HC])	FC ([AR-] Vs [HC])	GeneSymbol	Description
A_33_P3396872	0.003557393	down	-2.3489861	CPED1	Homo sapiens cadherin-like and PC-esterase domain containing 1 (CPED1), transcript variant 2, mRNA [NM_001105533]
A_33_P6455786	0.017343698	down	-1.5593534	ANTXR2	Homo sapiens anthrax toxin receptor 2 (ANTXR2), transcript variant 1, mRNA [NM_058172]
A_23_P83436	6.73E-04	down	-1.8219993	PEPD	Homo sapiens peptidase D (PEPD), transcript variant 1, mRNA [NM_000285]
A_23_P215406	6.63E-04	down	-1.696226	RAC1	Homo sapiens ras-related C3 botulinum toxin substrate 1 (rho family, small GTP binding protein Rac1) (RAC1), transcript variant Rac1b, mRNA [NM_018890]
A_33_P3223467	1.90E-06	down	-2.3728657	VCPIP1	Homo sapiens valosin containing protein (p97)/p47 complex interacting protein 1 (VCPIP1), mRNA [NM_025054]
A_24_P76879	1.60E-04	down	-1.9254186	TSPYL1	Homo sapiens TSPY-like 1 (TSPYL1), mRNA [NM_003309]
A_23_P256632	3.67E-05	down	-1.9931833	PGGT1B	Homo sapiens protein geranylgeranyltransferase type I, beta subunit (PGGT1B), mRNA [NM_005023]
A_22_P00020384	1.22E-05	down	-2.259905	SYNJ2BP-COX16	Homo sapiens SYNJ2BP-COX16 readthrough (SYNJ2BP-COX16), transcript variant 1, mRNA [NM_001202547]
A_23_P110288	0.013436165	down	-1.734865	GSTCD	Homo sapiens glutathione S-transferase, C-terminal domain containing (GSTCD), transcript variant 2, mRNA [NM_024751]
A_23_P110167	8.20E-04	down	-1.7375015	MGST2	Homo sapiens microsomal glutathione S-transferase 2 (MGST2), transcript variant 1, mRNA [NM_002413]
A_24_P250499	0.001540618	down	-1.6145463	RPRD1B	Homo sapiens regulation of nuclear pre-mRNA domain containing 1B (RPRD1B), mRNA [NM_021215]
A_23_P431939	6.41E-04	down	-1.6142184	MR1	Homo sapiens major histocompatibility complex, class I-related (MR1), transcript variant 1, mRNA [NM_001531]
A_23_P133424	3.06E-04	down	-1.6905649	SKP1	Homo sapiens S-phase kinase-associated protein 1 (SKP1), transcript variant 1, mRNA [NM_006930]
A_33_P3338559	8.22E-05	down	-2.1883047	RBBP4	Homo sapiens retinoblastoma binding protein 4 (RBBP4), transcript variant 1, mRNA [NM_005610]
A_24_P942030	0.011922509	down	-1.6396983	VAMP4	Homo sapiens vesicle-associated membrane protein 4 (VAMP4), transcript variant 1, mRNA [NM_003762]
A_33_P3251108	4.77E-04	down	-1.9526358	SLC33A1	Homo sapiens solute carrier family 33 (acetyl-CoA transporter), member 1 (SLC33A1), transcript variant 2, mRNA [NM_001190992]
A_23_P379475	0.006426141	down	-1.7162476	DHCR24	Homo sapiens 24-dehydrocholesterol reductase (DHCR24), mRNA [NM_014762]
A_23_P122775	8.43E-04	down	-1.7127842	RTN4IP1	Homo sapiens reticulon 4 interacting protein 1 (RTN4IP1), mRNA [NM_032730]
A_24_P50028	0.007743224	down	-3.113002	RAB39A	Homo sapiens RAB39A, member RAS oncogene family (RAB39A), mRNA [NM_017516]
A_33_P3221353	0.016996117	down	-1.5072367	VWA8	Homo sapiens von Willebrand factor A domain containing 8 (VWA8), transcript variant 2, mRNA [NM_001009814]
A_23_P411723	2.07E-04	down	-1.9160252	PLAG1	Homo sapiens pleiomorphic adenoma gene 1 (PLAG1), transcript variant 1, mRNA [NM_002655]
A_23_P202496	0.001608568	down	-1.6350737	NOC3L	Homo sapiens nucleolar complex associated 3 homolog (S. cerevisiae) (NOC3L), mRNA [NM_022451]
A_33_P3252141	6.49E-04	down	-1.6458377	TMX3	Homo sapiens thioredoxin-related transmembrane protein 3 (TMX3), mRNA [NM_019022]
A_32_P151366	0.014979737	down	-1.505278	SIRT5	Homo sapiens sirtuin 5 (SIRT5), transcript variant 1, mRNA [NM_012241]
A_32_P141969	0.008958893	down	-2.5594287	NTRK3	neurotrophic tyrosine kinase, receptor, type 3 [Source:HGNC Symbol;Acc:HGNC:8033] [ENST00000394480]
A_23_P106998	0.002733927	down	-1.5115569	MRPS23	Homo sapiens mitochondrial ribosomal protein S23 (MRPS23), mRNA [NM_016070]
A_32_P131367	7.40E-05	down	-1.8169061	RNF13	Homo sapiens ring finger protein 13 (RNF13), transcript variant 1, mRNA [NM_007282]
A_23_P202602	0.001372546	down	-1.8311105	SEC23IP	Homo sapiens SEC23 interacting protein (SEC23IP), transcript variant 1, mRNA [NM_007190]
A_23_P118516	7.72E-04	down	-1.9619852	TVP23B	Homo sapiens trans-golgi network vesicle protein 23 homolog B (S. cerevisiae) (TVP23B), mRNA [NM_016078]
A_33_P3373885	0.018006127	down	-1.7183323	NAA35	N(alpha)-acetyltransferase 35, NatC auxiliary subunit [Source:HGNC Symbol;Acc:HGNC:24340] [ENST00000416045]
A_24_P364807	0.005545566	down	-1.8482512	LPCAT2	Homo sapiens lysophosphatidylcholine acyltransferase 2 (LPCAT2), mRNA [NM_017839]
A_33_P3264089	6.24E-04	down	-1.9967911	ACTR3C	Homo sapiens ARP3 actin-related protein 3 homolog C (yeast) (ACTR3C), transcript variant 1, mRNA [NM_001164458]
A_23_P45294	5.35E-04	down	-1.68183	FAM199X	Homo sapiens family with sequence similarity 199, X-linked (FAM199X), mRNA [NM_207318]
A_33_P3254136	0.013088718	down	-1.927139	PKHD1L1	Homo sapiens polycystic kidney and hepatic disease 1 (autosomal recessive)-like 1 (PKHD1L1), mRNA [NM_177531]
A_33_P3257027	0.003412429	down	-1.9168295	FGF7	Homo sapiens fibroblast growth factor 7 (FGF7), mRNA [NM_002009]
A_23_P377299	0.004101043	down	-1.9212806	ECE2	Homo sapiens endothelin converting enzyme 2 (ECE2), transcript variant 1, mRNA [NM_014693]
A_23_P120883	0.007147152	down	-1.7202667	HMOX1	Homo sapiens heme oxygenase (decycling) 1 (HMOX1), mRNA [NM_002133]
A_23_P73835	0.00191922	down	-1.9102542	MOSPD1	Homo sapiens motile sperm domain containing 1 (MOSPD1), mRNA [NM_019556]
A_24_P920646	0.01078197	down	-1.702217	CYP19A1	Homo sapiens cytochrome P450, family 19, subfamily A, polypeptide 1, mRNA (cDNA clone IMAGE:5588077), complete cds. [BC035714]

A_33_P3279431	3.01E-04	down	-1.8563578	GOSR1	Homo sapiens golgi SNAP receptor complex member 1 (GOSR1), transcript variant 3, mRNA [NM_001007024]
A_23_P209337	0.00736613	down	-1.5906414	METTL21A	Homo sapiens methyltransferase like 21A (METTL21A), transcript variant 1, mRNA [NM_145280]
A_23_P30020	6.16E-04	down	-1.7439581	PLA2G12A	Homo sapiens phospholipase A2, group XIIA (PLA2G12A), mRNA [NM_030821]
A_23_P31866	4.94E-04	down	-2.025804	MED30	Homo sapiens mediator complex subunit 30 (MED30), transcript variant 1, mRNA [NM_080651]
A_23_P131435	7.12E-04	down	-1.9341532	CD302	Homo sapiens CD302 molecule (CD302), transcript variant 1, mRNA [NM_014880]
A_33_P3288659	0.03808374	down	-1.6321762	ACTL8	Homo sapiens actin-like 8 (ACTL8), mRNA [NM_030812]
A_23_P110712	0.020295577	down	-1.5230163	DUSP1	Homo sapiens dual specificity phosphatase 1 (DUSP1), mRNA [NM_004417]
A_21_P0009685	2.50E-05	down	-2.052863	TMEM167A	Homo sapiens transmembrane protein 167A (TMEM167A), mRNA [NM_174909]
A_23_P52058	0.045418393	down	-1.5156056	TARBP1	Homo sapiens TAR (HIV-1) RNA binding protein 1 (TARBP1), mRNA [NM_005646]
A_23_P366453	0.028635979	down	-2.6971605	KHDRBS2	Homo sapiens KH domain containing, RNA binding, signal transduction associated 2 (KHDRBS2), mRNA [NM_152688]
A_24_P544882	0.005729221	down	-1.7288666	SSR1	Homo sapiens signal sequence receptor, alpha (SSR1), transcript variant 1, mRNA [NM_003144]
A_24_P396702	0.005196808	down	-1.6005006	CD302	Homo sapiens CD302 molecule (CD302), transcript variant 1, mRNA [NM_014880]
A_24_P254744	0.041706488	down	-2.2531416	EPHA3	Homo sapiens EPH receptor A3 (EPHA3), transcript variant 2, mRNA [NM_182644]
A_33_P3334308	2.37E-04	down	-1.9456458	ZXDB	Homo sapiens zinc finger, X-linked, duplicated B (ZXDB), mRNA [NM_007157]
A_23_P259442	3.78E-05	down	-2.3181357	CPE	Homo sapiens carboxypeptidase E (CPE), mRNA [NM_001873]
A_33_P3316555	4.36E-04	down	-1.6696582	MGST3	Homo sapiens microsomal glutathione S-transferase 3 (MGST3), mRNA [NM_004528]
A_24_P156922	0.005145475	down	-1.8651619	SCP2	Homo sapiens sterol carrier protein 2 (SCP2), transcript variant 2, mRNA [NM_001007098]
A_23_P24515	0.001471583	down	-1.8061931	ACAT1	Homo sapiens acetyl-CoA acetyltransferase 1 (ACAT1), mRNA [NM_000019]
A_33_P3495783	0.013935539	down	-1.5848765	XKR4	XK, Kell blood group complex subunit-related family, member 4 [Source:HGNC Symbol;Acc:HGNC:29394] [ENST00000327381]
A_24_P192805	0.008883304	down	-1.6931151	CARD17	Homo sapiens caspase recruitment domain family, member 17 (CARD17), mRNA [NM_001007232]
A_24_P185036	5.25E-04	down	-1.817877	CMTR2	Homo sapiens cap methyltransferase 2 (CMTR2), transcript variant 1, mRNA [NM_018348]
A_33_P3381191	0.013571066	down	-1.8126549	FOXRED2	Homo sapiens FAD-dependent oxidoreductase domain containing 2 (FOXRED2), transcript variant 1, mRNA [NM_024955]
A_23_P422724	7.24E-04	down	-2.2506034	PPIC	Homo sapiens peptidylprolyl isomerase C (cyclophilin C) (PPIC), mRNA [NM_000943]
A_23_P252711	3.47E-04	down	-1.8444946	LACTB2	Homo sapiens lactamase, beta 2 (LACTB2), mRNA [NM_016027]
A_23_P370142	2.79E-04	down	-1.7696563	PAFAH1B2	Homo sapiens platelet-activating factor acetylhydrolase 1b, catalytic subunit 2 (30kDa) (PAFAH1B2), transcript variant 1, mRNA [NM_002572]
A_33_P3361741	8.14E-05	down	-1.8279525	DNAJC15	Homo sapiens DnaJ (Hsp40) homolog, subfamily C, member 15 (DNAJC15), mRNA [NM_013238]
A_33_P3278475	1.79E-04	down	-1.9636704	FOXN2	Homo sapiens forkhead box N2 (FOXN2), mRNA [NM_002158]
A_33_P3243707	0.002135161	down	-1.6032124	KLHL20	Homo sapiens kelch-like family member 20 (KLHL20), mRNA [NM_014458]
A_23_P1431	0.012263466	down	-1.7249124	BMPR1A	Homo sapiens bone morphogenetic protein receptor, type IA (BMPR1A), mRNA [NM_004329]
A_24_P100996	3.94E-04	down	-2.100258	ANO5	Homo sapiens anoctamin 5 (ANO5), transcript variant 1, mRNA [NM_213599]
A_24_P55250	5.29E-04	down	-1.9464532	HDDC2	Homo sapiens HD domain containing 2 (HDDC2), mRNA [NM_016063]
A_23_P133694	0.009770916	down	-1.800563	SLC29A1	Homo sapiens solute carrier family 29 (equilibrative nucleoside transporter), member 1 (SLC29A1), transcript variant 1, mRNA [NM_001078177]
A_23_P19938	6.33E-05	down	-1.9959335	KDELR2	Homo sapiens KDEL (Lys-Asp-Glu-Leu) endoplasmic reticulum protein retention receptor 2 (KDELR2), transcript variant 1, mRNA [NM_006854]
A_23_P11543	0.01673374	down	-1.7581292	FUCA1	Homo sapiens fucosidase, alpha-L- 1, tissue (FUCA1), mRNA [NM_000147]
A_24_P188800	0.007240868	down	-1.6090146	MARCH1	Homo sapiens membrane-associated ring finger (C3HC4) 1, E3 ubiquitin protein ligase (MARCH1), transcript variant 2, mRNA [NM_017923]
A_23_P167349	0.038373068	down	-1.734164	GC	Homo sapiens group-specific component (vitamin D binding protein) (GC), transcript variant 1, mRNA [NM_000583]
A_23_P70318	0.002166997	down	-1.6228845	ENPP4	Homo sapiens ectonucleotide pyrophosphatase/phosphodiesterase 4 (putative) (ENPP4), mRNA [NM_014936]
A_33_P3371224	0.007489184	down	-1.5234734	ANO10	Homo sapiens anoctamin 10 (ANO10), transcript variant 2, mRNA [NM_001204831]
A_33_P3378272	0.027339326	down	-1.9407017	CLDN4	claudin 4 [Source:HGNC Symbol;Acc:HGNC:2046] [ENST00000431918]
A_23_P214244	2.77E-05	down	-2.5850294	ENPP5	Homo sapiens ectonucleotide pyrophosphatase/phosphodiesterase 5 (putative) (ENPP5), transcript variant 2, mRNA [NM_021572]
A_24_P355876	1.48E-04	down	-1.8693832	TMBIM6	Homo sapiens transmembrane BAX inhibitor motif containing 6 (TMBIM6), transcript variant 1, mRNA [NM_003217]
A_24_P54178	8.09E-05	down	-1.9825674	TMED5	Homo sapiens transmembrane emp24 protein transport domain containing 5 (TMED5), transcript variant 1, mRNA [NM_016040]
A_23_P68472	0.001212112	down	-2.0310066	DPM1	Homo sapiens dolichyl-phosphate mannosyltransferase polypeptide 1, catalytic subunit (DPM1), mRNA [NM_003859]
A_33_P3342528	0.018124323	down	-1.6628097	P2RY1	Homo sapiens purinergic receptor P2Y, G-protein coupled, 1 (P2RY1), mRNA [NM_002563]
A_23_P333228	0.038892973	down	-1.5460228	MARCH4	Homo sapiens membrane-associated ring finger (C3HC4) 4, E3 ubiquitin protein ligase (MARCH4), mRNA [NM_020814]
A_24_P171983	2.04E-04	down	-1.9800321	NDUFAF4	Homo sapiens NADH dehydrogenase (ubiquinone) complex I, assembly factor 4 (NDUFAF4), mRNA [NM_014165]
A_23_P41437	9.78E-05	down	-1.9188089	UFSP2	Homo sapiens UFM1-specific peptidase 2 (UFSP2), transcript variant 1, mRNA [NM_018359]
A_23_P101208	0.00323723	down	-1.7510192	CYB5A	Homo sapiens cytochrome b5 type A (microsomal) (CYB5A), transcript variant 2, mRNA [NM_001914]

A_33_P3325748	0.028468449	down	-1.5074817	TRIOBP	Homo sapiens TRIO and F-actin binding protein (TRIOBP), transcript variant 2, mRNA [NM_138632]
A_23_P120153	0.002713522	down	-1.5843253	RNF149	Homo sapiens ring finger protein 149 (RNF149), mRNA [NM_173647]
A_23_P2501	0.04707898	down	-1.5091753	PAH	Homo sapiens phenylalanine hydroxylase (PAH), mRNA [NM_000277]
A_24_P13715	0.004162691	down	-2.8893948	FBXO22	Homo sapiens F-box protein 22 (FBXO22), transcript variant 1, mRNA [NM_147188]
A_23_P85682	0.006510145	down	-1.8756105	NFIA	Homo sapiens nuclear factor I/A (NFIA), transcript variant 2, mRNA [NM_005595]
A_24_P382119	6.84E-04	down	-1.66107	MTMR4	Homo sapiens myotubularin related protein 4 (MTMR4), mRNA [NM_004687]
A_23_P88522	0.006170855	down	-1.6073592	NMB	Homo sapiens neuromedin B (NMB), transcript variant 1, mRNA [NM_021077]
A_33_P3258091	0.001487662	down	-1.6746497	RNPEP	Homo sapiens arginyl aminopeptidase (aminopeptidase B) (RNPEP), mRNA [NM_020216]
A_24_P230938	0.018786222	down	-1.5264279	MORN4	Homo sapiens MORN repeat containing 4, mRNA (cDNA clone IMAGE:4690584), complete cds. [BC022054]
A_23_P58877	0.00114434	down	-1.8850211	GOPC	Homo sapiens golgi-associated PDZ and coiled-coil motif containing (GOPC), transcript variant 1, mRNA [NM_020399]
A_33_P3257457	0.038839176	down	-2.0040798	TAF1L	Homo sapiens TAF1 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 210kDa-like (TAF1L), mRNA [NM_153809]
A_33_P3389168	0.034131624	down	-1.6345898	MTM1	myotubularin 1 [Source:HGNC Symbol;Acc:HGNC:7448] [ENST00000370393]
A_33_P3359115	1.01E-04	down	-1.9151101	LMBRD1	Homo sapiens LMBR1 domain containing 1 (LMBRD1), mRNA [NM_018368]
A_32_P90483	0.047008228	down	-1.699323	STXBP4	Homo sapiens syntaxin binding protein 4 (STXBP4), mRNA [NM_178509]
A_24_P941322	2.29E-04	down	-1.6769469	QKI	Homo sapiens QKI, KH domain containing, RNA binding (QKI), transcript variant 1, mRNA [NM_006775]
A_24_P219971	5.75E-04	down	-1.7768213	GID8	Homo sapiens GID complex subunit 8 (GID8), mRNA [NM_017896]
A_33_P3217819	0.008014904	down	-2.9481997	CCNE2	Homo sapiens cyclin E2 (CCNE2), mRNA [NM_057749]
A_23_P25433	7.09E-04	down	-1.7437295	C12orf4	Homo sapiens chromosome 12 open reading frame 4 (C12orf4), mRNA [NM_020374]
A_23_P415652	0.002348763	down	-1.7107223	GALNT12	Homo sapiens polypeptide N-acetylgalactosaminyltransferase 12 (GALNT12), mRNA [NM_024642]
A_32_P190769	0.041876774	down	-1.5272696	C1QTNF7	Homo sapiens C1q and tumor necrosis factor related protein 7 (C1QTNF7), transcript variant 3, mRNA [NM_031911]
A_33_P3419460	0.005895314	down	-1.6321744	VAPA	Homo sapiens VAMP (vesicle-associated membrane protein)-associated protein A, 33kDa (VAPA), transcript variant 1, mRNA [NM_003574]
A_24_P364970	0.009099	down	-1.5539805	DHX33	Homo sapiens DEAH (Asp-Glu-Ala-His) box polypeptide 33 (DHX33), transcript variant 1, mRNA [NM_020162]
A_24_P295543	0.006566912	down	-1.6722815	BLOC1S2	Homo sapiens biogenesis of lysosomal organelles complex-1, subunit 2 (BLOC1S2), transcript variant 2, mRNA [NM_001001342]
A_24_P143138	0.032269537	down	-1.6679686	FGD1	Homo sapiens FYVE, RhoGEF and PH domain containing 1 (FGD1), mRNA [NM_004463]
A_24_P305764	0.007738771	down	-1.7101027	SMS	Homo sapiens spermine synthase (SMS), transcript variant 1, mRNA [NM_004595]
A_23_P22682	2.73E-05	down	-1.98074	ARMCX1	Homo sapiens armadillo repeat containing, X-linked 1 (ARMCX1), mRNA [NM_016608]
A_24_P40551	5.05E-04	down	-2.1262784	BEX4	Homo sapiens brain expressed, X-linked 4 (BEX4), transcript variant 2, mRNA [NM_001080425]
A_23_P148959	3.11E-04	down	-1.6707635	TM2D1	Homo sapiens TM2 domain containing 1 (TM2D1), mRNA [NM_032027]
A_33_P3242873	0.002258694	down	-1.6754987	MPC1	Homo sapiens mitochondrial pyruvate carrier 1 (MPC1), transcript variant 2, mRNA [NM_001270879]
A_33_P3261167	0.001319981	down	-1.6863301	GNS	Homo sapiens glucosamine (N-acetyl)-6-sulfatase (GNS), mRNA [NM_002076]
A_33_P3223239	0.0426469	down	-1.5112407	ST7L	Homo sapiens suppression of tumorigenicity 7 like (ST7L), transcript variant 4, mRNA [NM_138729]
A_33_P3253975	0.01727209	down	-1.6017913	ACAT1	Homo sapiens acetyl-CoA acetyltransferase 1 (ACAT1), mRNA [NM_000019]
A_23_P133582	9.50E-04	down	-1.6367526	ETF1	Homo sapiens eukaryotic translation termination factor 1 (ETF1), transcript variant 1, mRNA [NM_004730]
A_33_P3213064	5.48E-04	down	-1.7717144	STAT2	Homo sapiens signal transducer and activator of transcription 2, 113kDa (STAT2), transcript variant 1, mRNA [NM_005419]
A_23_P251945	3.03E-04	down	-1.9362628	DCTN4	Homo sapiens dynactin 4 (p62) (DCTN4), transcript variant 2, mRNA [NM_016221]
A_33_P3301025	7.96E-04	down	-1.6559476	CPOX	Homo sapiens coproporphyrinogen oxidase (CPOX), mRNA [NM_000097]
A_23_P328074	0.0109792	down	-1.8106774	SALL1	Homo sapiens spalt-like transcription factor 1 (SALL1), transcript variant 1, mRNA [NM_002968]
A_33_P3214849	0.004357204	down	-1.729515	KDELC2	Homo sapiens KDEL (Lys-Asp-Glu-Leu) containing 2 (KDELC2), mRNA [NM_153705]
A_33_P3396492	0.002488327	down	-1.6114223	CDH24	Homo sapiens cadherin 24, type 2 (CDH24), transcript variant 1, mRNA [NM_022478]
A_23_P28169	0.002072885	down	-1.7667912	ARL6IP6	Homo sapiens ADP-ribosylation factor-like 6 interacting protein 6 (ARL6IP6), transcript variant 1, mRNA [NM_152522]
A_23_P129246	0.003357625	down	-1.5186011	PLEKHO2	Homo sapiens pleckstrin homology domain containing, family O member 2 (PLEKHO2), transcript variant 1, mRNA [NM_025201]
A_33_P3273822	0.011922575	down	-1.7300819	FBXO11	F-box protein 11 [Source:HGNC Symbol;Acc:HGNC:13590] [ENST00000434234]
A_23_P126582	0.039650764	down	-2.3693335	CASQ2	Homo sapiens calsequestrin 2 (cardiac muscle) (CASQ2), mRNA [NM_001232]
A_23_P143845	8.37E-04	down	-1.699389	TIPARP	Homo sapiens TCDD-inducible poly(ADP-ribose) polymerase (TIPARP), transcript variant 2, mRNA [NM_015508]
A_23_P40782	0.001737358	down	-1.8624697	COMMD2	Homo sapiens COMM domain containing 2 (COMMD2), mRNA [NM_016094]
A_23_P39718	6.15E-04	down	-1.9337803	FEZ2	Homo sapiens fasciculation and elongation protein zeta 2 (zygin II) (FEZ2), transcript variant 2, mRNA [NM_001042548]
A_23_P49674	2.01E-04	down	-1.6867956	ARHGEF15	Homo sapiens Rho guanine nucleotide exchange factor (GEF) 15 (ARHGEF15), transcript variant 1, mRNA [NM_173728]
A_23_P12329	3.15E-04	down	-1.9772017	APH1A	Homo sapiens APH1A gamma secretase subunit (APH1A), transcript variant 2, mRNA [NM_016022]
A_24_P115621	0.011300586	down	-1.7543682	EIF4EBP2	Homo sapiens eukaryotic translation initiation factor 4E binding protein 2 (EIF4EBP2), mRNA [NM_004096]
A_23_P65386	0.032454196	down	-1.5360459	OTUB2	Homo sapiens OTU deubiquitinase, ubiquitin aldehyde binding 2 (OTUB2), mRNA [NM_023112]

A_33_P3301050	0.022764465	down	-1.6485662	HHLA1	Homo sapiens HERV-H LTR-associating 1 (HHLA1), mRNA [NM_001145095]
A_24_P87490	2.65E-05	down	-2.073945	TVP23C	Homo sapiens trans-golgi network vesicle protein 23 homolog C (S. cerevisiae) (TVP23C), transcript variant 1, mRNA [NM_145301]
A_32_P61684	9.40E-04	down	-1.8552166	PAG1	Homo sapiens phosphoprotein membrane anchor with glycosphingolipid microdomains 1 (PAG1), mRNA [NM_018440]
A_33_P3379326	0.003292176	down	-1.7744204	MSR1	Homo sapiens macrophage scavenger receptor 1 (MSR1), transcript variant SR-AI, mRNA [NM_138715]
A_24_P374516	0.005319609	down	-1.7141161	TMSB4X	Homo sapiens thymosin beta 4, X-linked (TMSB4X), mRNA [NM_021109]
A_32_P203300	0.002813285	down	-1.5460619	EIF4E	Homo sapiens eukaryotic translation initiation factor 4E (EIF4E), transcript variant 2, mRNA [NM_001130679]
A_23_P362046	1.35E-04	down	-2.1863728	TEX30	Homo sapiens testis expressed 30 (TEX30), transcript variant 1, mRNA [NM_138779]
A_23_P502170	0.001438871	down	-1.6858422	DYNC2LI1	Homo sapiens dynein, cytoplasmic 2, light intermediate chain 1 (DYNC2LI1), transcript variant 2, mRNA [NM_015522]
A_23_P154894	0.004602743	down	-1.5621629	CSTB	Homo sapiens cystatin B (stefin B) (CSTB), mRNA [NM_000100]
A_23_P43071	0.009178089	down	-1.5649575	MTERF3	Homo sapiens mitochondrial transcription termination factor 3 (MTERF3), transcript variant 1, mRNA [NM_015942]
A_23_P11353	0.006868061	down	-1.5476362	ATP6AP2	Homo sapiens ATPase, H+ transporting, lysosomal accessory protein 2 (ATP6AP2), mRNA [NM_005765]
A_24_P48723	0.001838354	down	-2.4398892	PTGIS	Homo sapiens prostaglandin I2 (prostacyclin) synthase (PTGIS), mRNA [NM_000961]
A_23_P206382	0.004489881	down	-1.5442073	C16orf70	Homo sapiens chromosome 16 open reading frame 70 (C16orf70), mRNA [NM_025187]
A_24_P397903	0.002799548	down	-1.8868104	ZC2HC1A	Homo sapiens zinc finger, C2HC-type containing 1A (ZC2HC1A), mRNA [NM_016010]
A_23_P32913	0.001840157	down	-1.610288	ARMC10	Homo sapiens armadillo repeat containing 10 (ARMC10), transcript variant A, mRNA [NM_031905]
A_23_P13701	1.91E-04	down	-2.2358627	TMBIM4	Homo sapiens transmembrane BAX inhibitor motif containing 4 (TMBIM4), transcript variant 2, mRNA [NM_016056]
A_23_P50217	1.88E-04	down	-1.752941	ZNF671	Homo sapiens zinc finger protein 671 (ZNF671), mRNA [NM_024833]
A_23_P334990	3.55E-04	down	-1.7496451	SUDS3	Homo sapiens suppressor of defective silencing 3 homolog (S. cerevisiae) (SUDS3), mRNA [NM_022491]
A_23_P18325	1.60E-04	down	-1.7739203	PDCD10	Homo sapiens programmed cell death 10 (PDCD10), transcript variant 1, mRNA [NM_007217]
A_33_P3231120	0.002215244	down	-1.846894	CASD1	Homo sapiens CAS1 domain containing 1 (CASD1), mRNA [NM_022900]
A_33_P3221783	0.030681355	down	-1.5748432	TSLP	Homo sapiens thymic stromal lymphopoietin (TSLP), transcript variant 1, mRNA [NM_033035]
A_21_P0014015	0.029414406	down	-1.8135376	CNP	2',3'-cyclic nucleotide 3' phosphodiesterase [Source:HGNC Symbol;Acc:HGNC:2158] [ENST00000592861]
A_23_P151436	8.91E-05	down	-1.872058	ALG5	Homo sapiens ALG5, dolichyl-phosphate beta-glucosyltransferase (ALG5), transcript variant 1, mRNA [NM_013338]
A_23_P103282	2.99E-05	down	-1.9581758	TMEM59	Homo sapiens transmembrane protein 59 (TMEM59), mRNA [NM_004872]
A_24_P394698	1.60E-04	down	-1.9471017	ORC5	Homo sapiens origin recognition complex, subunit 5 (ORC5), transcript variant 2, mRNA [NM_181747]
A_24_P326708	0.003375691	down	-1.79763	BRSK2	Homo sapiens BR serine/threonine kinase 2 (BRSK2), transcript variant 2, mRNA [NM_003957]
A_23_P335848	0.003567088	down	-1.5068983	GIT2	Homo sapiens G protein-coupled receptor kinase interacting ArfGAP 2 (GIT2), transcript variant 1, mRNA [NM_057169]
A_33_P3337627	0.015342942	down	-1.5310552	TRPC6	Homo sapiens transient receptor potential cation channel, subfamily C, member 6 (TRPC6), mRNA [NM_004621]
A_23_P316447	0.013710298	down	-1.8083597	FGFR1	fibroblast growth factor receptor 1 [Source:HGNC Symbol;Acc:HGNC:3688] [ENST00000496296]
A_33_P3322328	6.70E-04	down	-1.687461	EPS15	Homo sapiens epidermal growth factor receptor pathway substrate 15 (EPS15), transcript variant 1, mRNA [NM_001981]
A_23_P20225	1.71E-04	down	-2.4660559	RRM2B	Homo sapiens ribonucleotide reductase M2 B (TP53 inducible) (RRM2B), transcript variant 1, mRNA [NM_015713]
A_23_P252783	2.64E-04	down	-1.8501998	SLC2A8	Homo sapiens solute carrier family 2 (facilitated glucose transporter), member 8 (SLC2A8), transcript variant 1, mRNA [NM_014580]
A_23_P166297	0.001457866	down	-1.5782329	ABCG1	Homo sapiens ATP-binding cassette, sub-family G (WHITE), member 1 (ABCG1), transcript variant 5, mRNA [NM_207627]
A_24_P605190	0.004852123	down	-1.7169155	PGGT1B	Homo sapiens protein geranylgeranyltransferase type I, beta subunit (PGGT1B), mRNA [NM_005023]
A_23_P205007	1.97E-04	down	-1.9002829	IPO5	Homo sapiens importin 5 (IPO5), mRNA [NM_002271]
A_23_P255503	0.010812159	down	-1.5861402	PAFAH1B2	Homo sapiens platelet-activating factor acetylhydrolase 1b, catalytic subunit 2 (30kDa) (PAFAH1B2), transcript variant 1, mRNA [NM_002572]
A_23_P165608	0.001691285	down	-1.6841604	SEMA4F	Homo sapiens sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4F (SEMA4F), transcript variant 1, mRNA [NM_004263]
A_23_P120062	0.012552924	down	-1.5124341	GCFC2	Homo sapiens GC-rich sequence DNA-binding factor 2 (GCFC2), transcript variant 1, mRNA [NM_003203]
A_23_P156061	0.004550992	down	-1.7041519	LNPEP	Homo sapiens leucyl/cystinyl aminopeptidase (LNPEP), transcript variant 1, mRNA [NM_005575]
A_22_P00022810	0.003495317	down	-1.5740031	POFUT1	Homo sapiens protein O-fucosyltransferase 1 (POFUT1), transcript variant 1, mRNA [NM_015352]
A_23_P28652	0.002966243	down	-1.8682477	ATRAID	Homo sapiens all-trans retinoic acid-induced differentiation factor (ATRAID), transcript variant 1, mRNA [NM_016085]
A_23_P257198	0.001986614	down	-1.6500078	NDUFS4	Homo sapiens NADH dehydrogenase (ubiquinone) Fe-S protein 4, 18kDa (NADH-coenzyme Q reductase) (NDUFS4), mRNA [NM_002495]
A_24_P46953	0.0021378	down	-1.6863593	SGK3	Homo sapiens serum/glucocorticoid regulated kinase family, member 3 (SGK3), transcript variant 1, mRNA [NM_013257]
A_23_P134925	6.00E-05	down	-2.1403408	BNIP3L	Homo sapiens BCL2/adenovirus E1B 19kDa interacting protein 3-like (BNIP3L), mRNA [NM_004331]
A_23_P419947	0.005857869	down	-1.7023757	MLF1	Homo sapiens myeloid leukemia factor 1 (MLF1), transcript variant 1, mRNA [NM_022443]
A_33_P3223544	2.59E-04	down	-1.7049671	TMBIM4	Homo sapiens transmembrane BAX inhibitor motif containing 4 (TMBIM4), transcript variant 1, mRNA [NM_001282606]

A_23_P71513	0.002013957	down	-1.6194972	EFR3A	Homo sapiens EFR3 homolog A (S. cerevisiae) (EFR3A), mRNA [NM_015137]
A_33_P3398392	0.024379948	down	-1.616422	FHL1	four and a half LIM domains 1 [Source:HGNC Symbol;Acc:HGNC:3702] [ENST00000370674]
A_24_P166311	3.08E-04	down	-1.9559196	ZBED8	Homo sapiens zinc finger, BED-type containing 8 (ZBED8), transcript variant 2, mRNA [NM_022090]
A_33_P3362641	2.19E-05	down	-1.9287082	CISD2	Homo sapiens CDGSH iron sulfur domain 2 (CISD2), mRNA [NM_001008388]
A_23_P28105	5.48E-04	down	-1.8623825	TSN	Homo sapiens translin (TSN), transcript variant 1, mRNA [NM_004622]
A_33_P3307875	5.71E-04	down	-1.7177256	SPTSSA	Homo sapiens serine palmitoyltransferase, small subunit A (SPTSSA), mRNA [NM_138288]
A_21_P0000090	0.001082071	down	-1.8397288	TSFM	Homo sapiens Ts translation elongation factor, mitochondrial (TSFM), transcript variant 4, mRNA [NM_001172697]
A_33_P3424217	0.001443654	down	-1.8607017	HLA-DQB1	Homo sapiens major histocompatibility complex, class II, DQ beta 1 (HLA-DQB1), transcript variant 3, mRNA [NM_001243962]
A_33_P3212782	1.22E-04	down	-2.2483828	CALM2	Homo sapiens calmodulin 2 (phosphorylase kinase, delta) (CALM2), mRNA [NM_001743]
A_33_P3399870	0.00201689	down	-1.6540102	CERS6	Homo sapiens ceramide synthase 6 (CERS6), transcript variant 1, mRNA [NM_001256126]
A_33_P3419339	0.012978639	down	-1.7165604	GNAI3	Homo sapiens guanine nucleotide binding protein (G protein), alpha inhibiting activity polypeptide 3 (GNAI3), mRNA [NM_006496]
A_24_P30557	0.0393597	down	-1.7064204	TBX5	Homo sapiens T-box 5 (TBX5), transcript variant 1, mRNA [NM_000192]
A_23_P102770	0.001511163	down	-1.6089365	NAA20	Homo sapiens N(alpha)-acetyltransferase 20, NatB catalytic subunit (NAA20), transcript variant 1, mRNA [NM_016100]
A_33_P3227467	0.001251055	down	-1.5020599	BNIP2	Homo sapiens BCL2/adenovirus E1B 19kDa interacting protein 2 (BNIP2), mRNA [NM_004330]
A_23_P95790	0.003289918	down	-2.117317	ITLN1	Homo sapiens intelectin 1 (galactofuranose binding) (ITLN1), mRNA [NM_017625]
A_23_P54000	1.21E-04	down	-1.8880471	SNX6	Homo sapiens sorting nexin 6 (SNX6), transcript variant 1, mRNA [NM_021249]
A_23_P121141	0.001822983	down	-1.5799463	ASTE1	Homo sapiens asteroid homolog 1 (Drosophila) (ASTE1), transcript variant 2, mRNA [NM_014065]
A_23_P139820	0.00516304	down	-1.70274	SLC11A2	Homo sapiens solute carrier family 11 (proton-coupled divalent metal ion transporter), member 2 (SLC11A2), transcript variant 4, mRNA [NM_000617]
A_23_P250994	2.32E-04	down	-1.8665607	ANAPC10	Homo sapiens anaphase promoting complex subunit 10 (ANAPC10), transcript variant 2, mRNA [NM_014885]
A_23_P61406	0.04888047	down	-2.033715	SHC3	Homo sapiens SHC (Src homology 2 domain containing) transforming protein 3 (SHC3), mRNA [NM_016848]
A_33_P3255209	0.002314515	down	-1.6319745	MGAT5	Homo sapiens mannosyl (alpha-1,6-)-glycoprotein beta-1,6-N-acetyl-glucosaminyltransferase (MGAT5), mRNA [NM_002410]
A_23_P55688	0.002265448	down	-1.6673322	ZNF416	Homo sapiens zinc finger protein 416 (ZNF416), mRNA [NM_017879]
A_23_P258321	0.00396163	down	-1.5947367	MRPS17	Homo sapiens mitochondrial ribosomal protein S17 (MRPS17), mRNA [NM_015969]
A_33_P3224745	0.005036973	down	-1.5705292	PLA2G15	Homo sapiens phospholipase A2, group XV (PLA2G15), mRNA [NM_012320]
A_23_P202750	5.73E-04	down	-1.7936065	C11orf54	Homo sapiens chromosome 11 open reading frame 54 (C11orf54), transcript variant 4, mRNA [NM_014039]
A_24_P89971	3.94E-04	down	-1.7253305	SURF4	Homo sapiens surfeit 4 (SURF4), transcript variant 1, mRNA [NM_033161]
A_33_P3227666	0.00247197	down	-1.5410994	AGGF1	Homo sapiens angiogenic factor with G patch and FHA domains 1 (AGGF1), mRNA [NM_018046]
A_33_P3406004	0.002164749	down	-1.9748396	YBEY	Homo sapiens ybeY metallopeptidase (putative) (YBEY), transcript variant 1, mRNA [NM_058181]
A_23_P114929	0.002381834	down	-1.6493914	MPC2	Homo sapiens mitochondrial pyruvate carrier 2 (MPC2), transcript variant 2, mRNA [NM_015415]
A_24_P110831	0.03061153	down	-1.5731493	ANO1	anoctamin 1, calcium activated chloride channel [Source:HGNC Symbol;Acc:HGNC:21625] [ENST00000316296]
A_23_P85392	3.32E-04	down	-1.7349374	RER1	Homo sapiens retention in endoplasmic reticulum sorting receptor 1 (RER1), mRNA [NM_007033]
A_32_P163125	0.001193664	down	-1.7101803	SGMS1	Homo sapiens sphingomyelin synthase 1 (SGMS1), mRNA [NM_147156]
A_33_P3230249	0.016531749	down	-2.0582128	CSMD1	CUB and Sushi multiple domains 1 [Source:HGNC Symbol;Acc:HGNC:14026] [ENST00000523387]
A_23_P7325	0.002668637	down	-1.6325765	BST1	Homo sapiens bone marrow stromal cell antigen 1 (BST1), mRNA [NM_004334]
A_33_P3415957	0.003754854	down	-1.5184451	GTF2A2	Homo sapiens general transcription factor IIA, 2, 12kDa (GTF2A2), mRNA [NM_004492]
A_33_P3301174	5.88E-05	down	-2.1124854	TMED2	Homo sapiens transmembrane emp24 domain trafficking protein 2 (TMED2), mRNA [NM_006815]
A_24_P107859	0.002778872	down	-1.901695	SPRED1	Homo sapiens sprouty-related, EVH1 domain containing 1 (SPRED1), mRNA [NM_152594]
A_33_P3832857	0.00320031	down	-1.6118141	HAUS2	Homo sapiens HAUS augmin-like complex, subunit 2 (HAUS2), transcript variant 1, mRNA [NM_018097]
A_33_P3363341	0.011195331	down	-1.831359	TMEM212	Homo sapiens transmembrane protein 212 (TMEM212), mRNA [NM_001164436]
A_23_P346982	0.020888366	down	-1.5507116	DTWD2	Homo sapiens DTW domain containing 2 (DTWD2), mRNA [NM_173666]
A_23_P53288	0.001202014	down	-1.6641836	CNPY2	Homo sapiens canopy FGF signaling regulator 2 (CNPY2), transcript variant 1, mRNA [NM_014255]
A_32_P87531	0.002773027	down	-1.9414492	DNAH14	Homo sapiens dynein, axonemal, heavy chain 14 (DNAH14), transcript variant 2, mRNA [NM_001145154]
A_24_P175059	0.001139205	down	-1.8303434	ATG5	Homo sapiens autophagy related 5 (ATG5), transcript variant 1, mRNA [NM_004849]
A_32_P59486	8.15E-04	down	-1.807587	SDHD	Homo sapiens succinate dehydrogenase complex, subunit D, integral membrane protein (SDHD), transcript variant 1, mRNA [NM_003002]
A_23_P155441	0.00121427	down	-1.9041133	RFT1	Homo sapiens RFT1 homolog (S. cerevisiae) (RFT1), mRNA [NM_052859]
A_32_P701268	0.027249906	down	-2.1528192	MED12L	Homo sapiens mediator complex subunit 12-like (MED12L), mRNA [NM_053002]
A_23_P433050	0.023886373	down	-1.6820531	RXFP1	Homo sapiens relaxin/insulin-like family peptide receptor 1 (RXFP1), transcript variant 1, mRNA [NM_021634]

A_23_P383435	0.001124822	down	-1.7263495	ZNHIT3	Homo sapiens zinc finger, HIT-type containing 3 (ZNHIT3), transcript variant 1, mRNA [NM_004773]
A_23_P164468	5.48E-05	down	-1.8677746	ADNP2	Homo sapiens ADNP homeobox 2 (ADNP2), mRNA [NM_014913]
A_23_P2143	7.19E-05	down	-1.9449388	SPCS2	Homo sapiens signal peptidase complex subunit 2 homolog (S. cerevisiae) (SPCS2), mRNA [NM_014752]
A_23_P250294	0.003687972	down	-1.6358726	ABHD5	Homo sapiens abhydrolase domain containing 5 (ABHD5), mRNA [NM_016006]
A_23_P354965	0.006912051	down	-2.4363575	SCD5	Homo sapiens stearoyl-CoA desaturase 5 (SCD5), transcript variant 2, mRNA [NM_024906]
A_23_P59654	0.009405485	down	-2.0751677	NPVF	Homo sapiens neuropeptide VF precursor (NPVF), mRNA [NM_022150]
A_33_P3415097	0.004503304	down	-1.7576702	CLCN4	Homo sapiens chloride channel, voltage-sensitive 4 (CLCN4), transcript variant 1, mRNA [NM_001830]
A_23_P22625	3.98E-04	down	-1.8096981	SLC9A6	Homo sapiens solute carrier family 9, subfamily A (NHE6, cation proton antiporter 6), member 6 (SLC9A6), transcript variant 1, mRNA [NM_001042537]
A_33_P3313680	0.034766	down	-2.09723	DGKB	Homo sapiens diacylglycerol kinase, beta 90kDa (DGKB), transcript variant 1, mRNA [NM_004080]
A_22_P00014909	0.011191426	down	-1.7592443	TPBGL	Homo sapiens trophoblast glycoprotein-like (TPBGL), mRNA [NM_001195528]
A_23_P432272	0.038897734	down	-1.5505425	UNC79	Homo sapiens unc-79 homolog (C. elegans) (UNC79), mRNA [NM_020818]
A_33_P3410409	0.00197088	down	-1.5523505	LAMP2	Homo sapiens lysosomal-associated membrane protein 2 (LAMP2), transcript variant C, mRNA [NM_001122606]
A_23_P20970	3.34E-04	down	-1.7245519	ATG12	Homo sapiens autophagy related 12 (ATG12), transcript variant 1, mRNA [NM_004707]
A_33_P3283196	0.010553674	down	-1.5801911	SCAF11	PREDICTED: Homo sapiens SR-related CTD-associated factor 11 (SCAF11), transcript variant X3, mRNA [XM_006719692]
A_23_P151870	0.008017151	down	-1.8321462	GLCE	Homo sapiens glucuronic acid epimerase (GLCE), mRNA [NM_015554]
A_24_P81298	8.32E-04	down	-1.7389859	PPP6C	Homo sapiens protein phosphatase 6, catalytic subunit (PPP6C), transcript variant 1, mRNA [NM_001123355]
A_23_P23266	0.002765476	down	-1.6922385	BLZF1	basic leucine zipper nuclear factor 1 [Source:HGNC Symbol;Acc:HGNC:1065] [ENST00000367808]
A_33_P3280694	0.003432091	down	-1.6385882	GSAP	gamma-secretase activating protein [Source:HGNC Symbol;Acc:HGNC:28042] [ENST00000334003]
A_23_P13852	0.001786049	down	-1.6109483	STRAP	Homo sapiens serine/threonine kinase receptor associated protein (STRAP), mRNA [NM_007178]
A_24_P551028	0.001479549	down	-1.8698913	SPOPL	Homo sapiens speckle-type POZ protein-like (SPOPL), mRNA [NM_001001664]
A_24_P56317	0.001295366	down	-1.717725	MBNL2	Homo sapiens muscleblind-like splicing regulator 2 (MBNL2), transcript variant 1, mRNA [NM_144778]
A_23_P167828	2.35E-04	down	-1.7912292	RWDD1	Homo sapiens RWD domain containing 1 (RWDD1), transcript variant 2, mRNA [NM_016104]
A_23_P132644	2.68E-04	down	-1.8577768	NCEH1	Homo sapiens neutral cholesterol ester hydrolase 1 (NCEH1), transcript variant 2, mRNA [NM_020792]
A_23_P160466	0.021639008	down	-1.5513928	SLC19A2	Homo sapiens solute carrier family 19 (thiamine transporter), member 2 (SLC19A2), mRNA [NM_006996]
A_24_P25550	0.036831435	down	-1.9563663	ADH6	Homo sapiens alcohol dehydrogenase 6 (class V) (ADH6), transcript variant 1, mRNA [NM_001102470]
A_23_P8185	2.94E-05	down	-1.7873312	DYNLT1	Homo sapiens dynein, light chain, Tctex-type 1 (DYNLT1), transcript variant 1, mRNA [NM_006519]
A_32_P75902	0.029139804	down	-1.8519226	MEIOB	Homo sapiens meiosis specific with OB domains (MEIOB), transcript variant 2, mRNA [NM_152764]
A_23_P123905	0.001861217	down	-1.6858679	EXOSC3	Homo sapiens exosome component 3 (EXOSC3), transcript variant 1, mRNA [NM_016042]
A_33_P3271490	0.001770756	down	-1.7271414	RBMS1	Homo sapiens RNA binding motif, single stranded interacting protein 1 (RBMS1), transcript variant 1, mRNA [NM_016836]
A_23_P15944	1.81E-04	down	-1.8116887	ELAC1	Homo sapiens elaC ribonuclease Z 1 (ELAC1), mRNA [NM_018696]
A_24_P66528	2.11E-05	down	-2.3328388	SRP9	Homo sapiens signal recognition particle 9kDa (SRP9), transcript variant 2, mRNA [NM_003133]
A_33_P3234635	0.01334534	down	-1.7502116	NOTUM	Homo sapiens notum pectinacetylesterase homolog (Drosophila) (NOTUM), mRNA [NM_178493]
A_23_P131737	0.002791767	down	-1.6662403	VPS54	Homo sapiens vacuolar protein sorting 54 homolog (S. cerevisiae) (VPS54), transcript variant 1, mRNA [NM_016516]
A_24_P926631	0.03370079	down	-1.8193353	DNAH8	Homo sapiens dynein, axonemal, heavy chain 8 (DNAH8), mRNA [NM_001206927]
A_24_P251734	0.042590987	down	-2.2339065	FSTL5	Homo sapiens follistatin-like 5 (FSTL5), transcript variant 1, mRNA [NM_020116]
A_23_P97853	0.003780054	down	-1.6367695	TMEM254	Homo sapiens transmembrane protein 254 (TMEM254), transcript variant 1, mRNA [NM_025125]
A_24_P706953	0.0096014	down	-3.3056502	TMEM213	Homo sapiens transmembrane protein 213 (TMEM213), mRNA [NM_001085429]
A_33_P3349521	5.94E-05	down	-1.8295869	SARAF	Homo sapiens store-operated calcium entry-associated regulatory factor (SARAF), transcript variant 1, mRNA [NM_016127]
A_23_P2884	0.0049254	down	-1.6271251	PIGH	Homo sapiens phosphatidylinositol glycan anchor biosynthesis, class H (PIGH), mRNA [NM_004569]
A_24_P81965	0.00307422	down	-2.219143	RAP2A	Homo sapiens RAP2A, member of RAS oncogene family (RAP2A), mRNA [NM_021033]
A_23_P335428	0.039296344	down	-1.5374725	HIBADH	Homo sapiens 3-hydroxyisobutyrate dehydrogenase (HIBADH), mRNA [NM_152740]
A_24_P361006	4.37E-05	down	-2.0324461	NDUFA9	Homo sapiens NADH dehydrogenase (ubiquinone) 1 alpha subcomplex, 9, 39kDa (NDUFA9), mRNA [NM_005002]
A_33_P3234804	5.89E-04	down	-1.7238595	CBR4	Homo sapiens carbonyl reductase 4 (CBR4), mRNA [NM_032783]
A_33_P3268910	1.93E-04	down	-2.7579825	SPRY1	Homo sapiens sprouty homolog 1, antagonist of FGF signaling (Drosophila) (SPRY1), transcript variant 1, mRNA [NM_001258038]
A_33_P3294578	5.68E-05	down	-2.1004314	PRKCI	Homo sapiens protein kinase C, iota (PRKCI), mRNA [NM_002740]
A_23_P34402	0.005638101	down	-1.5418102	NCSTN	Homo sapiens nicastrin (NCSTN), transcript variant 1, mRNA [NM_015331]
A_24_P89509	8.63E-04	down	-1.9119806	TRMT11	Homo sapiens tRNA methyltransferase 11 homolog (S. cerevisiae) (TRMT11), mRNA [NM_001031712]

A_33_P3407945	6.29E-04	down	-1.7929574	TMEM19	Homo sapiens transmembrane protein 19 (TMEM19), mRNA [NM_018279]
A_33_P3409904	0.002900777	down	-1.7254682	VAMP4	Homo sapiens vesicle-associated membrane protein 4 (VAMP4), transcript variant 1, mRNA [NM_003762]
A_24_P124370	0.010630089	down	-2.6999304	PARVA	Homo sapiens parvin, alpha (PARVA), mRNA [NM_018222]
A_33_P3319401	0.00484861	down	-1.9692936	ARHGAP21	Rho GTPase activating protein 21 [Source:HGNC Symbol;Acc:HGNC:23725] [ENST00000476499]
A_23_P13604	4.25E-04	down	-1.6749791	PEBP1	Homo sapiens phosphatidylethanolamine binding protein 1 (PEBP1), mRNA [NM_002567]
A_23_P109286	0.036642756	down	-1.8856239	GRIK1	Homo sapiens glutamate receptor, ionotropic, kainate 1 (GRIK1), transcript variant 1, mRNA [NM_000830]
A_24_P122682	6.29E-04	down	-1.7414218	RAB4A	Homo sapiens RAB4A, member RAS oncogene family (RAB4A), transcript variant 1, mRNA [NM_004578]
A_23_P349083	0.002361779	down	-1.9312419	FCHO2	Homo sapiens FCH domain only 2 (FCHO2), transcript variant 1, mRNA [NM_138782]
A_24_P49190	0.016063826	down	-1.5746081	C17orf58	Homo sapiens chromosome 17 open reading frame 58 (C17orf58), transcript variant 1, mRNA [NM_181655]
A_23_P133375	0.005101232	down	-1.5019879	SLC25A46	Homo sapiens solute carrier family 25, member 46 (SLC25A46), transcript variant 1, mRNA [NM_138773]
A_23_P93750	3.14E-04	down	-1.9130045	LSM5	Homo sapiens LSM5 homolog, U6 small nuclear RNA associated (S. cerevisiae) (LSM5), transcript variant 1, mRNA [NM_012322]
A_23_P43226	0.002674816	down	-1.7540238	KCTD9	Homo sapiens potassium channel tetramerization domain containing 9 (KCTD9), mRNA [NM_017634]
A_23_P92842	6.74E-04	down	-1.7090571	SAR1B	Homo sapiens secretion associated, Ras related GTPase 1B (SAR1B), transcript variant 1, mRNA [NM_001033503]
A_33_P3229196	0.040033747	down	-1.6148714	CD151	Homo sapiens CD151 molecule (Raph blood group) (CD151), transcript variant 1, mRNA [NM_004357]
A_23_P203439	0.00339505	down	-1.9102162	KCNC1	Homo sapiens potassium channel, voltage gated Shaw related subfamily C, member 1 (KCNC1), transcript variant 2, mRNA [NM_004976]
A_32_P162374	4.40E-04	down	-2.0294168	C18orf54	Homo sapiens chromosome 18 open reading frame 54 (C18orf54), transcript variant 3, mRNA [NM_173529]
A_23_P29836	0.004177333	down	-1.7688035	TMEM42	transmembrane protein 42 [Source:HGNC Symbol;Acc:HGNC:28444] [ENST00000477126]
A_33_P3219475	3.73E-04	down	-2.2886386	MSANTD3-TMEFF1	Homo sapiens MSANTD3-TMEFF1 readthrough (MSANTD3-TMEFF1), mRNA [NM_001198812]
A_33_P3258141	3.27E-04	down	-1.6978683	CHUK	Homo sapiens conserved helix-loop-helix ubiquitous kinase (CHUK), mRNA [NM_001278]
A_23_P69908	0.01451961	down	-1.5764856	GLRX	Homo sapiens glutaredoxin (thioltransferase) (GLRX), transcript variant 1, mRNA [NM_002064]
A_23_P370786	0.022407494	down	-1.6298871	OR2L13	Homo sapiens olfactory receptor, family 2, subfamily L, member 13 (OR2L13), mRNA [NM_175911]
A_21_P0013760	0.002840469	down	-1.5112926	CHTF8	Homo sapiens CTF8, chromosome transmission fidelity factor 8 homolog (S. cerevisiae) (CHTF8), transcript variant 1, mRNA [NM_001039690]
A_33_P3353672	9.80E-05	down	-1.7133472	RAB28	Homo sapiens RAB28, member RAS oncogene family (RAB28), transcript variant 2, mRNA [NM_004249]
A_23_P104323	0.006438223	down	-1.8111247	MGMT	Homo sapiens O-6-methylguanine-DNA methyltransferase (MGMT), mRNA [NM_002412]
A_23_P138975	1.74E-04	down	-2.3395662	RBM7	Homo sapiens RNA binding motif protein 7 (RBM7), transcript variant 2, mRNA [NM_016090]
A_33_P3404744	0.005583678	down	-1.6981952	KIAA1958	Homo sapiens KIAA1958 (KIAA1958), transcript variant 1, mRNA [NM_001287036]
A_23_P75255	0.001461875	down	-1.6742811	VPS26A	Homo sapiens vacuolar protein sorting 26 homolog A (S. pombe) (VPS26A), transcript variant 1, mRNA [NM_004896]
A_24_P835500	5.21E-04	down	-1.7959881	ITPRIPL2	Homo sapiens inositol 1,4,5-trisphosphate receptor interacting protein-like 2 (ITPRIPL2), transcript variant 1, mRNA [NM_001034841]
A_23_P304287	0.002210266	down	-1.6763599	PSMC2	Homo sapiens proteasome (prosome, macropain) 26S subunit, ATPase, 2 (PSMC2), transcript variant 1, mRNA [NM_002803]
A_33_P3384432	0.001190073	down	-1.7943487	TFDP2	Homo sapiens transcription factor Dp-2 (E2F dimerization partner 2) (TFDP2), transcript variant 1, mRNA [NM_001178138]
A_32_P139229	0.004266121	down	-1.5927664	ZNF543	Homo sapiens zinc finger protein 543 (ZNF543), mRNA [NM_213598]
A_33_P3315223	0.001117391	down	-1.6249282	HNRNPA0	Homo sapiens heterogeneous nuclear ribonucleoprotein A0 (HNRNPA0), mRNA [NM_006805]
A_23_P43326	2.95E-04	down	-1.9219414	SPTLC1	Homo sapiens serine palmitoyltransferase, long chain base subunit 1 (SPTLC1), transcript variant 1, mRNA [NM_006415]
A_23_P56734	0.001916858	down	-1.9974059	HNMT	Homo sapiens histamine N-methyltransferase (HNMT), transcript variant 1, mRNA [NM_006895]
A_23_P145068	0.003583651	down	-1.536054	MTO1	Homo sapiens mitochondrial tRNA translation optimization 1 (MTO1), transcript variant 2, mRNA [NM_012123]
A_23_P80648	0.00139432	down	-1.5447316	MFN1	Homo sapiens mitofusin 1 (MFN1), mRNA [NM_033540]
A_23_P69242	0.004411897	down	-1.5314691	SUMF1	Homo sapiens sulfatase modifying factor 1 (SUMF1), transcript variant 1, mRNA [NM_182760]
A_33_P3310293	0.031337667	down	-1.5558316	PKIG	Homo sapiens protein kinase (cAMP-dependent, catalytic) inhibitor gamma (PKIG), transcript variant 1, mRNA [NM_181805]
A_23_P87678	0.018877946	down	-1.645223	EPYC	Homo sapiens epiphycan (EPYC), mRNA [NM_004950]
A_24_P196528	0.001354618	down	-6.679119	CRB1	Homo sapiens crumbs family member 1, photoreceptor morphogenesis associated (CRB1), transcript variant 1, mRNA [NM_201253]
A_33_P3304528	7.29E-04	down	-1.6946962	SENP1	Homo sapiens SUMO1/sentrin specific peptidase 1 (SENP1), transcript variant 2, mRNA [NM_001267595]
A_24_P37519	0.006583862	down	-1.824488	LZTFL1	Homo sapiens leucine zipper transcription factor-like 1 (LZTFL1), transcript variant 1, mRNA [NM_020347]
A_23_P6891	0.003163812	down	-1.67953	EIF1B	Homo sapiens eukaryotic translation initiation factor 1B (EIF1B), mRNA [NM_005875]
A_23_P153037	2.54E-05	down	-2.2046068	ZNF624	Homo sapiens zinc finger protein 624 (ZNF624), mRNA [NM_020787]
A_33_P3335865	0.003765612	down	-1.7278104	WDR35	Homo sapiens WD repeat domain 35 (WDR35), transcript variant 1, mRNA [NM_001006657]

A_33_P3352098	0.006279284	down	-1.5632437	MS4A7	Homo sapiens membrane-spanning 4-domains, subfamily A, member 7 (MS4A7), transcript variant 1, mRNA [NM_021201]
A_23_P138967	2.53E-04	down	-1.8418657	SDHD	Homo sapiens succinate dehydrogenase complex, subunit D, integral membrane protein (SDHD), transcript variant 1, mRNA [NM_003002]
A_24_P157424	0.008320334	down	-1.5344843	NCBP2	Homo sapiens nuclear cap binding protein subunit 2, 20kDa (NCBP2), transcript variant 1, mRNA [NM_007362]
A_23_P122915	3.72E-04	down	-1.7074968	BRI3	Homo sapiens brain protein I3 (BRI3), transcript variant 1, mRNA [NM_015379]
A_33_P3379371	3.05E-04	down	-1.7769375	RYK	Homo sapiens receptor-like tyrosine kinase (RYK), transcript variant 1, mRNA [NM_001005861]
A_24_P191790	9.21E-05	down	-2.0863082	TMEM33	Homo sapiens transmembrane protein 33 (TMEM33), mRNA [NM_018126]
A_23_P258814	7.44E-04	down	-2.010581	DPH3P1	Homo sapiens diphthamide biosynthesis 3 pseudogene 1 (DPH3P1), mRNA [NM_080750]
A_33_P3299854	1.75E-04	down	-1.711207	NCBP1	Homo sapiens nuclear cap binding protein subunit 1, 80kDa (NCBP1), mRNA [NM_002486]
A_33_P3244951	0.008024991	down	-1.6837314	PDE8A	Homo sapiens phosphodiesterase 8A (PDE8A), transcript variant 3, mRNA [NM_001243137]
A_23_P305692	0.001880963	down	-1.5218437	ELMOD2	Homo sapiens ELMO/CED-12 domain containing 2 (ELMOD2), mRNA [NM_153702]
A_23_P116168	0.002202976	down	-1.6254504	MSANTD4	Homo sapiens Myb/SANT-like DNA-binding domain containing 4 with coiled-coils (MSANTD4), mRNA [NM_032424]
A_24_P47681	0.004999719	down	-1.7929066	CAND1	cullin-associated and neddylation-dissociated 1 [Source:HGNC Symbol;Acc:HGNC:30688] [ENST00000545606]
A_23_P37441	0.001186188	down	-1.6133418	B2M	Homo sapiens beta-2-microglobulin (B2M), mRNA [NM_004048]
A_33_P3249773	4.26E-04	down	-1.7723929	TATDN3	Homo sapiens TatD DNase domain containing 3 (TATDN3), transcript variant 5, mRNA [NM_001146171]
A_24_P148151	0.001439951	down	-1.7942492	TSNAX	Homo sapiens translin-associated factor X (TSNAX), mRNA [NM_005999]
A_23_P32861	6.90E-04	down	-2.147657	NMD3	Homo sapiens NMD3 ribosome export adaptor (NMD3), mRNA [NM_015938]
A_23_P100486	0.016991181	down	-1.5378782	VKORC1	Homo sapiens vitamin K epoxide reductase complex, subunit 1 (VKORC1), transcript variant 2, mRNA [NM_206824]
A_24_P398940	9.81E-05	down	-1.8689371	CASC4	Homo sapiens cancer susceptibility candidate 4 (CASC4), transcript variant 1, mRNA [NM_138423]
A_33_P3303086	0.001115294	down	-1.6091747	HNRNPLL	Homo sapiens heterogeneous nuclear ribonucleoprotein L-like (HNRNPLL), transcript variant 1, mRNA [NM_138394]
A_24_P68031	0.008454227	down	-1.760409	CCDC186	coiled-coil domain containing 186 [Source:HGNC Symbol;Acc:HGNC:24349] [ENST00000369285]
A_24_P942370	2.31E-04	down	-1.8077034	GALNT4	Homo sapiens polypeptide N-acetylgalactosaminyltransferase 4 (GALNT4), mRNA [NM_003774]
A_23_P317105	0.006651953	down	-1.7032167	AKAP10	Homo sapiens A kinase (PRKA) anchor protein 10 (AKAP10), mRNA [NM_007202]
A_23_P382199	5.44E-04	down	-1.7161261	VAPA	Homo sapiens VAMP (vesicle-associated membrane protein)-associated protein A, 33kDa (VAPA), transcript variant 1, mRNA [NM_003574]
A_23_P24987	1.43E-04	down	-1.9913715	TSPAN31	Homo sapiens tetraspanin 31 (TSPAN31), mRNA [NM_005981]
A_23_P218997	0.004262106	down	-1.6135963	PDCD6	Homo sapiens programmed cell death 6 (PDCD6), transcript variant 1, mRNA [NM_013232]
A_23_P93844	0.010100446	down	-1.5682646	TOMM7	Homo sapiens translocase of outer mitochondrial membrane 7 homolog (yeast) (TOMM7), mRNA [NM_019059]
A_23_P122805	1.09E-04	down	-1.90564	TMEM209	Homo sapiens transmembrane protein 209 (TMEM209), transcript variant 1, mRNA [NM_032842]
A_24_P274615	2.83E-04	down	-2.093341	ARRDC3	Homo sapiens arrestin domain containing 3 (ARRDC3), mRNA [NM_020801]
A_33_P3398897	0.004536681	down	-1.684354	QDPR	Homo sapiens quinoid dihydropteridine reductase (QDPR), mRNA [NM_000320]
A_23_P15182	1.44E-04	down	-1.8270359	ARL2BP	Homo sapiens ADP-ribosylation factor-like 2 binding protein (ARL2BP), mRNA [NM_012106]
A_33_P3231367	0.001264689	down	-1.6531974	ATXN10	Homo sapiens ataxin 10 (ATXN10), transcript variant 1, mRNA [NM_013236]
A_33_P3379886	0.041974314	down	-1.5823529	FGF2	Homo sapiens fibroblast growth factor 2 (basic) (FGF2), mRNA [NM_002006]
A_33_P3413468	0.008657228	down	-2.3430212	EDA2R	Homo sapiens ectodysplasin A2 receptor (EDA2R), transcript variant 3, mRNA [NM_001242310]
A_23_P66593	0.04758803	down	-1.5439106	GFAP	Homo sapiens glial fibrillary acidic protein (GFAP), transcript variant 1, mRNA [NM_002055]
A_33_P3326682	0.007731203	down	-1.5415285	SDHC	Homo sapiens succinate dehydrogenase complex, subunit C, integral membrane protein, 15kDa (SDHC), transcript variant 1, mRNA [NM_003001]
A_24_P376556	0.005501547	down	-1.6276994	CYCS	Homo sapiens cytochrome c, somatic (CYCS), mRNA [NM_018947]
A_24_P242820	2.94E-04	down	-2.148289	TSN	Homo sapiens translin (TSN), transcript variant 1, mRNA [NM_004622]
A_33_P3351249	0.002219078	down	-1.6963884	CXCL16	Homo sapiens chemokine (C-X-C motif) ligand 16 (CXCL16), transcript variant 2, mRNA [NM_001100812]
A_24_P87036	0.01439267	down	-1.7337948	ANO1	Homo sapiens anoctamin 1, calcium activated chloride channel (ANO1), transcript variant 1, mRNA [NM_018043]
A_24_P917833	1.01E-04	down	-2.0409207	TMED10	Homo sapiens transmembrane emp24-like trafficking protein 10 (yeast) (TMED10), mRNA [NM_006827]
A_33_P3251538	0.00962	down	-1.5282028	MAPKAP1	Homo sapiens mitogen-activated protein kinase associated protein 1 (MAPKAP1), transcript variant 6, mRNA [NM_001006618]
A_23_P83159	0.003760024	down	-1.5867572	KLHL9	Homo sapiens kelch-like family member 9 (KLHL9), mRNA [NM_018847]
A_33_P3357818	0.00636531	down	-1.9040626	HTR1D	Homo sapiens 5-hydroxytryptamine (serotonin) receptor 1D, G protein-coupled (HTR1D), mRNA [NM_000864]
A_23_P35230	0.040774036	down	-1.5615644	CD46	Homo sapiens CD46 molecule, complement regulatory protein (CD46), transcript variant n, mRNA [NM_172350]
A_24_P925664	0.001097446	down	-2.124324	MDM2	Homo sapiens MDM2 proto-oncogene, E3 ubiquitin protein ligase (MDM2), transcript variant 1, mRNA [NM_002392]
A_23_P360769	0.001242135	down	-2.4228709	MAN2A1	Homo sapiens mannosidase, alpha, class 2A, member 1 (MAN2A1), mRNA [NM_002372]
A_23_P357966	4.76E-04	down	-2.1735263	PCMTD1	Homo sapiens protein-L-isoaspartate (D-aspartate) O-methyltransferase domain containing 1 (PCMTD1), transcript variant 1, mRNA [NM_052937]
A_23_P80122	8.27E-05	down	-2.1261196	WRB	Homo sapiens tryptophan rich basic protein (WRB), transcript variant 1, mRNA [NM_004627]

A_23_P4036	0.009217697	down	-1.6420312	TEX2	Homo sapiens testis expressed 2 (TEX2), transcript variant 1, mRNA [NM_018469]
A_23_P112801	0.005607704	down	-1.5134602	CHP1	Homo sapiens calcineurin-like EF-hand protein 1 (CHP1), mRNA [NM_007236]
A_24_P57528	5.84E-04	down	-1.6689044	SLC39A11	Homo sapiens solute carrier family 39, member 11 (SLC39A11), transcript variant 2, mRNA [NM_139177]
A_33_P3271530	0.040048305	down	-1.8951324	PGAP1	Homo sapiens post-GPI attachment to proteins 1 (PGAP1), mRNA [NM_024989]
A_23_P212617	0.003512143	down	-1.6906257	TFRC	Homo sapiens transferrin receptor (TFRC), transcript variant 1, mRNA [NM_003234]
A_24_P303199	0.006575538	down	-1.810774	ARL15	Homo sapiens ADP-ribosylation factor-like 15 (ARL15), mRNA [NM_019087]
A_23_P1552	0.001068989	down	-1.8945161	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_32_P215113	0.021546362	down	-1.7039969	CCDC58	Homo sapiens coiled-coil domain containing 58 (CCDC58), mRNA [NM_001017928]
A_24_P182929	0.001368504	down	-2.4965181	KCNAB1	Homo sapiens potassium channel, voltage gated subfamily A regulatory beta subunit 1 (KCNAB1), transcript variant 2, mRNA [NM_003471]
A_23_P101476	0.03927995	down	-1.5628195	ZNF442	Homo sapiens zinc finger protein 442 (ZNF442), mRNA [NM_030824]
A_23_P149470	0.001208326	down	-1.5257014	NDUFS2	Homo sapiens NADH dehydrogenase (ubiquinone) Fe-S protein 2, 49kDa (NADH-coenzyme Q reductase) (NDUFS2), transcript variant 1, mRNA [NM_004550]
A_33_P3248272	0.003343949	down	-1.6003419	UBXN8	Homo sapiens UBX domain protein 8 (UBXN8), transcript variant 1, mRNA [NM_005671]
A_23_P110569	0.015310133	down	-1.5237871	TRIM36	Homo sapiens tripartite motif containing 36 (TRIM36), transcript variant 1, mRNA [NM_018700]
A_23_P65870	1.63E-04	down	-1.7947109	FBXO22	Homo sapiens F-box protein 22 (FBXO22), transcript variant 2, mRNA [NM_012170]
A_24_P346604	0.002474222	down	-1.7437782	UBE2W	Homo sapiens ubiquitin-conjugating enzyme E2W (putative) (UBE2W), transcript variant 1, mRNA [NM_001001481]
A_23_P7697	0.003097027	down	-1.5490317	SNX2	Homo sapiens sorting nexin 2 (SNX2), transcript variant 1, mRNA [NM_003100]
A_24_P110983	0.007361343	down	-1.5635461	AKT3	Homo sapiens v-akt murine thymoma viral oncogene homolog 3 (AKT3), transcript variant 1, mRNA [NM_005465]
A_33_P3309929	0.01553299	down	-1.6163961	HDAC3	Homo sapiens histone deacetylase 3 (HDAC3), mRNA [NM_003883]
A_23_P417951	0.018885033	down	-1.6158514	TSPYL5	Homo sapiens TSPY-like 5 (TSPYL5), mRNA [NM_033512]
A_33_P3405839	0.044419542	down	-2.0382423	TPO	Homo sapiens thyroid peroxidase (TPO), transcript variant 5, mRNA [NM_175722]
A_33_P3410459	0.002052857	down	-1.634719	SCARB2	Homo sapiens scavenger receptor class B, member 2 (SCARB2), transcript variant 2, mRNA [NM_001204255]
A_33_P3225937	0.001548738	down	-1.6283135	CRYZL1	Homo sapiens crystallin, zeta (quinone reductase)-like 1 (CRYZL1), mRNA [NM_145858]
A_24_P179351	2.14E-04	down	-1.8481482	TPT1	Homo sapiens tumor protein, translationally-controlled 1 (TPT1), transcript variant 2, mRNA [NM_003295]
A_33_P3272140	6.62E-04	down	-1.6873436	NUP35	Homo sapiens nucleoporin 35kDa (NUP35), transcript variant 4, mRNA [NM_001287585]
A_33_P3622802	3.26E-04	down	-1.7594932	ABI1	Homo sapiens abl-interactor 1 (ABI1), transcript variant 1, mRNA [NM_005470]
A_33_P3387943	0.023102103	down	-1.6082363	GLRB	Homo sapiens glycine receptor, beta (GLRB), transcript variant 1, mRNA [NM_000824]
A_23_P11201	0.003019548	down	-2.126596	GPR34	Homo sapiens G protein-coupled receptor 34 (GPR34), transcript variant 4, mRNA [NM_001097579]
A_23_P64650	0.002764499	down	-1.7992659	TSFM	Homo sapiens Ts translation elongation factor, mitochondrial (TSFM), transcript variant 2, mRNA [NM_005726]
A_32_P126733	0.0038353	down	-2.4340537	NOL4	Homo sapiens nucleolar protein 4 (NOL4), transcript variant 1, mRNA [NM_003787]
A_32_P134007	0.005205266	down	-2.3245986	XKR4	Homo sapiens XK, Kell blood group complex subunit-related family, member 4 (XKR4), mRNA [NM_052898]
A_33_P3278560	0.01604782	down	-1.5973052	ZIK1	Homo sapiens zinc finger protein interacting with K protein 1 (ZIK1), mRNA [NM_001010879]
A_22_P00000640	0.002127457	down	-1.9404231	ACSL4	acyl-CoA synthetase long-chain family member 4 [Source:HGNC Symbol;Acc:HGNC:3571] [ENST00000439581]
A_23_P3204	3.46E-04	down	-1.800055	MAPK6	Homo sapiens mitogen-activated protein kinase 6 (MAPK6), mRNA [NM_002748]
A_24_P381494	0.004458564	down	-1.5718544	SLC11A2	Homo sapiens solute carrier family 11 (proton-coupled divalent metal ion transporter), member 2 (SLC11A2), transcript variant 4, mRNA [NM_000617]
A_23_P63751	7.83E-04	down	-1.8204592	PRDX3	Homo sapiens peroxiredoxin 3 (PRDX3), transcript variant 1, mRNA [NM_006793]
A_33_P3297050	5.94E-04	down	-1.7050874	ALG2	Homo sapiens ALG2, alpha-1,3/1,6-mannosyltransferase (ALG2), transcript variant 1, mRNA [NM_033087]
A_32_P216566	0.022531739	down	-1.6263508	RIPPLY2	Homo sapiens ripply transcriptional repressor 2 (RIPPLY2), transcript variant 1, mRNA [NM_001009994]
A_23_P145777	0.003047763	down	-1.5680586	NDUFA4	Homo sapiens NDUFA4, mitochondrial complex associated (NDUFA4), mRNA [NM_002489]
A_33_P3377110	3.10E-04	down	-1.8856499	CYB561D1	Homo sapiens cytochrome b561 family, member D1 (CYB561D1), transcript variant 5, mRNA [NM_001134404]
A_23_P47034	3.02E-05	down	-2.5069463	HHEX	Homo sapiens hematopoietically expressed homeobox (HHEX), mRNA [NM_002729]
A_23_P118150	7.07E-04	down	-2.0589538	ARL6IP1	Homo sapiens ADP-ribosylation factor-like 6 interacting protein 1 (ARL6IP1), mRNA [NM_015161]
A_24_P235305	0.001515262	down	-1.6340066	ZNF706	Homo sapiens zinc finger protein 706 (ZNF706), transcript variant 1, mRNA [NM_001042510]
A_23_P102320	0.001036121	down	-1.6207695	NUP35	Homo sapiens nucleoporin 35kDa (NUP35), transcript variant 1, mRNA [NM_138285]
A_32_P160883	0.001018956	down	-1.6663358	NEDD4	Homo sapiens neural precursor cell expressed, developmentally down-regulated 4, E3 ubiquitin protein ligase (NEDD4), transcript variant 2, mRNA [NM_198400]
A_23_P165727	0.01226835	down	-1.7561021	MSTN	Homo sapiens myostatin (MSTN), mRNA [NM_005259]
A_23_P155103	1.56E-04	down	-1.7792552	ADSL	Homo sapiens adenylosuccinate lyase (ADSL), transcript variant 1, mRNA [NM_000026]

A_23_P39304	0.024396537	down	-1.8535535	PSG9	Homo sapiens pregnancy specific beta-1-glycoprotein 9 (PSG9), transcript variant 1, mRNA [NM_002784]
A_23_P3212	0.002844798	down	-1.7721736	DTWD1	Homo sapiens DTW domain containing 1 (DTWD1), transcript variant 1, mRNA [NM_020234]
A_33_P3226550	0.01905519	down	-1.6383078	SLC4A8	solute carrier family 4, sodium bicarbonate cotransporter, member 8 [Source:HGNC Symbol;Acc:HGNC:11034] [ENST00000547697]
A_33_P3258041	0.005976035	down	-1.5930918	GGPS1	Homo sapiens geranylgeranyl diphosphate synthase 1 (GGPS1), transcript variant 2, mRNA [NM_001037277]
A_24_P942132	0.011769146	down	-1.7629983	TRAPPC6B	Homo sapiens trafficking protein particle complex 6B (TRAPPC6B), transcript variant 1, mRNA [NM_001079537]
A_24_P167496	0.00317253	down	-1.938349	PUS7L	Homo sapiens pseudouridylate synthase 7 homolog (S. cerevisiae)-like (PUS7L), transcript variant 3, mRNA [NM_031292]
A_33_P3215277	0.001816848	down	-1.6916137	TTBK2	Homo sapiens tau tubulin kinase 2 (TTBK2), mRNA [NM_173500]
A_33_P3230324	0.004011296	down	-1.7024627	COPS8	Homo sapiens COP9 signalosome subunit 8 (COPS8), transcript variant 2, mRNA [NM_198189]
A_24_P706752	0.001508217	down	-1.8039997	PLA2G12A	Homo sapiens phospholipase A2, group XIIA (PLA2G12A), mRNA [NM_030821]
A_32_P23624	2.53E-04	down	-1.9570737	ABCB10	Homo sapiens ATP-binding cassette, sub-family B (MDR/TAP), member 10 (ABCB10), mRNA [NM_012089]
A_33_P3272165	7.68E-04	down	-1.6204587	NDUFAF6	Homo sapiens NADH dehydrogenase (ubiquinone) complex I, assembly factor 6 (NDUFAF6), mRNA [NM_152416]
A_23_P30956	0.006526831	down	-1.5710809	UFL1	Homo sapiens UFM1-specific ligase 1 (UFL1), mRNA [NM_015323]
A_23_P254816	3.52E-04	down	-1.7615169	TCF15	Homo sapiens transcription factor 15 (basic helix-loop-helix) (TCF15), mRNA [NM_004609]
A_24_P85511	0.012798376	down	-1.7980412	ANKRD26	Homo sapiens ankyrin repeat domain 26 (ANKRD26), transcript variant 2, mRNA [NM_001256053]
A_23_P105833	0.010230918	down	-1.6024265	BIVM	Homo sapiens basic, immunoglobulin-like variable motif containing (BIVM), transcript variant 1, mRNA [NM_017693]
A_23_P395582	0.014457561	down	-1.6707065	ZFP42	ZFP42 zinc finger protein [Source:HGNC Symbol;Acc:HGNC:30949] [ENST00000509524]
A_33_P3370787	0.004539645	down	-1.797047	EPHB2	Homo sapiens EPH receptor B2 (EPHB2), transcript variant 2, mRNA [NM_004442]
A_33_P3362296	0.04302786	down	-2.1089964	KCNG1	PREDICTED: Homo sapiens potassium voltage-gated channel, subfamily G, member 1 (KCNG1), transcript variant X2, mRNA [XM_006723786]
A_24_P216654	2.78E-04	down	-1.9913989	SOAT1	Homo sapiens sterol O-acyltransferase 1 (SOAT1), transcript variant 1, mRNA [NM_003101]
A_23_P153286	0.001539692	down	-1.521682	ZNF234	Homo sapiens zinc finger protein 234 (ZNF234), transcript variant 1, mRNA [NM_006630]
A_22_P00001843	0.00370611	down	-1.6794147	ATXN3	Homo sapiens ataxin 3 (ATXN3), transcript variant reference, mRNA [NM_004993]
A_33_P3249748	9.79E-04	down	-1.6656939	THEM6	Homo sapiens thioesterase superfamily member 6 (THEM6), mRNA [NM_016647]
A_23_P215051	0.002073718	down	-1.6668527	ECHDC1	Homo sapiens ethylmalonyl-CoA decarboxylase 1 (ECHDC1), transcript variant 2, mRNA [NM_018479]
A_21_P0000034	1.65E-04	down	-1.8948328	COX11	Homo sapiens COX11 cytochrome c oxidase copper chaperone (COX11), transcript variant 1, mRNA [NM_004375]
A_23_P83278	5.51E-04	down	-1.7304248	CHMP5	Homo sapiens charged multivesicular body protein 5 (CHMP5), transcript variant 1, mRNA [NM_016410]
A_33_P3286302	0.004378244	down	-1.6525289	TNFRSF14	tumor necrosis factor receptor superfamily, member 14 [Source:HGNC Symbol;Acc:HGNC:11912] [ENST00000463835]
A_23_P94636	0.001553763	down	-1.6012605	RC3H2	Homo sapiens ring finger and CCCH-type domains 2 (RC3H2), transcript variant 2, mRNA [NM_018835]
A_33_P3334630	0.042686976	down	-1.9581395	PLP1	proteolipid protein 1 [Source:HGNC Symbol;Acc:HGNC:9086] [ENST00000612423]
A_23_P205768	3.30E-05	down	-1.8294797	ARPP19	Homo sapiens cAMP-regulated phosphoprotein, 19kDa (ARPP19), mRNA [NM_006628]
A_23_P411825	0.01896938	down	-1.6387357	CCDC148	Homo sapiens coiled-coil domain containing 148 (CCDC148), transcript variant 1, mRNA [NM_138803]
A_23_P349882	0.001222714	down	-2.0275705	PDCL	Homo sapiens phosducin-like (PDCL), mRNA [NM_005388]
A_33_P3427102	0.002648013	down	-1.5445924	TTL	Homo sapiens tubulin tyrosine ligase (TTL), mRNA [NM_153712]
A_24_P413669	0.037719324	down	-1.637897	PFKFB2	Homo sapiens 6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 2 (PFKFB2), transcript variant 2, mRNA [NM_001018053]
A_21_P0012273	0.023383196	down	-1.8011936	NBEA	Homo sapiens neurobeachin (NBEA), transcript variant 1, mRNA [NM_015678]
A_23_P32785	2.80E-05	down	-2.111594	C3orf38	Homo sapiens chromosome 3 open reading frame 38 (C3orf38), mRNA [NM_173824]
A_33_P3343690	0.010740972	down	-1.8833408	FDX1	Homo sapiens ferredoxin 1 (FDX1), mRNA [NM_004109]
A_33_P3267665	2.30E-04	down	-2.0239425	ZDHHC2	Homo sapiens zinc finger, DHHC-type containing 2 (ZDHHC2), mRNA [NM_016353]
A_23_P256231	8.81E-04	down	-1.8097931	FBXO30	Homo sapiens F-box protein 30 (FBXO30), mRNA [NM_032145]
A_23_P134854	0.022964567	down	-1.6160622	CLDN23	Homo sapiens claudin 23 (CLDN23), mRNA [NM_194284]
A_33_P3362353	0.006992351	down	-1.620201	ARAF	Homo sapiens A-Raf proto-oncogene, serine/threonine kinase (ARAF), transcript variant 3, mRNA [NM_001256197]
A_23_P207299	3.84E-04	down	-1.7055466	RNFT1	Homo sapiens ring finger protein, transmembrane 1 (RNFT1), mRNA [NM_016125]
A_23_P11331	4.74E-04	down	-1.7763766	TCEAL8	Homo sapiens transcription elongation factor A (SII)-like 8 (TCEAL8), transcript variant 1, mRNA [NM_153333]
A_23_P74928	3.58E-05	down	-1.8999053	MR1	Homo sapiens major histocompatibility complex, class I-related (MR1), transcript variant 1, mRNA [NM_001531]
A_24_P285501	0.007820386	down	-1.6954265	UBR3	Homo sapiens ubiquitin protein ligase E3 component n-recognin 3 (putative) (UBR3), mRNA [NM_172070]
A_23_P510	0.014752493	down	-1.6842496	PLD5	Homo sapiens phospholipase D family, member 5 (PLD5), transcript variant 1, mRNA [NM_152666]
A_33_P3405334	0.005189512	down	-1.7229068	GM2A	Homo sapiens GM2 ganglioside activator (GM2A), transcript variant 1, mRNA [NM_000405]

A_23_P151280	2.63E-04	down	-1.7785529	COX14	Homo sapiens COX14 cytochrome c oxidase assembly factor (COX14), transcript variant 1, mRNA [NM_032901]
A_23_P67424	0.007344615	down	-1.8614181	ZNF461	Homo sapiens zinc finger protein 461 (ZNF461), transcript variant 1, mRNA [NM_153257]
A_23_P203773	0.018367196	down	-2.1763554	CCDC34	Homo sapiens coiled-coil domain containing 34 (CCDC34), transcript variant 2, mRNA [NM_080654]
A_22_P00017940	0.010897234	down	-1.6997699	ZG16	zymogen granule protein 16 [Source:HGNC Symbol;Acc:HGNC:30961] [ENST00000400752]
A_33_P3372094	0.025402378	down	-1.5939376	LLGL1	Homo sapiens lethal giant larvae homolog 1 (Drosophila) (LLGL1), mRNA [NM_004140]
A_33_P3269203	0.023176149	down	-1.5423712	SERPINH1	Homo sapiens serpin peptidase inhibitor, clade H (heat shock protein 47), member 1, (collagen binding protein 1) (SERPINH1), transcript variant 1, mRNA [NM_001207014]
A_23_P81241	1.75E-05	down	-1.9562141	NDFIP1	Homo sapiens Nedd4 family interacting protein 1 (NDFIP1), mRNA [NM_030571]
A_23_P52176	0.001878837	down	-2.0245855	ZNF124	Homo sapiens zinc finger protein 124 (ZNF124), transcript variant 1, mRNA [NM_003431]
A_23_P118749	7.35E-04	down	-1.6990807	DERL2	Homo sapiens derlin 2 (DERL2), mRNA [NM_016041]
A_23_P431319	3.63E-05	down	-1.9052596	YIPF6	Homo sapiens Yip1 domain family, member 6 (YIPF6), transcript variant A, mRNA [NM_173834]
A_24_P288754	0.003965471	down	-1.5713577	PIGA	Homo sapiens phosphatidylinositol glycan anchor biosynthesis, class A (PIGA), transcript variant 1, mRNA [NM_002641]
A_24_P270496	0.030598026	down	-1.6326445	NOVA1	Homo sapiens neuro-oncological ventral antigen 1 (NOVA1), transcript variant 3, mRNA [NM_006491]
A_24_P374652	0.001115011	down	-1.8761884	NUCKS1	Homo sapiens nuclear casein kinase and cyclin-dependent kinase substrate 1 (NUCKS1), mRNA [NM_022731]
A_24_P913339	0.005304498	down	-1.5450386	SLC35F6	Homo sapiens solute carrier family 35, member F6 (SLC35F6), mRNA [NM_017877]
A_33_P3212650	1.04E-04	down	-2.203467	HDDC2	HD domain containing 2 [Source:HGNC Symbol;Acc:HGNC:21078] [ENST00000609477]
A_23_P362824	2.98E-04	down	-1.6990887	CSTF1	Homo sapiens cleavage stimulation factor, 3' pre-RNA, subunit 1, 50kDa (CSTF1), transcript variant 2, mRNA [NM_001324]
A_23_P134614	0.007797124	down	-1.5281765	COG5	Homo sapiens component of oligomeric golgi complex 5 (COG5), transcript variant 1, mRNA [NM_006348]
A_23_P342091	0.005755601	down	-1.6092463	OARD1	Homo sapiens O-acyl-ADP-ribose deacylase 1 (OARD1), mRNA [NM_145063]
A_33_P3303121	0.008854349	down	-1.6669923	RAP2B	Homo sapiens RAP2B, member of RAS oncogene family (RAP2B), mRNA [NM_002886]
A_23_P250800	0.008137018	down	-1.5214119	ST3GAL6	Homo sapiens ST3 beta-galactoside alpha-2,3-sialyltransferase 6 (ST3GAL6), transcript variant 1, mRNA [NM_006100]
A_33_P3369495	0.014510687	down	-1.8309019	CLDN10	claudin 10 [Source:HGNC Symbol;Acc:HGNC:2033] [ENST00000376855]
A_23_P98402	2.69E-04	down	-1.8552201	SIDT2	Homo sapiens SID1 transmembrane family, member 2 (SIDT2), mRNA [NM_001040455]
A_24_P69379	5.64E-04	down	-1.9955662	CASD1	Homo sapiens CAS1 domain containing 1 (CASD1), mRNA [NM_022900]
A_23_P112311	0.003711101	down	-1.6186464	TRIM32	Homo sapiens tripartite motif containing 32 (TRIM32), transcript variant 1, mRNA [NM_012210]
A_23_P108657	4.39E-04	down	-1.825607	WDSUB1	Homo sapiens WD repeat, sterile alpha motif and U-box domain containing 1 (WDSUB1), transcript variant 3, mRNA [NM_152528]
A_33_P3235640	0.004229005	down	-1.7368567	RBBP5	Homo sapiens retinoblastoma binding protein 5 (RBBP5), transcript variant 3, mRNA [NM_001193273]
A_33_P3260193	0.020504046	down	-1.6240047	C1orf141	Homo sapiens chromosome 1 open reading frame 141 (C1orf141), transcript variant 2, mRNA [NM_001276352]
A_23_P408167	7.38E-04	down	-1.9270542	GPRASP2	Homo sapiens G protein-coupled receptor associated sorting protein 2 (GPRASP2), transcript variant 1, mRNA [NM_001004051]
A_21_P0002428	0.04206996	down	-1.5591985	COX7A2L	cytochrome c oxidase subunit VIIa polypeptide 2 like [Source:HGNC Symbol;Acc:HGNC:2289] [ENST00000423797]
A_33_P3382910	1.14E-04	down	-1.9618094	GIN1	Homo sapiens gypsy retrotransposon integrase 1 (GIN1), mRNA [NM_017676]
A_24_P56194	4.67E-04	down	-1.9451793	CREBL2	Homo sapiens cAMP responsive element binding protein-like 2 (CREBL2), mRNA [NM_001310]
A_23_P45940	2.23E-05	down	-2.0456681	TFB2M	Homo sapiens transcription factor B2, mitochondrial (TFB2M), mRNA [NM_022366]
A_23_P103433	0.001049915	down	-1.8584093	OSCP1	Homo sapiens organic solute carrier partner 1 (OSCP1), transcript variant 1, mRNA [NM_145047]
A_23_P79426	4.99E-04	down	-1.7472321	CAB39	Homo sapiens calcium binding protein 39 (CAB39), transcript variant 1, mRNA [NM_016289]
A_23_P324989	0.035337508	down	-1.9164764	RECQL5	RecQ protein-like 5 [Source:HGNC Symbol;Acc:HGNC:9950] [ENST00000420326]
A_23_P365327	0.021434354	down	-1.6166961	UBE3D	ubiquitin protein ligase E3D [Source:HGNC Symbol;Acc:HGNC:21381] [ENST00000369746]
A_33_P3292064	0.02134616	down	-1.6858953	BPIFC	Homo sapiens cDNA clone IMAGE:4081306, partial cds. [BC062656]
A_23_P62309	0.017779732	down	-1.7118001	AGTR2	Homo sapiens angiotensin II receptor, type 2 (AGTR2), mRNA [NM_000686]
A_24_P319715	2.58E-04	down	-2.0706315	PDIA6	Homo sapiens protein disulfide isomerase family A, member 6 (PDIA6), transcript variant 4, mRNA [NM_005742]
A_24_P175989	2.74E-04	down	-2.095431	VPS29	Homo sapiens vacuolar protein sorting 29 homolog (S. cerevisiae) (VPS29), transcript variant 1, mRNA [NM_016226]
A_24_P202497	2.46E-04	down	-2.0646293	TWSG1	Homo sapiens twisted gastrulation BMP signaling modulator 1 (TWSG1), mRNA [NM_020648]
A_33_P3390918	0.007428757	down	-3.141203	FSD2	Homo sapiens fibronectin type III and SPRY domain containing 2 (FSD2), transcript variant 1, mRNA [NM_001007122]
A_21_P0000137	0.03638618	down	-1.5630118	BEAN1	Homo sapiens brain expressed, associated with NEDD4, 1 (BEAN1), transcript variant 4, mRNA [NM_001197224]
A_21_P0002622	0.019547956	down	-1.6494825	NUP35	nucleoporin 35kDa [Source:HGNC Symbol;Acc:HGNC:29797] [ENST00000472844]
A_33_P3767927	2.06E-05	down	-2.0781527	NR3C1	Homo sapiens nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor) (NR3C1), transcript variant 5, mRNA [NM_001018077]

A_33_P3315375	3.37E-04	down	-1.8578913	SLFN11	Homo sapiens schlafen family member 11 (SLFN11), transcript variant 1, mRNA [NM_001104587]
A_23_P62335	0.001761275	down	-1.6833385	TMLHE	Homo sapiens trimethyllysine hydroxylase, epsilon (TMLHE), transcript variant 1, mRNA [NM_018196]
A_32_P404549	0.02962068	down	-1.529238	CCDC39	Homo sapiens coiled-coil domain containing 39 (CCDC39), mRNA [NM_181426]
A_33_P3350164	0.03073394	down	-1.5563034	CCDC178	Homo sapiens coiled-coil domain containing 178 (CCDC178), transcript variant 2, mRNA [NM_198995]
A_33_P3348244	1.34E-04	down	-1.7598394	BRI3	Homo sapiens brain protein I3 (BRI3), transcript variant 1, mRNA [NM_015379]
A_33_P3336652	2.82E-04	down	-1.9988075	NDUFC2	Homo sapiens NADH dehydrogenase (ubiquinone) 1, subcomplex unknown, 2, 14.5kDa (NDUFC2), transcript variant 2, mRNA [NM_001204054]
A_23_P56798	5.85E-04	down	-1.7834542	ACP1	Homo sapiens acid phosphatase 1, soluble (ACP1), transcript variant 3, mRNA [NM_004300]
A_33_P6601265	0.014682019	down	-1.6825123	HSD17B12	hydroxysteroid (17-beta) dehydrogenase 12 [Source:HGNC Symbol;Acc:HGNC:18646] [ENST00000533358]
A_24_P212074	0.007678373	down	-1.8566226	METTL21C	Homo sapiens methyltransferase like 21C (METTL21C), mRNA [NM_001010977]
A_24_P365767	0.017969994	down	-1.5242349	CYBB	Homo sapiens cytochrome b-245, beta polypeptide (CYBB), mRNA [NM_000397]
A_23_P47322	0.017891873	down	-1.645819	BTG4	Homo sapiens B-cell translocation gene 4 (BTG4), mRNA [NM_017589]
A_33_P3356990	0.04438425	down	-1.7379735	NPIPB3	Homo sapiens nuclear pore complex interacting protein family, member B3 (NPIPB3), mRNA [NM_130464]
A_23_P99360	8.45E-05	down	-2.260688	TRIM13	Homo sapiens tripartite motif containing 13 (TRIM13), transcript variant 3, mRNA [NM_213590]
A_23_P2661	2.74E-04	down	-1.6868333	RAP1B	Homo sapiens RAP1B, member of RAS oncogene family (RAP1B), transcript variant 1, mRNA [NM_015646]
A_23_P326170	6.40E-04	down	-1.7427748	CALM2	Homo sapiens calmodulin 2 (phosphorylase kinase, delta) (CALM2), mRNA [NM_001743]
A_23_P371729	0.008698572	down	-2.3282094	GJA5	Homo sapiens gap junction protein, alpha 5, 40kDa (GJA5), transcript variant A, mRNA [NM_005266]
A_23_P370097	0.004008439	down	-1.6145916	TMEM237	Homo sapiens transmembrane protein 237 (TMEM237), transcript variant 1, mRNA [NM_001044385]
A_24_P50862	0.018445693	down	-1.6595744	QRSL1	glutaminyl-tRNA synthase (glutamine-hydrolyzing)-like 1 [Source:HGNC Symbol;Acc:HGNC:21020] [ENST00000369044]
A_33_P3332130	1.63E-05	down	-2.0613256	PGRMC1	Homo sapiens progesterone receptor membrane component 1 (PGRMC1), transcript variant 2, mRNA [NM_001282621]
A_24_P377225	0.022914482	down	-1.5470722	USP46	Homo sapiens ubiquitin specific peptidase 46 (USP46), transcript variant 1, mRNA [NM_022832]
A_33_P3342917	0.00243798	down	-1.6154337	SYNGR2	Homo sapiens synaptogyrin 2 (SYNGR2), mRNA [NM_004710]
A_24_P254177	0.003696689	down	-1.5215285	SMIM7	Homo sapiens small integral membrane protein 7 (SMIM7), transcript variant 2, mRNA [NM_024104]
A_24_P82142	9.82E-04	down	-2.3591993	TCF12	Homo sapiens transcription factor 12 (TCF12), transcript variant 4, mRNA [NM_207038]
A_33_P3221528	4.58E-04	down	-1.7570804	IREB2	Homo sapiens iron-responsive element binding protein 2 (IREB2), mRNA [NM_004136]
A_24_P237389	0.001008406	down	-1.8821689	EIF1AX	Homo sapiens eukaryotic translation initiation factor 1A, X-linked (EIF1AX), mRNA [NM_001412]
A_33_P3233666	0.002685055	down	-1.5400839	RPP30	Homo sapiens ribonuclease P/MRP 30kDa subunit (RPP30), transcript variant 1, mRNA [NM_001104546]
A_33_P3252369	0.00876739	down	-1.6022006	TMEM182	Homo sapiens transmembrane protein 182 (TMEM182), mRNA [NM_144632]
A_33_P3287840	0.036548328	down	-1.6552378	STAM	Homo sapiens signal transducing adaptor molecule (SH3 domain and ITAM motif) 1 (STAM), transcript variant 1, mRNA [NM_003473]
A_23_P5415	0.001205181	down	-1.6676265	NIF3L1	Homo sapiens NIF3 NGG1 interacting factor 3-like 1 (S. cerevisiae) (NIF3L1), transcript variant 2, mRNA [NM_021824]
A_24_P235429	5.91E-05	down	-1.8488148	ABCA1	Homo sapiens ATP-binding cassette, sub-family A (ABC1), member 1 (ABCA1), mRNA [NM_005502]
A_23_P43034	1.70E-04	down	-1.8461235	ELP3	Homo sapiens elongator acetyltransferase complex subunit 3 (ELP3), transcript variant 1, mRNA [NM_018091]
A_23_P138139	0.022270817	down	-1.5524535	OMA1	Homo sapiens OMA1 zinc metallopeptidase (OMA1), mRNA [NM_145243]
A_33_P3325502	3.23E-04	down	-2.566102	ARHGAP29	Homo sapiens Rho GTPase activating protein 29 (ARHGAP29), mRNA [NM_004815]
A_33_P3289145	7.85E-04	down	-1.6840631	COPS8	Homo sapiens COP9 signalosome subunit 8 (COPS8), transcript variant 2, mRNA [NM_198189]
A_23_P124733	0.002768219	down	-1.7444592	COQ2	Homo sapiens coenzyme Q2 4-hydroxybenzoate polyprenyltransferase (COQ2), mRNA [NM_015697]
A_19_P00320948	0.002982575	down	-1.62159	FAM200B	family with sequence similarity 200, member B [Source:HGNC Symbol;Acc:HGNC:27740] [ENST00000507992]
A_23_P347048	8.45E-05	down	-1.9632102	SGPP1	Homo sapiens sphingosine-1-phosphate phosphatase 1 (SGPP1), mRNA [NM_030791]
A_33_P3269899	0.001206549	down	-1.7554632	RECK	Homo sapiens reversion-inducing-cysteine-rich protein with kazal motifs (RECK), mRNA [NM_021111]
A_23_P333218	0.002556916	down	-1.5121377	ERGIC1	Homo sapiens endoplasmic reticulum-golgi intermediate compartment (ERGIC) 1 (ERGIC1), mRNA [NM_001031711]
A_23_P154962	9.01E-04	down	-1.9216952	RIMBP3	Homo sapiens RIMS binding protein 3 (RIMBP3), mRNA [NM_015672]
A_23_P157283	0.002456628	down	-1.6300474	TMEM243	Homo sapiens transmembrane protein 243, mitochondrial (TMEM243), mRNA [NM_024315]
A_23_P255785	7.92E-05	down	-1.9494549	NCK1	Homo sapiens NCK adaptor protein 1 (NCK1), transcript variant 1, mRNA [NM_006153]
A_33_P3271445	0.007548898	down	-1.5313268	COL4A3BP	Homo sapiens collagen, type IV, alpha 3 (Goodpasture antigen) binding protein (COL4A3BP), transcript variant 3, mRNA [NM_001130105]
A_23_P18123	0.014388791	down	-2.4247594	NLGN1	Homo sapiens neuroligin 1 (NLGN1), mRNA [NM_014932]
A_23_P206022	0.048511844	down	-1.5317967	ITGA11	Homo sapiens integrin, alpha 11 (ITGA11), mRNA [NM_001004439]
A_23_P334263	0.006047309	down	-1.501893	SENP8	Homo sapiens SUMO/sentrin specific peptidase family member 8 (SENP8), transcript variant 2, mRNA [NM_145204]

A_24_P80776	0.012946952	down	-1.8376551	SMIM13	Homo sapiens small integral membrane protein 13 (SMIM13), mRNA [NM_001135575]
A_33_P3361831	0.04806852	down	-1.7382873	FRG2C	Homo sapiens FSHD region gene 2 family, member C (FRG2C), mRNA [NM_001124759]
A_23_P50250	0.013646038	down	-1.9036855	CKM	Homo sapiens creatine kinase, muscle (CKM), mRNA [NM_001824]
A_33_P3391211	0.026127698	down	-1.7493619	RAB12	Homo sapiens RAB12, member RAS oncogene family (RAB12), mRNA [NM_001025300]
A_24_P233944	8.57E-04	down	-1.7187927	CEPT1	Homo sapiens choline/ethanolamine phosphotransferase 1 (CEPT1), transcript variant 2, mRNA [NM_001007794]
A_33_P3269166	0.011072896	down	-1.7644902	NALCN	sodium leak channel, non-selective [Source:HGNC Symbol;Acc:HGNC:19082] [ENST00000467264]
A_33_P3322353	2.94E-05	down	-2.5980313	CAPZA2	Homo sapiens capping protein (actin filament) muscle Z-line, alpha 2 (CAPZA2), mRNA [NM_006136]
A_23_P257668	0.016369829	down	-1.9915662	TTC26	Homo sapiens tetratricopeptide repeat domain 26 (TTC26), transcript variant 1, mRNA [NM_024926]
A_23_P9152	0.001889147	down	-1.5293903	RCL1	Homo sapiens RNA terminal phosphate cyclase-like 1 (RCL1), transcript variant 1, mRNA [NM_005772]
A_23_P211748	5.75E-04	down	-1.6685042	GTF2E1	Homo sapiens general transcription factor IIE, polypeptide 1, alpha 56kDa (GTF2E1), mRNA [NM_005513]
A_33_P3405168	0.001522057	down	-1.7325058	MMAA	Homo sapiens methylmalonic aciduria (cobalamin deficiency) cblA type (MMAA), mRNA [NM_172250]
A_24_P319354	4.42E-04	down	-1.9053473	SUMO1	Homo sapiens small ubiquitin-like modifier 1 (SUMO1), transcript variant 2, mRNA [NM_001005781]
A_23_P26994	0.03999101	down	-1.7468534	GNGT2	Homo sapiens guanine nucleotide binding protein (G protein), gamma transducing activity polypeptide 2 (GNGT2), transcript variant 1, mRNA [NM_031498]
A_21_P0000147	0.006454529	down	-1.562317	PGM3	Homo sapiens phosphoglucomutase 3 (PGM3), transcript variant 4, mRNA [NM_001199919]
A_23_P65455	7.99E-04	down	-1.738065	HAUS4	Homo sapiens HAUS augmin-like complex, subunit 4 (HAUS4), transcript variant 2, mRNA [NM_017815]
A_33_P3414574	2.82E-04	down	-1.7827575	DNAJA2	Homo sapiens DnaJ (Hsp40) homolog, subfamily A, member 2 (DNAJA2), mRNA [NM_005880]
A_23_P31085	9.67E-04	down	-1.6565734	CCDC28A	Homo sapiens coiled-coil domain containing 28A (CCDC28A), mRNA [NM_015439]
A_33_P3211604	3.57E-04	down	-1.6604459	RAP1B	Homo sapiens RAP1B, member of RAS oncogene family (RAP1B), transcript variant 1, mRNA [NM_015646]
A_23_P89030	3.57E-04	down	-1.8805307	C16orf95	Homo sapiens chromosome 16 open reading frame 95 (C16orf95), transcript variant 1, mRNA [NM_001195124]
A_24_P346587	3.28E-04	down	-1.8711189	MTFR1	Homo sapiens mitochondrial fission regulator 1 (MTFR1), transcript variant 1, mRNA [NM_014637]
A_23_P153945	4.39E-04	down	-1.7198783	GTDC1	Homo sapiens glycosyltransferase-like domain containing 1 (GTDC1), transcript variant 1, mRNA [NM_001006636]
A_33_P3214635	9.05E-04	down	-1.9125829	FECH	Homo sapiens ferrochelatase (FECH), transcript variant 1, mRNA [NM_001012515]
A_23_P257201	0.003040674	down	-1.8489763	RNF146	Homo sapiens ring finger protein 146 (RNF146), transcript variant 2, mRNA [NM_030963]
A_23_P98057	4.85E-04	down	-1.8747008	ZNF32	Homo sapiens zinc finger protein 32 (ZNF32), transcript variant 2, mRNA [NM_001005368]
A_33_P3222105	4.45E-05	down	-1.9722223	EIF1AX	Homo sapiens eukaryotic translation initiation factor 1A, X-linked (EIF1AX), mRNA [NM_001412]
A_24_P406060	0.001719297	down	-1.8456844	RNF144B	Homo sapiens ring finger protein 144B (RNF144B), mRNA [NM_182757]
A_23_P121250	0.003402273	down	-1.7350926	EIF4A2	Homo sapiens eukaryotic translation initiation factor 4A2 (EIF4A2), mRNA [NM_001967]
A_33_P3365735	0.045076717	down	-1.5916892	THBS2	Homo sapiens thrombospondin 2 (THBS2), mRNA [NM_003247]
A_23_P203900	0.007763772	down	-1.6444126	SCARB1	Homo sapiens scavenger receptor class B, member 1 (SCARB1), transcript variant 1, mRNA [NM_005505]
A_23_P69791	0.001821484	down	-1.7553245	AP1AR	Homo sapiens adaptor-related protein complex 1 associated regulatory protein (AP1AR), transcript variant 1, mRNA [NM_018569]
A_23_P129014	0.001254451	down	-1.8270482	EFCAB11	Homo sapiens EF-hand calcium binding domain 11 (EFCAB11), transcript variant 1, mRNA [NM_145231]
A_23_P148969	0.003413514	down	-1.533994	LRRC40	Homo sapiens leucine rich repeat containing 40 (LRRC40), mRNA [NM_017768]
A_32_P206698	9.16E-04	down	-1.8057294	CKS1B	Homo sapiens CDC28 protein kinase regulatory subunit 1B (CKS1B), transcript variant 1, mRNA [NM_001826]
A_33_P3629247	0.030257022	down	-1.5148776	ANKMY1	Homo sapiens ankyrin repeat and MYND domain containing 1 (ANKMY1), transcript variant 2, mRNA [NM_017844]
A_33_P3367438	0.011342232	down	-2.0646336	NRXN3	Homo sapiens neurexin 3 (NRXN3), transcript variant 1, mRNA [NM_004796]
A_33_P3636590	8.29E-05	down	-2.2194355	SUCLG2	Homo sapiens succinate-CoA ligase, GDP-forming, beta subunit (SUCLG2), transcript variant 2, mRNA [NM_003848]
A_24_P645765	0.001395013	down	-2.035035	KLHL42	Homo sapiens kelch-like family member 42 (KLHL42), mRNA [NM_020782]
A_23_P2423	3.47E-04	down	-1.7386457	MAGOHB	Homo sapiens mago-nashi homolog B (Drosophila) (MAGOHB), transcript variant 1, mRNA [NM_018048]
A_23_P311150	0.001119738	down	-1.7227618	SPTSSA	Homo sapiens serine palmitoyltransferase, small subunit A (SPTSSA), mRNA [NM_138288]
A_23_P68219	0.04467025	down	-2.0712965	TTN	Homo sapiens titin (TTN), transcript variant novex-3, mRNA [NM_133379]
A_24_P81947	0.002652524	down	-1.6176463	CORO1C	Homo sapiens coronin, actin binding protein, 1C (CORO1C), transcript variant 2, mRNA [NM_014325]
A_32_P66035	0.016322419	down	-1.5670936	TMEM86A	Homo sapiens transmembrane protein 86A (TMEM86A), mRNA [NM_153347]
A_32_P109794	3.53E-04	down	-1.8964908	STYX	Homo sapiens serine/threonine/tyrosine interacting protein (STYX), transcript variant 1, mRNA [NM_145251]
A_24_P940135	1.27E-04	down	-2.1686122	CTBS	Homo sapiens chitobiase, di-N-acetyl- (CTBS), mRNA [NM_004388]
A_23_P24948	0.009718823	down	-1.5927143	KCNE3	Homo sapiens potassium channel, voltage gated subfamily E regulatory beta subunit 3 (KCNE3), mRNA [NM_005472]
A_23_P251647	6.36E-04	down	-1.7562912	RFESD	Homo sapiens Rieske (Fe-S) domain containing (RFESD), transcript variant 2, mRNA [NM_173362]

A_33_P3384667	0.009373873	down	-1.9736463	DCAF5	Homo sapiens DDB1 and CUL4 associated factor 5 (DCAF5), transcript variant 4, mRNA [NM_001284208]
A_23_P131375	1.81E-04	down	-1.8647529	PQLC3	Homo sapiens PQ loop repeat containing 3 (PQLC3), transcript variant 1, mRNA [NM_152391]
A_33_P3415500	0.015242731	down	-1.5212489	TRIO	trio Rho guanine nucleotide exchange factor [Source:HGNC Symbol;Acc:HGNC:12303] [ENST00000620511]
A_32_P90080	5.01E-04	down	-1.7652467	ARMC10	Homo sapiens armadillo repeat containing 10 (ARMC10), transcript variant A, mRNA [NM_031905]
A_33_P3380417	4.74E-04	down	-1.6803051	SLC25A30	Homo sapiens solute carrier family 25, member 30 (SLC25A30), transcript variant 3, mRNA [NM_001286807]
A_23_P324523	0.018485714	down	-1.5111822	IQCK	Homo sapiens IQ motif containing K (IQCK), mRNA [NM_153208]
A_32_P129950	7.56E-04	down	-1.9226111	NHLRC3	Homo sapiens NHL repeat containing 3 (NHLRC3), transcript variant 1, mRNA [NM_001012754]
A_23_P205623	0.003952398	down	-1.7744708	DDHD1	Homo sapiens DDHD domain containing 1 (DDHD1), transcript variant 1, mRNA [NM_030637]
A_33_P3379606	0.021342736	down	-1.9890859	RGS7BP	Homo sapiens regulator of G-protein signaling 7 binding protein (RGS7BP), transcript variant 1, mRNA [NM_001029875]
A_33_P3292854	0.008245426	down	-1.6610624	CALR	Homo sapiens calreticulin (CALR), mRNA [NM_004343]
A_23_P28638	4.16E-04	down	-1.7708161	PLEKHB2	Homo sapiens pleckstrin homology domain containing, family B (evectins) member 2 (PLEKHB2), transcript variant 2, mRNA [NM_017958]
A_23_P54477	4.57E-04	down	-1.7191623	NOP10	Homo sapiens NOP10 ribonucleoprotein (NOP10), mRNA [NM_018648]
A_33_P3358457	0.003827849	down	-2.8127775	GLI2	Homo sapiens GLI family zinc finger 2 (GLI2), mRNA [NM_005270]
A_33_P3404970	0.022492258	down	-1.6083153	OPN5	Homo sapiens opsin 5 (OPN5), transcript variant 1, mRNA [NM_181744]
A_23_P79622	0.006440619	down	-1.7112793	FKBP7	Homo sapiens FK506 binding protein 7 (FKBP7), transcript variant 1, mRNA [NM_181342]
A_23_P385217	2.83E-05	down	-1.9915391	ARL8B	Homo sapiens ADP-ribosylation factor-like 8B (ARL8B), mRNA [NM_018184]
A_23_P17012	9.29E-04	down	-1.7863668	SCRN3	Homo sapiens secernin 3 (SCRN3), transcript variant 1, mRNA [NM_024583]
A_23_P200728	0.003856973	down	-1.7934446	FCGR3A	Homo sapiens Fc fragment of IgG, low affinity IIIa, receptor (CD16a) (FCGR3A), transcript variant 1, mRNA [NM_000569]
A_32_P351037	0.019746605	down	-2.1594405	DNAH7	dynein, axonemal, heavy chain 7 [Source:HGNC Symbol;Acc:HGNC:18661] [ENST00000410072]
A_23_P428729	0.022012634	down	-1.6045175	ZMYM6	zinc finger, MYM-type 6 [Source:HGNC Symbol;Acc:HGNC:13050] [ENST00000460607]
A_33_P3359753	2.48E-04	down	-1.7566594	CCSAP	Homo sapiens centriole, cilia and spindle-associated protein (CCSAP), mRNA [NM_145257]
A_23_P416314	0.00640894	down	-1.5943443	HRASLS5	Homo sapiens HRAS-like suppressor family, member 5 (HRASLS5), transcript variant 1, mRNA [NM_054108]
A_23_P102058	0.020650238	down	-1.6204938	MATN3	Homo sapiens matrilin 3 (MATN3), mRNA [NM_002381]
A_23_P48358	0.002398407	down	-1.6798869	PCCA	Homo sapiens propionyl CoA carboxylase, alpha polypeptide (PCCA), transcript variant 1, mRNA [NM_000282]
A_23_P1206	3.09E-04	down	-1.7780572	RPS24	Homo sapiens ribosomal protein S24 (RPS24), transcript variant c, mRNA [NM_001026]
A_23_P151970	4.42E-04	down	-1.7269121	FEM1B	Homo sapiens fem-1 homolog b (C. elegans) (FEM1B), mRNA [NM_015322]
A_24_P791669	9.51E-06	down	-2.1190581	ZNF879	Homo sapiens zinc finger protein 879 (ZNF879), mRNA [NM_001136116]
A_23_P55544	0.028548118	down	-1.9647281	CCBE1	Homo sapiens collagen and calcium binding EGF domains 1 (CCBE1), mRNA [NM_133459]
A_23_P137931	0.026443597	down	-1.9758279	ADORA3	Homo sapiens adenosine A3 receptor (ADORA3), transcript variant A, mRNA [NM_000677]
A_33_P3299421	1.82E-04	down	-1.9452507	ZNF530	Homo sapiens zinc finger protein 530 (ZNF530), mRNA [NM_020880]
A_32_P194779	0.001041851	down	-1.6737823	ZBTB34	Homo sapiens zinc finger and BTB domain containing 34 (ZBTB34), mRNA [NM_001099270]
A_21_P0006525	0.003781015	down	-2.390459	MID1	PREDICTED: Homo sapiens midline 1 (Opitz/BBB syndrome) (MID1), transcript variant X2, misc_RNA [XR_247299]
A_33_P3399318	0.001360563	down	-1.6619267	GNG12	Homo sapiens guanine nucleotide binding protein (G protein), gamma 12 (GNG12), mRNA [NM_018841]
A_23_P107283	0.002118098	down	-1.8638135	HOXB2	Homo sapiens homeobox B2 (HOXB2), mRNA [NM_002145]
A_23_P99292	1.27E-04	down	-3.3809843	RAD51AP1	Homo sapiens RAD51 associated protein 1 (RAD51AP1), transcript variant 2, mRNA [NM_006479]
A_24_P77364	0.00234037	down	-1.5611708	BOLA3	Homo sapiens bolA family member 3 (BOLA3), transcript variant 1, mRNA [NM_212552]
A_33_P3397693	6.75E-05	down	-2.0272934	AGPS	Homo sapiens alkylglycerone phosphate synthase (AGPS), mRNA [NM_003659]
A_23_P115922	3.15E-04	down	-1.7962368	EIF4EBP2	Homo sapiens eukaryotic translation initiation factor 4E binding protein 2 (EIF4EBP2), mRNA [NM_004096]
A_23_P382705	0.001783901	down	-1.6216621	TMTC2	Homo sapiens transmembrane and tetratricopeptide repeat containing 2 (TMTC2), mRNA [NM_152588]
A_23_P41487	0.005953468	down	-1.5758512	TBC1D9	Homo sapiens TBC1 domain family, member 9 (with GRAM domain) (TBC1D9), mRNA [NM_015130]
A_23_P371410	0.010049175	down	-1.6312413	PRKACB	Homo sapiens protein kinase, cAMP-dependent, catalytic, beta (PRKACB), transcript variant 3, mRNA [NM_207578]
A_24_P334378	0.023276448	down	-1.6093217	UGT2A3	Homo sapiens UDP glucuronosyltransferase 2 family, polypeptide A3 (UGT2A3), transcript variant 1, mRNA [NM_024743]
A_23_P17021	8.81E-04	down	-1.7140019	SCRN3	Homo sapiens secernin 3 (SCRN3), transcript variant 1, mRNA [NM_024583]
A_33_P3290328	4.02E-04	down	-1.6984904	DCUN1D1	Homo sapiens DCN1, defective in cullin neddylation 1, domain containing 1 (DCUN1D1), mRNA [NM_020640]
A_23_P75430	0.023769872	down	-1.5311791	SMCO4	Homo sapiens single-pass membrane protein with coiled-coil domains 4 (SMCO4), mRNA [NM_020179]
A_32_P480330	0.032392316	down	-1.5900528	EYS	Homo sapiens eyes shut homolog (Drosophila) (EYS), transcript variant 4, mRNA [NM_001292009]
A_33_P3404739	0.010027616	down	-1.624953	C6orf141	PREDICTED: Homo sapiens chromosome 6 open reading frame 141 (C6orf141), transcript variant X2, mRNA [XM_005248851]
A_33_P3295333	0.035677806	down	-1.5848862	CLEC1A	Homo sapiens C-type lectin domain family 1, member A (CLEC1A), transcript variant 4, mRNA [NM_001297750]
A_23_P80200	0.016959231	down	-1.9646131	LRRC74B	Homo sapiens leucine rich repeat containing 74B (LRRC74B), transcript variant 1, mRNA [NM_001291006]

A_32_P43812	8.30E-04	down	-2.2088618	DCUN1D4	Homo sapiens DCN1, defective in cullin neddylation 1, domain containing 4 (DCUN1D4), transcript variant 1, mRNA [NM_001040402]
A_23_P400716	0.027714351	down	-2.4910576	SHE	Homo sapiens Src homology 2 domain containing E (SHE), mRNA [NM_001010846]
A_33_P3247803	4.52E-04	down	-1.8248098	RBM12B	Homo sapiens RNA binding motif protein 12B (RBM12B), mRNA [NM_203390]
A_33_P3297375	0.008087644	down	-1.7673668	CCER1	coiled-coil glutamate-rich protein 1 [Source:HGNC Symbol;Acc:HGNC:28373] [ENST00000358859]
A_24_P322741	4.50E-04	down	-1.6864033	IL10RB	Homo sapiens interleukin 10 receptor, beta (IL10RB), mRNA [NM_000628]
A_33_P3333826	0.003160917	down	-1.614402	UBE2Q2	Homo sapiens ubiquitin-conjugating enzyme E2Q family member 2 (UBE2Q2), transcript variant 1, mRNA [NM_173469]
A_24_P479551	0.007727915	down	-2.4097478	UBE2QL1	Homo sapiens ubiquitin-conjugating enzyme E2Q family-like 1 (UBE2QL1), mRNA [NM_001145161]
A_33_P3321342	0.002261563	down	-1.5889801	INSIG2	Homo sapiens insulin induced gene 2 (INSIG2), mRNA [NM_016133]
A_24_P140405	0.004954484	down	-1.7538774	ADAMTS3	Homo sapiens ADAM metallopeptidase with thrombospondin type 1 motif, 3 (ADAMTS3), mRNA [NM_014243]
A_33_P3262416	0.009062204	down	-1.7902468	DPH6	Homo sapiens diphthamine biosynthesis 6 (DPH6), transcript variant 2, mRNA [NM_001141972]
A_33_P3441060	0.003801125	down	-1.6638067	TMEM242	Homo sapiens transmembrane protein 242 (TMEM242), mRNA [NM_018452]
A_23_P82206	7.08E-04	down	-1.7851098	ECHDC1	Homo sapiens ethylmalonyl-CoA decarboxylase 1 (ECHDC1), transcript variant 2, mRNA [NM_018479]
A_23_P99642	4.50E-04	down	-1.6955736	SLC7A7	Homo sapiens solute carrier family 7 (amino acid transporter light chain, y+L system), member 7 (SLC7A7), transcript variant 3, mRNA [NM_001126106]
A_23_P83234	0.015863333	down	-1.5284481	ZBTB6	Homo sapiens zinc finger and BTB domain containing 6 (ZBTB6), mRNA [NM_006626]
A_23_P73801	0.002823942	down	-1.6403258	TCEAL1	Homo sapiens transcription elongation factor A (SII)-like 1 (TCEAL1), transcript variant 3, mRNA [NM_001006640]
A_23_P157449	5.89E-04	down	-1.8183293	POLR2K	Homo sapiens polymerase (RNA) II (DNA directed) polypeptide K, 7.0kDa (POLR2K), mRNA [NM_005034]
A_23_P25638	8.49E-04	down	-1.6842477	RNF219	Homo sapiens ring finger protein 219 (RNF219), mRNA [NM_024546]
A_24_P935986	0.009305222	down	-1.7711457	BCAT1	Homo sapiens branched chain amino-acid transaminase 1, cytosolic (BCAT1), transcript variant 1, mRNA [NM_005504]
A_24_P263284	0.042209662	down	-1.5163985	CSMD2	Homo sapiens CUB and Sushi multiple domains 2 (CSMD2), transcript variant 2, mRNA [NM_052896]
A_23_P19592	0.004207373	down	-1.617296	PGM3	Homo sapiens phosphoglucomutase 3 (PGM3), transcript variant 2, mRNA [NM_015599]
A_24_P277807	2.10E-04	down	-1.974499	SNX3	Homo sapiens sorting nexin 3 (SNX3), transcript variant 1, mRNA [NM_003795]
A_32_P85539	2.23E-04	down	-2.0904512	HCFC2	Homo sapiens host cell factor C2 (HCFC2), mRNA [NM_013320]
A_23_P24623	5.34E-04	down	-1.7869898	ELP4	Homo sapiens elongator acetyltransferase complex subunit 4 (ELP4), transcript variant 1, mRNA [NM_019040]
A_23_P134274	0.003060124	down	-1.541639	POP7	Homo sapiens processing of precursor 7, ribonuclease P/MRP subunit (S. cerevisiae) (POP7), mRNA [NM_005837]
A_33_P3568504	0.013597993	down	-1.8160172	PPP1R1C	Homo sapiens protein phosphatase 1, regulatory (inhibitor) subunit 1C (PPP1R1C), transcript variant 1, mRNA [NM_001261424]
A_23_P156826	3.14E-04	down	-2.091105	ADTRP	Homo sapiens androgen-dependent TFPI-regulating protein (ADTRP), transcript variant 2, mRNA [NM_032744]
A_33_P3210875	4.98E-04	down	-2.1967556	ATP7A	Homo sapiens ATPase, Cu++ transporting, alpha polypeptide (ATP7A), transcript variant 1, mRNA [NM_000052]
A_33_P3215457	2.78E-04	down	-2.3835843	MTTP	Homo sapiens microsomal triglyceride transfer protein (MTTP), transcript variant 1, mRNA [NM_000253]
A_33_P3341329	7.98E-04	down	-1.6392387	ZCRB1	Homo sapiens zinc finger CCHC-type and RNA binding motif 1 (ZCRB1), mRNA [NM_033114]
A_33_P3349651	0.002732688	down	-1.7503171	SWAP70	Homo sapiens SWAP switching B-cell complex 70kDa subunit (SWAP70), transcript variant 1, mRNA [NM_015055]
A_32_P224666	0.002372963	down	-1.6695982	CAPZA2	Homo sapiens capping protein (actin filament) muscle Z-line, alpha 2 (CAPZA2), mRNA [NM_006136]
A_21_P0007201	0.020158239	down	-1.6457882	HSD17B12	hydroxysteroid (17-beta) dehydrogenase 12 [Source:HGNC Symbol;Acc:HGNC:18646] [ENST00000533358]
A_24_P145122	0.01292264	down	-1.7356706	NUCKS1	Homo sapiens nuclear casein kinase and cyclin-dependent kinase substrate 1 (NUCKS1), mRNA [NM_022731]
A_33_P3213432	9.17E-04	down	-1.657861	ARMC10	Homo sapiens armadillo repeat containing 10 (ARMC10), transcript variant A, mRNA [NM_031905]
A_33_P3259507	0.00890381	down	-1.5624187	FBXO10	Homo sapiens F-box protein 10 (FBXO10), mRNA [NM_012166]
A_19_P00812349	0.001248845	down	-1.8239472	ZNF805	Homo sapiens zinc finger protein 805 (ZNF805), transcript variant 1, mRNA [NM_001023563]
A_23_P215931	2.26E-04	down	-1.8376368	LEPROTL1	Homo sapiens leptin receptor overlapping transcript-like 1 (LEPROTL1), transcript variant 1, mRNA [NM_015344]
A_33_P3382498	0.041415486	down	-1.5749893	SIGLEC14	Homo sapiens sialic acid binding Ig-like lectin 14 (SIGLEC14), mRNA [NM_001098612]
A_33_P3380982	0.001936559	down	-1.6420928	TMEM30A	Homo sapiens transmembrane protein 30A (TMEM30A), transcript variant 1, mRNA [NM_018247]
A_23_P56654	0.004492969	down	-1.5539021	MCEE	Homo sapiens methylmalonyl CoA epimerase (MCEE), mRNA [NM_032601]
A_23_P305759	0.010407299	down	-1.6194686	ABHD3	Homo sapiens abhydrolase domain containing 3 (ABHD3), mRNA [NM_138340]
A_32_P351968	9.13E-04	down	-1.9387141	HLA-DMB	Homo sapiens major histocompatibility complex, class II, DM beta (HLA-DMB), mRNA [NM_002118]
A_32_P95914	0.006155727	down	-1.719073	MMS22L	Homo sapiens MMS22-like, DNA repair protein (MMS22L), mRNA [NM_198468]
A_24_P405002	4.87E-06	down	-2.8409011	PDIK1L	Homo sapiens PDLIM1 interacting kinase 1 like (PDIK1L), transcript variant 1, mRNA [NM_152835]
A_23_P169039	0.022345643	down	-1.6596699	SNAI2	Homo sapiens snail family zinc finger 2 (SNAI2), mRNA [NM_003068]
A_33_P3420900	0.026693217	down	-2.239959	PATE2	Homo sapiens prostate and testis expressed 2 (PATE2), mRNA [NM_212555]
A_33_P3305617	0.030837249	down	-1.6651816	SPTSSB	serine palmitoyltransferase, small subunit B [Source:HGNC Symbol;Acc:HGNC:24045] [ENST00000617024]

A_24_P135444	3.15E-04	down	-1.8499061	AMFR	Homo sapiens autocrine motility factor receptor, E3 ubiquitin protein ligase (AMFR), mRNA [NM_001144]
A_33_P3298024	0.011447425	down	-1.519281	ABCC3	Homo sapiens ATP-binding cassette, sub-family C (CFTR/MRP), member 3 (ABCC3), transcript variant 2, mRNA [NM_001144070]
A_24_P333663	3.71E-04	down	-2.4137716	MAPK6	Homo sapiens mitogen-activated protein kinase 6 (MAPK6), mRNA [NM_002748]
A_23_P77117	0.001218059	down	-2.075237	TM6SF1	Homo sapiens transmembrane 6 superfamily member 1 (TM6SF1), transcript variant 1, mRNA [NM_023003]
A_23_P54357	0.002353583	down	-2.1508605	LDHAL6B	Homo sapiens lactate dehydrogenase A-like 6B (LDHAL6B), mRNA [NM_033195]
A_23_P170587	2.77E-04	down	-1.9579704	SMYD2	Homo sapiens SET and MYND domain containing 2 (SMYD2), mRNA [NM_020197]
A_23_P391725	0.001639585	down	-1.5491451	DR1	Homo sapiens down-regulator of transcription 1, TBP-binding (negative cofactor 2) (DR1), mRNA [NM_001938]
A_33_P3788420	0.013253206	down	-2.7305007	TRABD2B	Homo sapiens TraB domain containing 2B (TRABD2B), mRNA [NM_001194986]
A_23_P205489	0.040373124	down	-1.5994078	SLC7A8	Homo sapiens solute carrier family 7 (amino acid transporter light chain, L system), member 8 (SLC7A8), transcript variant 2, mRNA [NM_182728]
A_33_P3481674	0.012005995	down	-1.9213592	SHISA6	Homo sapiens shisa family member 6 (SHISA6), transcript variant 1, mRNA [NM_207386]
A_23_P327698	0.00520053	down	-1.5460721	LMBRD2	Homo sapiens LMBR1 domain containing 2 (LMBRD2), mRNA [NM_001007527]
A_33_P3214481	4.03E-04	down	-2.0110424	P4HA1	Homo sapiens prolyl 4-hydroxylase, alpha polypeptide I (P4HA1), transcript variant 3, mRNA [NM_001142595]
A_22_P00011693	0.001578501	down	-1.8572011	PDK3	Homo sapiens pyruvate dehydrogenase kinase, isozyme 3 (PDK3), transcript variant 1, mRNA [NM_001142386]
A_24_P91985	0.006232463	down	-2.9938252	WDR17	Homo sapiens WD repeat domain 17 (WDR17), transcript variant 1, mRNA [NM_170710]
A_23_P156049	3.12E-04	down	-2.112844	HEXB	Homo sapiens hexosaminidase B (beta polypeptide) (HEXB), transcript variant 1, mRNA [NM_000521]
A_23_P43049	4.71E-05	down	-1.9550424	DCTN6	Homo sapiens dynactin 6 (DCTN6), mRNA [NM_006571]
A_24_P78161	0.002033899	down	-1.6386265	PLAA	Homo sapiens phospholipase A2-activating protein (PLAA), mRNA [NM_001031689]
A_23_P136232	0.003428205	down	-1.5129035	IMPAD1	Homo sapiens inositol monophosphatase domain containing 1 (IMPAD1), mRNA [NM_017813]
A_24_P306726	4.75E-04	down	-1.7376595	TPT1	Homo sapiens tumor protein, translationally-controlled 1 (TPT1), transcript variant 2, mRNA [NM_003295]
A_23_P204269	2.52E-04	down	-1.939257	USP15	Homo sapiens ubiquitin specific peptidase 15 (USP15), transcript variant 2, mRNA [NM_006313]
A_24_P328969	1.61E-04	down	-1.9265225	YIPF5	Homo sapiens Yip1 domain family, member 5 (YIPF5), transcript variant 2, mRNA [NM_030799]
A_23_P11507	0.00246315	down	-1.718268	ZZZ3	Homo sapiens zinc finger, ZZ-type containing 3 (ZZZ3), mRNA [NM_015534]
A_33_P3351559	7.20E-04	down	-1.7758094	ETNK1	Homo sapiens ethanolamine kinase 1 (ETNK1), transcript variant 1, mRNA [NM_018638]
A_23_P127533	8.69E-04	down	-1.6212727	DCUN1D5	Homo sapiens DCN1, defective in cullin neddylation 1, domain containing 5 (DCUN1D5), mRNA [NM_032299]
A_23_P47148	0.0396744	down	-1.6784589	NOX4	Homo sapiens NADPH oxidase 4 (NOX4), transcript variant 1, mRNA [NM_016931]
A_23_P394166	1.15E-05	down	-2.2226968	CNOT7	Homo sapiens CCR4-NOT transcription complex, subunit 7 (CNOT7), transcript variant 1, mRNA [NM_013354]
A_33_P3264538	0.010230444	down	-1.7761271	TAB1	Homo sapiens TGF-beta activated kinase 1/MAP3K7 binding protein 1 (TAB1), transcript variant beta, mRNA [NM_153497]
A_21_P0014256	0.04171241	down	-1.7209262	STK32C	serine/threonine kinase 32C [Source:HGNC Symbol;Acc:HGNC:21332] [ENST00000456004]
A_24_P201404	4.07E-04	down	-1.6924033	C11orf54	Homo sapiens chromosome 11 open reading frame 54 (C11orf54), transcript variant 4, mRNA [NM_014039]
A_23_P205336	3.42E-04	down	-1.7861313	GSKIP	Homo sapiens GSK3B interacting protein (GSKIP), transcript variant 2, mRNA [NM_016472]
A_23_P60002	0.011600737	down	-1.5138816	EMC2	Homo sapiens ER membrane protein complex subunit 2 (EMC2), mRNA [NM_014673]
A_23_P320530	0.009416308	down	-1.5881895	ZNF780A	Homo sapiens zinc finger protein 780A (ZNF780A), transcript variant 2, mRNA [NM_001010880]
A_32_P3534	0.042213026	down	-1.7115712	PGPEP1L	Homo sapiens pyroglutamyl-peptidase I-like (PGPEP1L), transcript variant 2, mRNA [NM_001167902]
A_23_P129064	3.82E-04	down	-2.3459637	GATM	Homo sapiens glycine amidinotransferase (L-arginine:glycine amidinotransferase) (GATM), mRNA [NM_001482]
A_23_P154938	0.001998787	down	-1.6497636	HIRA	Homo sapiens histone cell cycle regulator (HIRA), mRNA [NM_003325]
A_24_P62860	0.001065194	down	-1.8491652	STAM2	Homo sapiens signal transducing adaptor molecule (SH3 domain and ITAM motif) 2 (STAM2), mRNA [NM_005843]
A_32_P163858	0.022212943	down	-1.8081586	SCD	Homo sapiens stearoyl-CoA desaturase (delta-9-desaturase) (SCD), mRNA [NM_005063]
A_23_P79968	0.007016157	down	-1.7859999	PCSK2	Homo sapiens proprotein convertase subtilisin/kexin type 2 (PCSK2), transcript variant 1, mRNA [NM_002594]
A_23_P412508	0.037359197	down	-2.049679	PDZD9	Homo sapiens PDZ domain containing 9 (PDZD9), transcript variant 1, mRNA [NM_173806]
A_23_P128408	6.98E-05	down	-1.8924582	TRIAP1	Homo sapiens TP53 regulated inhibitor of apoptosis 1 (TRIAP1), mRNA [NM_016399]
A_32_P20523	2.19E-05	down	-2.0022347	TIGD2	Homo sapiens tigger transposable element derived 2 (TIGD2), mRNA [NM_145715]
A_23_P200507	5.32E-04	down	-1.9719719	CNIH4	Homo sapiens cornichon family AMPA receptor auxiliary protein 4 (CNIH4), transcript variant 1, mRNA [NM_014184]
A_33_P3365616	1.13E-04	down	-1.9434416	BTF3L4	Homo sapiens basic transcription factor 3-like 4 (BTF3L4), transcript variant 1, mRNA [NM_152265]
A_23_P213678	5.64E-04	down	-1.8532327	PAM	Homo sapiens peptidylglycine alpha-amidating monooxygenase (PAM), transcript variant 1, mRNA [NM_000919]

A_24_P148836	9.90E-04	down	-1.9877906	KLHDC8B	Homo sapiens kelch domain containing 8B (KLHDC8B), mRNA [NM_173546]
A_23_P94533	0.009750995	down	-1.9020908	CTSL	Homo sapiens cathepsin L (CTSL), transcript variant 1, mRNA [NM_001912]
A_23_P397417	0.002062498	down	-1.5560483	CNEP1R1	Homo sapiens CTD nuclear envelope phosphatase 1 regulatory subunit 1 (CNEP1R1), transcript variant 1, mRNA [NM_153261]
A_32_P149536	2.05E-04	down	-1.8029759	SUMO2	Homo sapiens small ubiquitin-like modifier 2 (SUMO2), transcript variant 1, mRNA [NM_006937]
A_23_P72025	0.00265905	down	-1.8045559	SLC25A20	Homo sapiens solute carrier family 25 (carnitine/acylcarnitine translocase), member 20 (SLC25A20), mRNA [NM_000387]
A_33_P3728979	7.28E-04	down	-1.7673004	FAM151B	Homo sapiens family with sequence similarity 151, member B (FAM151B), mRNA [NM_205548]
A_24_P160482	0.01009437	down	-1.7768732	VSTM2A	Homo sapiens V-set and transmembrane domain containing 2A, mRNA (cDNA clone MGC:33530 IMAGE:4820705), complete cds. [BC028404]
A_33_P3269159	0.048216473	down	-1.7805438	NALCN	sodium leak channel, non-selective [Source:HGNC Symbol;Acc:HGNC:19082] [ENST00000470333]
A_33_P3298216	0.0174329	down	-1.6150155	MYO16	Homo sapiens myosin XVI (MYO16), transcript variant 1, mRNA [NM_001198950]
A_24_P243749	0.001191781	down	-2.703534	PDK4	Homo sapiens pyruvate dehydrogenase kinase, isozyme 4 (PDK4), mRNA [NM_002612]
A_24_P277367	0.028859055	down	-2.02177	CXCL5	Homo sapiens chemokine (C-X-C motif) ligand 5 (CXCL5), mRNA [NM_002994]
A_23_P250283	9.13E-05	down	-1.8917539	RAB1A	Homo sapiens RAB1A, member RAS oncogene family (RAB1A), transcript variant 1, mRNA [NM_004161]
A_24_P268160	0.001160704	down	-1.8098649	DRAM2	Homo sapiens DNA-damage regulated autophagy modulator 2 (DRAM2), mRNA [NM_178454]
A_33_P3219651	0.031323534	down	-1.5641878	BMPER	Homo sapiens BMP binding endothelial regulator (BMPER), mRNA [NM_133468]
A_24_P337334	0.002619898	down	-1.6720859	DCTD	Homo sapiens dCMP deaminase (DCTD), transcript variant 1, mRNA [NM_001012732]
A_24_P784765	0.002954988	down	-1.9054285	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_23_P346953	0.028949143	down	-1.683343	DGKB	Homo sapiens diacylglycerol kinase, beta 90kDa (DGKB), transcript variant 2, mRNA [NM_145695]
A_24_P370471	0.003736021	down	-1.5538656	ATG10	Homo sapiens autophagy related 10 (ATG10), transcript variant 2, mRNA [NM_031482]
A_23_P162846	0.002738906	down	-1.6492122	LAMP1	Homo sapiens lysosomal-associated membrane protein 1 (LAMP1), mRNA [NM_005561]
A_33_P3240263	1.52E-04	down	-1.8176904	POMP	Homo sapiens proteasome maturation protein (POMP), mRNA [NM_015932]
A_32_P204137	0.042694476	down	-1.6426615	GABRA4	Homo sapiens gamma-aminobutyric acid (GABA) A receptor, alpha 4 (GABRA4), transcript variant 1, mRNA [NM_000809]
A_23_P162087	2.59E-04	down	-1.8022786	TMEM9B	Homo sapiens TMEM9 domain family, member B (TMEM9B), transcript variant 1, mRNA [NM_020644]
A_23_P323102	0.03947193	down	-1.7223029	PCDHA9	Homo sapiens protocadherin alpha 9 (PCDHA9), transcript variant 2, mRNA [NM_014005]
A_24_P77082	0.009570773	down	-1.7022072	KMO	Homo sapiens kynurenine 3-monooxygenase (kynurenine 3-hydroxylase) (KMO), mRNA [NM_003679]
A_23_P253046	3.14E-04	down	-1.7337542	UGP2	Homo sapiens UDP-glucose pyrophosphorylase 2 (UGP2), transcript variant 1, mRNA [NM_006759]
A_33_P3296940	2.21E-04	down	-1.8700082	FNDC3B	Homo sapiens fibronectin type III domain containing 3B (FNDC3B), transcript variant 1, mRNA [NM_022763]
A_33_P3354267	5.54E-04	down	-1.8056848	AKIRIN1	Homo sapiens akirin 1 (AKIRIN1), transcript variant 1, mRNA [NM_024595]
A_23_P213441	3.47E-04	down	-1.8709276	UTP15	Homo sapiens UTP15, U3 small nucleolar ribonucleoprotein, homolog (S. cerevisiae) (UTP15), transcript variant 1, mRNA [NM_032175]
A_24_P98006	0.029080655	down	-1.5812446	MCHR2	Homo sapiens melanin-concentrating hormone receptor 2 (MCHR2), transcript variant 1, mRNA [NM_001040179]
A_24_P80181	9.02E-04	down	-1.6918068	TMEM127	Homo sapiens transmembrane protein 127 (TMEM127), transcript variant 1, mRNA [NM_017849]
A_23_P48166	3.95E-04	down	-2.1855874	TWF1	Homo sapiens twinfilin actin-binding protein 1 (TWF1), transcript variant 2, mRNA [NM_002822]
A_33_P3417517	0.022978473	down	-1.6162556	BRD8	Homo sapiens bromodomain containing 8 (BRD8), transcript variant 2, mRNA [NM_139199]
A_23_P347059	6.78E-04	down	-1.9659616	MOB1B	Homo sapiens MOB kinase activator 1B (MOB1B), transcript variant 2, mRNA [NM_173468]
A_23_P210330	0.003834942	down	-1.6745673	LGALSL	Homo sapiens lectin, galactoside-binding-like (LGALSL), mRNA [NM_014181]
A_23_P122796	0.00197996	down	-1.9502522	HDDC2	Homo sapiens HD domain containing 2 (HDDC2), mRNA [NM_016063]
A_23_P119778	0.001543427	down	-2.2249634	SLC39A10	Homo sapiens solute carrier family 39 (zinc transporter), member 10 (SLC39A10), transcript variant 2, mRNA [NM_020342]
A_32_P130788	0.002726208	down	-2.240751	SAMD13	Homo sapiens sterile alpha motif domain containing 13 (SAMD13), transcript variant 1, mRNA [NM_001010971]
A_33_P3249574	0.005731065	down	-1.6677952	SCAMP1	Homo sapiens secretory carrier membrane protein 1 (SCAMP1), transcript variant 1, mRNA [NM_004866]
A_33_P3302255	1.58E-04	down	-1.7330031	ITM2B	Homo sapiens integral membrane protein 2B (ITM2B), mRNA [NM_021999]
A_23_P211957	0.006422272	down	-1.6387042	TGFBR2	Homo sapiens transforming growth factor, beta receptor II (70/80kDa) (TGFBR2), transcript variant 1, mRNA [NM_001024847]
A_23_P137427	2.26E-05	down	-1.9964052	ZMPSTE24	Homo sapiens zinc metallopeptidase STE24 (ZMPSTE24), mRNA [NM_005857]
A_23_P17522	0.017382039	down	-1.9554956	NKX2-2	Homo sapiens NK2 homeobox 2 (NKX2-2), mRNA [NM_002509]
A_23_P37265	5.43E-04	down	-1.7507024	AP5M1	Homo sapiens adaptor-related protein complex 5, mu 1 subunit (AP5M1), transcript variant 1, mRNA [NM_018229]
A_33_P3246268	0.02805487	down	-1.5813756	HOXD13	Homo sapiens homeobox D13 (HOXD13), mRNA [NM_000523]
A_23_P51548	0.002680976	down	-1.5581484	MGST3	Homo sapiens microsomal glutathione S-transferase 3 (MGST3), mRNA [NM_004528]
A_23_P251043	0.005201317	down	-3.8458023	SYNDIG1	Homo sapiens synapse differentiation inducing 1 (SYNDIG1), mRNA [NM_024893]
A_33_P3245321	0.003913202	down	-1.7854352	CENPP	Homo sapiens centromere protein P (CENPP), transcript variant 1, mRNA [NM_001012267]

A_24_P72750	4.34E-04	down	-1.6634314	SPIN1	Homo sapiens spindlin 1 (SPIN1), mRNA [NM_006717]
A_23_P76951	1.37E-04	down	-1.8644539	TMX1	Homo sapiens thioredoxin-related transmembrane protein 1 (TMX1), mRNA [NM_030755]
A_23_P25246	0.043292616	down	-1.5611836	AVPR1A	Homo sapiens arginine vasopressin receptor 1A (AVPR1A), mRNA [NM_000706]
A_33_P3418158	0.003308059	down	-1.5229888	SLC2A8	Homo sapiens solute carrier family 2 (facilitated glucose transporter), member 8 (SLC2A8), transcript variant 2, mRNA [NM_001271711]
A_23_P20606	4.59E-04	down	-1.9104493	NIPSNAP3A	Homo sapiens nipsnap homolog 3A (C. elegans) (NIPSNAP3A), mRNA [NM_015469]
A_33_P3418130	0.001570728	down	-1.8347131	UPRT	Homo sapiens uracil phosphoribosyltransferase (FUR1) homolog (S. cerevisiae) (UPRT), transcript variant 1, mRNA [NM_145052]
A_33_P3226761	0.02275086	down	-1.6253437	SOX18	Homo sapiens SRY (sex determining region Y)-box 18 (SOX18), mRNA [NM_018419]
A_23_P94412	0.009949699	down	-1.7137792	PDCD1LG2	Homo sapiens programmed cell death 1 ligand 2 (PDCD1LG2), mRNA [NM_025239]
A_33_P3519683	5.20E-04	down	-1.7381281	ZBTB8OS	Homo sapiens zinc finger and BTB domain containing 8 opposite strand (ZBTB8OS), mRNA [NM_178547]
A_23_P312271	0.008783063	down	-1.8708825	TEX26	Homo sapiens testis expressed 26 (TEX26), mRNA [NM_152325]
A_24_P191417	0.003024248	down	-1.7015377	NAB1	Homo sapiens NGFI-A binding protein 1 (EGR1 binding protein 1) (NAB1), mRNA [NM_005966]
A_22_P00005099	0.033641897	down	-1.8167497	SHANK2	SH3 and multiple ankyrin repeat domains 2 [Source:HGNC Symbol;Acc:HGNC:14295] [ENST00000445654]
A_32_P34003	0.019834787	down	-2.142425	FIGN	fidgetin [Source:HGNC Symbol;Acc:HGNC:13285] [ENST00000333129]
A_23_P66525	0.02197199	down	-1.6173234	HS3ST3A1	heparan sulfate (glucosamine) 3-O-sulfotransferase 3A1 [Source:HGNC Symbol;Acc:HGNC:5196] [ENST00000284110]
A_33_P3250178	0.021975204	down	-1.6417052	IQCJ	Homo sapiens IQ motif containing J (IQCJ), transcript variant 2, mRNA [NM_001042706]
A_24_P21266	0.002524668	down	-1.7964162	ERLIN2	Homo sapiens ER lipid raft associated 2 (ERLIN2), transcript variant 2, mRNA [NM_001003790]
A_23_P375147	2.58E-04	down	-1.96061	RC3H2	ring finger and CCCH-type domains 2 [Source:HGNC Symbol;Acc:HGNC:21461] [ENST00000373670]
A_23_P87769	0.003438883	down	-1.795821	PARPBP	Homo sapiens PARP1 binding protein (PARPBP), mRNA [NM_017915]
A_33_P3702364	0.002653247	down	-1.6514839	SNX24	Homo sapiens sorting nexin 24 (SNX24), mRNA [NM_014035]
A_33_P3227320	8.87E-04	down	-1.6995753	MIER3	Homo sapiens mesoderm induction early response 1, family member 3 (MIER3), transcript variant 1, mRNA [NM_001297598]
A_23_P133923	5.08E-04	down	-1.7552497	GPANK1	Homo sapiens G patch domain and ankyrin repeats 1 (GPANK1), transcript variant 2, mRNA [NM_033177]
A_33_P3331451	2.60E-05	down	-2.353906	TGFBR1	Homo sapiens transforming growth factor, beta receptor 1 (TGFBR1), transcript variant 1, mRNA [NM_004612]
A_23_P410040	0.023047173	down	-1.6144099	KCNH7	Homo sapiens potassium channel, voltage gated eag related subfamily H, member 7 (KCNH7), transcript variant 2, mRNA [NM_173162]
A_23_P33759	0.013612638	down	-1.601863	DHRS3	Homo sapiens dehydrogenase/reductase (SDR family) member 3 (DHRS3), mRNA [NM_004753]
A_33_P3340769	0.004635955	down	-1.8181514	ADAM9	Homo sapiens ADAM metallopeptidase domain 9 (ADAM9), transcript variant 1, mRNA [NM_003816]
A_24_P413941	0.001468259	down	-1.728246	C2orf69	Homo sapiens chromosome 2 open reading frame 69 (C2orf69), mRNA [NM_153689]
A_33_P3418681	0.01859166	down	-1.7171893	HCN4	Homo sapiens hyperpolarization activated cyclic nucleotide gated potassium channel 4 (HCN4), mRNA [NM_005477]
A_23_P217609	0.005122451	down	-1.531122	RPL36A	Homo sapiens ribosomal protein L36a (RPL36A), transcript variant 1, mRNA [NM_021029]
A_33_P3223082	3.27E-04	down	-2.0630221	MRPL19	Homo sapiens mitochondrial ribosomal protein L19 (MRPL19), mRNA [NM_014763]
A_32_P97169	0.00874777	down	-1.6421111	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_23_P69958	2.75E-04	down	-1.884052	AP3S1	Homo sapiens adaptor-related protein complex 3, sigma 1 subunit (AP3S1), mRNA [NM_001284]
A_33_P3348884	0.00404848	down	-1.9541903	CCDC141	Homo sapiens coiled-coil domain containing 141 (CCDC141), mRNA [NM_173648]
A_23_P157465	0.004588462	down	-1.5218315	UBXN8	Homo sapiens UBX domain protein 8 (UBXN8), transcript variant 1, mRNA [NM_005671]
A_23_P134008	0.014002874	down	-1.5001519	USP45	ubiquitin specific peptidase 45 [Source:HGNC Symbol;Acc:HGNC:20080] [ENST00000472914]
A_24_P359671	0.02207769	down	-1.6116277	NTNG1	netrin G1 [Source:HGNC Symbol;Acc:HGNC:23319] [ENST00000294649]
A_33_P3290477	0.02337288	down	-1.6627281	ZNF648	Homo sapiens zinc finger protein 648 (ZNF648), mRNA [NM_001009992]
A_33_P3277308	0.011899218	down	-1.8241469	SYT6	Homo sapiens synaptotagmin VI (SYT6), transcript variant 3, mRNA [NM_001270805]
A_23_P259272	0.001466593	down	-1.6129934	WSB2	Homo sapiens WD repeat and SOCS box containing 2 (WSB2), transcript variant 2, mRNA [NM_018639]
A_33_P3825454	0.032802857	down	-1.5714017	LOC284898	PREDICTED: Homo sapiens uncharacterized LOC284898 (LOC284898), misc_RNA [XR_244416]
A_24_P199929	0.001726853	down	-1.6603082	VPS54	Homo sapiens vacuolar protein sorting 54 homolog (S. cerevisiae) (VPS54), transcript variant 1, mRNA [NM_016516]
A_22_P00000843	0.015308529	down	-1.6868899	PBX2	Homo sapiens pre-B-cell leukemia homeobox 2 (PBX2), mRNA [NM_002586]
A_32_P68746	0.002592727	down	-1.6830482	SMU1	Homo sapiens smu-1 suppressor of mec-8 and unc-52 homolog (C. elegans) (SMU1), mRNA [NM_018225]
A_33_P3328426	0.001028277	down	-1.6884029	ANO10	Homo sapiens anoctamin 10 (ANO10), transcript variant 2, mRNA [NM_001204831]
A_23_P356004	0.00835278	down	-2.1261318	KCNIP3	Homo sapiens Kv channel interacting protein 3, calsenilin (KCNIP3), transcript variant 1, mRNA [NM_013434]
A_33_P3368301	0.002361992	down	-1.5707949	BOLA3	Homo sapiens bolA family member 3 (BOLA3), transcript variant 1, mRNA [NM_212552]
A_33_P3343785	0.00361085	down	-1.6013706	MGME1	Homo sapiens mitochondrial genome maintenance exonuclease 1 (MGME1), mRNA [NM_052865]
A_19_P00800114	1.97E-04	down	-2.2234135	HIGD1A	Homo sapiens HIG1 hypoxia inducible domain family, member 1A (HIGD1A), transcript variant 1, mRNA [NM_001099668]

A_33_P3670415	0.00700309	down	-1.5393919	NAT8L	Homo sapiens N-acetyltransferase 8-like (GCN5-related, putative) (NAT8L), mRNA [NM_178557]
A_24_P412156	0.04541582	down	-1.5474916	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_33_P3294252	1.34E-04	down	-1.7812936	ATF1	Homo sapiens activating transcription factor 1 (ATF1), mRNA [NM_005171]
A_32_P160563	0.01177677	down	-1.7299607	OPCML	Homo sapiens opioid binding protein/cell adhesion molecule-like (OPCML), transcript variant 2, mRNA [NM_001012393]
A_33_P3333975	0.004347047	down	-1.5223011	CBWD5	Homo sapiens COBW domain containing 5 (CBWD5), transcript variant 2, mRNA [NM_001286835]
A_24_P328492	9.08E-05	down	-2.2151413	SOCS5	Homo sapiens suppressor of cytokine signaling 5 (SOCS5), transcript variant 2, mRNA [NM_144949]
A_24_P73943	2.46E-04	down	-1.9826277	COX11	Homo sapiens COX11 cytochrome c oxidase copper chaperone (COX11), transcript variant 1, mRNA [NM_004375]
A_23_P108437	0.002593788	down	-1.6977631	FZD5	Homo sapiens frizzled class receptor 5 (FZD5), mRNA [NM_003468]
A_23_P112554	0.042809084	down	-1.9113239	COL15A1	Homo sapiens collagen, type XV, alpha 1 (COL15A1), mRNA [NM_001855]
A_33_P3402983	0.03563925	down	-1.5961083	HYDIN	Homo sapiens HYDIN, axonemal central pair apparatus protein (HYDIN), transcript variant 1, mRNA [NM_001270974]
A_23_P31116	0.016610442	down	-1.5001353	ACOT13	Homo sapiens acyl-CoA thioesterase 13 (ACOT13), transcript variant 1, mRNA [NM_018473]
A_23_P62840	0.002199432	down	-1.6255087	YRDC	Homo sapiens yrdC N(6)-threonylcarbamoyltransferase domain containing (YRDC), mRNA [NM_024640]
A_24_P200848	0.006629418	down	-1.7204401	SNX13	Homo sapiens sorting nexin 13 (SNX13), mRNA [NM_015132]
A_21_P0000344	0.024962097	down	-2.497473	RPL32	Homo sapiens ribosomal protein L32 (RPL32), transcript variant 3, mRNA [NM_001007074]
A_23_P51202	0.004236649	down	-1.6274071	ZNF436	Homo sapiens zinc finger protein 436 (ZNF436), transcript variant 1, mRNA [NM_001077195]
A_33_P3292896	0.008016332	down	-1.5024694	SFXN5	Homo sapiens sideroflexin 5 (SFXN5), mRNA [NM_144579]
A_23_P115919	0.005307404	down	-1.5855018	PHYH	Homo sapiens phytanoyl-CoA 2-hydroxylase (PHYH), transcript variant 2, mRNA [NM_001037537]
A_23_P145134	0.005449672	down	-1.6373062	FGFR1OP	Homo sapiens FGFR1 oncogene partner (FGFR1OP), transcript variant 1, mRNA [NM_007045]
A_33_P3213997	0.015279937	down	-1.5407106	DHRS4L2	Homo sapiens dehydrogenase/reductase (SDR family) member 4 like 2 (DHRS4L2), transcript variant 3, mRNA [NM_001193636]
A_24_P382489	0.00313841	down	-1.7630185	SLC27A1	solute carrier family 27 (fatty acid transporter), member 1 [Source:HGNC Symbol;Acc:HGNC:10995] [ENST00000594962]
A_33_P3319491	5.69E-04	down	-1.9540504	AZIN1	Homo sapiens antizyme inhibitor 1 (AZIN1), transcript variant 1, mRNA [NM_015878]
A_24_P248863	0.009635516	down	-1.5393914	ZCCHC4	Homo sapiens zinc finger, CCHC domain containing 4 (ZCCHC4), mRNA [NM_024936]
A_23_P35066	9.73E-04	down	-2.0080962	SNX7	Homo sapiens sorting nexin 7 (SNX7), transcript variant 1, mRNA [NM_015976]
A_23_P58489	0.004458879	down	-1.5966058	FASTKD3	Homo sapiens FAST kinase domains 3 (FASTKD3), transcript variant 1, mRNA [NM_024091]
A_24_P463929	0.011942273	down	-1.9344873	SMLR1	Homo sapiens small leucine-rich protein 1 (SMLR1), mRNA [NM_001195597]
A_23_P408108	0.022381818	down	-1.5713933	MTERF1	Homo sapiens mitochondrial transcription termination factor 1 (MTERF1), transcript variant 1, mRNA [NM_006980]
A_23_P38603	0.003906724	down	-1.7615708	KRTAP4-4	Homo sapiens keratin associated protein 4-4 (KRTAP4-4), mRNA [NM_032524]
A_23_P74799	1.18E-04	down	-1.8347023	SLC25A24	Homo sapiens solute carrier family 25 (mitochondrial carrier; phosphate carrier), member 24 (SLC25A24), transcript variant 2, mRNA [NM_213651]
A_33_P3414912	0.014393929	down	-1.6976713	NPL	Homo sapiens N-acetylneuraminate pyruvate lyase (dihydrodipicolinate synthase) (NPL), transcript variant 3, mRNA [NM_001200056]
A_33_P3254390	0.01872003	down	-1.7379425	CERKL	Homo sapiens ceramide kinase-like (CERKL), transcript variant 3, mRNA [NM_001030312]
A_24_P91916	5.92E-04	down	-1.9917246	NXT2	Homo sapiens nuclear transport factor 2-like export factor 2 (NXT2), transcript variant 1, mRNA [NM_018698]
A_24_P416370	0.013561158	down	-1.5311722	HOXB4	Homo sapiens homeobox B4 (HOXB4), mRNA [NM_024015]
A_24_P124672	0.0015589	down	-1.5865575	DYNLL1	Homo sapiens dynein, light chain, LC8-type 1 (DYNLL1), transcript variant 1, mRNA [NM_001037494]
A_32_P171313	0.001795133	down	-1.7359343	GNB4	Homo sapiens guanine nucleotide binding protein (G protein), beta polypeptide 4 (GNB4), mRNA [NM_021629]
A_32_P67623	0.002339749	down	-1.7116853	FAM120C	Homo sapiens family with sequence similarity 120C (FAM120C), transcript variant 3, mRNA [NM_001300788]
A_24_P159837	0.002166461	down	-1.5695337	ZNF302	Homo sapiens zinc finger protein 302 (ZNF302), transcript variant 15, mRNA [NM_018675]
A_33_P3253440	8.65E-05	down	-2.0258312	PQLC3	Homo sapiens PQ loop repeat containing 3 (PQLC3), transcript variant 1, mRNA [NM_152391]
A_23_P116173	0.018240843	down	-1.6525768	COLCA2	Homo sapiens colorectal cancer associated 2 (COLCA2), transcript variant 3, mRNA [NM_001136105]
A_23_P21618	0.018524988	down	-1.640981	PDZRN3	Homo sapiens PDZ domain containing ring finger 3 (PDZRN3), transcript variant 1, mRNA [NM_015009]
A_33_P3310989	0.006352778	down	-1.6791862	UBAP2L	Homo sapiens ubiquitin associated protein 2-like (UBAP2L), transcript variant 1, mRNA [NM_014847]
A_33_P3309636	3.35E-04	down	-2.3750706	C11orf58	Homo sapiens chromosome 11 open reading frame 58 (C11orf58), mRNA [NM_014267]
A_23_P257945	6.21E-04	down	-1.7524382	HCCS	Homo sapiens holocytochrome c synthase (HCCS), transcript variant 1, mRNA [NM_005333]
A_23_P140170	0.006005826	down	-1.5664449	SEC23A	Homo sapiens Sec23 homolog A (S. cerevisiae) (SEC23A), mRNA [NM_006364]
A_33_P3214879	2.94E-04	down	-1.6510303	KPNA1	Homo sapiens karyopherin alpha 1 (importin alpha 5) (KPNA1), transcript variant 1, mRNA [NM_002264]
A_21_P0014626	4.03E-05	down	-1.8024787	RNF13	Homo sapiens ring finger protein 13 (RNF13), transcript variant 1, mRNA [NM_007282]
A_33_P3287562	1.14E-04	down	-1.8676127	BCAP29	Homo sapiens B-cell receptor-associated protein 29 (BCAP29), transcript variant 2, mRNA [NM_018844]

A_23_P310701	0.021139158	down	-1.6274047	MAP10	Homo sapiens microtubule-associated protein 10 (MAP10), mRNA [NM_019090]
A_33_P3396692	0.001782838	down	-1.631566	SSR1	Homo sapiens signal sequence receptor, alpha (SSR1), transcript variant 1, mRNA [NM_003144]
A_24_P234768	0.011133997	down	-2.9306223	HTR4	Homo sapiens 5-hydroxytryptamine (serotonin) receptor 4, G protein-coupled (HTR4), transcript variant i, mRNA [NM_001040173]
A_24_P170234	0.028415635	down	-1.5859079	RNF148	Homo sapiens ring finger protein 148 (RNF148), mRNA [NM_198085]
A_33_P3339961	0.001040089	down	-2.3256233	ZBTB8OS	Homo sapiens zinc finger and BTB domain containing 8 opposite strand (ZBTB8OS), mRNA [NM_178547]
A_23_P110961	0.001661499	down	-1.7470102	MPC1	Homo sapiens mitochondrial pyruvate carrier 1 (MPC1), transcript variant 1, mRNA [NM_016098]
A_33_P3333050	0.006303063	down	-1.5908053	SLC9A4	Homo sapiens solute carrier family 9, subfamily A (NHE4, cation proton antiporter 4), member 4 (SLC9A4), mRNA [NM_001011552]
A_23_P48109	0.005208807	down	-1.6161444	NINJ2	Homo sapiens ninjurin 2 (NINJ2), transcript variant 1, mRNA [NM_016533]
A_23_P95029	0.00114039	down	-1.6355526	SNTB1	Homo sapiens syntrophin, beta 1 (dystrophin-associated protein A1, 59kDa, basic component 1) (SNTB1), mRNA [NM_021021]
A_23_P97932	0.002874276	down	-1.5362976	MSRB2	Homo sapiens methionine sulfoxide reductase B2 (MSRB2), mRNA [NM_012228]
A_24_P370096	6.95E-04	down	-1.5565128	ZNF230	Homo sapiens zinc finger protein 230 (ZNF230), mRNA [NM_006300]
A_21_P0000133	0.010061098	down	-1.7730873	C8orf34	Homo sapiens chromosome 8 open reading frame 34 (C8orf34), transcript variant 2, mRNA [NM_001195639]
A_33_P3396270	0.011896301	down	-1.5021304	SLC9A4	Homo sapiens solute carrier family 9, subfamily A (NHE4, cation proton antiporter 4), member 4 (SLC9A4), mRNA [NM_001011552]
A_33_P3302280	0.003614891	down	-1.6735305	PDIK1L	Homo sapiens PDLIM1 interacting kinase 1 like (PDIK1L), transcript variant 3, mRNA [NM_001243533]
A_23_P167276	2.56E-05	down	-2.2959979	PAQR3	Homo sapiens progestin and adipoQ receptor family member III (PAQR3), mRNA [NM_001040202]
A_33_P3674851	0.00473501	down	-1.5030648	VPS36	Homo sapiens vacuolar protein sorting 36 homolog (S. cerevisiae) (VPS36), transcript variant 3, mRNA [NM_001282169]
A_23_P58036	0.019312864	down	-1.6475468	MCCC1	Homo sapiens methylcrotonoyl-CoA carboxylase 1 (alpha) (MCCC1), transcript variant 1, mRNA [NM_020166]
A_33_P3249185	2.72E-04	down	-1.7130041	SAR1A	secretion associated, Ras related GTPase 1A [Source:HGNC Symbol;Acc:HGNC:10534] [ENST00000373236]
A_23_P204929	0.004069488	down	-1.6785629	AKAP11	Homo sapiens A kinase (PRKA) anchor protein 11 (AKAP11), mRNA [NM_016248]
A_23_P303260	0.001444976	down	-1.6933974	STX7	Homo sapiens syntaxin 7 (STX7), mRNA [NM_003569]
A_23_P53957	3.81E-04	down	-1.7452754	COX16	Homo sapiens COX16 cytochrome c oxidase assembly homolog (S. cerevisiae) (COX16), transcript variant 1, mRNA [NM_016468]
A_23_P213319	0.004661244	down	-1.8284266	ADAMTS6	Homo sapiens ADAM metallopeptidase with thrombospondin type 1 motif, 6 (ADAMTS6), mRNA [NM_197941]
A_32_P216635	0.037950575	down	-1.6695694	KSR2	Homo sapiens kinase suppressor of ras 2 (KSR2), mRNA [NM_173598]
A_32_P81768	3.09E-04	down	-1.7287004	TMEM167A	Homo sapiens transmembrane protein 167A (TMEM167A), mRNA [NM_174909]
A_23_P17490	0.001001443	down	-1.8975345	TMEM230	Homo sapiens transmembrane protein 230 (TMEM230), transcript variant 2, mRNA [NM_001009924]
A_23_P58506	1.96E-04	down	-2.0592136	ELL2	Homo sapiens elongation factor, RNA polymerase II, 2 (ELL2), mRNA [NM_012081]
A_23_P40821	0.001043252	down	-1.9596021	HPS3	Homo sapiens Hermansky-Pudlak syndrome 3 (HPS3), mRNA [NM_032383]
A_23_P91140	0.002073902	down	-1.7855248	PECR	Homo sapiens peroxisomal trans-2-enoyl-CoA reductase (PECR), mRNA [NM_018441]
A_33_P3374463	3.35E-04	down	-1.6130627	MFAP3	Homo sapiens microfibrillar-associated protein 3 (MFAP3), transcript variant 3, mRNA [NM_001242336]
A_33_P3322450	0.003838998	down	-1.9406239	RAB3IP	RAB3A interacting protein [Source:HGNC Symbol;Acc:HGNC:16508] [ENST00000378815]
A_33_P3400653	1.16E-04	down	-1.9847453	BNIP2	BCL2/adenovirus E1B 19kDa interacting protein 2 [Source:HGNC Symbol;Acc:HGNC:1083] [ENST00000267859]
A_24_P124647	0.023643965	down	-1.6184716	SLC17A8	Homo sapiens solute carrier family 17 (vesicular glutamate transporter), member 8 (SLC17A8), transcript variant 1, mRNA [NM_139319]
A_24_P252794	0.001470882	down	-1.9876645	CUL2	Homo sapiens cullin 2 (CUL2), transcript variant 3, mRNA [NM_003591]
A_23_P334246	0.019346772	down	-2.611704	APLF	Homo sapiens aprataxin and PNKP like factor (APLF), mRNA [NM_173545]
A_23_P158096	0.044536926	down	-1.6780975	COL27A1	Homo sapiens collagen, type XXVII, alpha 1 (COL27A1), mRNA [NM_032888]
A_32_P178966	0.021294497	down	-1.5956593	TMEM170B	Homo sapiens transmembrane protein 170B (TMEM170B), mRNA [NM_001100829]
A_24_P453497	0.02410348	down	-1.6239948	RBM20	Homo sapiens RNA binding motif protein 20 (RBM20), mRNA [NM_001134363]
A_33_P3303414	4.09E-04	down	-1.9061805	MAN1A1	Homo sapiens mannosidase, alpha, class 1A, member 1 (MAN1A1), mRNA [NM_005907]
A_23_P150350	0.005679706	down	-1.6384195	C11orf1	Homo sapiens chromosome 11 open reading frame 1 (C11orf1), mRNA [NM_022761]
A_23_P125643	0.006938139	down	-1.6293222	ASB9	Homo sapiens ankyrin repeat and SOCS box containing 9 (ASB9), transcript variant 1, mRNA [NM_001031739]
A_33_P3283684	0.004521326	down	-1.8056054	C7orf31	Homo sapiens chromosome 7 open reading frame 31 (C7orf31), mRNA [NM_138811]
A_24_P66679	0.003764608	down	-1.758632	NAA30	Homo sapiens N(alpha)-acetyltransferase 30, NatC catalytic subunit (NAA30), mRNA [NM_001011713]
A_23_P157109	0.005487248	down	-1.6439184	ADCYAP1R1	Homo sapiens adenylate cyclase activating polypeptide 1 (pituitary) receptor type I (ADCYAP1R1), transcript variant 3, mRNA [NM_001118]
A_23_P142969	0.004921028	down	-1.6579505	ZNF2	Homo sapiens zinc finger protein 2 (ZNF2), transcript variant 1, mRNA [NM_021088]
A_33_P3353547	0.012950652	down	-1.7764597	ZBTB8B	Homo sapiens zinc finger and BTB domain containing 8B (ZBTB8B), mRNA [NM_001145720]
A_33_P3862375	0.014014699	down	-1.5280292	USP45	Homo sapiens ubiquitin specific peptidase 45 (USP45), mRNA [NM_001080481]
A_33_P3313245	0.009196824	down	-1.8445426	AMACR	Homo sapiens alpha-methylacyl-CoA racemase (AMACR), transcript variant 3, mRNA [NM_001167595]

A_24_P262355	0.00186869	down	-1.6458851	PHB	Homo sapiens prohibitin (PHB), transcript variant 2, mRNA [NM_002634]
A_33_P3280729	0.024331523	down	-1.6283009	SHISA9	Homo sapiens shisa family member 9 (SHISA9), transcript variant 1, mRNA [NM_001145204]
A_32_P129968	1.62E-04	down	-1.7517011	ZNF284	zinc finger protein 284 [Source:HGNC Symbol;Acc:HGNC:13078] [ENST00000421176]
A_33_P3369258	4.19E-04	down	-1.8021486	FGFR1OP2	Homo sapiens FGFR1 oncogene partner 2 (FGFR1OP2), transcript variant 3, mRNA [NM_001171888]
A_24_P372223	7.18E-04	down	-1.8212719	MSR1	Homo sapiens macrophage scavenger receptor 1 (MSR1), transcript variant SR-AI, mRNA [NM_138715]
A_23_P122174	6.12E-04	down	-1.940968	XRCC4	Homo sapiens X-ray repair complementing defective repair in Chinese hamster cells 4 (XRCC4), transcript variant 3, mRNA [NM_022550]
A_19_P00811828	0.015091963	down	-1.6874708	ZNF737	Homo sapiens zinc finger protein 737 (ZNF737), mRNA [NM_001159293]
A_23_P86570	3.86E-04	down	-2.0021577	ANXA7	Homo sapiens annexin A7 (ANXA7), transcript variant 2, mRNA [NM_004034]
A_24_P280333	0.004773647	down	-2.0480423	KRT40	Homo sapiens keratin 40, type I (KRT40), mRNA [NM_182497]
A_24_P943781	0.025587844	down	-1.6528506	CPED1	Homo sapiens cadherin-like and PC-esterase domain containing 1 (CPED1), transcript variant 1, mRNA [NM_024913]
A_23_P41734	7.18E-04	down	-1.7424588	RNF130	Homo sapiens ring finger protein 130 (RNF130), transcript variant 1, mRNA [NM_018434]
A_24_P219114	2.05E-04	down	-2.0386176	SEL1L	Homo sapiens sel-1 suppressor of lin-12-like (C. elegans) (SEL1L), transcript variant 1, mRNA [NM_005065]
A_23_P92154	0.007048929	down	-1.6486152	MBD4	Homo sapiens methyl-CpG binding domain protein 4 (MBD4), transcript variant 1, mRNA [NM_003925]
A_23_P48886	0.001128659	down	-1.7597382	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P78268	1.33E-04	down	-1.8170131	GLOD4	Homo sapiens glyoxalase domain containing 4 (GLOD4), mRNA [NM_016080]
A_23_P136355	0.00248338	down	-1.7266332	HHAT	Homo sapiens hedgehog acyltransferase (HHAT), transcript variant 1, mRNA [NM_018194]
A_24_P98109	4.53E-05	down	-2.417751	SNX10	Homo sapiens sorting nexin 10 (SNX10), transcript variant 2, mRNA [NM_013322]
A_23_P202988	8.62E-05	down	-2.2393563	AASDHPPT	Homo sapiens aminoadipate-semialdehyde dehydrogenase-phosphopantetheinyl transferase (AASDHPPT), mRNA [NM_015423]
A_23_P111228	0.00252642	down	-1.8686379	COQ3	Homo sapiens coenzyme Q3 methyltransferase (COQ3), mRNA [NM_017421]
A_23_P166023	3.79E-04	down	-2.0101094	PFDN4	Homo sapiens prefoldin subunit 4 (PFDN4), mRNA [NM_002623]
A_33_P3325009	0.011515392	down	-1.5769842	RGS4	Homo sapiens regulator of G-protein signaling 4, mRNA (cDNA clone MGC:2124 IMAGE:3510260), complete cds. [BC000737]
A_24_P886040	1.41E-04	down	-2.9478772	DCP2	Homo sapiens decapping mRNA 2 (DCP2), transcript variant 1, mRNA [NM_152624]
A_33_P3308055	0.001829779	down	-1.6050516	EIF4E2	Homo sapiens eukaryotic translation initiation factor 4E family member 2 (EIF4E2), transcript variant 2, mRNA [NM_001282958]
A_33_P3281299	0.02061211	down	-1.6362731	PCDHA10	Homo sapiens protocadherin alpha 10 (PCDHA10), transcript variant 2, mRNA [NM_031859]
A_21_P0008099	0.004622083	down	-1.7860972	SLITRK5	SLIT and NTRK-like family, member 5 [Source:HGNC Symbol;Acc:HGNC:20295] [ENST00000325089]
A_23_P72503	0.014049949	down	-1.5460513	KLHL2	Homo sapiens kelch-like family member 2 (KLHL2), transcript variant 1, mRNA [NM_007246]
A_33_P3353712	8.41E-04	down	-1.7281058	RER1	Homo sapiens retention in endoplasmic reticulum sorting receptor 1 (RER1), mRNA [NM_007033]
A_23_P127964	0.001039864	down	-1.6835144	PRCP	Homo sapiens prolylcarboxypeptidase (angiotensinase C) (PRCP), transcript variant 2, mRNA [NM_199418]
A_23_P83028	6.15E-04	down	-1.9256219	RECK	Homo sapiens reversion-inducing-cysteine-rich protein with kazal motifs (RECK), mRNA [NM_021111]
A_21_P0000188	0.04477711	down	-1.7791537	ELF5	Homo sapiens E74-like factor 5 (ets domain transcription factor) (ELF5), transcript variant 2, mRNA [NM_001422]
A_33_P3423230	0.04980061	down	-1.8081158	PCDH19	Homo sapiens protocadherin 19 (PCDH19), transcript variant 3, mRNA [NM_001184880]
A_33_P3405509	0.021137614	down	-1.6349458	MAGEB5	Homo sapiens melanoma antigen family B, 5 (MAGEB5), mRNA [NM_001271752]
A_33_P3387696	0.014437719	down	-2.1188765	TMBIM4	Homo sapiens transmembrane BAX inhibitor motif containing 4 (TMBIM4), transcript variant 1, mRNA [NM_001282606]
A_23_P429581	0.011364863	down	-2.0782053	TMEM67	Homo sapiens transmembrane protein 67 (TMEM67), transcript variant 1, mRNA [NM_153704]
A_23_P202345	0.00559074	down	-1.6009347	ADO	Homo sapiens 2-aminoethanethiol (cysteamine) dioxygenase (ADO), mRNA [NM_032804]
A_24_P46334	2.70E-04	down	-2.147979	SCOC	Homo sapiens short coiled-coil protein (SCOC), transcript variant 4, mRNA [NM_032547]
A_24_P342807	3.39E-04	down	-1.8912207	SLC30A6	Homo sapiens solute carrier family 30 (zinc transporter), member 6 (SLC30A6), transcript variant 2, mRNA [NM_017964]
A_23_P83438	1.60E-04	down	-2.1060796	UBE2Z	Homo sapiens ubiquitin-conjugating enzyme E2Z (UBE2Z), mRNA [NM_023079]
A_33_P3418686	0.012045749	down	-1.7221116	HCN4	Homo sapiens hyperpolarization activated cyclic nucleotide gated potassium channel 4 (HCN4), mRNA [NM_005477]
A_22_P00016976	0.004322866	down	-1.7607062	HSD17B12	hydroxysteroid (17-beta) dehydrogenase 12 [Source:HGNC Symbol;Acc:HGNC:18646] [ENST00000526615]
A_23_P340868	0.031232735	down	-1.5692528	GLRA3	Homo sapiens glycine receptor, alpha 3 (GLRA3), transcript variant 1, mRNA [NM_006529]
A_23_P43613	2.02E-04	down	-1.735975	NDUFB6	Homo sapiens NADH dehydrogenase (ubiquinone) 1 beta subcomplex, 6, 17kDa (NDUFB6), transcript variant 2, mRNA [NM_182739]
A_33_P3423570	3.97E-04	down	-1.9258143	METRN	Homo sapiens meteorin, glial cell differentiation regulator (METRN), mRNA [NM_024042]
A_19_P00805548	8.70E-04	down	-1.7245547	BMPR1A	Homo sapiens bone morphogenetic protein receptor, type IA (BMPR1A), mRNA [NM_004329]
A_23_P25964	8.78E-04	down	-1.6559473	GALC	Homo sapiens galactosylceramidase (GALC), transcript variant 1, mRNA [NM_000153]
A_33_P3275220	0.013110735	down	-1.7191641	NRK	Homo sapiens Nik related kinase (NRK), mRNA [NM_198465]
A_23_P167493	0.01647895	down	-2.413645	CARTPT	Homo sapiens CART prepropeptide (CARTPT), mRNA [NM_004291]

A_33_P3416563	0.005047622	down	-1.7849251	AIG1	Homo sapiens androgen-induced 1 (AIG1), transcript variant 1, mRNA [NM_016108]
A_33_P3383149	0.016965225	down	-1.6634878	ZCWPW2	zinc finger, CW type with PWWP domain 2 [Source:HGNC Symbol;Acc:HGNC:23574] [ENST00000383768]
A_24_P13024	0.009839582	down	-1.7870971	SLC16A12	Homo sapiens solute carrier family 16, member 12 (SLC16A12), mRNA [NM_213606]
A_33_P3316456	0.009949546	down	-1.6583995	NPL	Homo sapiens N-acetylneuraminate pyruvate lyase (dihydrodipicolinate synthase) (NPL), transcript variant 2, mRNA [NM_001200050]
A_33_P3330353	1.02E-04	down	-1.854522	MOSPD1	Homo sapiens motile sperm domain containing 1 (MOSPD1), mRNA [NM_019556]
A_33_P3254306	0.003461725	down	-1.6671963	FLCN	folliculin [Source:HGNC Symbol;Acc:HGNC:27310] [ENST00000389168]
A_23_P110362	4.64E-05	down	-2.3682425	LAMTOR3	Homo sapiens late endosomal/lysosomal adaptor, MAPK and MTOR activator 3 (LAMTOR3), transcript variant 1, mRNA [NM_021970]
A_23_P50897	5.62E-04	down	-1.8938582	NIFK	Homo sapiens nucleolar protein interacting with the FHA domain of MKI67 (NIFK), mRNA [NM_032390]
A_23_P356717	0.018899094	down	-1.6531912	ANKS1B	Homo sapiens ankyrin repeat and sterile alpha motif domain containing 1B (ANKS1B), transcript variant 2, mRNA [NM_181670]
A_23_P253446	0.020295186	down	-1.8673784	GAP43	Homo sapiens growth associated protein 43 (GAP43), transcript variant 2, mRNA [NM_002045]
A_19_P00326732	0.001080329	down	-1.6650145	SMIM13	Homo sapiens small integral membrane protein 13 (SMIM13), mRNA [NM_001135575]
A_33_P3378047	0.010007577	down	-1.5001185	SESTD1	Homo sapiens SEC14 and spectrin domains 1 (SESTD1), mRNA [NM_178123]
A_24_P217758	0.004867284	down	-1.734069	MFAP3	Homo sapiens microfibrillar-associated protein 3 (MFAP3), transcript variant 3, mRNA [NM_001242336]
A_23_P157580	6.93E-05	down	-2.0741844	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_23_P73721	0.006762864	down	-1.5386976	RRAGB	Homo sapiens Ras-related GTP binding B (RRAGB), transcript variant RAGBl, mRNA [NM_016656]
A_23_P101811	2.19E-04	down	-1.688206	ZNF14	Homo sapiens zinc finger protein 14 (ZNF14), mRNA [NM_021030]
A_23_P377664	1.20E-04	down	-1.7139511	ALS2	Homo sapiens amyotrophic lateral sclerosis 2 (juvenile) (ALS2), transcript variant 2, mRNA [NM_001135745]
A_24_P941988	4.80E-05	down	-2.011526	SPAST	Homo sapiens spastin (SPAST), transcript variant 1, mRNA [NM_014946]
A_33_P3300635	0.02459185	down	-1.5449334	PFKFB2	Homo sapiens 6-phosphofructo-2-kinase/fructose-2,6-biphosphatase 2 (PFKFB2), transcript variant 1, mRNA [NM_006212]
A_33_P3369371	0.007360374	down	-1.7866849	GPX3	Homo sapiens glutathione peroxidase 3 (plasma) (GPX3), mRNA [NM_002084]
A_23_P502678	0.001991569	down	-1.6630079	TM2D2	Homo sapiens TM2 domain containing 2 (TM2D2), transcript variant 2, mRNA [NM_031940]
A_23_P14804	1.18E-04	down	-1.8363279	TSPAN3	Homo sapiens tetraspanin 3 (TSPAN3), transcript variant 1, mRNA [NM_005724]
A_23_P68167	7.63E-04	down	-2.5005918	CNGA3	Homo sapiens cyclic nucleotide gated channel alpha 3 (CNGA3), transcript variant 1, mRNA [NM_001298]
A_33_P3251144	0.049720954	down	-1.5763326	CDCA7L	Homo sapiens cell division cycle associated 7-like (CDCA7L), transcript variant 2, mRNA [NM_001127370]
A_32_P27706	0.005431132	down	-1.7053571	AGPS	Homo sapiens alkylglycerone phosphate synthase (AGPS), mRNA [NM_003659]
A_23_P120270	0.004483705	down	-1.54529	MCFD2	Homo sapiens multiple coagulation factor deficiency 2 (MCFD2), transcript variant 1, mRNA [NM_139279]
A_23_P127446	7.10E-04	down	-1.9651989	DPF2	Homo sapiens D4, zinc and double PHD fingers family 2 (DPF2), mRNA [NM_006268]
A_33_P3210965	0.004420342	down	-1.6505116	TCTN1	Homo sapiens tectonic family member 1 (TCTN1), transcript variant 1, mRNA [NM_001082538]
A_23_P84651	7.50E-04	down	-1.6164197	CNBP	Homo sapiens CCHC-type zinc finger, nucleic acid binding protein (CNBP), transcript variant 3, mRNA [NM_003418]
A_33_P3257125	0.009413645	down	-1.8698719	NOTUM	Homo sapiens notum pectinacetylesterase homolog (Drosophila) (NOTUM), mRNA [NM_178493]
A_24_P120346	0.002118441	down	-1.6330633	NIT2	Homo sapiens nitrilase family, member 2 (NIT2), mRNA [NM_020202]
A_33_P3388815	0.003287997	down	-1.6394666	FPGT	Homo sapiens fucose-1-phosphate guanylyltransferase (FPGT), transcript variant 1, mRNA [NM_003838]
A_23_P146217	0.002265639	down	-1.6326832	BAG4	Homo sapiens BCL2-associated athanogene 4 (BAG4), transcript variant 1, mRNA [NM_004874]
A_33_P3221448	0.005197245	down	-1.6837345	ZNF264	Homo sapiens zinc finger protein 264 (ZNF264), mRNA [NM_003417]
A_23_P346477	0.009370527	down	-1.8105693	KRTAP4-3	Homo sapiens keratin associated protein 4-3 (KRTAP4-3), mRNA [NM_033187]
A_33_P3221443	0.002040193	down	-1.5598543	ZNF254	Homo sapiens zinc finger protein 254 (ZNF254), transcript variant 1, mRNA [NM_001278677]
A_23_P31073	0.00548903	down	-1.8742872	MYB	Homo sapiens v-myb avian myeloblastosis viral oncogene homolog (MYB), transcript variant 2, mRNA [NM_005375]
A_33_P3302220	0.001875439	down	-1.8882065	NR2C1	Homo sapiens nuclear receptor subfamily 2, group C, member 1 (NR2C1), transcript variant 2, mRNA [NM_001032287]
A_24_P362646	4.80E-04	down	-1.8294319	TXNDC9	Homo sapiens thioredoxin domain containing 9 (TXNDC9), mRNA [NM_005783]
A_33_P3318465	9.52E-05	down	-1.8777989	SUMO1	Homo sapiens small ubiquitin-like modifier 1 (SUMO1), transcript variant 1, mRNA [NM_003352]
A_33_P3287939	0.001144288	down	-1.8311557	FAM221A	Homo sapiens family with sequence similarity 221, member A (FAM221A), transcript variant 1, mRNA [NM_199136]
A_23_P34183	0.010605083	down	-2.1195471	XKRY2	Homo sapiens XK, Kell blood group complex subunit-related, Y-linked 2 (XKRY2), mRNA [NM_001002906]
A_24_P242299	0.001605844	down	-1.5626988	ZRANB2	Homo sapiens zinc finger, RAN-binding domain containing 2 (ZRANB2), transcript variant 2, mRNA [NM_005455]
A_23_P86002	0.001220333	down	-1.7066593	TMED5	Homo sapiens transmembrane emp24 protein transport domain containing 5 (TMED5), transcript variant 1, mRNA [NM_016040]
A_23_P146209	2.73E-04	down	-1.9466932	RNF170	Homo sapiens ring finger protein 170 (RNF170), transcript variant 2, mRNA [NM_030954]

A_23_P86100	0.012749972	down	-1.5675443	KLHDC9	Homo sapiens kelch domain containing 9 (KLHDC9), transcript variant 2, mRNA [NM_001007255]
A_33_P3304372	1.63E-04	down	-2.1501877	TMEM144	Homo sapiens transmembrane protein 144 (TMEM144), mRNA [NM_018342]
A_33_P3216227	0.01741038	down	-1.6713259	ITGB1BP1	integrin beta 1 binding protein 1 [Source:HGNC Symbol;Acc:HGNC:23927] [ENST00000360635]
A_33_P3400547	1.09E-04	down	-1.8758453	MED21	Homo sapiens mediator complex subunit 21 (MED21), transcript variant 1, mRNA [NM_004264]
A_23_P402187	0.024894217	down	-1.6260039	PKHD1	Homo sapiens polycystic kidney and hepatic disease 1 (autosomal recessive) (PKHD1), transcript variant 1, mRNA [NM_138694]
A_24_P183864	1.42E-04	down	-1.8183795	IMPA1	Homo sapiens inositol(myo)-1(or 4)-monophosphatase 1 (IMPA1), transcript variant 1, mRNA [NM_005536]
A_33_P3233550	0.00227049	down	-1.5369806	RTN4	Homo sapiens reticulon 4 (RTN4), transcript variant 1, mRNA [NM_020532]
A_33_P3383871	9.20E-05	down	-2.0968	FEM1C	Homo sapiens fem-1 homolog c (C. elegans) (FEM1C), mRNA [NM_020177]
A_23_P12572	0.007926339	down	-1.5995742	CASP7	Homo sapiens caspase 7, apoptosis-related cysteine peptidase (CASP7), transcript variant d, mRNA [NM_033338]
A_32_P86067	0.005151278	down	-2.1398375	ZIC1	Homo sapiens Zic family member 1 (ZIC1), mRNA [NM_003412]
A_33_P3291567	0.007329234	down	-1.5425322	TSNARE1	Homo sapiens t-SNARE domain containing 1 (TSNARE1), transcript variant 1, mRNA [NM_145003]
A_23_P42080	7.75E-05	down	-2.1877186	TMEM14A	Homo sapiens transmembrane protein 14A (TMEM14A), mRNA [NM_014051]
A_33_P3375528	0.03145728	down	-1.5311067	MIER3	Homo sapiens mesoderm induction early response 1, family member 3 (MIER3), transcript variant 3, mRNA [NM_152622]
A_24_P712350	0.043583557	down	-1.7095952	CHML	Homo sapiens choroideremia-like (Rab escort protein 2) (CHML), mRNA [NM_001821]
A_24_P268662	0.022277933	down	-1.633488	ABHD10	Homo sapiens abhydrolase domain containing 10 (ABHD10), transcript variant 1, mRNA [NM_018394]
A_23_P386973	0.047262013	down	-1.5681896	TFAP2D	Homo sapiens transcription factor AP-2 delta (activating enhancer binding protein 2 delta) (TFAP2D), mRNA [NM_172238]
A_33_P3237669	0.016433792	down	-1.8928756	CCDC155	Homo sapiens coiled-coil domain containing 155 (CCDC155), mRNA [NM_144688]
A_24_P271363	5.42E-05	down	-1.9342299	CDS2	Homo sapiens CDP-diacylglycerol synthase (phosphatidate cytidylyltransferase) 2 (CDS2), mRNA [NM_003818]
A_23_P208288	8.52E-05	down	-2.0398717	ZNF304	Homo sapiens zinc finger protein 304 (ZNF304), transcript variant 2, mRNA [NM_020657]
A_23_P330301	0.048065692	down	-2.2404575	MMD2	Homo sapiens monocyte to macrophage differentiation-associated 2 (MMD2), transcript variant 2, mRNA [NM_198403]
A_23_P104025	2.92E-05	down	-2.1958847	TSEN15	Homo sapiens TSEN15 tRNA splicing endonuclease subunit (TSEN15), transcript variant 1, mRNA [NM_052965]
A_33_P3221414	0.04474586	down	-1.5332873	NTNG1	netrin G1 [Source:HGNC Symbol;Acc:HGNC:23319] [ENST00000370068]
A_23_P125435	0.005263182	down	-3.342134	GABRB1	Homo sapiens gamma-aminobutyric acid (GABA) A receptor, beta 1 (GABRB1), mRNA [NM_000812]
A_23_P98310	0.003662232	down	-1.5431352	CSTF3	Homo sapiens cleavage stimulation factor, 3' pre-RNA, subunit 3, 77kDa (CSTF3), transcript variant 1, mRNA [NM_001326]
A_23_P44974	0.002465837	down	-1.5742018	MRPL13	Homo sapiens mitochondrial ribosomal protein L13 (MRPL13), mRNA [NM_014078]
A_33_P3332006	0.002264282	down	-1.5611528	CBX1	Homo sapiens chromobox homolog 1 (CBX1), transcript variant 1, mRNA [NM_006807]
A_33_P3241984	0.012404882	down	-1.5083278	PTPN22	Homo sapiens protein tyrosine phosphatase, non-receptor type 22 (lymphoid) (PTPN22), transcript variant 1, mRNA [NM_015967]
A_23_P91919	5.30E-04	down	-1.7470118	SERP1	Homo sapiens stress-associated endoplasmic reticulum protein 1 (SERP1), mRNA [NM_014445]
A_33_P3383356	0.02337281	down	-1.6297103	GLT8D2	glycosyltransferase 8 domain containing 2 [Source:HGNC Symbol;Acc:HGNC:24890] [ENST00000548660]
A_33_P3250845	3.43E-04	down	-1.7608571	NIPA2	Homo sapiens non imprinted in Prader-Willi/Angelman syndrome 2 (NIPA2), transcript variant 5, mRNA [NM_001184889]
A_23_P380965	0.001519089	down	-1.5692157	JKAMP	Homo sapiens JNK1/MAPK8-associated membrane protein (JKAMP), transcript variant 1, mRNA [NM_016475]
A_23_P130304	0.001044927	down	-1.5939643	TXNL4A	thioredoxin-like 4A [Source:HGNC Symbol;Acc:HGNC:30551] [ENST00000585769]
A_33_P3354322	0.004768207	down	-1.6750517	GPX1	Homo sapiens glutathione peroxidase 1 (GPX1), transcript variant 2, mRNA [NM_201397]
A_23_P69188	2.61E-04	down	-1.9260361	DPH3	Homo sapiens diphthamide biosynthesis 3 (DPH3), transcript variant 1, mRNA [NM_206831]
A_23_P205074	0.002954545	down	-1.7239965	SLC46A3	Homo sapiens solute carrier family 46, member 3 (SLC46A3), transcript variant 1, mRNA [NM_181785]
A_23_P343237	5.52E-04	down	-1.7242315	ANGEL2	Homo sapiens angel homolog 2 (Drosophila) (ANGEL2), transcript variant 1, mRNA [NM_144567]
A_33_P3413083	0.002072093	down	-1.5978292	RHEB	Homo sapiens Ras homolog enriched in brain (RHEB), mRNA [NM_005614]
A_24_P397435	0.028255451	down	-1.6752813	SLC6A3	Homo sapiens solute carrier family 6 (neurotransmitter transporter), member 3 (SLC6A3), mRNA [NM_001044]
A_24_P120907	0.00757452	down	-1.6899985	PGM5	Homo sapiens phosphoglucomutase 5 (PGM5), mRNA [NM_021965]
A_33_P3223701	0.019736279	down	-1.6659173	SPATA16	Homo sapiens spermatogenesis associated 16 (SPATA16), mRNA [NM_031955]
A_32_P147078	0.002413655	down	-1.6794612	SLC8A1	Homo sapiens solute carrier family 8 (sodium/calcium exchanger), member 1 (SLC8A1), transcript variant A, mRNA [NM_021097]
A_33_P3310894	0.022328164	down	-1.7143378	KRT40	Homo sapiens keratin 40, type I (KRT40), mRNA [NM_182497]
A_24_P196117	6.63E-04	down	-1.6336492	GTF2H5	Homo sapiens general transcription factor IIH, polypeptide 5 (GTF2H5), mRNA [NM_207118]
A_33_P3310784	0.005408077	down	-1.9797308	TM6SF1	Homo sapiens transmembrane 6 superfamily member 1 (TM6SF1), transcript variant 1, mRNA [NM_023003]
A_23_P333951	0.0026395	down	-1.7210164	DNAH14	Homo sapiens dynein, axonemal, heavy chain 14 (DNAH14), transcript variant 3, mRNA [NM_144989]
A_32_P116857	0.005483112	down	-3.3491127	PDE11A	Homo sapiens phosphodiesterase 11A (PDE11A), transcript variant 4, mRNA [NM_016953]
A_24_P415845	0.001840483	down	-1.9896199	LIG4	Homo sapiens ligase IV, DNA, ATP-dependent (LIG4), transcript variant 1, mRNA [NM_002312]

A_23_P140928	0.032299213	down	-1.7207956	TMC7	Homo sapiens transmembrane channel-like 7 (TMC7), transcript variant 1, mRNA [NM_024847]
A_23_P84334	2.25E-04	down	-1.8772845	TMEM39A	Homo sapiens transmembrane protein 39A (TMEM39A), transcript variant 1, mRNA [NM_018266]
A_23_P44505	0.001583474	down	-1.680607	KLF11	Homo sapiens Kruppel-like factor 11 (KLF11), transcript variant 1, mRNA [NM_003597]
A_24_P408740	0.00349379	down	-1.6783899	CMC1	Homo sapiens C-x(9)-C motif containing 1 (CMC1), mRNA [NM_182523]
A_23_P93543	1.83E-04	down	-1.8802541	PEX7	Homo sapiens peroxisomal biogenesis factor 7 (PEX7), mRNA [NM_000288]
A_33_P3299892	0.007834066	down	-1.5633105	UQCRH	Homo sapiens ubiquinol-cytochrome c reductase hinge protein (UQCRH), transcript variant 2, mRNA [NM_001297565]
A_23_P18692	5.42E-04	down	-1.887763	ADH5	Homo sapiens alcohol dehydrogenase 5 (class III), chi polypeptide (ADH5), mRNA [NM_000671]
A_23_P45917	0.001136479	down	-1.7499658	CKS1B	Homo sapiens CDC28 protein kinase regulatory subunit 1B (CKS1B), transcript variant 1, mRNA [NM_001826]
A_33_P3419632	0.03151432	down	-1.5176616	GLB1L3	galactosidase, beta 1-like 3 [Source:HGNC Symbol;Acc:HGNC:25147] [ENST00000389887]
A_23_P103476	0.007501718	down	-1.5254182	UBIAD1	Homo sapiens UbiA prenyltransferase domain containing 1 (UBIAD1), mRNA [NM_013319]
A_23_P6914	0.003375303	down	-1.6337596	OSBPL11	Homo sapiens oxysterol binding protein-like 11 (OSBPL11), mRNA [NM_022776]
A_23_P305210	9.28E-05	down	-2.197525	ZNF680	Homo sapiens zinc finger protein 680 (ZNF680), transcript variant 1, mRNA [NM_178558]
A_24_P182539	0.003780507	down	-1.6009244	ATG4C	Homo sapiens autophagy related 4C, cysteine peptidase (ATG4C), transcript variant 1, mRNA [NM_032852]
A_23_P61707	8.86E-04	down	-2.774621	HPSE2	Homo sapiens heparanase 2 (inactive) (HPSE2), transcript variant 1, mRNA [NM_021828]
A_21_P0011306	0.006769967	down	-1.5604087	SYNGR2	Homo sapiens synaptogyrin 2 (SYNGR2), mRNA [NM_004710]
A_23_P414913	4.01E-04	down	-2.0133717	GLIPR2	Homo sapiens GLI pathogenesis-related 2 (GLIPR2), transcript variant 1, mRNA [NM_022343]
A_32_P353072	1.08E-04	down	-2.2593493	TMEM106B	Homo sapiens transmembrane protein 106B (TMEM106B), transcript variant 1, mRNA [NM_018374]
A_23_P139648	0.026705492	down	-1.6802089	IAPP	Homo sapiens islet amyloid polypeptide (IAPP), mRNA [NM_000415]
A_33_P3349870	0.002725762	down	-1.9383991	PARPBP	Homo sapiens chromosome 12 open reading frame 48, mRNA (cDNA clone IMAGE:3951688), complete cds. [BC018903]
A_33_P3372281	0.003581766	down	-1.8882203	MRS2	Homo sapiens MRS2 magnesium transporter (MRS2), transcript variant 3, mRNA [NM_001286265]
A_23_P309361	0.00549247	down	-1.5368019	HENMT1	Homo sapiens HEN1 methyltransferase homolog 1 (Arabidopsis) (HENMT1), transcript variant 1, mRNA [NM_144584]
A_23_P65558	2.67E-04	down	-1.9083133	MGAT2	Homo sapiens mannosyl (alpha-1,6-)-glycoprotein beta-1,2-N-acetylglucosaminyltransferase (MGAT2), mRNA [NM_002408]
A_23_P76961	0.007776989	down	-1.5876455	RPS29	Homo sapiens ribosomal protein S29 (RPS29), transcript variant 1, mRNA [NM_001032]
A_23_P51906	0.010376195	down	-1.5408738	PFDN2	Homo sapiens prefoldin subunit 2 (PFDN2), mRNA [NM_012394]
A_32_P3914	0.0078709	down	-2.079835	WIPF3	Homo sapiens WAS/WASL interacting protein family, member 3 (WIPF3), mRNA [NM_001080529]
A_24_P29445	0.003259801	down	-1.6452276	TMEM14B	Homo sapiens transmembrane protein 14B (TMEM14B), transcript variant 1, mRNA [NM_030969]
A_24_P248606	5.13E-04	down	-1.8823283	ACSL3	Homo sapiens acyl-CoA synthetase long-chain family member 3 (ACSL3), transcript variant 1, mRNA [NM_004457]
A_23_P11629	0.007586235	down	-1.9358094	TMEM61	Homo sapiens transmembrane protein 61 (TMEM61), mRNA [NM_182532]
A_24_P393958	5.83E-04	down	-2.03947	DNAJB4	Homo sapiens DnaJ (Hsp40) homolog, subfamily B, member 4 (DNAJB4), mRNA [NM_007034]
A_33_P3317523	0.048395373	down	-1.5376794	STMN1	Homo sapiens stathmin 1 (STMN1), transcript variant 1, mRNA [NM_203401]
A_23_P92994	0.001640741	down	-1.6320529	MFF	Homo sapiens mitochondrial fission factor (MFF), transcript variant 2, mRNA [NM_020194]
A_33_P3243588	0.00156938	down	-1.7950556	PEX3	Homo sapiens peroxisomal biogenesis factor 3 (PEX3), mRNA [NM_003630]
A_33_P3226080	3.98E-04	down	-1.7644594	SCIMP	Homo sapiens SLP adaptor and CSK interacting membrane protein (SCIMP), transcript variant 1, mRNA [NM_207103]
A_23_P43425	6.60E-04	down	-1.8889253	C9orf40	Homo sapiens chromosome 9 open reading frame 40 (C9orf40), mRNA [NM_017998]
A_23_P201918	2.89E-04	down	-1.887601	ABCB10	Homo sapiens ATP-binding cassette, sub-family B (MDR/TAP), member 10 (ABCB10), mRNA [NM_012089]
A_23_P140154	2.33E-05	down	-1.9200836	TMEM251	Homo sapiens transmembrane protein 251 (TMEM251), transcript variant 1, mRNA [NM_001098621]
A_33_P3392447	1.60E-04	down	-2.26963	BCL10	Homo sapiens B-cell CLL/lymphoma 10 (BCL10), mRNA [NM_003921]
A_23_P218731	5.76E-05	down	-2.1889687	CRYZL1	Homo sapiens crystallin, zeta (quinone reductase)-like 1 (CRYZL1), mRNA [NM_145858]
A_23_P259328	0.002773112	down	-1.692144	PEX3	Homo sapiens peroxisomal biogenesis factor 3 (PEX3), mRNA [NM_003630]
A_23_P160262	0.016507816	down	-1.6910084	ANGPTL3	Homo sapiens angiopoietin-like 3 (ANGPTL3), mRNA [NM_014495]
A_23_P101950	0.002832646	down	-1.6152493	MDH1	Homo sapiens malate dehydrogenase 1, NAD (soluble) (MDH1), transcript variant 2, mRNA [NM_005917]
A_24_P38347	0.002636406	down	-1.792203	DPYSL2	Homo sapiens dihydropyrimidinase-like 2 (DPYSL2), transcript variant 2, mRNA [NM_001386]
A_23_P115885	5.94E-04	down	-2.0687065	MINPP1	Homo sapiens multiple inositol-polyphosphate phosphatase 1 (MINPP1), transcript variant 1, mRNA [NM_004897]
A_23_P81770	2.56E-04	down	-1.65609	PTP4A1	Homo sapiens protein tyrosine phosphatase type IVA, member 1 (PTP4A1), mRNA [NM_003463]
A_33_P3351904	0.011010839	down	-1.9934016	PCDHA11	Homo sapiens protocadherin alpha 11 (PCDHA11), transcript variant 2, mRNA [NM_031861]
A_23_P164047	0.011758462	down	-1.6711593	MMD	Homo sapiens monocyte to macrophage differentiation-associated (MMD), mRNA [NM_012329]
A_23_P156852	0.003378151	down	-1.5710822	ECI2	Homo sapiens enoyl-CoA delta isomerase 2 (ECI2), transcript variant 2, mRNA [NM_206836]
A_23_P160567	0.001465688	down	-1.92572	ZMYND12	Homo sapiens zinc finger, MYND-type containing 12 (ZMYND12), transcript variant 1, mRNA [NM_032257]

A_23_P77459	0.001512765	down	-1.6057947	NAE1	Homo sapiens NEDD8 activating enzyme E1 subunit 1 (NAE1), transcript variant 2, mRNA [NM_001018159]
A_33_P3286066	0.013238985	down	-1.7926993	PHLDB2	Homo sapiens pleckstrin homology-like domain, family B, member 2 (PHLDB2), transcript variant 1, mRNA [NM_001134438]
A_33_P3240946	0.002062861	down	-2.380742	DPF3	Homo sapiens D4, zinc and double PHD fingers, family 3 (DPF3), transcript variant 4, mRNA [NM_001280544]
A_33_P3307197	0.007104043	down	-1.7368218	PTGFRN	Homo sapiens prostaglandin F2 receptor inhibitor (PTGFRN), mRNA [NM_020440]
A_23_P146050	4.44E-04	down	-2.16115	ZFAND1	Homo sapiens zinc finger, AN1-type domain 1 (ZFAND1), transcript variant 1, mRNA [NM_024699]
A_23_P309865	0.001260324	down	-1.690623	ZNF449	Homo sapiens zinc finger protein 449 (ZNF449), mRNA [NM_152695]
A_32_P154830	1.06E-04	down	-1.9124595	OSTM1	Homo sapiens osteopetrosis associated transmembrane protein 1 (OSTM1), mRNA [NM_014028]
A_23_P77066	0.003112533	down	-1.6486278	SNRPN	Homo sapiens small nuclear ribonucleoprotein polypeptide N (SNRPN), transcript variant 4, mRNA [NM_022807]
A_23_P430181	3.52E-04	down	-1.907901	ZBTB3	Homo sapiens zinc finger and BTB domain containing 3 (ZBTB3), mRNA [NM_024784]
A_23_P426140	6.58E-05	down	-2.245732	ZYG11B	Homo sapiens zyg-11 family member B, cell cycle regulator (ZYG11B), mRNA [NM_024646]
A_33_P3423425	0.001334967	down	-1.8014417	ZNF770	Homo sapiens zinc finger protein 770 (ZNF770), mRNA [NM_014106]
A_33_P3361393	1.49E-04	down	-1.8121166	EIF1AX	Homo sapiens eukaryotic translation initiation factor 1A, X-linked (EIF1AX), mRNA [NM_001412]
A_23_P338519	0.001306804	down	-1.9612696	NKIRAS1	Homo sapiens NFKB inhibitor interacting Ras-like 1 (NKIRAS1), mRNA [NM_020345]
A_23_P259333	0.001927392	down	-1.6237262	C6orf203	Homo sapiens chromosome 6 open reading frame 203 (C6orf203), transcript variant 1, mRNA [NM_016487]
A_23_P132936	7.90E-05	down	-1.819932	SPCS3	Homo sapiens signal peptidase complex subunit 3 homolog (S. cerevisiae) (SPCS3), mRNA [NM_021928]
A_24_P106794	9.93E-06	down	-1.952232	NUDCD1	Homo sapiens NudC domain containing 1 (NUDCD1), transcript variant 1, mRNA [NM_032869]
A_33_P3306113	6.07E-04	down	-1.6924667	JMJD4	Homo sapiens jumonji domain containing 4 (JMJD4), transcript variant 1, mRNA [NM_023007]
A_33_P3352727	0.039368004	down	-2.1073427	C20orf173	Homo sapiens chromosome 20 open reading frame 173 (C20orf173), transcript variant 2, non-coding RNA [NR_026933]
A_24_P345679	0.004748735	down	-1.6164678	MLF1	Homo sapiens myeloid leukemia factor 1 (MLF1), transcript variant 4, mRNA [NM_001195432]
A_33_P3377060	3.17E-04	down	-1.7316985	SSR1	Homo sapiens signal sequence receptor, alpha (SSR1), transcript variant 1, mRNA [NM_003144]
A_33_P3215028	0.001397913	down	-1.6062437	C6orf89	Homo sapiens chromosome 6 open reading frame 89 (C6orf89), transcript variant 1, mRNA [NM_152734]
A_33_P3273238	0.001124267	down	-1.6427153	ZNF320	Homo sapiens zinc finger protein 320 (ZNF320), mRNA [NM_207333]
A_24_P680908	0.016948747	down	-1.7020582	ZNF708	Homo sapiens zinc finger protein 708 (ZNF708), transcript variant 1, mRNA [NM_021269]
A_23_P216118	0.048112787	down	-1.5333613	UNC5D	Homo sapiens unc-5 homolog D (C. elegans) (UNC5D), mRNA [NM_080872]
A_23_P203920	0.031201521	down	-1.6128197	SSPN	Homo sapiens sarcospan (SSPN), transcript variant 1, mRNA [NM_005086]
A_23_P135995	4.54E-04	down	-1.8691698	ARV1	Homo sapiens ARV1 homolog (S. cerevisiae) (ARV1), mRNA [NM_022786]
A_33_P3210880	0.046975445	down	-1.8802651	ATP7A	Homo sapiens mRNA for ATPase, Cu++ transporting, alpha polypeptide variant protein. [AB208828]
A_24_P880043	8.27E-05	down	-2.0052798	PCGF5	Homo sapiens polycomb group ring finger 5 (PCGF5), transcript variant 1, mRNA [NM_032373]
A_33_P3302428	0.003832585	down	-1.594773	TNRC6C	Homo sapiens trinucleotide repeat containing 6C (TNRC6C), transcript variant 1, mRNA [NM_001142640]
A_33_P3239405	0.002182478	down	-1.8786048	TMEM9	Homo sapiens transmembrane protein 9 (TMEM9), transcript variant 3, mRNA [NM_001288565]
A_22_P00002830	0.006976179	down	-2.8979864	C2orf73	chromosome 2 open reading frame 73 [Source:HGNC Symbol;Acc:HGNC:26861] [ENST00000491538]
A_23_P71433	1.42E-04	down	-1.7757587	UBE2W	Homo sapiens ubiquitin-conjugating enzyme E2W (putative) (UBE2W), transcript variant 1, mRNA [NM_001001481]
A_24_P522631	0.002522663	down	-1.6879189	TMEM201	Homo sapiens transmembrane protein 201 (TMEM201), transcript variant 1, mRNA [NM_001130924]
A_23_P201368	4.54E-04	down	-1.834067	CTBS	Homo sapiens chitobiase, di-N-acetyl- (CTBS), mRNA [NM_004388]
A_33_P3295283	7.22E-04	down	-1.6075002	LPCAT3	Homo sapiens lysophosphatidylcholine acyltransferase 3 (LPCAT3), mRNA [NM_005768]
A_22_P00022468	0.016003529	down	-1.7020317	LRRTM3	PREDICTED: Homo sapiens uncharacterized LOC101928938 (LOC101928938), ncRNA [XR_246122]
A_23_P25253	4.19E-04	down	-1.7546753	DERA	Homo sapiens deoxyribose-phosphate aldolase (putative) (DERA), transcript variant 1, mRNA [NM_015954]
A_32_P123088	5.19E-04	down	-1.6751746	TMED7-TICAM2	Homo sapiens TMED7-TICAM2 readthrough (TMED7-TICAM2), transcript variant 1, mRNA [NM_001164468]
A_24_P336705	0.001175967	down	-1.9029949	RABGGTB	Homo sapiens Rab geranylgeranyltransferase, beta subunit (RABGGTB), transcript variant 1, mRNA [NM_004582]
A_23_P149476	0.00772526	down	-2.2579312	EFCAB2	Homo sapiens EF-hand calcium binding domain 2 (EFCAB2), transcript variant 1, mRNA [NM_032328]
A_24_P201125	0.002607639	down	-2.0315716	ZNF510	Homo sapiens zinc finger protein 510 (ZNF510), mRNA [NM_014930]
A_33_P3349444	0.003179295	down	-1.6210953	NAGA	Homo sapiens N-acetylgalactosaminidase, alpha- (NAGA), mRNA [NM_000262]
A_33_P3259662	0.00296041	down	-1.5754153	ZNF134	Homo sapiens zinc finger protein 134 (ZNF134), mRNA [NM_003435]
A_33_P3368776	5.28E-04	down	-2.9209893	TMIGD1	Homo sapiens transmembrane and immunoglobulin domain containing 1 (TMIGD1), mRNA [NM_206832]
A_32_P184394	4.95E-04	down	-1.8439181	TFEC	Homo sapiens transcription factor EC (TFEC), transcript variant 1, mRNA [NM_012252]
A_22_P00019101	0.001346636	down	-1.6772977	CREB1	Homo sapiens cAMP responsive element binding protein 1 (CREB1), transcript variant B, mRNA [NM_134442]
A_23_P416608	6.26E-04	down	-2.3847957	LAMP2	Homo sapiens lysosomal-associated membrane protein 2 (LAMP2), transcript variant B, mRNA [NM_013995]

A_23_P167269	0.001444536	down	-1.6618465	TMA16	Homo sapiens translation machinery associated 16 homolog (S. cerevisiae) (TMA16), mRNA [NM_018352]
A_23_P23074	4.74E-04	down	-2.1007798	IFI44	Homo sapiens interferon-induced protein 44 (IFI44), mRNA [NM_006417]
A_33_P3221788	0.005975967	down	-1.6547593	RAB22A	Homo sapiens RAB22A, member RAS oncogene family (RAB22A), mRNA [NM_020673]
A_33_P3409508	7.37E-04	down	-2.0764349	MAPK11	Homo sapiens mitogen-activated protein kinase 11 (MAPK11), transcript variant 1, mRNA [NM_002751]
A_33_P3279940	1.44E-05	down	-2.2016857	TM2D1	Homo sapiens TM2 domain containing 1 (TM2D1), mRNA [NM_032027]
A_23_P130444	4.30E-05	down	-2.0678327	ZNF701	Homo sapiens zinc finger protein 701 (ZNF701), transcript variant 2, mRNA [NM_018260]
A_23_P204304	0.001624144	down	-1.8635845	PTPRO	Homo sapiens protein tyrosine phosphatase, receptor type, O (PTPRO), transcript variant 1, mRNA [NM_030667]
A_23_P319874	0.013236521	down	-1.563621	TCAIM	Homo sapiens T cell activation inhibitor, mitochondrial (TCAIM), transcript variant 3, mRNA [NM_001029840]
A_33_P3282434	4.96E-04	down	-1.742994	SLC16A1	Homo sapiens solute carrier family 16 (monocarboxylate transporter), member 1 (SLC16A1), transcript variant 2, mRNA [NM_001166496]
A_24_P381604	1.32E-04	down	-1.7130008	ITM2B	Homo sapiens integral membrane protein 2B (ITM2B), mRNA [NM_021999]
A_24_P372217	6.29E-04	down	-1.9358102	ERLIN2	Homo sapiens ER lipid raft associated 2 (ERLIN2), transcript variant 1, mRNA [NM_007175]
A_24_P269619	2.02E-04	down	-1.909018	DECR1	Homo sapiens 2,4-dienoyl CoA reductase 1, mitochondrial (DECR1), mRNA [NM_001359]
A_33_P3599591	0.031575885	down	-2.4252937	PAPPA	Homo sapiens pregnancy-associated plasma protein A, pappalysin 1 (PAPPA), mRNA [NM_002581]
A_23_P102262	0.001618852	down	-1.6406565	MRPL19	Homo sapiens mitochondrial ribosomal protein L19 (MRPL19), mRNA [NM_014763]
A_33_P3217119	0.005077502	down	-1.7588195	OSCP1	Homo sapiens organic solute carrier partner 1 (OSCP1), transcript variant 2, mRNA [NM_206837]
A_33_P3269718	0.01117581	down	-1.6137978	IVD	Homo sapiens isovaleryl-CoA dehydrogenase (IVD), transcript variant 2, mRNA [NM_001159508]
A_23_P29655	0.003226149	down	-1.625182	C3orf14	Homo sapiens chromosome 3 open reading frame 14 (C3orf14), transcript variant 1, mRNA [NM_020685]
A_33_P3402763	6.30E-04	down	-2.0407274	NIFK	Homo sapiens nucleolar protein interacting with the FHA domain of MKI67 (NIFK), mRNA [NM_032390]
A_23_P157726	0.002559227	down	-1.7434796	DENND4C	DENN/MADD domain containing 4C [Source:HGNC Symbol;Acc:HGNC:26079] [ENST00000380437]
A_24_P341019	0.001843096	down	-1.61689	TMEM230	Homo sapiens transmembrane protein 230 (TMEM230), transcript variant 2, mRNA [NM_001009924]
A_33_P3315425	2.95E-04	down	-1.6416718	METTL4	Homo sapiens methyltransferase like 4 (METTL4), mRNA [NM_022840]
A_33_P3389291	0.01670215	down	-1.7617521	TEX9	Homo sapiens testis expressed 9 (TEX9), transcript variant 2, mRNA [NM_001286449]
A_23_P30122	0.015881402	down	-2.027737	IL2	Homo sapiens interleukin 2 (IL2), mRNA [NM_000586]
A_33_P3394744	0.014786385	down	-1.7113149	DMRT2	Homo sapiens doublesex and mab-3 related transcription factor 2 (DMRT2), transcript variant 1, mRNA [NM_006557]
A_33_P7363082	4.20E-04	down	-1.7337841	CWC15	Homo sapiens CWC15 spliceosome-associated protein (CWC15), mRNA [NM_016403]
A_23_P111604	0.0498661	down	-1.5991268	NXPH1	Homo sapiens neurexophilin 1 (NXPH1), mRNA [NM_152745]
A_24_P70117	0.001575773	down	-1.8702025	DTWD1	Homo sapiens DTW domain containing 1 (DTWD1), transcript variant 1, mRNA [NM_020234]
A_23_P126057	3.88E-04	down	-2.5208216	SCP2	Homo sapiens sterol carrier protein 2 (SCP2), transcript variant 1, mRNA [NM_002979]
A_24_P231104	3.19E-04	down	-2.766716	LEPR	Homo sapiens leptin receptor (LEPR), transcript variant 3, mRNA [NM_001003679]
A_32_P155631	3.19E-04	down	-1.8599402	SDHD	Homo sapiens succinate dehydrogenase complex, subunit D, integral membrane protein (SDHD), transcript variant 1, mRNA [NM_003002]
A_33_P3244640	0.006148567	down	-2.2588525	GRK5	G protein-coupled receptor kinase 5 [Source:HGNC Symbol;Acc:HGNC:4544] [ENST00000369108]
A_32_P313405	0.0460912	down	-1.9094045	LAMA1	Homo sapiens laminin, alpha 1 (LAMA1), mRNA [NM_005559]
A_23_P169197	0.00365166	down	-1.5753866	HSDL2	Homo sapiens hydroxysteroid dehydrogenase like 2 (HSDL2), transcript variant 1, mRNA [NM_032303]
A_23_P97860	0.0305664	down	-1.6243658	LIPA	Homo sapiens lipase A, lysosomal acid, cholesterol esterase (LIPA), transcript variant 2, mRNA [NM_000235]
A_32_P198330	0.001725319	down	-1.6714507	SREK1IP1	Homo sapiens SREK1-interacting protein 1 (SREK1IP1), mRNA [NM_173829]
A_33_P3235766	0.003702374	down	-1.6738209	QSER1	Homo sapiens glutamine and serine rich 1 (QSER1), mRNA [NM_001076786]
A_33_P3343360	0.037249193	down	-1.6312376	CCSER1	Homo sapiens coiled-coil serine-rich protein 1 (CCSER1), transcript variant 2, mRNA [NM_207491]
A_32_P184279	0.00206864	down	-1.6920322	CCDC6	Homo sapiens coiled-coil domain containing 6 (CCDC6), mRNA [NM_005436]
A_24_P115511	0.011879432	down	-1.5528275	RAB14	Homo sapiens RAB14, member RAS oncogene family (RAB14), mRNA [NM_016322]
A_33_P3219821	0.0096813	down	-1.7139322	FMN2	Homo sapiens formin 2 (FMN2), mRNA [NM_020066]
A_23_P144348	0.001284207	down	-2.1043441	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_23_P930	0.017555647	down	-1.5043713	APH1A	Homo sapiens APH1A gamma secretase subunit (APH1A), transcript variant 1, mRNA [NM_001077628]
A_32_P492524	0.012242583	down	-1.8114004	GALNT13	Homo sapiens polypeptide N-acetylgalactosaminyltransferase 13 (GALNT13), transcript variant 1, mRNA [NM_052917]
A_23_P413815	8.64E-04	down	-1.5673466	VKORC1L1	Homo sapiens vitamin K epoxide reductase complex, subunit 1-like 1 (VKORC1L1), transcript variant 1, mRNA [NM_173517]
A_24_P309594	0.00399583	down	-1.6027883	SLC48A1	Homo sapiens solute carrier family 48 (heme transporter), member 1 (SLC48A1), mRNA [NM_017842]
A_33_P3365805	9.99E-04	down	-1.7642914	CLN5	Homo sapiens ceroid-lipofuscinosis, neuronal 5 (CLN5), mRNA [NM_006493]
A_21_P0012376	2.25E-04	down	-1.7984272	GEMIN2	Homo sapiens gem (nuclear organelle) associated protein 2 (GEMIN2), transcript variant gamma, mRNA [NM_001009183]
A_33_P3307187	0.012899864	down	-1.8336067	NPAS3	Homo sapiens neuronal PAS domain protein 3 (NPAS3), transcript variant 1, mRNA [NM_001164749]

A_33_P3502315	1.68E-05	down	-2.1491327	CRLS1	Homo sapiens cardiolipin synthase 1 (CRLS1), transcript variant 1, mRNA [NM_019095]
A_33_P3327592	2.92E-04	down	-1.6313608	RNF13	Homo sapiens ring finger protein 13 (RNF13), transcript variant 1, mRNA [NM_007282]
A_23_P329353	0.011921446	down	-1.9013433	CNRIP1	Homo sapiens cannabinoid receptor interacting protein 1 (CNRIP1), transcript variant CRIP1a, mRNA [NM_015463]
A_23_P100991	0.018827122	down	-1.6814543	KRT38	Homo sapiens keratin 38, type I (KRT38), mRNA [NM_006771]
A_33_P3211423	0.002022777	down	-1.6878092	PANK3	pantothenate kinase 3 [Source:HGNC Symbol;Acc:HGNC:19365] [ENST00000239231]
A_33_P3216297	1.17E-05	down	-2.0662837	NR3C1	Homo sapiens nuclear receptor subfamily 3, group C, member 1 (glucocorticoid receptor) (NR3C1), transcript variant 5, mRNA [NM_001018077]
A_24_P80338	0.00415096	down	-1.5136704	NEK4	Homo sapiens NIMA-related kinase 4 (NEK4), transcript variant 1, mRNA [NM_003157]
A_23_P59202	3.28E-04	down	-1.6287001	TAF11	Homo sapiens TAF11 RNA polymerase II, TATA box binding protein (TBP)-associated factor, 28kDa (TAF11), transcript variant 1, mRNA [NM_005643]
A_33_P3331242	7.14E-05	down	-1.9977522	G3BP1	Homo sapiens GTPase activating protein (SH3 domain) binding protein 1 (G3BP1), transcript variant 1, mRNA [NM_005754]
A_33_P3414122	7.06E-04	down	-1.7036184	ZNF260	Homo sapiens zinc finger protein 260 (ZNF260), transcript variant 1, mRNA [NM_001012756]
A_23_P213093	0.004800882	down	-1.8280381	OCIAD1	Homo sapiens OCIA domain containing 1 (OCIAD1), transcript variant 2, mRNA [NM_001079839]
A_24_P148094	0.008317328	down	-1.5900108	LEPROT	Homo sapiens leptin receptor overlapping transcript (LEPROT), transcript variant 1, mRNA [NM_017526]
A_33_P3377261	5.39E-04	down	-1.7135812	RNF7	Homo sapiens ring finger protein 7 (RNF7), transcript variant 1, mRNA [NM_014245]
A_23_P5301	0.038231663	down	-1.5340513	TFCP2L1	Homo sapiens transcription factor CP2-like 1 (TFCP2L1), mRNA [NM_014553]
A_23_P8961	7.45E-04	down	-1.9001794	IL7	Homo sapiens interleukin 7 (IL7), transcript variant 1, mRNA [NM_000880]
A_33_P3289536	1.36E-05	down	-3.3952658	SNX10	Homo sapiens sorting nexin 10 (SNX10), transcript variant 1, mRNA [NM_001199835]
A_23_P88680	0.003126945	down	-1.8863534	EMC7	Homo sapiens ER membrane protein complex subunit 7 (EMC7), mRNA [NM_020154]
A_33_P3311076	0.001733455	down	-1.8518671	CYB5A	Homo sapiens cytochrome b5 type A (microsomal) (CYB5A), transcript variant 3, mRNA [NM_001190807]
A_33_P3416762	4.53E-05	down	-2.1065445	LYPLA1	Homo sapiens lysophospholipase I (LYPLA1), transcript variant 1, mRNA [NM_006330]
A_23_P419239	6.52E-05	down	-2.0301037	ETNK1	Homo sapiens ethanolamine kinase 1 (ETNK1), transcript variant 1, mRNA [NM_018638]
A_23_P205997	0.00123706	down	-1.5754642	APH1B	Homo sapiens APH1B gamma secretase subunit (APH1B), transcript variant 1, mRNA [NM_031301]
A_24_P75158	0.006192087	down	-1.5778135	PTAR1	Homo sapiens protein prenyltransferase alpha subunit repeat containing 1 (PTAR1), mRNA [NM_001099666]
A_23_P501010	0.013685597	down	-1.7970062	COL17A1	Homo sapiens collagen, type XVII, alpha 1 (COL17A1), mRNA [NM_000494]
A_33_P3260777	0.005153012	down	-1.6571577	ARF5	Homo sapiens ADP-ribosylation factor 5 (ARF5), mRNA [NM_001662]
A_23_P21734	0.004726589	down	-1.5479854	AK6	Homo sapiens adenylate kinase 6 (AK6), transcript variant 3, mRNA [NM_001015891]
A_33_P3243657	9.50E-04	down	-1.6680907	TIMM10B	Homo sapiens translocase of inner mitochondrial membrane 10 homolog B (yeast) (TIMM10B), mRNA [NM_012192]
A_24_P158421	0.00371209	down	-1.8678043	SAR1A	Homo sapiens secretion associated, Ras related GTPase 1A (SAR1A), transcript variant 2, mRNA [NM_020150]
A_23_P93431	4.43E-04	down	-1.9309683	AIG1	Homo sapiens androgen-induced 1 (AIG1), transcript variant 1, mRNA [NM_016108]
A_23_P126291	0.001528911	down	-1.5696162	SNRPE	Homo sapiens small nuclear ribonucleoprotein polypeptide E (SNRPE), mRNA [NM_003094]
A_23_P91076	0.001007759	down	-2.3849266	TMEM87B	Homo sapiens transmembrane protein 87B (TMEM87B), mRNA [NM_032824]
A_23_P204702	5.99E-05	down	-1.8239574	TMBIM6	Homo sapiens transmembrane BAX inhibitor motif containing 6 (TMBIM6), transcript variant 1, mRNA [NM_003217]
A_33_P3218316	0.012624305	down	-1.8146894	VSTM2B	Homo sapiens V-set and transmembrane domain containing 2B (VSTM2B), mRNA [NM_001146339]
A_24_P920521	0.015658854	down	-1.6275479	COMMD6	Homo sapiens COMM domain containing 6 (COMMD6), transcript variant 1, mRNA [NM_203497]
A_24_P105564	0.018186312	down	-1.6672918	PRKAB2	Homo sapiens protein kinase, AMP-activated, beta 2 non-catalytic subunit (PRKAB2), transcript variant 1, mRNA [NM_005399]
A_23_P136172	1.81E-04	down	-1.8205359	TMEM68	Homo sapiens transmembrane protein 68 (TMEM68), transcript variant 2, mRNA [NM_152417]
A_33_P3231252	0.015568391	down	-1.7188777	NHLH2	Homo sapiens nescient helix loop helix 2 (NHLH2), transcript variant 1, mRNA [NM_005599]
A_33_P3270059	0.041690014	down	-1.5416869	RBMXL2	Homo sapiens RNA binding motif protein, X-linked-like 2 (RBMXL2), mRNA [NM_014469]
A_23_P200216	0.002396142	down	-1.7861887	MAGOH	Homo sapiens mago-nashi homolog, proliferation-associated (Drosophila) (MAGOH), mRNA [NM_002370]
A_24_P277155	0.00317701	down	-1.942635	HLTF	Homo sapiens helicase-like transcription factor (HLTF), transcript variant 1, mRNA [NM_003071]
A_24_P49533	9.62E-04	down	-1.9919453	ZYG11B	Homo sapiens zyg-11 family member B, cell cycle regulator (ZYG11B), mRNA [NM_024646]
A_32_P145153	0.005766694	down	-1.6605573	RPL31	Homo sapiens ribosomal protein L31 (RPL31), transcript variant 1, mRNA [NM_000993]
A_33_P3397323	0.010136342	down	-1.5274853	ZNF441	Homo sapiens zinc finger protein 441 (ZNF441), mRNA [NM_152355]
A_24_P109432	0.020066213	down	-1.7061154	NBEAL1	Homo sapiens neurobeachin-like 1 (NBEAL1), mRNA [NM_001114132]
A_23_P8522	2.02E-04	down	-1.8566566	TMEM106B	Homo sapiens transmembrane protein 106B (TMEM106B), transcript variant 1, mRNA [NM_018374]
A_33_P3243997	0.00526767	down	-1.5910784	PSME4	Homo sapiens proteasome (prosome, macropain) activator subunit 4 (PSME4), mRNA [NM_014614]
A_23_P325726	0.002141879	down	-2.106618	ACOT11	Homo sapiens acyl-CoA thioesterase 11 (ACOT11), transcript variant 1, mRNA [NM_015547]

A_23_P346006	0.008740828	down	-1.6371971	CCPG1	Homo sapiens cell cycle progression 1 (CCPG1), transcript variant 2, mRNA [NM_020739]
A_24_P187921	8.65E-04	down	-1.950882	MANEA	Homo sapiens mannosidase, endo-alpha (MANEA), mRNA [NM_024641]
A_24_P108242	7.55E-04	down	-1.619986	GOSR2	Homo sapiens golgi SNAP receptor complex member 2 (GOSR2), transcript variant A, mRNA [NM_004287]
A_23_P314191	7.11E-04	down	-1.8399798	ZDHHC17	Homo sapiens zinc finger, DHHC-type containing 17 (ZDHHC17), mRNA [NM_015336]
A_24_P43391	3.06E-04	down	-2.1839767	TMEM165	Homo sapiens transmembrane protein 165 (TMEM165), transcript variant 1, mRNA [NM_018475]
A_33_P3288569	0.001809599	down	-1.7906119	MBIP	Homo sapiens MAP3K12 binding inhibitory protein 1 (MBIP), transcript variant 2, mRNA [NM_001144891]
A_24_P924816	0.001498869	down	-2.1560414	SLC2A13	Homo sapiens solute carrier family 2 (facilitated glucose transporter), member 13 (SLC2A13), mRNA [NM_052885]
A_23_P110430	0.00354364	down	-2.1506426	MSX1	Homo sapiens msh homeobox 1 (MSX1), mRNA [NM_002448]
A_23_P33881	0.009686637	down	-2.117552	SSX4B	Homo sapiens synovial sarcoma, X breakpoint 4B (SSX4B), transcript variant 1, mRNA [NM_001034832]
A_23_P89799	0.013495182	down	-1.5031608	ACAA2	Homo sapiens acetyl-CoA acyltransferase 2 (ACAA2), mRNA [NM_006111]
A_23_P80040	0.011268116	down	-1.716027	PROCR	Homo sapiens protein C receptor, endothelial (PROCR), mRNA [NM_006404]
A_23_P98382	0.001167187	down	-1.7901644	TIMM8B	Homo sapiens translocase of inner mitochondrial membrane 8 homolog B (yeast) (TIMM8B), transcript variant 1, mRNA [NM_012459]
A_24_P12281	6.80E-04	down	-1.8617228	AP4S1	Homo sapiens adaptor-related protein complex 4, sigma 1 subunit (AP4S1), transcript variant 1, mRNA [NM_007077]
A_24_P274795	0.017262163	down	-1.6785401	CDCA7L	Homo sapiens cell division cycle associated 7-like (CDCA7L), transcript variant 1, mRNA [NM_018719]
A_23_P2066	4.09E-05	down	-2.285545	APIP	Homo sapiens APAF1 interacting protein (APIP), mRNA [NM_015957]
A_23_P97532	0.008020195	down	-1.5148945	VAMP3	Homo sapiens vesicle-associated membrane protein 3 (VAMP3), mRNA [NM_004781]
A_33_P3359543	0.0056008	down	-1.5602326	ZNF561	Homo sapiens zinc finger protein 561 (ZNF561), mRNA [NM_152289]
A_24_P106591	6.52E-04	down	-1.6636764	BLOC1S5	Homo sapiens biogenesis of lysosomal organelles complex-1, subunit 5, muted (BLOC1S5), transcript variant 1, mRNA [NM_201280]
A_24_P371962	1.92E-04	down	-1.7710829	AMD1	Homo sapiens adenosylmethionine decarboxylase 1 (AMD1), transcript variant 1, mRNA [NM_001634]
A_23_P218858	0.009430056	down	-1.9397721	ABI3BP	Homo sapiens ABI family, member 3 (NESH) binding protein (ABI3BP), mRNA [NM_015429]
A_23_P205830	0.00104173	down	-1.7179413	BTBD1	Homo sapiens BTB (POZ) domain containing 1 (BTBD1), transcript variant 1, mRNA [NM_025238]
A_23_P372331	0.007059829	down	-1.5104238	TRNT1	Homo sapiens tRNA nucleotidyl transferase, CCA-adding, 1 (TRNT1), transcript variant 1, mRNA [NM_182916]
A_23_P22433	2.04E-04	down	-1.7528341	RP2	Homo sapiens retinitis pigmentosa 2 (X-linked recessive) (RP2), mRNA [NM_006915]
A_33_P3299872	0.001242856	down	-1.6814706	HINT3	Homo sapiens histidine triad nucleotide binding protein 3 (HINT3), mRNA [NM_138571]
A_23_P217109	0.006035227	down	-1.6166567	SLC31A2	Homo sapiens solute carrier family 31 (copper transporter), member 2 (SLC31A2), mRNA [NM_001860]
A_32_P165340	1.85E-04	down	-1.7432061	SRP9	Homo sapiens signal recognition particle 9kDa (SRP9), transcript variant 2, mRNA [NM_003133]
A_24_P918266	0.001065529	down	-1.9834021	TMTC3	Homo sapiens transmembrane and tetratricopeptide repeat containing 3 (TMTC3), mRNA [NM_181783]
A_23_P23855	9.70E-04	down	-1.6302295	POLR3GL	Homo sapiens polymerase (RNA) III (DNA directed) polypeptide G (32kD)-like (POLR3GL), mRNA [NM_032305]
A_24_P309360	2.66E-04	down	-1.7628549	TM9SF3	Homo sapiens transmembrane 9 superfamily member 3 (TM9SF3), mRNA [NM_020123]
A_23_P154330	2.68E-04	down	-1.6849104	TXNDC9	Homo sapiens thioredoxin domain containing 9 (TXNDC9), mRNA [NM_005783]
A_33_P3311618	0.001491859	down	-1.6770731	RABGGTB	Homo sapiens Rab geranylgeranyltransferase, beta subunit (RABGGTB), transcript variant 1, mRNA [NM_004582]
A_32_P52911	1.94E-04	down	-1.9459783	ADI1	Homo sapiens acireductone dioxygenase 1 (ADI1), mRNA [NM_018269]
A_21_P0000091	0.013550137	down	-1.6712642	LRRC34	Homo sapiens leucine rich repeat containing 34 (LRRC34), transcript variant 1, mRNA [NM_001172780]
A_24_P416411	2.51E-04	down	-1.8159502	PEX12	Homo sapiens peroxisomal biogenesis factor 12 (PEX12), mRNA [NM_000286]
A_24_P113287	0.012081434	down	-1.8093921	ZNF229	Homo sapiens zinc finger protein 229 (ZNF229), transcript variant 1, mRNA [NM_014518]
A_23_P53646	0.001354187	down	-1.6256263	NAP1L1	Homo sapiens nucleosome assembly protein 1-like 1 (NAP1L1), transcript variant 1, mRNA [NM_139207]
A_24_P944741	0.019895902	down	-1.7435197	LRP2BP	Homo sapiens LRP2 binding protein (LRP2BP), mRNA [NM_018409]
A_24_P181101	1.03E-04	down	-2.0921462	TMEM135	Homo sapiens transmembrane protein 135 (TMEM135), transcript variant 1, mRNA [NM_022918]
A_23_P145463	0.014355845	down	-1.5904458	SLC35B3	Homo sapiens solute carrier family 35 (adenosine 3'-phospho 5'-phosphosulfate transporter), member B3 (SLC35B3), transcript variant 1, mRNA [NM_015948]
A_33_P3371819	0.018862467	down	-1.9923682	PTCD2	Homo sapiens pentatricopeptide repeat domain 2 (PTCD2), transcript variant 1, mRNA [NM_024754]
A_23_P388921	0.01871502	down	-1.6834362	CCER1	coiled-coil glutamate-rich protein 1 [Source:HGNC Symbol;Acc:HGNC:28373] [ENST00000358859]
A_23_P69720	5.44E-04	down	-1.8154719	ANXA5	Homo sapiens annexin A5 (ANXA5), mRNA [NM_001154]
A_24_P137376	0.004196285	down	-1.8094486	ATP2C1	Homo sapiens ATPase, Ca++ transporting, type 2C, member 1 (ATP2C1), transcript variant 3, mRNA [NM_001001485]
A_24_P200162	1.32E-04	down	-1.916072	HIGD1A	Homo sapiens HIG1 hypoxia inducible domain family, member 1A (HIGD1A), transcript variant 3, mRNA [NM_014056]
A_33_P3343120	0.001394393	down	-1.7896347	IRF8	Homo sapiens interferon regulatory factor 8 (IRF8), mRNA [NM_002163]
A_23_P368645	0.001480133	down	-1.8198333	AGPS	Homo sapiens alkylglycerone phosphate synthase (AGPS), mRNA [NM_003659]
A_23_P88095	0.006173141	down	-1.7420225	TBC1D4	Homo sapiens TBC1 domain family, member 4 (TBC1D4), transcript variant 1, mRNA [NM_014832]

A_33_P3327270	0.001568281	down	-1.6169441	TMED7-TICAM2	Homo sapiens TMED7-TICAM2 readthrough (TMED7-TICAM2), transcript variant 2, mRNA [NM_001164469]
A_23_P334883	0.011817466	down	-2.842419	SHANK2	Homo sapiens SH3 and multiple ankyrin repeat domains 2 (SHANK2), transcript variant 1, mRNA [NM_012309]
A_23_P149121	0.048218876	down	-1.5737172	DIRAS3	Homo sapiens DIRAS family, GTP-binding RAS-like 3 (DIRAS3), mRNA [NM_004675]
A_33_P3772996	0.010480296	down	-1.7397814	PRKACB	Homo sapiens protein kinase, cAMP-dependent, catalytic, beta (PRKACB), transcript variant 7, mRNA [NM_001242860]
A_33_P3255914	4.66E-05	down	-2.1154776	MYLIP	Homo sapiens myosin regulatory light chain interacting protein (MYLIP), mRNA [NM_013262]
A_33_P3414907	0.015238641	down	-1.7383487	NPL	Homo sapiens N-acetylneuraminate pyruvate lyase (dihydrodipicolinate synthase) (NPL), transcript variant 2, mRNA [NM_001200050]
A_33_P3395274	6.78E-04	down	-1.7369533	ZADH2	Homo sapiens zinc binding alcohol dehydrogenase domain containing 2 (ZADH2), mRNA [NM_175907]
A_23_P392126	0.026995996	down	-1.5451139	LYRM9	Homo sapiens LYR motif containing 9 (LYRM9), mRNA [NM_001076680]
A_24_P396720	8.29E-05	down	-1.9813288	PPP1CB	Homo sapiens protein phosphatase 1, catalytic subunit, beta isozyme (PPP1CB), transcript variant 1, mRNA [NM_002709]
A_33_P3252093	0.001504833	down	-1.762431	TMED10	Homo sapiens transmembrane emp24-like trafficking protein 10 (yeast) (TMED10), mRNA [NM_006827]
A_33_P3243364	0.013901285	down	-1.622961	ERCC4	Homo sapiens excision repair cross-complementation group 4 (ERCC4), mRNA [NM_005236]
A_33_P3244669	2.45E-05	down	-2.1290874	TMEM30A	Homo sapiens transmembrane protein 30A (TMEM30A), transcript variant 1, mRNA [NM_018247]
A_24_P334300	0.005455842	down	-2.7330756	FGF12	Homo sapiens fibroblast growth factor 12 (FGF12), transcript variant 2, mRNA [NM_004113]
A_23_P106898	0.004807406	down	-1.75193	ORAI3	Homo sapiens ORAI calcium release-activated calcium modulator 3 (ORAI3), mRNA [NM_152288]
A_23_P166616	0.009701025	down	-1.8347795	AGTR1	Homo sapiens angiotensin II receptor, type 1 (AGTR1), transcript variant 4, mRNA [NM_031850]
A_24_P156490	0.019380102	down	-2.007767	KCNMA1	Homo sapiens potassium channel, calcium activated large conductance subfamily M alpha, member 1 (KCNMA1), transcript variant 2, mRNA [NM_002247]
A_23_P313512	0.001093088	down	-1.7668579	DCP1B	Homo sapiens decapping mRNA 1B (DCP1B), mRNA [NM_152640]
A_23_P153098	1.50E-04	down	-1.7854933	HDHD2	Homo sapiens haloacid dehalogenase-like hydrolase domain containing 2 (HDHD2), mRNA [NM_032124]
A_24_P854913	0.024775796	down	-1.5862814	METTL21A	Homo sapiens methyltransferase like 21A (METTL21A), transcript variant 2, mRNA [NM_001127395]
A_24_P323598	0.001752534	down	-2.270044	ESCO2	Homo sapiens establishment of sister chromatid cohesion N-acetyltransferase 2 (ESCO2), mRNA [NM_001017420]
A_24_P233915	0.001971902	down	-1.6266961	MED8	Homo sapiens mediator complex subunit 8 (MED8), transcript variant 4, mRNA [NM_001001653]
A_23_P208009	1.37E-04	down	-1.7581416	SEC11C	Homo sapiens SEC11 homolog C (S. cerevisiae) (SEC11C), mRNA [NM_033280]
A_33_P3373955	0.028301038	down	-1.6150042	RD3	Homo sapiens retinal degeneration 3 (RD3), transcript variant 1, mRNA [NM_183059]
A_24_P372625	0.00159502	down	-1.6508278	RNF141	Homo sapiens ring finger protein 141 (RNF141), mRNA [NM_016422]
A_23_P408455	3.82E-04	down	-1.7518076	SLC25A36	Homo sapiens solute carrier family 25 (pyrimidine nucleotide carrier), member 36 (SLC25A36), transcript variant 1, mRNA [NM_001104647]
A_23_P386450	0.002007057	down	-1.5896257	POLK	Homo sapiens polymerase (DNA directed) kappa (POLK), mRNA [NM_016218]
A_23_P65230	0.001213621	down	-2.045357	TMTC4	Homo sapiens transmembrane and tetratricopeptide repeat containing 4 (TMTC4), transcript variant 1, mRNA [NM_032813]
A_33_P3405995	0.02412573	down	-1.9018755	YBEY	Homo sapiens ybeY metallopeptidase (putative) (YBEY), transcript variant 1, mRNA [NM_058181]
A_24_P190877	0.001998854	down	-1.6751424	TRMT1L	Homo sapiens tRNA methyltransferase 1 homolog (S. cerevisiae)-like (TRMT1L), transcript variant 1, mRNA [NM_030934]
A_33_P6517036	0.022413978	down	-1.6745641	CDH13	cadherin 13 [Source:HGNC Symbol;Acc:HGNC:1753] [ENST00000567109]
A_33_P3394075	0.001091679	down	-1.7009506	RIT1	Homo sapiens Ras-like without CAAX 1 (RIT1), transcript variant 2, mRNA [NM_006912]
A_33_P3362770	0.017374944	down	-1.6628108	RRN3	Homo sapiens RRN3 RNA polymerase I transcription factor homolog (S. cerevisiae) (RRN3), transcript variant 2, mRNA [NM_001301064]
A_23_P213754	6.78E-05	down	-2.0034142	PAIP2	Homo sapiens poly(A) binding protein interacting protein 2 (PAIP2), transcript variant 1, mRNA [NM_001033112]
A_23_P408271	3.87E-05	down	-2.1628964	HSD17B11	Homo sapiens hydroxysteroid (17-beta) dehydrogenase 11 (HSD17B11), mRNA [NM_016245]
A_23_P61569	2.08E-04	down	-1.972191	VAMP4	Homo sapiens vesicle-associated membrane protein 4 (VAMP4), transcript variant 1, mRNA [NM_003762]
A_33_P3424257	7.12E-04	down	-1.6409888	NAA50	Homo sapiens N(alpha)-acetyltransferase 50, NatE catalytic subunit (NAA50), mRNA [NM_025146]
A_23_P17074	0.001913787	down	-1.5608116	CCDC115	Homo sapiens coiled-coil domain containing 115 (CCDC115), transcript variant 1, mRNA [NM_032357]
A_33_P3364112	0.001915284	down	-1.601637	FRS2	Homo sapiens fibroblast growth factor receptor substrate 2 (FRS2), transcript variant 3, mRNA [NM_001278351]
A_23_P152804	0.00252577	down	-1.5966052	NME1	Homo sapiens NME/NM23 nucleoside diphosphate kinase 1 (NME1), transcript variant 1, mRNA [NM_198175]
A_33_P3370109	0.002004492	down	-1.5894111	IMPA1	Homo sapiens inositol(myo)-1(or 4)-monophosphatase 1 (IMPA1), transcript variant 3, mRNA [NM_001144879]
A_24_P317874	0.001381613	down	-1.6264503	KIN	Homo sapiens Kin17 DNA and RNA binding protein (KIN), transcript variant 1, mRNA [NM_012311]
A_24_P284353	0.005959383	down	-1.5555987	TMEM107	Homo sapiens transmembrane protein 107 (TMEM107), transcript variant 1, mRNA [NM_032354]
A_23_P113283	0.001353781	down	-2.0987318	ZMAT3	Homo sapiens zinc finger, matrin-type 3 (ZMAT3), transcript variant 1, mRNA [NM_022470]
A_23_P29046	6.67E-04	down	-1.7724023	CBR1	Homo sapiens carbonyl reductase 1 (CBR1), transcript variant 1, mRNA [NM_001757]
A_23_P2825	0.006247805	down	-1.7115407	KLHL1	Homo sapiens kelch-like family member 1 (KLHL1), transcript variant 1, mRNA [NM_020866]

A_24_P341222	0.001828919	down	-1.7849275	SMIM20	Homo sapiens small integral membrane protein 20 (SMIM20), mRNA [NM_001145432]
A_23_P117163	0.001518157	down	-1.8767238	RCBTB1	Homo sapiens regulator of chromosome condensation (RCC1) and BTB (POZ) domain containing protein 1 (RCBTB1), mRNA [NM_018191]
A_19_P00808208	0.010616461	down	-1.7316656	CDCA7L	Homo sapiens cell division cycle associated 7-like (CDCA7L), transcript variant 2, mRNA [NM_001127370]
A_23_P433111	2.46E-04	down	-1.869682	SETD9	Homo sapiens SET domain containing 9 (SETD9), transcript variant 1, mRNA [NM_153706]
A_23_P391228	0.001205316	down	-1.7078615	MANEAL	Homo sapiens mannosidase, endo-alpha-like (MANEAL), transcript variant 1, mRNA [NM_001031740]
A_23_P216708	4.57E-04	down	-1.8897929	RFK	Homo sapiens riboflavin kinase (RFK), mRNA [NM_018339]
A_24_P50818	0.028765548	down	-1.574374	GTF3C3	Homo sapiens general transcription factor IIIC, polypeptide 3, 102kDa (GTF3C3), transcript variant 2, mRNA [NM_001206774]
A_23_P397019	1.33E-04	down	-1.8464932	DNAJC25	Homo sapiens DnaJ (Hsp40) homolog, subfamily C , member 25 (DNAJC25), transcript variant 1, mRNA [NM_001015882]
A_33_P3764802	0.001394787	down	-1.6666409	SIRT5	Homo sapiens sirtuin 5 (SIRT5), transcript variant 1, mRNA [NM_012241]
A_23_P213840	1.09E-05	down	-2.108536	ATP6V0E1	Homo sapiens ATPase, H+ transporting, lysosomal 9kDa, V0 subunit e1 (ATP6V0E1), mRNA [NM_003945]
A_33_P3296303	4.56E-04	down	-1.7893033	CHMP5	Homo sapiens charged multivesicular body protein 5 (CHMP5), transcript variant 1, mRNA [NM_016410]
A_33_P3691916	0.005721179	down	-1.8983614	FAM13A	Homo sapiens family with sequence similarity 13, member A (FAM13A), transcript variant 1, mRNA [NM_014883]
A_23_P34307	1.52E-04	down	-2.0624316	PIGK	Homo sapiens phosphatidylinositol glycan anchor biosynthesis, class K (PIGK), mRNA [NM_005482]
A_33_P3384543	0.003882607	down	-1.5699551	POMGNT1	Homo sapiens protein O-linked mannose N-acetylglucosaminyltransferase 1 (beta 1,2-) (POMGNT1), transcript variant 2, mRNA [NM_001243766]
A_33_P3331346	0.005129295	down	-1.6266036	TRIM65	Homo sapiens tripartite motif containing 65 (TRIM65), transcript variant 1, mRNA [NM_173547]
A_24_P497186	5.78E-06	down	-2.4822116	IRF2BP2	Homo sapiens interferon regulatory factor 2 binding protein 2 (IRF2BP2), transcript variant 1, mRNA [NM_182972]
A_23_P210348	8.02E-05	down	-2.0516403	COX7A2L	Homo sapiens cytochrome c oxidase subunit VIIa polypeptide 2 like (COX7A2L), mRNA [NM_004718]
A_33_P3383331	1.75E-04	down	-1.8127848	SLC35A3	Homo sapiens solute carrier family 35 (UDP-N-acetylglucosamine (UDP-GlcNAc) transporter), member A3 (SLC35A3), transcript variant 1, mRNA [NM_012243]
A_23_P135499	0.001350839	down	-1.9780691	CLIC4	Homo sapiens chloride intracellular channel 4 (CLIC4), mRNA [NM_013943]
A_33_P3308586	0.028233357	down	-1.5284711	DUXA	Homo sapiens double homeobox A (DUXA), mRNA [NM_001012729]
A_33_P3352103	0.001355397	down	-1.7046136	LYPLAL1	Homo sapiens lysophospholipase-like 1 (LYPLAL1), transcript variant 1, mRNA [NM_138794]
A_23_P34460	8.89E-04	down	-1.7038609	SLC35A3	Homo sapiens solute carrier family 35 (UDP-N-acetylglucosamine (UDP-GlcNAc) transporter), member A3 (SLC35A3), transcript variant 1, mRNA [NM_012243]
A_24_P64393	0.003683305	down	-1.8746606	MARCH5	Homo sapiens membrane-associated ring finger (C3HC4) 5 (MARCH5), mRNA [NM_017824]
A_23_P380917	2.18E-04	down	-1.731629	SEC11A	Homo sapiens SEC11 homolog A (S. cerevisiae) (SEC11A), transcript variant 2, mRNA [NM_014300]
A_32_P9842	0.00172932	down	-1.6032037	MTMR14	Homo sapiens myotubularin related protein 14 (MTMR14), transcript variant 1, mRNA [NM_001077526]
A_24_P29733	0.003101886	down	-1.6105455	CDK14	Homo sapiens cyclin-dependent kinase 14 (CDK14), transcript variant 2, mRNA [NM_012395]
A_33_P3367247	1.93E-05	down	-1.9509395	CNTLN	Homo sapiens centlein, centrosomal protein (CNTLN), transcript variant 2, mRNA [NM_001114395]
A_33_P3352822	0.009747215	down	-1.533907	ZNF547	zinc finger protein 547 [Source:HGNC Symbol;Acc:HGNC:26432] [ENST00000282282]
A_23_P11598	3.84E-05	down	-2.0468838	ZNF684	Homo sapiens zinc finger protein 684 (ZNF684), mRNA [NM_152373]
A_32_P131640	0.007988608	down	-1.5758662	SLITRK4	Homo sapiens SLIT and NTRK-like family, member 4 (SLITRK4), transcript variant 2, mRNA [NM_173078]
A_19_P00813077	0.019849852	down	-1.6647884	FAM228B	Homo sapiens family with sequence similarity 228, member B (FAM228B), transcript variant 1, mRNA [NM_001145710]
A_24_P386771	7.96E-04	down	-1.9142342	PPP1CC	Homo sapiens protein phosphatase 1, catalytic subunit, gamma isozyme (PPP1CC), transcript variant 1, mRNA [NM_002710]
A_23_P254756	2.14E-04	down	-2.0911782	CD164	Homo sapiens CD164 molecule, sialomucin (CD164), transcript variant 1, mRNA [NM_006016]
A_24_P383356	0.012089529	down	-1.7893997	SLC39A14	Homo sapiens solute carrier family 39 (zinc transporter), member 14 (SLC39A14), transcript variant 2, mRNA [NM_015359]
A_23_P95050	1.09E-04	down	-1.8302252	ARFIP1	Homo sapiens ADP-ribosylation factor interacting protein 1 (ARFIP1), transcript variant 1, mRNA [NM_001025595]
A_23_P7282	3.88E-04	down	-2.0941825	ELMOD2	Homo sapiens ELMO/CED-12 domain containing 2 (ELMOD2), mRNA [NM_153702]
A_23_P500956	9.60E-04	down	-2.2596512	B3GNT2	Homo sapiens UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 2 (B3GNT2), mRNA [NM_006577]
A_33_P3354683	4.08E-04	down	-1.7514489	PIGS	Homo sapiens phosphatidylinositol glycan anchor biosynthesis, class S (PIGS), mRNA [NM_033198]
A_23_P202594	5.08E-04	down	-1.6396537	MCMBP	Homo sapiens minichromosome maintenance complex binding protein (MCMBP), transcript variant 1, mRNA [NM_024834]
A_23_P256473	8.99E-04	down	-2.4724948	SEMA3C	Homo sapiens sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3C (SEMA3C), mRNA [NM_006379]
A_24_P106624	0.02940276	down	-1.6967728	MEOX2	Homo sapiens mesenchyme homeobox 2 (MEOX2), mRNA [NM_005924]
A_24_P20200	3.30E-04	down	-1.6833761	PLEKHB2	Homo sapiens pleckstrin homology domain containing, family B (evectins) member 2 (PLEKHB2), transcript variant 8, mRNA [NM_001267066]
A_32_P188860	2.67E-04	down	-2.6958294	IL17RD	Homo sapiens interleukin 17 receptor D (IL17RD), mRNA [NM_017563]
A_23_P367628	0.01877487	down	-1.5776725	C2CD5	Homo sapiens C2 calcium-dependent domain containing 5 (C2CD5), transcript variant 6, mRNA [NM_014802]
A_33_P3360823	7.69E-04	down	-1.6797562	C10orf88	Homo sapiens chromosome 10 open reading frame 88 (C10orf88), mRNA [NM_024942]

A_32_P157481	9.19E-04	down	-1.8339528	ERCC4	Homo sapiens excision repair cross-complementation group 4 (ERCC4), mRNA [NM_005236]
A_33_P3305840	4.77E-04	down	-1.7497599	SRSF7	Homo sapiens serine/arginine-rich splicing factor 7 (SRSF7), transcript variant 2, mRNA [NM_001195446]
A_24_P343255	0.005786987	down	-1.6251799	KLHDC3	Homo sapiens kelch domain containing 3 (KLHDC3), transcript variant 1, mRNA [NM_057161]
A_24_P76666	0.003914672	down	-1.5541993	CSNK2A1	Homo sapiens casein kinase 2, alpha 1 polypeptide (CSNK2A1), transcript variant 1, mRNA [NM_177559]
A_24_P205252	0.007056078	down	-1.9055302	FAM13C	Homo sapiens family with sequence similarity 13, member C (FAM13C), transcript variant 2, mRNA [NM_001001971]
A_33_P3256347	0.006460064	down	-1.6695892	TIMM8B	Homo sapiens translocase of inner mitochondrial membrane 8 homolog B (yeast) (TIMM8B), transcript variant 1, mRNA [NM_012459]
A_32_P136402	1.83E-04	down	-1.8485123	THOC7	Homo sapiens THO complex 7 homolog (Drosophila) (THOC7), transcript variant 1, mRNA [NM_025075]
A_23_P25503	0.002404763	down	-1.7025158	FNDC3A	Homo sapiens fibronectin type III domain containing 3A (FNDC3A), transcript variant 1, mRNA [NM_001079673]
A_23_P206396	9.23E-04	down	-1.6616987	CKLF	Homo sapiens chemokine-like factor (CKLF), transcript variant 5, mRNA [NM_001040138]
A_23_P215778	6.77E-04	down	-1.6722727	DUS4L	Homo sapiens dihydrouridine synthase 4-like (S. cerevisiae) (DUS4L), transcript variant 1, mRNA [NM_181581]
A_24_P71938	0.002625832	down	-1.962533	SMAD1	Homo sapiens SMAD family member 1 (SMAD1), transcript variant 1, mRNA [NM_005900]
A_21_P0000082	4.70E-04	down	-1.705782	LARP4	Homo sapiens La ribonucleoprotein domain family, member 4 (LARP4), transcript variant 2, mRNA [NM_199188]
A_23_P40989	0.002157503	down	-1.6343863	USP13	Homo sapiens ubiquitin specific peptidase 13 (isopeptidase T-3) (USP13), mRNA [NM_003940]
A_23_P202565	1.82E-04	down	-2.3335588	SHOC2	Homo sapiens soc-2 suppressor of clear homolog (C. elegans) (SHOC2), transcript variant 1, mRNA [NM_007373]
A_32_P229132	0.02015422	down	-1.7000505	FMN2	Homo sapiens formin 2 (FMN2), mRNA [NM_020066]
A_23_P156355	4.11E-04	down	-1.7732831	TMEM161B	Homo sapiens transmembrane protein 161B (TMEM161B), transcript variant 2, mRNA [NM_153354]
A_23_P129717	0.009477683	down	-1.6505257	ERI2	Homo sapiens ERI1 exoribonuclease family member 2 (ERI2), transcript variant 2, mRNA [NM_080663]
A_23_P37560	0.009100601	down	-1.5349326	PEX11A	Homo sapiens peroxisomal biogenesis factor 11 alpha (PEX11A), transcript variant 1, mRNA [NM_003847]
A_23_P156907	0.04414691	down	-1.7044303	SOBP	Homo sapiens sine oculis binding protein homolog (Drosophila) (SOBP), mRNA [NM_018013]
A_32_P134209	1.31E-04	down	-2.2488163	ACVR2B	Homo sapiens activin A receptor, type IIB (ACVR2B), mRNA [NM_001106]
A_24_P149124	0.003492135	down	-1.7361398	NREP	Homo sapiens neuronal regeneration related protein (NREP), transcript variant 1, mRNA [NM_004772]
A_22_P00024055	0.036317125	down	-1.8077579	FAM126A	family with sequence similarity 126, member A [Source:HGNC Symbol;Acc:HGNC:24587] [ENST00000421730]
A_23_P5389	0.003473536	down	-1.6191713	DPY30	Homo sapiens dpy-30 homolog (C. elegans) (DPY30), mRNA [NM_032574]
A_23_P66777	3.82E-04	down	-1.6983888	CDC27	Homo sapiens cell division cycle 27 (CDC27), transcript variant 2, mRNA [NM_001256]
A_23_P148297	8.65E-04	down	-1.7881492	SH3BGRL	Homo sapiens SH3 domain binding glutamate-rich protein like (SH3BGRL), mRNA [NM_003022]
A_23_P36985	0.04769705	down	-2.1251566	PCDH8	Homo sapiens protocadherin 8 (PCDH8), transcript variant 1, mRNA [NM_002590]
A_23_P253752	5.85E-04	down	-1.9312012	MTFR2	Homo sapiens mitochondrial fission regulator 2 (MTFR2), transcript variant 2, mRNA [NM_138419]
A_23_P1056	0.003460722	down	-1.5636352	GPR89B	Homo sapiens G protein-coupled receptor 89B (GPR89B), mRNA [NM_016334]
A_23_P342000	9.86E-04	down	-2.6548119	RBM11	Homo sapiens RNA binding motif protein 11 (RBM11), mRNA [NM_144770]
A_24_P387869	0.004783765	down	-1.7786258	PKN2	Homo sapiens protein kinase N2 (PKN2), mRNA [NM_006256]
A_33_P3271323	8.69E-04	down	-1.6330377	RHOQ	Homo sapiens ras homolog family member Q (RHOQ), mRNA [NM_012249]
A_23_P211007	3.55E-04	down	-2.5057235	NRIP1	Homo sapiens nuclear receptor interacting protein 1 (NRIP1), mRNA [NM_003489]
A_23_P39561	4.45E-05	down	-2.0027578	UBE2F	Homo sapiens ubiquitin-conjugating enzyme E2F (putative) (UBE2F), transcript variant 1, mRNA [NM_080678]
A_33_P3237403	6.96E-04	down	-1.6544157	ZNF100	Homo sapiens zinc finger protein 100 (ZNF100), mRNA [NM_173531]
A_23_P14876	0.002927972	down	-1.5876609	SRP14	Homo sapiens signal recognition particle 14kDa (homologous Alu RNA binding protein) (SRP14), transcript variant 1, mRNA [NM_003134]
A_33_P3372237	3.73E-04	down	-2.030137	DCAF13	Homo sapiens DDB1 and CUL4 associated factor 13 (DCAF13), mRNA [NM_015420]
A_22_P00014746	4.78E-04	down	-1.6439911	ORC3	Homo sapiens origin recognition complex, subunit 3 (ORC3), transcript variant 2, mRNA [NM_012381]
A_32_P148796	0.015924966	down	-1.5152858	UBXN2B	Homo sapiens UBX domain protein 2B (UBXN2B), mRNA [NM_001077619]
A_24_P218587	0.004089093	down	-1.5226921	MED17	Homo sapiens mediator complex subunit 17 (MED17), mRNA [NM_004268]
A_23_P411814	1.50E-04	down	-2.2204237	OSTC	Homo sapiens oligosaccharyltransferase complex subunit (non-catalytic) (OSTC), transcript variant 1, mRNA [NM_021227]
A_24_P310894	0.003597163	down	-1.51463	CAPZA1	Homo sapiens capping protein (actin filament) muscle Z-line, alpha 1 (CAPZA1), mRNA [NM_006135]
A_23_P337875	0.029851941	down	-1.5015206	PAQR3	Homo sapiens progestin and adipoQ receptor family member III (PAQR3), mRNA [NM_001040202]
A_33_P3343066	0.019981943	down	-1.7788211	PAX2	Homo sapiens paired box 2 (PAX2), transcript variant c, mRNA [NM_003988]
A_32_P15320	0.00148334	down	-1.5792764	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_33_P3396807	9.87E-04	down	-1.9893057	ATG4C	Homo sapiens autophagy related 4C, cysteine peptidase (ATG4C), transcript variant 1, mRNA [NM_032852]
A_24_P172768	2.80E-04	down	-1.9212905	GMFB	Homo sapiens glia maturation factor, beta (GMFB), mRNA [NM_004124]
A_24_P321068	0.003043053	down	-1.5857097	SLC31A1	Homo sapiens solute carrier family 31 (copper transporter), member 1 (SLC31A1), mRNA [NM_001859]
A_24_P143189	0.004290002	down	-1.6768589	TMSB4X	Homo sapiens thymosin beta 4, X-linked (TMSB4X), mRNA [NM_021109]

A_33_P3376546	0.019290425	down	-1.7096794	PTGFR	Homo sapiens prostaglandin F receptor (FP) (PTGFR), transcript variant 2, mRNA [NM_001039585]
A_23_P20732	0.003217954	down	-1.5093096	GTF3C4	Homo sapiens general transcription factor IIIC, polypeptide 4, 90kDa (GTF3C4), mRNA [NM_012204]
A_24_P280684	0.03285814	down	-1.7624606	FBXO40	Homo sapiens F-box protein 40 (FBXO40), mRNA [NM_016298]
A_33_P3348288	0.007255319	down	-1.7534945	RHOBTB1	Homo sapiens Rho-related BTB domain containing 1 (RHOBTB1), transcript variant 4, mRNA [NM_001242359]
A_22_P00010860	0.001293637	down	-1.7466143	SEC22B	Homo sapiens SEC22 vesicle trafficking protein homolog B (S. cerevisiae) (gene/pseudogene) (SEC22B), mRNA [NM_004892]
A_32_P108870	0.009712405	down	-1.8473197	PMP2	Homo sapiens peripheral myelin protein 2 (PMP2), mRNA [NM_002677]
A_23_P61280	0.003110947	down	-1.673897	COPG2	Homo sapiens coatomer protein complex, subunit gamma 2 (COPG2), transcript variant 1, mRNA [NM_012133]
A_24_P305570	0.01510685	down	-1.5005257	RIN2	Homo sapiens Ras and Rab interactor 2 (RIN2), transcript variant 2, mRNA [NM_018993]
A_23_P42802	0.007784621	down	-1.9834629	PDIA4	Homo sapiens protein disulfide isomerase family A, member 4 (PDIA4), mRNA [NM_004911]
A_32_P69166	0.019957414	down	-1.5232512	ANKRD42	Homo sapiens ankyrin repeat domain 42 (ANKRD42), transcript variant 4, mRNA [NM_182603]
A_24_P401645	0.002919076	down	-1.5669408	AP4S1	Homo sapiens adaptor-related protein complex 4, sigma 1 subunit (AP4S1), transcript variant 5, mRNA [NM_001254728]
A_33_P3278664	0.020958224	down	-1.8054029	PDLIM5	Homo sapiens PDZ and LIM domain 5 (PDLIM5), transcript variant 4, mRNA [NM_001011515]
A_24_P399942	0.001702754	down	-1.8668516	ATP11C	Homo sapiens ATPase, class VI, type 11C (ATP11C), transcript variant 1, mRNA [NM_173694]
A_23_P361569	9.66E-04	down	-1.723056	SLC35F5	Homo sapiens solute carrier family 35, member F5 (SLC35F5), transcript variant 1, mRNA [NM_025181]
A_32_P87568	0.011359899	down	-1.82944	ENAH	Homo sapiens enabled homolog (Drosophila) (ENAH), transcript variant 1, mRNA [NM_001008493]
A_33_P3390739	0.001051511	down	-1.6348126	ST13	Homo sapiens suppression of tumorigenicity 13 (colon carcinoma) (Hsp70 interacting protein) (ST13), transcript variant 1, mRNA [NM_003932]
A_23_P313389	0.00156574	down	-1.6601971	UGCG	Homo sapiens UDP-glucose ceramide glucosyltransferase (UGCG), mRNA [NM_003358]
A_24_P56240	3.51E-05	down	-2.3049533	CPNE8	Homo sapiens copine VIII (CPNE8), mRNA [NM_153634]
A_24_P268893	1.42E-04	down	-1.7673473	THAP6	Homo sapiens THAP domain containing 6 (THAP6), mRNA [NM_144721]
A_24_P185986	0.001327338	down	-1.5979077	UPRT	Homo sapiens uracil phosphoribosyltransferase (FUR1) homolog (S. cerevisiae) (UPRT), transcript variant 1, mRNA [NM_145052]
A_23_P202501	0.003813014	down	-1.6895603	RNLS	Homo sapiens renalase, FAD-dependent amine oxidase (RNLS), transcript variant 1, mRNA [NM_001031709]
A_24_P374634	0.004193443	down	-1.5754315	STAU2	Homo sapiens staufen double-stranded RNA binding protein 2 (STAU2), transcript variant 1, mRNA [NM_001164380]
A_32_P16854	4.21E-04	down	-1.9005301	ANAPC13	Homo sapiens anaphase promoting complex subunit 13 (ANAPC13), transcript variant 1, mRNA [NM_015391]
A_24_P336848	0.001059087	down	-1.8213383	ACYP2	Homo sapiens acylphosphatase 2, muscle type (ACYP2), mRNA [NM_138448]
A_23_P97700	4.43E-04	down	-2.1376214	TXNIP	Homo sapiens thioredoxin interacting protein (TXNIP), mRNA [NM_006472]
A_32_P148672	0.001095258	down	-1.6103512	SNRPD1	Homo sapiens small nuclear ribonucleoprotein D1 polypeptide 16kDa (SNRPD1), transcript variant 1, mRNA [NM_006938]
A_23_P25073	6.77E-04	down	-1.7791601	MRPS35	Homo sapiens mitochondrial ribosomal protein S35 (MRPS35), transcript variant 1, mRNA [NM_021821]
A_33_P3230658	0.015488293	down	-1.6184993	TSNAX	Homo sapiens translin-associated factor X (TSNAX), mRNA [NM_005999]
A_23_P426021	0.003143756	down	-1.6790211	SEL1L3	Homo sapiens sel-1 suppressor of lin-12-like 3 (C. elegans) (SEL1L3), transcript variant 1, mRNA [NM_015187]
A_33_P3412095	0.006397964	down	-1.7758703	PEX7	Homo sapiens peroxisomal biogenesis factor 7 (PEX7), mRNA [NM_000288]
A_24_P941557	0.03094109	down	-1.8845837	MVB12B	Homo sapiens multivesicular body subunit 12B (MVB12B), transcript variant 2, mRNA [NM_001011703]
A_24_P639505	5.82E-04	down	-1.8123168	STX6	Homo sapiens syntaxin 6 (STX6), transcript variant 1, mRNA [NM_005819]
A_32_P515088	0.010752392	down	-1.5047975	KDSR	Homo sapiens 3-ketodihydrosphingosine reductase (KDSR), mRNA [NM_002035]
A_24_P366526	0.001319003	down	-1.7023845	SYNGR2	Homo sapiens synaptogyrin 2, mRNA (cDNA clone MGC:102914 IMAGE:4746277), complete cds. [BC105992]
A_24_P88800	1.48E-04	down	-2.1351974	COX7A2L	Homo sapiens cytochrome c oxidase subunit VIIa polypeptide 2 like (COX7A2L), mRNA [NM_004718]
A_32_P18547	0.001683982	down	-2.280407	YBEY	Homo sapiens ybeY metallopeptidase (putative) (YBEY), transcript variant 1, mRNA [NM_058181]
A_33_P3371055	0.001585499	down	-1.5332575	RAB1A	Homo sapiens RAB1A, member RAS oncogene family (RAB1A), transcript variant 1, mRNA [NM_004161]
A_23_P205611	9.51E-04	down	-1.8102008	GMFB	Homo sapiens glia maturation factor, beta (GMFB), mRNA [NM_004124]
A_23_P373054	0.004705644	down	-1.6636078	TCAIM	Homo sapiens T cell activation inhibitor, mitochondrial (TCAIM), transcript variant 1, mRNA [NM_173826]
A_23_P424080	1.49E-04	down	-2.1874216	YIPF4	Homo sapiens Yip1 domain family, member 4 (YIPF4), mRNA [NM_032312]
A_32_P117170	1.70E-04	down	-2.0200002	NAPEPLD	Homo sapiens N-acyl phosphatidylethanolamine phospholipase D (NAPEPLD), transcript variant 1, mRNA [NM_001122838]
A_33_P3360942	0.001401744	down	-1.8754101	SCAMP1	Homo sapiens secretory carrier membrane protein 1 (SCAMP1), transcript variant 1, mRNA [NM_004866]
A_33_P3411296	0.007447466	down	-1.6696577	PURA	Homo sapiens purine-rich element binding protein A (PURA), mRNA [NM_005859]
A_32_P181222	0.041754752	down	-1.8843414	KCNMA1	Homo sapiens potassium channel, calcium activated large conductance subfamily M alpha, member 1 (KCNMA1), transcript variant 2, mRNA [NM_002247]
A_23_P65217	5.52E-04	down	-2.432639	TGDS	Homo sapiens TDP-glucose 4,6-dehydratase (TGDS), mRNA [NM_014305]
A_23_P72117	0.001008616	down	-2.3955064	SMPDL3A	Homo sapiens sphingomyelin phosphodiesterase, acid-like 3A (SMPDL3A), transcript variant 1, mRNA [NM_006714]
A_23_P48295	0.005418636	down	-1.6269993	CDADC1	Homo sapiens cytidine and dCMP deaminase domain containing 1 (CDADC1), transcript variant 1, mRNA [NM_030911]
A_33_P3295578	1.31E-04	down	-2.171259	TCEAL8	Homo sapiens transcription elongation factor A (SII)-like 8 (TCEAL8), transcript variant 1, mRNA [NM_153333]
A_33_P3401428	1.21E-04	down	-2.0722916	TMEM38B	Homo sapiens transmembrane protein 38B (TMEM38B), mRNA [NM_018112]

A_23_P90911	5.41E-04	down	-1.6712377	RDH14	Homo sapiens retinol dehydrogenase 14 (all-trans/9-cis/11-cis) (RDH14), mRNA [NM_020905]
A_24_P71904	0.003517939	down	-1.8131732	HPGD	Homo sapiens hydroxyprostaglandin dehydrogenase 15-(NAD) (HPGD), transcript variant 1, mRNA [NM_000860]
A_33_P3347343	0.001076808	down	-2.1363282	CCDC102B	Homo sapiens coiled-coil domain containing 102B (CCDC102B), transcript variant 1, mRNA [NM_001093729]
A_23_P121825	8.05E-04	down	-1.7496064	TRAPPC13	Homo sapiens trafficking protein particle complex 13 (TRAPPC13), transcript variant 2, mRNA [NM_024941]
A_32_P92505	8.07E-04	down	-1.7843529	LCLAT1	Homo sapiens lysocardiolipin acyltransferase 1 (LCLAT1), transcript variant 1, mRNA [NM_182551]
A_23_P120237	0.005330632	down	-1.5828903	STARD7	Homo sapiens StAR-related lipid transfer (START) domain containing 7 (STARD7), mRNA [NM_020151]
A_24_P303594	2.89E-04	down	-1.9920701	ACTR3B	Homo sapiens ARP3 actin-related protein 3 homolog B (yeast) (ACTR3B), transcript variant 2, mRNA [NM_001040135]
A_23_P64129	6.14E-05	down	-1.8892105	HTATIP2	Homo sapiens HIV-1 Tat interactive protein 2, 30kDa (HTATIP2), transcript variant 2, mRNA [NM_006410]
A_33_P3661631	8.20E-04	down	-1.7659211	PCBD2	Homo sapiens pterin-4 alpha-carbinolamine dehydratase/dimerization cofactor of hepatocyte nuclear factor 1 alpha (TCF1) 2 (PCBD2), mRNA [NM_032151]
A_23_P9402	0.00965714	down	-1.8104725	CNTFR	Homo sapiens ciliary neurotrophic factor receptor (CNTFR), transcript variant 1, mRNA [NM_147164]
A_23_P103131	0.002947945	down	-1.6234128	MIEF1	Homo sapiens mitochondrial elongation factor 1 (MIEF1), mRNA [NM_019008]
A_24_P347378	0.002863775	down	-1.6730016	ALOX5AP	Homo sapiens arachidonate 5-lipoxygenase-activating protein (ALOX5AP), transcript variant 1, mRNA [NM_001629]
A_33_P3284463	3.15E-04	down	-1.6771135	ASAH1	Homo sapiens N-acylsphingosine amidohydrolase (acid ceramidase) 1 (ASAH1), transcript variant 1, mRNA [NM_177924]
A_33_P3327657	0.010565106	down	-1.8582983	SUSD4	sushi domain containing 4 [Source:HGNC Symbol;Acc:HGNC:25470] [ENST00000342943]
A_23_P356565	0.002348326	down	-1.5429004	RRP8	Homo sapiens ribosomal RNA processing 8, methyltransferase, homolog (yeast) (RRP8), mRNA [NM_015324]
A_23_P6980	0.007485007	down	-1.6498977	ZNF717	Homo sapiens zinc finger protein 717 (ZNF717), transcript variant 4, mRNA [NM_001290210]
A_23_P259451	7.18E-04	down	-1.7194617	LSM6	Homo sapiens LSM6 homolog, U6 small nuclear RNA associated (S. cerevisiae) (LSM6), mRNA [NM_007080]
A_33_P3327108	4.10E-04	down	-1.7509899	NLK	Homo sapiens nemo-like kinase (NLK), mRNA [NM_016231]
A_23_P86838	4.25E-05	down	-1.9321874	SLC36A4	Homo sapiens solute carrier family 36 (proton/amino acid symporter), member 4 (SLC36A4), transcript variant 1, mRNA [NM_152313]
A_33_P3318092	0.03529325	down	-1.9662795	PPP1R3A	Homo sapiens protein phosphatase 1, regulatory subunit 3A (PPP1R3A), mRNA [NM_002711]
A_24_P398691	0.001599716	down	-1.9418695	ABHD13	Homo sapiens abhydrolase domain containing 13 (ABHD13), mRNA [NM_032859]
A_32_P117313	4.10E-04	down	-1.9664416	TRIQK	Homo sapiens triple QxxK/R motif containing (TRIQK), transcript variant 1, mRNA [NM_001171796]
A_23_P95594	0.00241868	down	-1.5309469	NAT1	Homo sapiens N-acetyltransferase 1 (arylamine N-acetyltransferase) (NAT1), transcript variant 5, mRNA [NM_000662]
A_24_P286898	3.76E-04	down	-1.8174169	MAPK8	Homo sapiens mitogen-activated protein kinase 8 (MAPK8), transcript variant JNK1-b2, mRNA [NM_001278547]
A_23_P422851	0.001130739	down	-2.083238	CABLES1	Homo sapiens Cdk5 and Abl enzyme substrate 1 (CABLES1), transcript variant 1, mRNA [NM_138375]
A_33_P3235053	0.03484775	down	-1.5680453	TRIM47	Homo sapiens tripartite motif containing 47 (TRIM47), mRNA [NM_033452]
A_23_P7732	7.62E-04	down	-1.8040197	CETN3	Homo sapiens centrin, EF-hand protein, 3 (CETN3), transcript variant 2, mRNA [NM_004365]
A_23_P14734	0.001454877	down	-1.7018162	RPS27L	Homo sapiens ribosomal protein S27-like (RPS27L), mRNA [NM_015920]
A_23_P47292	0.007111504	down	-1.9550035	MMP20	Homo sapiens matrix metallopeptidase 20 (MMP20), mRNA [NM_004771]
A_33_P3388948	0.001734825	down	-1.690412	SNX30	Homo sapiens sorting nexin family member 30 (SNX30), mRNA [NM_001012994]
A_24_P64918	0.005869858	down	-1.5517263	ZBTB1	Homo sapiens zinc finger and BTB domain containing 1 (ZBTB1), transcript variant 2, mRNA [NM_014950]
A_23_P62659	0.002460965	down	-1.6891221	PPT1	Homo sapiens palmitoyl-protein thioesterase 1 (PPT1), transcript variant 1, mRNA [NM_000310]
A_33_P3353295	0.015300003	down	-1.7737309	PHOX2A	Homo sapiens paired-like homeobox 2a (PHOX2A), mRNA [NM_005169]
A_23_P42514	0.005222766	down	-1.6120778	C6orf62	Homo sapiens chromosome 6 open reading frame 62 (C6orf62), mRNA [NM_030939]
A_23_P344853	0.007010942	down	-1.5420911	WDR43	Homo sapiens WD repeat domain 43 (WDR43), mRNA [NM_015131]
A_32_P175539	6.54E-04	down	-1.9516711	RCN2	Homo sapiens reticulocalbin 2, EF-hand calcium binding domain (RCN2), transcript variant 1, mRNA [NM_002902]
A_22_P00007770	0.002564711	down	-2.1095152	SPOPL	Homo sapiens speckle-type POZ protein-like (SPOPL), mRNA [NM_001001664]
A_24_P19810	0.001140884	down	-1.6303401	PPCS	Homo sapiens phosphopantothenoylcysteine synthetase (PPCS), transcript variant 1, mRNA [NM_024664]
A_23_P372925	9.68E-04	down	-1.8475075	CIPC	Homo sapiens CLOCK-interacting pacemaker (CIPC), mRNA [NM_033426]
A_33_P3360728	0.02998128	down	-1.5164709	BLVRB	Homo sapiens biliverdin reductase B (BLVRB), mRNA [NM_000713]
A_22_P00022232	0.002941264	down	-1.5396516	RCL1	Homo sapiens RNA terminal phosphate cyclase-like 1 (RCL1), transcript variant 1, mRNA [NM_005772]
A_33_P3252605	0.00229015	down	-1.9919543	CYP2U1	Homo sapiens cytochrome P450, family 2, subfamily U, polypeptide 1 (CYP2U1), mRNA [NM_183075]
A_23_P102542	0.001808643	down	-1.6499243	AFTPH	Homo sapiens aftiphilin (AFTPH), transcript variant 1, mRNA [NM_203437]
A_24_P140827	1.87E-04	down	-1.9350289	PCMT1	Homo sapiens protein-L-isoaspartate (D-aspartate) O-methyltransferase (PCMT1), transcript variant 1, mRNA [NM_005389]
A_23_P138725	0.011814101	down	-1.5701058	MARVELD1	Homo sapiens MARVEL domain containing 1 (MARVELD1), mRNA [NM_031484]
A_33_P3220381	9.76E-05	down	-1.9951612	TRAPPC13	Homo sapiens trafficking protein particle complex 13 (TRAPPC13), transcript variant 5, mRNA [NM_001243737]
A_33_P3219256	0.001382538	down	-1.7405906	BMPR1A	Homo sapiens bone morphogenetic protein receptor, type IA (BMPR1A), mRNA [NM_004329]
A_23_P60259	9.03E-05	down	-2.1781662	TMEM38B	Homo sapiens transmembrane protein 38B (TMEM38B), mRNA [NM_018112]

A_23_P29924	0.007039052	down	-1.5693129	TMEM128	Homo sapiens transmembrane protein 128 (TMEM128), transcript variant 3, mRNA [NM_032927]
A_33_P3269278	0.005445865	down	-1.7676889	ZNF461	Homo sapiens zinc finger protein 461 (ZNF461), transcript variant 1, mRNA [NM_153257]
A_23_P72968	0.01839304	down	-1.735714	ARHGAP36	Homo sapiens Rho GTPase activating protein 36 (ARHGAP36), transcript variant 1, mRNA [NM_144967]
A_32_P9382	0.001365565	down	-1.7334327	MZT1	Homo sapiens mitotic spindle organizing protein 1 (MZT1), mRNA [NM_001071775]
A_33_P3309804	5.97E-04	down	-2.050244	EID1	Homo sapiens EP300 interacting inhibitor of differentiation 1 (EID1), mRNA [NM_014335]
A_33_P3255766	0.003608309	down	-1.6281413	NIF3L1	Homo sapiens NIF3 NGG1 interacting factor 3-like 1 (S. cerevisiae) (NIF3L1), transcript variant 4, mRNA [NM_001142356]
A_33_P3232458	0.004489453	down	-1.6169965	CLIP4	Homo sapiens CAP-GLY domain containing linker protein family, member 4 (CLIP4), transcript variant 1, mRNA [NM_024692]
A_23_P390621	0.012602697	down	-1.8089666	PACRGL	Homo sapiens PARK2 co-regulated-like (PACRGL), transcript variant 1, mRNA [NM_145048]
A_24_P251534	0.001415565	down	-2.0200567	CTDSPL	Homo sapiens CTD (carboxy-terminal domain, RNA polymerase II, polypeptide A) small phosphatase-like (CTDSPL), transcript variant 1, mRNA [NM_001008392]
A_24_P39101	2.26E-04	down	-1.7269365	KCTD10	Homo sapiens potassium channel tetramerization domain containing 10 (KCTD10), mRNA [NM_031954]
A_23_P13554	0.001114017	down	-1.6970731	ALG8	Homo sapiens ALG8, alpha-1,3-glucosyltransferase (ALG8), transcript variant 2, mRNA [NM_001007027]
A_24_P108291	0.005369727	down	-1.7499481	IMPACT	Homo sapiens impact RWD domain protein (IMPACT), mRNA [NM_018439]
A_23_P259090	6.57E-04	down	-2.518917	NUDT12	Homo sapiens nudix (nucleoside diphosphate linked moiety X)-type motif 12 (NUDT12), transcript variant 1, mRNA [NM_031438]
A_23_P215341	0.002262275	down	-1.6253657	FKBP14	Homo sapiens FK506 binding protein 14, 22 kDa (FKBP14), transcript variant 1, mRNA [NM_017946]
A_23_P165937	0.001658236	down	-1.634659	DSN1	Homo sapiens DSN1, MIS12 kinetochore complex component (DSN1), transcript variant 3, mRNA [NM_024918]
A_33_P3262452	0.008377839	down	-1.5020471	PEX26	Homo sapiens peroxisomal biogenesis factor 26 (PEX26), transcript variant 2, mRNA [NM_001127649]
A_23_P117933	0.001501886	down	-1.6545559	GCSH	Homo sapiens glycine cleavage system protein H (aminomethyl carrier) (GCSH), transcript variant 1, mRNA [NM_004483]
A_23_P385126	0.002717519	down	-1.7449409	DEPDC7	Homo sapiens DEP domain containing 7 (DEPDC7), transcript variant 2, mRNA [NM_139160]
A_24_P414786	0.00177492	down	-1.7838527	CDC40	Homo sapiens cell division cycle 40 (CDC40), mRNA [NM_015891]
A_24_P300483	0.00413924	down	-1.6875272	C7orf25	Homo sapiens chromosome 7 open reading frame 25 (C7orf25), transcript variant 2, mRNA [NM_024054]
A_23_P88201	0.004882769	down	-1.5506709	PPP2R3C	Homo sapiens protein phosphatase 2, regulatory subunit B", gamma (PPP2R3C), mRNA [NM_017917]
A_21_P0011842	3.73E-05	down	-1.9165671	EEF1E1	Homo sapiens eukaryotic translation elongation factor 1 epsilon 1 (EEF1E1), transcript variant 2, mRNA [NM_001135650]
A_33_P3832852	0.006882502	down	-1.5074788	HAUS2	Homo sapiens HAUS augmin-like complex, subunit 2 (HAUS2), transcript variant 1, mRNA [NM_018097]
A_32_P110872	0.002679857	down	-1.7644105	GGACT	Homo sapiens gamma-glutamylamine cyclotransferase (GGACT), transcript variant 1, mRNA [NM_033110]
A_24_P290692	0.018160753	down	-1.7358022	COG6	Homo sapiens component of oligomeric golgi complex 6 (COG6), transcript variant 2, mRNA [NM_001145079]
A_33_P3420530	0.017310496	down	-1.7552056	GAD2	Homo sapiens glutamate decarboxylase 2 (pancreatic islets and brain, 65kDa) (GAD2), transcript variant 2, mRNA [NM_001134366]
A_23_P394448	2.17E-04	down	-2.0721269	DPY19L1	Homo sapiens dpy-19-like 1 (C. elegans) (DPY19L1), mRNA [NM_015283]
A_24_P795594	2.83E-04	down	-2.2834642	ALG9	Homo sapiens ALG9, alpha-1,2-mannosyltransferase (ALG9), transcript variant 3, mRNA [NM_001077691]
A_33_P3236157	3.54E-04	down	-1.8503175	UNG	Homo sapiens uracil-DNA glycosylase (UNG), transcript variant 1, mRNA [NM_003362]
A_24_P337239	0.017941633	down	-1.7544032	FGF5	Homo sapiens fibroblast growth factor 5 (FGF5), transcript variant 1, mRNA [NM_004464]
A_33_P3379268	0.002601189	down	-1.7412462	SCIMP	Homo sapiens SLP adaptor and CSK interacting membrane protein (SCIMP), transcript variant 1, mRNA [NM_207103]
A_24_P942481	0.030297833	down	-1.5840032	GPR180	Homo sapiens G protein-coupled receptor 180 (GPR180), mRNA [NM_180989]
A_33_P3405980	0.015748555	down	-1.7356468	SULT6B1	Homo sapiens sulfotransferase family, cytosolic, 6B, member 1 (SULT6B1), mRNA [NM_001032377]
A_33_P3303449	0.009237544	down	-1.6623312	LEPR	Homo sapiens leptin receptor (LEPR), transcript variant 5, mRNA [NM_001198688]
A_23_P431789	4.40E-04	down	-1.6017084	ARF4	Homo sapiens ADP-ribosylation factor 4 (ARF4), mRNA [NM_001660]
A_24_P398898	1.45E-04	down	-2.162422	MORF4L1	Homo sapiens mortality factor 4 like 1 (MORF4L1), transcript variant 2, mRNA [NM_206839]
A_23_P47377	1.47E-04	down	-1.8088303	HSD17B12	Homo sapiens hydroxysteroid (17-beta) dehydrogenase 12 (HSD17B12), mRNA [NM_016142]
A_24_P260101	0.009311028	down	-1.7814159	MME	Homo sapiens membrane metallo-endopeptidase (MME), transcript variant 2b, mRNA [NM_007289]
A_23_P4474	3.16E-05	down	-2.1758552	IER3IP1	Homo sapiens immediate early response 3 interacting protein 1 (IER3IP1), mRNA [NM_016097]
A_22_P00007309	0.00875768	down	-2.2279367	CDC40	cell division cycle 40 [Source:HGNC Symbol;Acc:HGNC:17350] [ENST00000445340]
A_23_P302634	0.015009652	down	-1.713977	OTOGL	Homo sapiens otogelin-like (OTOGL), mRNA [NM_173591]
A_24_P763243	0.003453483	down	-1.5111316	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_23_P93562	0.011917938	down	-1.7673352	SESN1	Homo sapiens sestrin 1 (SESN1), transcript variant 1, mRNA [NM_014454]
A_33_P3264419	0.001114706	down	-1.6225891	YTHDF3	Homo sapiens YTH N(6)-methyladenosine RNA binding protein 3 (YTHDF3), transcript variant 2, mRNA [NM_001277813]
A_23_P27306	0.009205298	down	-2.5319636	COLEC12	Homo sapiens collectin sub-family member 12 (COLEC12), mRNA [NM_130386]
A_24_P269432	5.22E-04	down	-1.7665817	BET1	Homo sapiens Bet1 golgi vesicular membrane trafficking protein (BET1), mRNA [NM_005868]

A_22_P00022439	0.030786326	down	-1.6580518	TBX18	T-box 18 [Source:HGNC Symbol;Acc:HGNC:11595] [ENST00000330469]
A_33_P3328659	0.01243974	down	-1.7201309	CELSR1	Homo sapiens cadherin, EGF LAG seven-pass G-type receptor 1 (CELSR1), mRNA [NM_014246]
A_33_P3272828	2.23E-04	down	-1.721219	RAD1	Homo sapiens RAD1 checkpoint DNA exonuclease (RAD1), transcript variant 1, mRNA [NM_002853]
A_23_P73413	0.0296845	down	-1.6061351	SLC26A7	Homo sapiens solute carrier family 26 (anion exchanger), member 7 (SLC26A7), transcript variant 1, mRNA [NM_052832]
A_33_P3318852	0.041509118	down	-1.5457792	TBC1D8B	Homo sapiens TBC1 domain family, member 8B (with GRAM domain) (TBC1D8B), transcript variant 2, mRNA [NM_198881]
A_23_P111583	0.008640613	down	-1.7669811	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_23_P104876	0.002732796	down	-1.6779752	SPA17	Homo sapiens sperm autoantigenic protein 17 (SPA17), mRNA [NM_017425]
A_23_P156842	6.85E-05	down	-1.8895062	EEF1E1	Homo sapiens eukaryotic translation elongation factor 1 epsilon 1 (EEF1E1), transcript variant 1, mRNA [NM_004280]
A_24_P193498	2.55E-05	down	-1.9854699	TM2D3	Homo sapiens TM2 domain containing 3 (TM2D3), transcript variant 1, mRNA [NM_078474]
A_24_P177948	0.00859285	down	-3.3996565	DPY19L2	Homo sapiens dpy-19-like 2 (C. elegans) (DPY19L2), mRNA [NM_173812]
A_21_P0011126	0.002283061	down	-1.5671636	NUS1	Homo sapiens nuclear undecaprenyl pyrophosphate synthase 1 homolog (S. cerevisiae) (NUS1), mRNA [NM_138459]
A_33_P3376214	0.006286959	down	-1.6254603	FMO5	Homo sapiens flavin containing monooxygenase 5 (FMO5), transcript variant 2, mRNA [NM_001144829]
A_33_P3359801	0.01063023	down	-1.8234929	NKX2-4	Homo sapiens NK2 homeobox 4 (NKX2-4), mRNA [NM_033176]
A_32_P94160	0.009893405	down	-1.836222	PRKAA2	Homo sapiens protein kinase, AMP-activated, alpha 2 catalytic subunit (PRKAA2), mRNA [NM_006252]
A_23_P125680	0.010665849	down	-1.8186457	TMEM255A	Homo sapiens transmembrane protein 255A (TMEM255A), transcript variant 1, mRNA [NM_017938]
A_23_P390734	7.74E-04	down	-1.8852665	FGFR1OP2	Homo sapiens FGFR1 oncogene partner 2 (FGFR1OP2), transcript variant 1, mRNA [NM_015633]
A_23_P208208	0.008424628	down	-1.543603	ZNF649	Homo sapiens zinc finger protein 649 (ZNF649), mRNA [NM_023074]
A_23_P419624	0.002310255	down	-1.5755292	BLCAP	Homo sapiens bladder cancer associated protein (BLCAP), transcript variant 1, mRNA [NM_006698]
A_23_P28507	5.13E-04	down	-1.8798378	MGAT4A	Homo sapiens mannosyl (alpha-1,3-)-glycoprotein beta-1,4-N-acetylglucosaminyltransferase, isozyme A (MGAT4A), transcript variant 1, mRNA [NM_012214]
A_24_P163537	0.010031782	down	-1.6121678	TMED4	Homo sapiens transmembrane emp24 protein transport domain containing 4 (TMED4), transcript variant 1, mRNA [NM_182547]
A_32_P405973	0.013470371	down	-1.7780782	ADCY2	Homo sapiens adenylate cyclase 2 (brain) (ADCY2), mRNA [NM_020546]
A_24_P8768	3.11E-04	down	-1.7891247	MRPL20	Homo sapiens mitochondrial ribosomal protein L20 (MRPL20), mRNA [NM_017971]
A_23_P63908	3.61E-04	down	-2.045136	TRUB1	Homo sapiens TruB pseudouridine (psi) synthase family member 1 (TRUB1), mRNA [NM_139169]
A_23_P5685	0.016233455	down	-2.0970209	TBR1	Homo sapiens T-box, brain, 1 (TBR1), mRNA [NM_006593]
A_23_P7397	0.012510111	down	-1.7910368	PCDHB10	Homo sapiens protocadherin beta 10 (PCDHB10), mRNA [NM_018930]
A_24_P112941	0.002127911	down	-2.2978528	LINGO1	Homo sapiens leucine rich repeat and Ig domain containing 1 (LINGO1), transcript variant 1, mRNA [NM_032808]
A_33_P3368855	0.009464365	down	-1.7247219	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]
A_33_P3351087	0.015276933	down	-1.7815415	PRKG1	protein kinase, cGMP-dependent, type I [Source:HGNC Symbol;Acc:HGNC:9414] [ENST00000373976]
A_24_P409857	1.63E-05	down	-2.1293395	HMGN1	Homo sapiens high mobility group nucleosome binding domain 1 (HMGN1), mRNA [NM_004965]
A_23_P14458	0.006166799	down	-1.5653917	L3HYPDH	Homo sapiens L-3-hydroxyproline dehydratase (trans-) (L3HYPDH), mRNA [NM_144581]
A_23_P79108	0.010003028	down	-1.8558859	ATP8B3	Homo sapiens ATPase, aminophospholipid transporter, class I, type 8B, member 3 (ATP8B3), transcript variant 1, mRNA [NM_138813]
A_33_P3357516	0.014741279	down	-1.7919313	SLC10A7	Homo sapiens solute carrier family 10, member 7 (SLC10A7), transcript variant 3, mRNA [NM_032128]
A_23_P255076	1.32E-04	down	-1.9944695	RWDD2A	Homo sapiens RWD domain containing 2A (RWDD2A), mRNA [NM_033411]
A_24_P354337	0.006089656	down	-1.6281128	ARL6	Homo sapiens ADP-ribosylation factor-like 6 (ARL6), transcript variant 1, mRNA [NM_032146]
A_23_P259521	2.15E-04	down	-1.7723249	WDR41	Homo sapiens WD repeat domain 41 (WDR41), mRNA [NM_018268]
A_24_P143171	0.007665004	down	-2.1974561	TMEM47	Homo sapiens transmembrane protein 47 (TMEM47), mRNA [NM_031442]
A_24_P382253	5.02E-04	down	-1.799878	RPRD1A	Homo sapiens regulation of nuclear pre-mRNA domain containing 1A (RPRD1A), transcript variant 1, mRNA [NM_018170]
A_23_P257131	0.014403521	down	-1.5644765	PEX13	Homo sapiens peroxisomal biogenesis factor 13 (PEX13), mRNA [NM_002618]
A_33_P3333982	0.007356623	down	-2.1952763	PDE4DIP	Homo sapiens phosphodiesterase 4D interacting protein (PDE4DIP), transcript variant 3, mRNA [NM_022359]
A_24_P107291	0.00276237	down	-1.5372126	PPP2R1B	Homo sapiens protein phosphatase 2, regulatory subunit A, beta (PPP2R1B), transcript variant 2, mRNA [NM_181699]
A_24_P265832	2.40E-05	down	-2.3227031	SUCNR1	Homo sapiens succinate receptor 1 (SUCNR1), mRNA [NM_033050]
A_23_P87591	8.36E-05	down	-2.03247	YEATS4	Homo sapiens YEATS domain containing 4 (YEATS4), transcript variant 1, mRNA [NM_006530]
A_24_P371281	0.015795749	down	-1.7528958	SLC35G2	Homo sapiens solute carrier family 35, member G2 (SLC35G2), transcript variant 1, mRNA [NM_025246]
A_23_P124905	0.02508057	down	-2.3951204	NPTX1	Homo sapiens neuronal pentraxin I (NPTX1), mRNA [NM_002522]
A_23_P133691	0.003467773	down	-1.5606098	RRAGD	Homo sapiens Ras-related GTP binding D (RRAGD), mRNA [NM_021244]
A_33_P3311956	4.94E-04	down	-2.5929248	FEZ2	Homo sapiens fasciculation and elongation protein zeta 2 (zygin II) (FEZ2), transcript variant 2, mRNA [NM_001042548]
A_33_P3301034	0.002413777	down	-1.8107506	LRRC28	Homo sapiens leucine rich repeat containing 28 (LRRC28), transcript variant 2, mRNA [NM_001284400]
A_23_P128470	4.00E-04	down	-1.9526724	CLEC12A	Homo sapiens C-type lectin domain family 12, member A (CLEC12A), transcript variant 1, mRNA [NM_138337]
A_33_P3303146	4.17E-04	down	-1.8907984	ATG4C	Homo sapiens autophagy related 4C, cysteine peptidase (ATG4C), transcript variant 1, mRNA [NM_032852]
A_23_P46871	0.00513178	down	-1.6026182	SLC29A3	Homo sapiens solute carrier family 29 (equilibrative nucleoside transporter), member 3 (SLC29A3), transcript variant 1, mRNA [NM_018344]

A_24_P91991	0.007747031	down	-2.2179146	NAT8L	Homo sapiens N-acetyltransferase 8-like (GCN5-related, putative) (NAT8L), mRNA [NM_178557]
A_24_P372562	1.88E-04	down	-2.0315228	PTPMT1	Homo sapiens protein tyrosine phosphatase, mitochondrial 1 (PTPMT1), transcript variant 1, mRNA [NM_175732]
A_23_P327022	3.14E-04	down	-2.0093799	MDFIC	Homo sapiens MyoD family inhibitor domain containing (MDFIC), transcript variant 1, mRNA [NM_199072]
A_23_P74663	5.73E-04	down	-1.7416978	TAF1A	Homo sapiens TATA box binding protein (TBP)-associated factor, RNA polymerase I, A, 48kDa (TAF1A), transcript variant 1, mRNA [NM_005681]
A_23_P1676	0.00121662	down	-1.8750802	TMEM218	Homo sapiens transmembrane protein 218 (TMEM218), transcript variant 1, mRNA [NM_001258243]
A_24_P548866	1.42E-04	down	-2.0663052	HIGD1A	Homo sapiens HIG1 hypoxia inducible domain family, member 1A (HIGD1A), transcript variant 1, mRNA [NM_001099668]
A_23_P255663	7.90E-06	down	-2.44252	MANEA	Homo sapiens mannosidase, endo-alpha (MANEA), mRNA [NM_024641]
A_23_P144476	2.65E-04	down	-2.6450794	SPRY1	Homo sapiens sprouty homolog 1, antagonist of FGF signaling (Drosophila) (SPRY1), transcript variant 2, mRNA [NM_199327]
A_23_P102331	0.013213347	down	-1.8142954	SCN7A	Homo sapiens sodium channel, voltage gated, type VII alpha subunit (SCN7A), transcript variant 1, mRNA [NM_002976]
A_33_P3240512	7.63E-04	down	-1.8801076	KCTD12	Homo sapiens potassium channel tetramerization domain containing 12 (KCTD12), mRNA [NM_138444]
A_23_P205584	1.32E-04	down	-2.0387456	JKAMP	Homo sapiens JNK1/MAPK8-associated membrane protein (JKAMP), transcript variant 3, mRNA [NM_001284201]
A_23_P27215	5.28E-04	down	-1.6662982	UBB	Homo sapiens ubiquitin B (UBB), transcript variant 1, mRNA [NM_018955]
A_23_P75288	0.001843617	down	-1.623272	ATAD1	Homo sapiens ATPase family, AAA domain containing 1 (ATAD1), mRNA [NM_032810]
A_24_P19752	6.23E-05	down	-1.9540654	PEX19	Homo sapiens peroxisomal biogenesis factor 19 (PEX19), transcript variant 1, mRNA [NM_002857]
A_24_P354615	0.001539858	down	-1.9640551	MTMR12	Homo sapiens myotubularin related protein 12 (MTMR12), transcript variant 1, mRNA [NM_001040446]
A_33_P3313889	9.04E-04	down	-1.6528639	TOR1A	Homo sapiens torsin family 1, member A (torsin A) (TOR1A), mRNA [NM_000113]
A_23_P203030	9.93E-04	down	-1.7368865	DLAT	Homo sapiens dihydrolipoamide S-acetyltransferase (DLAT), mRNA [NM_001931]
A_23_P4041	4.47E-04	down	-1.8257358	PCTP	Homo sapiens phosphatidylcholine transfer protein (PCTP), transcript variant 1, mRNA [NM_021213]
A_33_P3419314	0.013898772	down	-1.7970936	CHD5	Homo sapiens chromodomain helicase DNA binding protein 5 (CHD5), mRNA [NM_015557]
A_23_P404575	0.037693318	down	-1.6386843	RBM46	Homo sapiens RNA binding motif protein 46 (RBM46), transcript variant 1, mRNA [NM_144979]
A_23_P146728	6.27E-04	down	-1.8393307	ALG2	Homo sapiens ALG2, alpha-1,3/1,6-mannosyltransferase (ALG2), transcript variant 1, mRNA [NM_033087]
A_23_P341532	0.023625761	down	-1.5753903	SETDB2	Homo sapiens SET domain, bifurcated 2 (SETDB2), transcript variant 1, mRNA [NM_031915]
A_23_P218988	2.81E-04	down	-2.1116786	SLC30A5	Homo sapiens solute carrier family 30 (zinc transporter), member 5 (SLC30A5), transcript variant 1, mRNA [NM_022902]
A_22_P00015117	0.009797321	down	-1.6402906	SNX2	Homo sapiens sorting nexin 2 (SNX2), transcript variant 2, mRNA [NM_001278199]
A_32_P123143	0.021329094	down	-1.6936475	HCN1	Homo sapiens hyperpolarization activated cyclic nucleotide gated potassium channel 1 (HCN1), mRNA [NM_021072]
A_23_P325887	0.002568692	down	-2.7301822	TBC1D8B	Homo sapiens TBC1 domain family, member 8B (with GRAM domain) (TBC1D8B), transcript variant 1, mRNA [NM_017752]
A_33_P3227676	0.012886327	down	-1.8169806	C2orf72	Homo sapiens chromosome 2 open reading frame 72 (C2orf72), mRNA [NM_001144994]
A_23_P112260	3.83E-04	down	-2.2602448	GNG10	Homo sapiens guanine nucleotide binding protein (G protein), gamma 10 (GNG10), transcript variant 1, mRNA [NM_001017998]
A_24_P71153	0.004335847	down	-1.5862592	PAFAH2	Homo sapiens platelet-activating factor acetylhydrolase 2, 40kDa (PAFAH2), mRNA [NM_000437]
A_23_P2922	5.64E-04	down	-1.8719208	MBIP	Homo sapiens MAP3K12 binding inhibitory protein 1 (MBIP), transcript variant 1, mRNA [NM_016586]
A_24_P376441	0.031534735	down	-1.6953912	TAF5L	Homo sapiens TAF5-like RNA polymerase II, p300/CBP-associated factor (PCAF)-associated factor, 65kDa (TAF5L), transcript variant 2, mRNA [NM_001025247]
A_23_P6624	5.18E-04	down	-1.6149796	UMPS	Homo sapiens uridine monophosphate synthetase (UMPS), transcript variant 1, mRNA [NM_000373]
A_33_P3384000	0.028006922	down	-1.6478578	ATP10A	ATPase, class V, type 10A [Source:HGNC Symbol;Acc:HGNC:13542] [ENST00000389967]
A_33_P3247599	0.009844285	down	-1.7682364	ZNF805	Homo sapiens zinc finger protein 805 (ZNF805), transcript variant 1, mRNA [NM_001023563]
A_23_P134755	0.012853526	down	-1.6430881	TRPS1	Homo sapiens trichorhinophalangeal syndrome I (TRPS1), transcript variant 1, mRNA [NM_014112]
A_33_P3281940	0.0012401	down	-1.6943107	RPE	Homo sapiens ribulose-5-phosphate-3-epimerase (RPE), transcript variant 4, mRNA [NM_001278283]
A_23_P76690	3.60E-04	down	-1.7161754	UCHL3	Homo sapiens ubiquitin carboxyl-terminal esterase L3 (ubiquitin thiolesterase) (UCHL3), transcript variant 2, mRNA [NM_006002]
A_33_P3360718	0.011068639	down	-1.6390096	CDC27	Homo sapiens cell division cycle 27 (CDC27), transcript variant 1, mRNA [NM_001114091]
A_24_P132787	3.43E-05	down	-1.9789312	RAB18	Homo sapiens RAB18, member RAS oncogene family (RAB18), transcript variant 1, mRNA [NM_021252]
A_24_P400324	0.004882784	down	-3.5131633	THSD7A	Homo sapiens thrombospondin, type I, domain containing 7A (THSD7A), mRNA [NM_015204]
A_23_P151093	0.001644768	down	-1.7057801	YARS2	Homo sapiens tyrosyl-tRNA synthetase 2, mitochondrial (YARS2), mRNA [NM_001040436]
A_23_P153360	0.002045388	down	-1.6474606	SMIM7	Homo sapiens small integral membrane protein 7 (SMIM7), transcript variant 2, mRNA [NM_024104]
A_33_P3409477	6.53E-04	down	-1.9231339	UBASH3B	Homo sapiens ubiquitin associated and SH3 domain containing B (UBASH3B), mRNA [NM_032873]
A_23_P109055	0.010232039	down	-1.6310219	TP53RK	Homo sapiens TP53 regulating kinase (TP53RK), mRNA [NM_033550]

A_23_P123732	0.009339749	down	-1.5015417	IDNK	Homo sapiens idnK, gluconokinase homolog (E. coli) (IDNK), transcript variant 1, mRNA [NM_001001551]
A_33_P3213707	0.008615709	down	-1.9191324	PDCD1LG2	Homo sapiens programmed cell death 1 ligand 2 (PDCD1LG2), mRNA [NM_025239]
A_33_P3286254	4.10E-04	down	-1.8317021	AP3S1	Homo sapiens adaptor-related protein complex 3, sigma 1 subunit (AP3S1), mRNA [NM_001284]
A_23_P358995	0.001029549	down	-1.7087749	IBTK	Homo sapiens inhibitor of Bruton agammaglobulinemia tyrosine kinase (IBTK), transcript variant 1, mRNA [NM_015525]
A_23_P88710	2.28E-04	down	-1.7620025	TMEM87A	Homo sapiens transmembrane protein 87A (TMEM87A), transcript variant 1, mRNA [NM_015497]
A_23_P101671	0.015361276	down	-1.9885187	ATCAY	Homo sapiens ataxia, cerebellar, Cayman type (ATCAY), mRNA [NM_033064]
A_23_P214411	4.13E-04	down	-1.8438095	GLO1	Homo sapiens glyoxalase I (GLO1), mRNA [NM_006708]
A_23_P167201	0.003940022	down	-1.5578225	SEPSECS	Homo sapiens Sep (O-phosphoserine) tRNA:Sec (selenocysteine) tRNA synthase (SEPSECS), mRNA [NM_016955]
A_24_P126484	0.012467855	down	-1.7831964	PBLD	phenazine biosynthesis-like protein domain containing [Source:HGNC Symbol;Acc:HGNC:23301] [ENST00000277795]
A_23_P136196	0.00301833	down	-1.7248367	TBC1D19	Homo sapiens TBC1 domain family, member 19 (TBC1D19), transcript variant 1, mRNA [NM_018317]
A_23_P412392	0.00217997	down	-1.7091069	SEC22B	Homo sapiens SEC22 vesicle trafficking protein homolog B (S. cerevisiae) (gene/pseudogene) (SEC22B), mRNA [NM_004892]
A_23_P13797	6.87E-04	down	-1.6871815	C12orf49	Homo sapiens chromosome 12 open reading frame 49 (C12orf49), mRNA [NM_024738]

Table S8. Gene expression changes for secreted genes from left part of Venn diagram defined in Fig. 3C of AR-AIT versus HC

ProbeName	p ([AR-] Vs [HC])	Regulation ([AR-] Vs [HC])	FC ([AR-] Vs [HC])	GeneSymbol	Description
A_33_P3392092	0.012686643	down	-2.0563319	ADCYAP1	Homo sapiens adenylate cyclase activating polypeptide 1 (pituitary) (ADCYAP1), transcript variant 2, mRNA [NM_001117]
A_23_P76684	0.006725486	down	-1.8802391	RTN3	Homo sapiens reticulon 3 (RTN3), transcript variant 1, mRNA [NM_006054]
A_33_P3363168	0.0123177	down	-1.5771087	SSH2	Homo sapiens slingshot protein phosphatase 2 (SSH2), transcript variant 1, mRNA [NM_001282129]
A_33_P3369178	0.032703828	down	-1.9631351	PRG4	Homo sapiens proteoglycan 4 (PRG4), transcript variant A, mRNA [NM_005807]
A_33_P6462199	0.014197014	down	-1.7189957	APELA	Homo sapiens apelin receptor early endogenous ligand (APELA), mRNA [NM_001297550]
A_24_P97526	4.79E-04	down	-2.2261345	CMTM6	Homo sapiens CKLF-like MARVEL transmembrane domain containing 6 (CMTM6), mRNA [NM_017801]
A_23_P430930	0.031185925	down	-1.5733657	RSPO2	Homo sapiens R-spondin 2 (RSPO2), transcript variant 1, mRNA [NM_178565]
A_33_P3337540	8.48E-04	down	-1.5883385	IFNAR2	Homo sapiens interferon (alpha, beta and omega) receptor 2 (IFNAR2), transcript variant 2, mRNA [NM_000874]
A_24_P72064	0.02742474	down	-1.5869081	GHR	Homo sapiens growth hormone receptor (GHR), transcript variant 1, mRNA [NM_000163]
A_23_P212800	0.027482733	down	-1.5524665	FGF5	Homo sapiens fibroblast growth factor 5 (FGF5), transcript variant 1, mRNA [NM_004464]
A_23_P146233	0.003082181	down	-1.6973628	LPL	Homo sapiens lipoprotein lipase (LPL), mRNA [NM_000237]
A_23_P208389	0.014407859	down	-1.553694	AXL	Homo sapiens AXL receptor tyrosine kinase (AXL), transcript variant 1, mRNA [NM_021913]
A_24_P253003	0.043552887	down	-1.9722588	WNT11	Homo sapiens wingless-type MMTV integration site family, member 11 (WNT11), mRNA [NM_004626]
A_33_P3375466	0.020607384	down	-2.1449232	GPLD1	glycosylphosphatidylinositol specific phospholipase D1 [Source:HGNC Symbol;Acc:HGNC:4459] [ENST00000486892]
A_24_P753161	0.011240054	down	-1.5735651	BMPR2	Homo sapiens bone morphogenetic protein receptor, type II (serine/threonine kinase) (BMPR2), mRNA [NM_001204]
A_23_P44274	0.010869389	down	-1.7501987	FGA	Homo sapiens fibrinogen alpha chain (FGA), transcript variant alpha-E, mRNA [NM_000508]
A_24_P108451	0.002756563	down	-2.0076385	GPI	Homo sapiens glucose-6-phosphate isomerase (GPI), transcript variant 2, mRNA [NM_000175]
A_23_P203023	0.012255432	down	-1.8357457	RDX	Homo sapiens radixin (RDX), transcript variant 3, mRNA [NM_002906]
A_24_P49199	0.003900376	down	-1.6773826	GLDN	Homo sapiens gliomedin (GLDN), mRNA [NM_181789]
A_23_P43164	0.019171719	down	-1.6263068	SULF1	Homo sapiens sulfatase 1 (SULF1), transcript variant 3, mRNA [NM_015170]
A_23_P29953	0.003140834	down	-1.6071799	IL15	Homo sapiens interleukin 15 (IL15), transcript variant 2, mRNA [NM_172175]
A_33_P3268472	0.01600956	down	-1.7444068	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 3, mRNA [NM_001114173]
A_33_P3385101	0.001118422	down	-1.5662017	TOLLIP	Homo sapiens toll interacting protein (TOLLIP), mRNA [NM_019009]
A_24_P391368	0.005531607	down	-1.6232893	ATXN10	Homo sapiens ataxin 10 (ATXN10), transcript variant 1, mRNA [NM_013236]
A_23_P216622	0.004275787	down	-2.2140512	FKTN	Homo sapiens fukutin (FKTN), transcript variant 1, mRNA [NM_001079802]
A_23_P146539	0.014222398	down	-1.6848571	IFNA8	Homo sapiens interferon, alpha 8 (IFNA8), mRNA [NM_002170]
A_24_P928052	0.003868062	down	-1.8389908	NRP1	Homo sapiens neuropilin 1 (NRP1), transcript variant 1, mRNA [NM_003873]
A_23_P503064	0.02607585	down	-1.979409	KL	Homo sapiens klotho (KL), mRNA [NM_004795]
A_24_P45476	0.017555706	down	-2.1706524	XCL1	Homo sapiens chemokine (C motif) ligand 1 (XCL1), mRNA [NM_002995]
A_23_P330070	0.03301843	down	-1.5883182	TFPI	Homo sapiens tissue factor pathway inhibitor (lipoprotein-associated coagulation inhibitor) (TFPI), transcript variant 2, mRNA [NM_001032281]
A_24_P174793	0.026247958	down	-2.2022734	PCSK1	Homo sapiens proprotein convertase subtilisin/kexin type 1 (PCSK1), transcript variant 1, mRNA [NM_000439]
A_33_P3283480	0.014486304	down	-1.73419	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 2, mRNA [NM_148170]
A_23_P81825	0.008004707	down	-1.9619334	GUCA1B	Homo sapiens guanylate cyclase activator 1B (retina) (GUCA1B), mRNA [NM_002098]
A_23_P116765	0.002504161	down	-1.9237759	LALBA	Homo sapiens lactalbumin, alpha- (LALBA), mRNA [NM_002289]
A_23_P166929	0.02550035	down	-1.5232803	SERPINI1	Homo sapiens serpin peptidase inhibitor, clade I (neuroserpin), member 1 (SERPINI1), transcript variant 1, mRNA [NM_005025]
A_33_P3349536	0.002772796	down	-1.7533749	CHEK1	Homo sapiens checkpoint kinase 1 (CHEK1), transcript variant 2, mRNA [NM_001114121]
A_32_P80850	0.009458897	down	-1.762047	COL14A1	Homo sapiens collagen, type XIV, alpha 1 (COL14A1), mRNA [NM_021110]
A_23_P133474	0.0187113	down	-1.7960585	GPX3	Homo sapiens glutathione peroxidase 3 (plasma) (GPX3), mRNA [NM_002084]
A_23_P334021	0.024451608	down	-1.6513429	IGF2R	Homo sapiens insulin-like growth factor 2 receptor (IGF2R), mRNA [NM_000876]
A_23_P134601	0.020336712	down	-1.6759638	WNT16	Homo sapiens wingless-type MMTV integration site family, member 16 (WNT16), transcript variant 1, mRNA [NM_057168]
A_24_P63347	0.01465968	down	-1.795154	PF4V1	Homo sapiens platelet factor 4 variant 1 (PF4V1), mRNA [NM_002620]
A_32_P45168	6.81E-04	down	-1.6653615	IL6ST	Homo sapiens interleukin 6 signal transducer (IL6ST), transcript variant 1, mRNA [NM_002184]
A_23_P146512	0.015922887	down	-1.7237895	GOLM1	Homo sapiens golgi membrane protein 1 (GOLM1), transcript variant 1, mRNA [NM_016548]
A_33_P3271156	0.033147708	down	-1.6615561	SPOCK3	Homo sapiens sparc/osteonectin, cwcv and kazal-like domains proteoglycan (testican) 3 (SPOCK3), transcript variant 3, mRNA [NM_001204352]
A_32_P101689	0.002681966	down	-1.9126269	FAM3C	Homo sapiens family with sequence similarity 3, member C (FAM3C), transcript variant 1, mRNA [NM_014888]
A_33_P3212615	0.001861883	down	-2.727879	TFPI	Homo sapiens tissue factor pathway inhibitor (lipoprotein-associated coagulation inhibitor) (TFPI), transcript variant 1, mRNA [NM_006287]
A_33_P3243857	0.020603279	down	-1.5195504	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P14174	5.77E-05	down	-2.0222223	TNFSF13B	Homo sapiens tumor necrosis factor (ligand) superfamily, member 13b (TNFSF13B), transcript variant 1, mRNA [NM_006573]

Table S9. Gene expression changes for secreted genes from cut set defined in Fig. 3C of AA-AIT versus HC

ProbeName	p ([AA-] Vs [HC])	Regulation ([AA-] Vs [HC])	FC ([AA-] Vs [HC])	GeneSymbol	Description
A_32_P190769	0.034484852	down	-1.769333	C1QTNF7	Homo sapiens C1q and tumor necrosis factor related protein 7 (C1QTNF7), transcript variant 3, mRNA [NM_031911]
A_33_P3221783	0.0438532	down	-1.6394169	TSLP	Homo sapiens thymic stromal lymphopoietin (TSLP), transcript variant 1, mRNA [NM_033035]
A_23_P165608	0.001799016	down	-2.183463	SEMA4F	Homo sapiens sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4F (SEMA4F), transcript variant 1, mRNA [NM_004263]
A_24_P30557	0.04201902	down	-1.7825613	TBX5	Homo sapiens T-box 5 (TBX5), transcript variant 1, mRNA [NM_000192]
A_33_P3231367	0.026665315	down	-1.55324	ATXN10	Homo sapiens ataxin 10 (ATXN10), transcript variant 1, mRNA [NM_013236]
A_33_P3379886	0.031061854	down	-1.6620039	FGF2	Homo sapiens fibroblast growth factor 2 (basic) (FGF2), mRNA [NM_002006]
A_23_P212617	0.035766084	down	-3.1347427	TFRC	Homo sapiens transferrin receptor (TFRC), transcript variant 1, mRNA [NM_003234]
A_23_P1552	0.03114783	down	-1.9359329	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_23_P165727	0.021435175	down	-1.7803415	MSTN	Homo sapiens myostatin (MSTN), mRNA [NM_005259]
A_33_P3215277	0.016580919	down	-1.5131134	TTBK2	Homo sapiens tau tubulin kinase 2 (TTBK2), mRNA [NM_173500]
A_23_P105833	0.019694157	down	-1.8237839	BIVM	Homo sapiens basic, immunoglobulin-like variable motif containing (BIVM), transcript variant 1, mRNA [NM_017693]
A_33_P3269203	0.009001244	down	-2.067726	SERPINH1	Homo sapiens serpin peptidase inhibitor, clade H (heat shock protein 47), member 1, (collagen binding protein 1) (SERPINH1), transcript variant 1, mRNA [NM_001207014]
A_24_P202497	0.001532514	down	-2.4436843	TWSG1	Homo sapiens twisted gastrulation BMP signaling modulator 1 (TWSG1), mRNA [NM_020648]
A_23_P18123	0.001012369	down	-3.4714062	NLGN1	Homo sapiens neuroligin 1 (NLGN1), mRNA [NM_014932]
A_23_P55544	0.005791944	down	-2.518787	CCBE1	Homo sapiens collagen and calcium binding EGF domains 1 (CCBE1), mRNA [NM_133459]
A_24_P140405	0.01727693	down	-1.6926756	ADAMTS3	Homo sapiens ADAM metallopeptidase with thrombospondin type 1 motif, 3 (ADAMTS3), mRNA [NM_014243]
A_23_P79968	0.013670841	down	-1.8257375	PCSK2	Homo sapiens proprotein convertase subtilisin/kexin type 2 (PCSK2), transcript variant 1, mRNA [NM_002594]
A_24_P277367	0.012249339	down	-3.093352	CXCL5	Homo sapiens chemokine (C-X-C motif) ligand 5 (CXCL5), mRNA [NM_002994]
A_33_P3219651	0.024468817	down	-1.6940436	BMPER	Homo sapiens BMP binding endothelial regulator (BMPER), mRNA [NM_133468]
A_24_P784765	0.004449119	down	-2.5754733	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_33_P3302255	0.00584417	down	-1.5812622	ITM2B	Homo sapiens integral membrane protein 2B (ITM2B), mRNA [NM_021999]
A_33_P3340769	0.008241517	down	-2.3538065	ADAM9	Homo sapiens ADAM metallopeptidase domain 9 (ADAM9), transcript variant 1, mRNA [NM_003816]
A_32_P97169	0.021822024	down	-1.6407976	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_24_P412156	0.042167045	down	-1.6281822	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_23_P48886	0.006874017	down	-1.6188662	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P157580	0.004990098	down	-1.8704803	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_33_P3369371	0.042074185	down	-3.077123	GPX3	Homo sapiens glutathione peroxidase 3 (plasma) (GPX3), mRNA [NM_002084]
A_23_P139648	0.03437484	down	-1.710147	IAPP	Homo sapiens islet amyloid polypeptide (IAPP), mRNA [NM_000415]

A_23_P160262	0.029616244	down	-1.6896813	ANGPTL3	Homo sapiens angiopoietin-like 3 (ANGPTL3), mRNA [NM_014495]
A_23_P101950	0.002596028	down	-1.9116484	MDH1	Homo sapiens malate dehydrogenase 1, NAD (soluble) (MDH1), transcript variant 2, mRNA [NM_005917]
A_24_P381604	0.004748902	down	-1.8375516	ITM2B	Homo sapiens integral membrane protein 2B (ITM2B), mRNA [NM_021999]
A_23_P144348	0.025006708	down	-1.6788411	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_24_P334300	6.87E-04	down	-3.615217	FGF12	Homo sapiens fibroblast growth factor 12 (FGF12), transcript variant 2, mRNA [NM_004113]
A_33_P6517036	0.04687285	down	-1.6152365	CDH13	cadherin 13 [Source:HGNC Symbol;Acc:HGNC:1753] [ENST00000567109]
A_23_P256473	0.02794775	down	-2.2519164	SEMA3C	Homo sapiens sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3C (SEMA3C), mRNA [NM_006379]
A_23_P206396	0.029042121	down	-1.5468429	CKLF	Homo sapiens chemokine-like factor (CKLF), transcript variant 5, mRNA [NM_001040138]
A_32_P15320	0.03380439	down	-1.5039843	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_32_P515088	0.017605368	down	-1.5223204	KDSR	Homo sapiens 3-ketodihydrosphingosine reductase (KDSR), mRNA [NM_002035]
A_23_P47292	0.023319086	down	-1.7285758	MMP20	Homo sapiens matrix metallopeptidase 20 (MMP20), mRNA [NM_004771]
A_23_P62659	0.002188017	down	-1.7937051	PPT1	Homo sapiens palmitoyl-protein thioesterase 1 (PPT1), transcript variant 1, mRNA [NM_000310]
A_24_P337239	0.046585385	down	-1.6413264	FGF5	Homo sapiens fibroblast growth factor 5 (FGF5), transcript variant 1, mRNA [NM_004464]
A_24_P763243	0.007927178	down	-1.5471231	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_23_P111583	0.005921412	down	-1.7987943	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_23_P208208	0.013507194	down	-1.689133	ZNF649	Homo sapiens zinc finger protein 649 (ZNF649), mRNA [NM_023074]
A_33_P3368855	0.029727371	down	-1.5539179	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]

Table S10. Gene expression changes for secreted genes from cut set defined in Fig. 3C tested for AR-AIT versus HC

ProbeName	p ([AR-] Vs [HC])	Regulation ([AR-] Vs [HC])	FC ([AR-] Vs [HC])	GeneSymbol	Description
A_32_P190769	0.041876774	down	-1.5272696	C1QTNF7	Homo sapiens C1q and tumor necrosis factor related protein 7 (C1QTNF7), transcript variant 3, mRNA [NM_031911]
A_33_P3221783	0.030681355	down	-1.5748432	TSLP	Homo sapiens thymic stromal lymphopoietin (TSLP), transcript variant 1, mRNA [NM_033035]
A_23_P165608	0.001691285	down	-1.6841604	SEMA4F	Homo sapiens sema domain, immunoglobulin domain (Ig), transmembrane domain (TM) and short cytoplasmic domain, (semaphorin) 4F (SEMA4F), transcript variant 1, mRNA [NM_004263]
A_24_P30557	0.0393597	down	-1.7064204	TBX5	Homo sapiens T-box 5 (TBX5), transcript variant 1, mRNA [NM_000192]
A_33_P3231367	0.001264689	down	-1.6531974	ATXN10	Homo sapiens ataxin 10 (ATXN10), transcript variant 1, mRNA [NM_013236]
A_33_P3379886	0.041974314	down	-1.5823529	FGF2	Homo sapiens fibroblast growth factor 2 (basic) (FGF2), mRNA [NM_002006]
A_23_P212617	0.003512143	down	-1.6906257	TFRC	Homo sapiens transferrin receptor (TFRC), transcript variant 1, mRNA [NM_003234]
A_23_P1552	0.001068989	down	-1.8945161	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_23_P165727	0.01226835	down	-1.7561021	MSTN	Homo sapiens myostatin (MSTN), mRNA [NM_005259]
A_33_P3215277	0.001816848	down	-1.6916137	TTBK2	Homo sapiens tau tubulin kinase 2 (TTBK2), mRNA [NM_173500]
A_23_P105833	0.010230918	down	-1.6024265	BIVM	Homo sapiens basic, immunoglobulin-like variable motif containing (BIVM), transcript variant 1, mRNA [NM_017693]
A_33_P3269203	0.023176149	down	-1.5423712	SERPINH1	Homo sapiens serpin peptidase inhibitor, clade H (heat shock protein 47), member 1, (collagen binding protein 1) (SERPINH1), transcript variant 1, mRNA [NM_001207014]
A_24_P202497	2.46E-04	down	-2.0646293	TWSG1	Homo sapiens twisted gastrulation BMP signaling modulator 1 (TWSG1), mRNA [NM_020648]
A_23_P18123	0.014388791	down	-2.4247594	NLGN1	Homo sapiens neuroligin 1 (NLGN1), mRNA [NM_014932]
A_23_P55544	0.028548118	down	-1.9647281	CCBE1	Homo sapiens collagen and calcium binding EGF domains 1 (CCBE1), mRNA [NM_133459]
A_24_P140405	0.004954484	down	-1.7538774	ADAMTS3	Homo sapiens ADAM metallopeptidase with thrombospondin type 1 motif, 3 (ADAMTS3), mRNA [NM_014243]
A_23_P79968	0.007016157	down	-1.7859999	PCSK2	Homo sapiens proprotein convertase subtilisin/kexin type 2 (PCSK2), transcript variant 1, mRNA [NM_002594]
A_24_P277367	0.028859055	down	-2.02177	CXCL5	Homo sapiens chemokine (C-X-C motif) ligand 5 (CXCL5), mRNA [NM_002994]
A_33_P3219651	0.031323534	down	-1.5641878	BMPER	Homo sapiens BMP binding endothelial regulator (BMPER), mRNA [NM_133468]
A_24_P784765	0.002954988	down	-1.9054285	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_33_P3302255	1.58E-04	down	-1.7330031	ITM2B	Homo sapiens integral membrane protein 2B (ITM2B), mRNA [NM_021999]
A_33_P3340769	0.004635955	down	-1.8181514	ADAM9	Homo sapiens ADAM metallopeptidase domain 9 (ADAM9), transcript variant 1, mRNA [NM_003816]
A_32_P97169	0.00874777	down	-1.6421111	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]

A_24_P412156	0.04541582	down	-1.5474916	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_23_P48886	0.001128659	down	-1.7597382	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P157580	6.93E-05	down	-2.0741844	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_33_P3369371	0.007360374	down	-1.7866849	GPX3	Homo sapiens glutathione peroxidase 3 (plasma) (GPX3), mRNA [NM_002084]
A_23_P139648	0.026705492	down	-1.6802089	IAPP	Homo sapiens islet amyloid polypeptide (IAPP), mRNA [NM_000415]
A_23_P160262	0.016507816	down	-1.6910084	ANGPTL3	Homo sapiens angiopoietin-like 3 (ANGPTL3), mRNA [NM_014495]
A_23_P101950	0.002832646	down	-1.6152493	MDH1	Homo sapiens malate dehydrogenase 1, NAD (soluble) (MDH1), transcript variant 2, mRNA [NM_005917]
A_24_P381604	1.32E-04	down	-1.7130008	ITM2B	Homo sapiens integral membrane protein 2B (ITM2B), mRNA [NM_021999]
A_23_P144348	0.001284207	down	-2.1043441	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_24_P334300	0.005455842	down	-2.7330756	FGF12	Homo sapiens fibroblast growth factor 12 (FGF12), transcript variant 2, mRNA [NM_004113]
A_33_P6517036	0.022413978	down	-1.6745641	CDH13	cadherin 13 [Source:HGNC Symbol;Acc:HGNC:1753] [ENST00000567109]
A_23_P256473	8.99E-04	down	-2.4724948	SEMA3C	Homo sapiens sema domain, immunoglobulin domain (Ig), short basic domain, secreted, (semaphorin) 3C (SEMA3C), mRNA [NM_006379]
A_23_P206396	9.23E-04	down	-1.6616987	CKLF	Homo sapiens chemokine-like factor (CKLF), transcript variant 5, mRNA [NM_001040138]
A_32_P15320	0.00148334	down	-1.5792764	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_32_P515088	0.010752392	down	-1.5047975	KDSR	Homo sapiens 3-ketodihydrosphingosine reductase (KDSR), mRNA [NM_002035]
A_23_P47292	0.007111504	down	-1.9550035	MMP20	Homo sapiens matrix metallopeptidase 20 (MMP20), mRNA [NM_004771]
A_23_P62659	0.002460965	down	-1.6891221	PPT1	Homo sapiens palmitoyl-protein thioesterase 1 (PPT1), transcript variant 1, mRNA [NM_000310]
A_24_P337239	0.017941633	down	-1.7544032	FGF5	Homo sapiens fibroblast growth factor 5 (FGF5), transcript variant 1, mRNA [NM_004464]
A_24_P763243	0.003453483	down	-1.5111316	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_23_P111583	0.008640613	down	-1.7669811	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_23_P208208	0.008424628	down	-1.543603	ZNF649	Homo sapiens zinc finger protein 649 (ZNF649), mRNA [NM_023074]
A_33_P3368855	0.009464365	down	-1.7247219	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]

Table S11. Gene expression changes for secreted genes from right part of Venn diagram defined in Fig. 3C of AA-AIT versus HC

ProbeName	p ([AA-] Vs [HC])	Regulation ([AA-] Vs [HC])	FC ([AA-] Vs [HC])	GeneSymbol	Description
A_33_P3254136	0.04589422	down	-1.6951239	PKHD1L1	Homo sapiens polycystic kidney and hepatic disease 1 (autosomal recessive)-like 1 (PKHD1L1), mRNA [NM_177531]
A_23_P377299	0.010985544	down	-2.232017	ECE2	Homo sapiens endothelin converting enzyme 2 (ECE2), transcript variant 1, mRNA [NM_014693]
A_23_P120883	0.003061266	down	-2.663732	HMOX1	Homo sapiens heme oxygenase (decycling) 1 (HMOX1), mRNA [NM_002133]
A_23_P34744	3.21E-04	down	-3.5662146	CTSK	Homo sapiens cathepsin K (CTSK), mRNA [NM_000396]
A_23_P167349	0.003025295	down	-2.3656504	GC	Homo sapiens group-specific component (vitamin D binding protein) (GC), transcript variant 1, mRNA [NM_000583]
A_24_P382119	0.01466924	down	-1.5465069	MTMR4	Homo sapiens myotubularin related protein 4 (MTMR4), mRNA [NM_004687]
A_23_P88522	0.035289925	down	-2.3655894	NMB	Homo sapiens neuromedin B (NMB), transcript variant 1, mRNA [NM_021077]
A_33_P3258091	0.008205638	down	-1.7170736	RNPEP	Homo sapiens arginyl aminopeptidase (aminopeptidase B) (RNPEP), mRNA [NM_020216]
A_23_P127891	0.01149975	down	-1.8091713	BDNF	Homo sapiens brain-derived neurotrophic factor (BDNF), transcript variant 1, mRNA [NM_170735]
A_23_P154894	0.04197503	down	-2.02658	CSTB	Homo sapiens cystatin B (stefin B) (CSTB), mRNA [NM_000100]
A_24_P48723	0.003000776	down	-2.6056206	PTGIS	Homo sapiens prostaglandin I2 (prostacyclin) synthase (PTGIS), mRNA [NM_000961]
A_21_P0014015	0.013375661	down	-1.9720199	CNP	2',3'-cyclic nucleotide 3' phosphodiesterase [Source:HGNC Symbol;Acc:HGNC:2158] [ENST00000592861]
A_23_P156061	0.014953146	down	-1.7880483	LNPEP	Homo sapiens leucyl/cystinyl aminopeptidase (LNPEP), transcript variant 1, mRNA [NM_005575]
A_23_P166269	0.040229946	down	-3.1794202	FAM3B	Homo sapiens family with sequence similarity 3, member B (FAM3B), transcript variant 1, mRNA [NM_058186]
A_24_P223874	0.03814447	down	-1.7687726	SFTPA1	Homo sapiens surfactant protein A1 (SFTPA1), transcript variant 1, mRNA [NM_005411]
A_33_P3319231	0.022389136	down	-1.7922528	AIFM2	apoptosis-inducing factor, mitochondrion-associated, 2 [Source:HGNC Symbol;Acc:HGNC:21411] [ENST00000373248]
A_24_P196528	0.006666233	down	-4.824404	CRB1	Homo sapiens crumbs family member 1, photoreceptor morphogenesis associated (CRB1), transcript variant 1, mRNA [NM_201253]
A_23_P256413	0.014506795	down	-1.546428	CMTM7	Homo sapiens CKLF-like MARVEL transmembrane domain containing 7 (CMTM7), transcript variant 1, mRNA [NM_138410]
A_23_P37441	0.006178621	down	-1.6903744	B2M	Homo sapiens beta-2-microglobulin (B2M), mRNA [NM_004048]
A_33_P3387272	0.016878404	down	-1.5859249	EEF1A1	Homo sapiens eukaryotic translation elongation factor 1 alpha 1 (EEF1A1), mRNA [NM_001402]
A_33_P3351249	0.028651122	down	-2.8922467	CXCL16	Homo sapiens chemokine (C-X-C motif) ligand 16 (CXCL16), transcript variant 2, mRNA [NM_001100812]
A_33_P3405839	0.014896964	down	-2.2884395	TPO	Homo sapiens thyroid peroxidase (TPO), transcript variant 5, mRNA [NM_175722]
A_24_P179351	0.002013917	down	-1.75119	TPT1	Homo sapiens tumor protein, translationally-controlled 1 (TPT1), transcript variant 2, mRNA [NM_003295]
A_33_P3226377	0.02571644	down	-1.5894933	PRH2	Homo sapiens proline-rich protein HaeIII subfamily 2 (PRH2), transcript variant 1, mRNA [NM_005042]
A_24_P276628	0.018577266	down	-1.7116379	PPT1	Homo sapiens palmitoyl-protein thioesterase 1 (PPT1), transcript variant 1, mRNA [NM_000310]
A_24_P940135	0.003254435	down	-1.8294909	CTBS	Homo sapiens chitobiase, di-N-acetyl- (CTBS), mRNA [NM_004388]
A_33_P3292854	0.04606215	down	-1.5553663	CALR	Homo sapiens calreticulin (CALR), mRNA [NM_004343]
A_23_P155351	0.029254718	down	-1.5775158	BTD	Homo sapiens biotinidase (BTD), transcript variant 3, mRNA [NM_000060]
A_33_P3280385	0.036897637	down	-1.6241232	COL6A3	Homo sapiens collagen, type VI, alpha 3 (COL6A3), transcript variant 3, mRNA [NM_057165]
A_23_P315364	0.048094835	down	-6.3066316	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_33_P3420900	0.0027628	down	-3.1708844	PATE2	Homo sapiens prostate and testis expressed 2 (PATE2), mRNA [NM_212555]
A_24_P306726	0.004378866	down	-1.7680008	TPT1	Homo sapiens tumor protein, translationally-controlled 1 (TPT1), transcript variant 2, mRNA [NM_003295]
A_23_P94533	0.04181123	down	-3.1553388	CTSL	Homo sapiens cathepsin L (CTSL), transcript variant 1, mRNA [NM_001912]
A_23_P322086	0.043955486	down	-2.1909728	SPX	Homo sapiens spexin hormone (SPX), mRNA [NM_030572]
A_23_P39799	0.047228064	down	-1.5178727	LOXL3	Homo sapiens lysyl oxidase-like 3 (LOXL3), transcript variant 1, mRNA [NM_032603]
A_33_P3791263	0.022454448	down	-1.7147325	OLFM3	Homo sapiens olfactomedin 3 (OLFM3), transcript variant 3, mRNA [NM_001288823]
A_23_P112554	0.012973307	down	-1.9025874	COL15A1	Homo sapiens collagen, type XV, alpha 1 (COL15A1), mRNA [NM_001855]
A_24_P365807	0.023668826	down	-1.8524894	EFNB1	Homo sapiens ephrin-B1 (EFNB1), mRNA [NM_004429]

A_23_P4161	0.021640265	down	-1.5776799	ARSG	arylsulfatase G [Source:HGNC Symbol;Acc:HGNC:24102] [ENST00000448504]
A_33_P3264269	0.045214143	down	-1.5820222	MOV10	Homo sapiens Mov10 RISC complex RNA helicase (MOV10), transcript variant 3, mRNA [NM_001286072]
A_23_P119936	0.042211678	down	-1.8051478	REG3A	Homo sapiens regenerating islet-derived 3 alpha (REG3A), transcript variant 2, mRNA [NM_138938]
A_23_P111402	0.039168965	down	-3.5393105	RSPO3	Homo sapiens R-spondin 3 (RSPO3), mRNA [NM_032784]
A_23_P128574	0.015405473	down	-2.8411486	ENOX1	Homo sapiens ecto-NOX disulfide-thiol exchanger 1 (ENOX1), transcript variant 1, mRNA [NM_017993]
A_33_P3423570	0.00183353	down	-1.9570544	METRN	Homo sapiens meteorin, glial cell differentiation regulator (METRN), mRNA [NM_024042]
A_23_P167493	0.026438981	down	-1.9005079	CARTPT	Homo sapiens CART prepropeptide (CARTPT), mRNA [NM_004291]
A_21_P0000176	0.030753985	down	-1.9211922	CDH13	Homo sapiens cadherin 13 (CDH13), transcript variant 5, mRNA [NM_001220491]
A_33_P3210965	0.023431147	down	-1.9040838	TCTN1	Homo sapiens tectonic family member 1 (TCTN1), transcript variant 1, mRNA [NM_001082538]
A_33_P3406623	0.010875562	down	-1.6663874	TNFSF12	Homo sapiens tumor necrosis factor (ligand) superfamily, member 12 (TNFSF12), transcript variant 1, mRNA [NM_003809]
A_23_P58396	0.008211567	down	-1.8691097	PDGFC	Homo sapiens platelet derived growth factor C (PDGFC), transcript variant 1, mRNA [NM_016205]
A_32_P142440	0.03160898	down	-4.4842424	PCSK9	Homo sapiens proprotein convertase subtilisin/kexin type 9 (PCSK9), transcript variant 1, mRNA [NM_174936]
A_33_P3261818	0.009510448	down	-1.6301882	MDH1	Homo sapiens malate dehydrogenase 1, NAD (soluble) (MDH1), transcript variant 2, mRNA [NM_005917]
A_23_P201368	0.025726926	down	-1.5614562	CTBS	Homo sapiens chitobiase, di-N-acetyl- (CTBS), mRNA [NM_004388]
A_23_P73114	0.03639642	down	-2.379509	PROS1	Homo sapiens protein S (alpha) (PROS1), mRNA [NM_000313]
A_33_P3282489	0.004181315	down	-2.1059306	GCNT1	Homo sapiens glucosaminyl (N-acetyl) transferase 1, core 2 (GCNT1), transcript variant 1, mRNA [NM_001097634]
A_23_P30122	0.014566761	down	-2.0826333	IL2	Homo sapiens interleukin 2 (IL2), mRNA [NM_000586]
A_33_P3263277	0.012571266	down	-1.6443335	EEF1A1	Human elongation factor 1-alpha (EF1A) mRNA, partial cds. [M29548]
A_32_P313405	0.04550742	down	-3.323531	LAMA1	Homo sapiens laminin, alpha 1 (LAMA1), mRNA [NM_005559]
A_24_P245298	0.00444458	down	-1.9409235	TNFSF12	Homo sapiens tumor necrosis factor (ligand) superfamily, member 12 (TNFSF12), transcript variant 1, mRNA [NM_003809]
A_23_P8961	5.10E-04	down	-2.4128914	IL7	Homo sapiens interleukin 7 (IL7), transcript variant 1, mRNA [NM_000880]
A_33_P3397525	0.030981716	down	-1.7912502	WNT4	Homo sapiens wingless-type MMTV integration site family, member 4 (WNT4), mRNA [NM_030761]
A_33_P3382177	0.017115137	down	-1.8615247	TIMP2	Homo sapiens TIMP metallopeptidase inhibitor 2 (TIMP2), mRNA [NM_003255]
A_23_P98382	0.01474834	down	-1.6084414	TIMM8B	Homo sapiens translocase of inner mitochondrial membrane 8 homolog B (yeast) (TIMM8B), transcript variant 1, mRNA [NM_012459]
A_24_P244706	0.02434364	down	-1.6297488	SSTR1	Homo sapiens somatostatin receptor 1 (SSTR1), mRNA [NM_001049]
A_23_P218858	0.002930635	down	-2.970404	ABI3BP	Homo sapiens ABI family, member 3 (NESH) binding protein (ABI3BP), mRNA [NM_015429]
A_33_P3212555	0.029141515	down	-1.623088	PROS1	Homo sapiens protein S (alpha) (PROS1), mRNA [NM_000313]
A_33_P3251552	0.04017219	down	-2.0559099	RSPO4	Homo sapiens R-spondin 4 (RSPO4), transcript variant 1, mRNA [NM_001029871]
A_33_P3256778	0.012414722	down	-2.3242157	CNTF	Homo sapiens ciliary neurotrophic factor (CNTF), mRNA [NM_000614]
A_24_P257416	0.03703572	down	-3.5145414	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_33_P3256347	0.027520727	down	-1.5385352	TIMM8B	Homo sapiens translocase of inner mitochondrial membrane 8 homolog B (yeast) (TIMM8B), transcript variant 1, mRNA [NM_012459]
A_24_P295806	0.016435107	down	-1.928913	CHID1	Homo sapiens chitinase domain containing 1 (CHID1), transcript variant 3, mRNA [NM_023947]
A_23_P148297	0.007080677	down	-1.665376	SH3BGRL	Homo sapiens SH3 domain binding glutamate-rich protein like (SH3BGRL), mRNA [NM_003022]
A_23_P36985	0.010447358	down	-2.5990827	PCDH8	Homo sapiens protocadherin 8 (PCDH8), transcript variant 1, mRNA [NM_002590]
A_23_P202501	0.00362879	down	-1.8388847	RNLS	Homo sapiens renalase, FAD-dependent amine oxidase (RNLS), transcript variant 1, mRNA [NM_001031709]
A_23_P135769	0.03930555	down	-1.8032029	ACTB	Homo sapiens actin, beta (ACTB), mRNA [NM_001101]
A_23_P72117	7.42E-04	down	-2.9752638	SMPDL3A	Homo sapiens sphingomyelin phosphodiesterase, acid-like 3A (SMPDL3A), transcript variant 1, mRNA [NM_006714]
A_24_P55295	0.004043915	down	-2.1627452	GJA1	Homo sapiens gap junction protein, alpha 1, 43kDa (GJA1), mRNA [NM_000165]
A_33_P3272580	0.037699625	down	-1.5141863	FUCA2	Homo sapiens fucosidase, alpha-L- 2, plasma (FUCA2), mRNA [NM_032020]
A_33_P3382856	0.01448115	down	-1.6855268	DCN	Homo sapiens decorin (DCN), transcript variant E, mRNA [NM_133507]
A_24_P205994	0.04735557	down	-1.6505252	EPGN	Homo sapiens epithelial mitogen (EPGN), transcript variant 1, mRNA [NM_001270989]
A_33_P3422777	0.04453521	down	-1.6527406	PRH2	Homo sapiens proline-rich protein HaeIII subfamily 2 (PRH2), transcript variant 1, mRNA [NM_005042]
A_23_P12357	0.011540561	down	-2.285458	CRB1	Homo sapiens crumbs family member 1, photoreceptor morphogenesis associated (CRB1), transcript variant 1, mRNA [NM_201253]

Table S12. Interactions output of String network analysis of secreted factors (Suppl.Table S8)

#node1	node2	node1_string_id	node2_string_id	neighborhood_on_chromosome	gene_fusion	phylogenetic_cooccurrence	homology	coexpression	experimentally_determined_interaction	database_annotated	automated_textmining	combined_score
ADAM10	CMTM6	9606.ENSP00000260408	9606.ENSP00000205636	0	0	0	0	0.065	0	0.9	0	0.902
ADAM10	FGA	9606.ENSP00000260408	9606.ENSP00000306361	0	0	0	0	0	0	0.9	0	0.9
ADAM10	GOLM1	9606.ENSP00000260408	9606.ENSP00000373364	0	0	0	0	0	0	0.9	0.083	0.904
CTSC	TOLLIP	9606.ENSP00000227266	9606.ENSP00000314733	0	0	0	0	0	0	0.9	0.056	0.901
FGA	GOLM1	9606.ENSP00000306361	9606.ENSP00000373364	0	0	0	0	0	0	0.9	0	0.9
IFNA8	IFNAR2	9606.ENSP00000369553	9606.ENSP00000343957	0	0	0	0	0	0	0.9	0.111	0.907
WNT11	WNT16	9606.ENSP00000325526	9606.ENSP00000222462	0	0	0	0.883	0	0	0.9	0.674	0.907

Table S13. Reactome pathway enrichment analysis output of String network analysis of secreted factors (Suppl.Table S8)

#term ID	term description	observed gene count	background gene count	strength	false discovery rate	matching proteins in your network (IDs)	matching proteins in your network (labels)
HSA-140877	Formation of Fibrin Clot (Clotting Cascade)	3	39	1.51	0.0265	9606.ENSP00000226524,9606.ENSP00000233156,9606.ENSP00000306361	PF4V1,TFPI,FGA

Table S14. Gene expression changes of string output genes from Fig. 3D in AR-AIT versus HC

ProbeName	p ([AR-] Vs [HC])	Regulation ([AR-] Vs [HC])	FC ([AR-] Vs [HC])	GeneSymbol	Description
A_23_P146512	0.015922887	down	-1.7237895	GOLM1	Homo sapiens golgi membrane protein 1 (GOLM1), transcript variant 1, mRNA [NM_016548]
A_33_P3337540	8.48E-04	down	-1.5883385	IFNAR2	Homo sapiens interferon (alpha, beta and omega) receptor 2 (IFNAR2), transcript variant 2, mRNA [NM_000874]
A_23_P48886	0.001128659	down	-1.7597382	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_33_P3385101	0.001118422	down	-1.5662017	TOLLIP	Homo sapiens toll interacting protein (TOLLIP), mRNA [NM_019009]
A_33_P3243857	0.020603279	down	-1.5195504	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_33_P3283480	0.014486304	down	-1.73419	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 2, mRNA [NM_148170]
A_23_P1552	0.001068989	down	-1.8945161	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_33_P3268472	0.01600956	down	-1.7444068	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 3, mRNA [NM_001114173]
A_24_P97526	4.79E-04	down	-2.2261345	CMTM6	Homo sapiens CKLF-like MARVEL transmembrane domain containing 6 (CMTM6), mRNA [NM_017801]
A_24_P253003	0.043552887	down	-1.9722588	WNT11	Homo sapiens wingless-type MMTV integration site family, member 11 (WNT11), mRNA [NM_004626]
A_23_P134601	0.020336712	down	-1.6759638	WNT16	Homo sapiens wingless-type MMTV integration site family, member 16 (WNT16), transcript variant 1, mRNA [NM_057168]
A_23_P44274	0.010869389	down	-1.7501987	FGA	Homo sapiens fibrinogen alpha chain (FGA), transcript variant alpha-E, mRNA [NM_000508]
A_23_P146539	0.014222398	down	-1.6848571	IFNA8	Homo sapiens interferon, alpha 8 (IFNA8), mRNA [NM_002170]

Table S15. Interactions output of String network analysis of secreted factors (Suppl.Table S9 & S10)

#node1	node2	node1_string_id	node2_string_id	neighborhood_on_chromosome	gene_fusion	phylogenetic_cooccurrence	homology	coexpression	experimentally_determined_interaction	database_annotated	automated_textmining	combined_score
ADAM10	CD59	9606.ENSP00000260408	9606.ENSP00000379191	0	0	0	0	0	0	0.9	0.104	0.906
ADAM10	CD36	9606.ENSP00000260408	9606.ENSP00000399421	0	0	0	0	0	0	0.9	0.103	0.906
CD36	CD59	9606.ENSP00000399421	9606.ENSP00000379191	0	0	0	0	0	0	0.9	0.119	0.908
CD59	CTSC	9606.ENSP00000379191	9606.ENSP00000227266	0	0	0	0	0	0	0.9	0.079	0.903
CTSC	SDCBP	9606.ENSP00000227266	9606.ENSP00000260130	0	0	0	0	0.062	0	0.9	0.06	0.904
CXCL12	CXCL5	9606.ENSP00000379140	9606.ENSP00000296027	0	0	0	0	0	0	0.9	0.67	0.965
CXCL12	SLIT2	9606.ENSP00000379140	9606.ENSP00000422591	0	0	0	0	0.12	0	0.9	0.412	0.943
GPC5	GPC6	9606.ENSP00000366267	9606.ENSP00000366246	0	0	0	0.73	0.055	0	0.9	0.8	0.922

Table S16. Reactome pathway enrichment analysis output of String network analysis of secreted factors (Suppl.Table S9 & S10)

#term ID	term description	observed gene count	background gene count	strength	false discovery rate	matching proteins in your network (IDs)	matching proteins in your network (labels)
HSA-1474244	Extracellular matrix organization	6	298	0.96	0.0126	9606.ENSP00000260228,9606.ENSP00000260408,9606.ENSP00000264498,9606.ENSP00000286657,9606.ENSP00000419446,9606.ENSP00000434412	MMP20,ADAM10,FGF2,ADAMTS3,ADAM9,SERPINH1

Table S17. Gene expression changes of string output genes from Fig. 3E in AA-AIT versus HC

ProbeName	p ([AA-] Vs [HC])	Regulation ([AA-] Vs [HC])	FC ([AA-] Vs [HC])	GeneSymbol	Description
A_23_P1552	0.03114783	down	-1.9359329	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_24_P277367	0.012249339	down	-3.093352	CXCL5	Homo sapiens chemokine (C-X-C motif) ligand 5 (CXCL5), mRNA [NM_002994]
A_24_P784765	0.004449119	down	-2.5754733	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_32_P97169	0.021822024	down	-1.6407976	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_24_P412156	0.042167045	down	-1.6281822	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_23_P48886	0.006874017	down	-1.6188662	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P157580	0.004990098	down	-1.8704803	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_23_P144348	0.025006708	down	-1.6788411	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_23_P111583	0.005921412	down	-1.7987943	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_33_P3368855	0.029727371	down	-1.5539179	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]

Table S18. Gene expression changes of string output genes from Fig. 3E in AR-AIT versus HC

ProbeName	p ([AR-] Vs [HC])	Regulation ([AR-] Vs [HC])	FC ([AR-] Vs [HC])	GeneSymbol	Description
A_23_P1552	0.001068989	down	-1.8945161	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_33_P3268472	0.01600956	down	-1.7444068	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 3, mRNA [NM_001114173]
A_24_P277367	0.028859055	down	-2.02177	CXCL5	Homo sapiens chemokine (C-X-C motif) ligand 5 (CXCL5), mRNA [NM_002994]
A_24_P784765	0.002954988	down	-1.9054285	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_32_P97169	0.00874777	down	-1.6421111	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_33_P3283480	0.014486304	down	-1.73419	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 2, mRNA [NM_148170]
A_24_P412156	0.04541582	down	-1.5474916	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_23_P48886	0.001128659	down	-1.7597382	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P157580	6.93E-05	down	-2.0741844	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_23_P144348	0.001284207	down	-2.1043441	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_23_P111583	0.008640613	down	-1.7669811	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_33_P3368855	0.009464365	down	-1.7247219	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]
A_33_P3243857	0.020603279	down	-1.5195504	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]

Table S19. Interactions output of String network analysis of secreted factors (Suppl.Table S11)

#node1	node2	node1_string_id	node2_string_id	neighborhood_on_chromosome	gene_fusion	phylogenetic_cooccurrence	homology	coexpression	experimentally_determined_interaction	database_annotated	automated_textmining	combined_score
B2M	IL2	9606.ENSP00000452780	9606.ENSP00000226730	0	0	0	0	0	0	0.9	0.588	0.957
B2M	LNPEP	9606.ENSP00000452780	9606.ENSP00000231368	0	0	0	0	0.063	0	0.9	0.097	0.908
B2M	TIMP2	9606.ENSP00000452780	9606.ENSP00000262768	0	0	0	0	0.062	0	0.9	0.214	0.919
B2M	CSTB	9606.ENSP00000452780	9606.ENSP00000291568	0	0	0	0	0	0	0.9	0.438	0.941
B2M	CALR	9606.ENSP00000452780	9606.ENSP00000320866	0	0	0	0	0	0	0.9	0.441	0.941
COL15A1	COL6A3	9606.ENSP00000364140	9606.ENSP00000295550	0	0	0	0.558	0.293	0	0.9	0.549	0.943
COL15A1	CTSL	9606.ENSP00000364140	9606.ENSP00000345344	0	0	0	0	0.061	0	0.9	0	0.902
CSTB	TIMP2	9606.ENSP00000291568	9606.ENSP00000262768	0	0	0	0	0.061	0	0.9	0.138	0.912
CXCL16	SSTR1	9606.ENSP00000293778	9606.ENSP00000267377	0	0	0	0	0	0	0.9	0	0.9
CXCL16	CXCL2	9606.ENSP00000293778	9606.ENSP00000427279	0	0	0	0	0.086	0	0.9	0.543	0.954
CXCL2	SSTR1	9606.ENSP00000427279	9606.ENSP00000267377	0	0	0	0	0	0	0.9	0	0.9
FUCA2	PCSK9	9606.ENSP00000002165	9606.ENSP00000303208	0	0	0	0	0	0	0.9	0	0.9
IL2	IL7	9606.ENSP00000226730	9606.ENSP00000263851	0	0	0	0	0	0	0	0.92	0.92
RSPO3	RSPO4	9606.ENSP00000349131	9606.ENSP00000217260	0	0	0	0.877	0	0	0.9	0.778	0.909

Table S20. Reactome pathway enrichment analysis output of String network analysis of secreted factors (Suppl.Table S11)

#term ID	term description	observed gene count	background gene count	strength	false discovery rate	matching proteins in your network (IDs)	matching proteins in your network (labels)
HSA-1236977	Endosomal/Vacuolar pathway	3	11	1.87	0.005	9606.ENSP00000231368,9606.ENSP00000345344,9606.ENSP00000452780	LNPEP,CTSL,B2M
HSA-1474228	Degradation of the extracellular matrix	6	139	1.07	0.005	9606.ENSP00000052754,9606.ENSP00000262768,9606.ENSP00000271651,9606.ENSP00000295550,9606.ENSP00000345344,9606.ENSP00000364140	DCN,TIMP2,CTSK,COL6A3,CTSL,COL15A1
HSA-1474244	Extracellular matrix organization	8	298	0.86	0.005	9606.ENSP00000052754,9606.ENSP00000262768,9606.ENSP00000264094,9606.ENSP00000271651,9606.ENSP00000295550,9606.ENSP00000345344,9606.ENSP00000364140,9606.ENSP00000374309	DCN,TIMP2,LOXL3,CTSK,COL6A3,CTSL,COL15A1,LAMA1
HSA-168256	Immune System	19	1925	0.43	0.005	9606.ENSP00000002165,9606.ENSP00000216117,9606.ENSP00000226730,9606.ENSP00000231368,9606.ENSP00000262768,9606.ENSP00000263851,9606.ENSP00000271651,9606.ENSP00000291568,9606.ENSP00000293825,9606.ENSP00000320866,9606.ENSP00000339063,9606.ENSP00000345344,9606.ENSP00000349960,9606.ENSP00000355370,9606.ENSP00000377456,9606.ENSP00000377783,9606.ENSP00000397082,9606.ENSP00000427279,9606.ENSP00000452780	FUCA2,HMOX1,IL2,LNPEP,TIMP2,IL7,CTSK,CSTB,TNFSF12,CALR,EEF1A1,CTSL,ACTB,CNTF,REG3A,PROS1,SFTPA1,CXCL2,B2M
HSA-2022090	Assembly of collagen fibrils and other multimeric structures	4	60	1.26	0.006	9606.ENSP00000264094,9606.ENSP00000295550,9606.ENSP00000345344,9606.ENSP00000364140	LOXL3,COL6A3,CTSL,COL15A1
HSA-1442490	Collagen degradation	4	64	1.23	0.006	9606.ENSP00000271651,9606.ENSP00000295550,9606.ENSP00000345344,9606.ENSP00000364140	CTSK,COL6A3,CTSL,COL15A1
HSA-1236975	Antigen processing-Cross presentation	4	96	1.05	0.019	9606.ENSP00000231368,9606.ENSP00000320866,9606.ENSP00000345344,9606.ENSP00000452780	LNPEP,CALR,CTSL,B2M
HSA-8939242	RUNX1 regulates transcription of genes involved in differentiation of keratinocytes	2	8	1.83	0.02	9606.ENSP00000271651,9606.ENSP00000345344	CTSK,CTSL
HSA-196025	Formation of annular gap junctions	2	11	1.69	0.03	9606.ENSP00000282561,9606.ENSP00000349960	GJA1,ACTB
HSA-8878171	Transcriptional regulation by RUNX1	5	201	0.83	0.03	9606.ENSP00000226730,9606.ENSP00000271651,9606.ENSP00000345344,9606.ENSP00000349131,9606.ENSP00000399797	IL2,CTSK,CTSL,RSPO3,MOV10
HSA-1679131	Trafficking and processing of endosomal TLR	2	13	1.62	0.03	9606.ENSP00000271651,9606.ENSP00000345344	CTSK,CTSL
HSA-168249	Innate Immune System	11	1012	0.47	0.03	9606.ENSP00000002165,9606.ENSP00000262768,9606.ENSP00000271651,9606.ENSP00000291568,9606.ENSP00000339063,9606.ENSP00000345344,9606.ENSP00000349960,9606.ENSP00000377456,9606.ENSP00000377783,9606.ENSP00000397082,9606.ENSP00000452780	FUCA2,TIMP2,CTSK,CSTB,EEF1A1,CTSL,ACTB,REG3A,PROS1,SFTPA1,B2M

Table S21. Gene expression changes of string output genes from Fig. 3F in AA-AIT versus HC

ProbeName	p ([AA-] Vs [HC])	Regulation ([AA-] Vs [HC]	FC ([AA-] Vs [HC])	GeneSymbol	Description
A_23_P154894	0.04197503	down	-2.02658	CSTB	Homo sapiens cystatin B (stefin B) (CSTB), mRNA [NM_000100]
A_23_P156061	0.014953146	down	-1.7880483	LNPEP	Homo sapiens leucyl/cystinyl aminopeptidase (LNPEP), transcript variant 1, mRNA [NM_005575]
A_23_P37441	0.006178621	down	-1.6903744	B2M	Homo sapiens beta-2-microglobulin (B2M), mRNA [NM_004048]
A_33_P3351249	0.028651122	down	-2.8922467	CXCL16	Homo sapiens chemokine (C-X-C motif) ligand 16 (CXCL16), transcript variant 2, mRNA [NM_001100812]
A_33_P3292854	0.04606215	down	-1.5553663	CALR	Homo sapiens calreticulin (CALR), mRNA [NM_004343]
A_33_P3280385	0.036897637	down	-1.6241232	COL6A3	Homo sapiens collagen, type VI, alpha 3 (COL6A3), transcript variant 3, mRNA [NM_057165]
A_23_P315364	0.048094835	down	-6.3066316	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_23_P94533	0.04181123	down	-3.1553388	CTSL	Homo sapiens cathepsin L (CTSL), transcript variant 1, mRNA [NM_001912]
A_23_P112554	0.012973307	down	-1.9025874	COL15A1	Homo sapiens collagen, type XV, alpha 1 (COL15A1), mRNA [NM_001855]
A_23_P111402	0.039168965	down	-3.5393105	RSPO3	Homo sapiens R-spondin 3 (RSPO3), mRNA [NM_032784]
A_32_P142440	0.03160898	down	-4.4842424	PCSK9	Homo sapiens proprotein convertase subtilisin/kexin type 9 (PCSK9), transcript variant 1, mRNA [NM_174936]
A_23_P30122	0.014566761	down	-2.0826333	IL2	Homo sapiens interleukin 2 (IL2), mRNA [NM_000586]
A_23_P8961	5.10E-04	down	-2.4128914	IL7	Homo sapiens interleukin 7 (IL7), transcript variant 1, mRNA [NM_000880]
A_33_P3382177	0.017115137	down	-1.8615247	TIMP2	Homo sapiens TIMP metallopeptidase inhibitor 2 (TIMP2), mRNA [NM_003255]
A_24_P244706	0.02434364	down	-1.6297488	SSTR1	Homo sapiens somatostatin receptor 1 (SSTR1), mRNA [NM_001049]
A_33_P3251552	0.04017219	down	-2.0559099	RSPO4	Homo sapiens R-spondin 4 (RSPO4), transcript variant 1, mRNA [NM_001029871]
A_24_P257416	0.03703572	down	-3.5145414	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_33_P3272580	0.037699625	down	-1.5141863	FUCA2	Homo sapiens fucosidase, alpha-L- 2, plasma (FUCA2), mRNA [NM_032020]

Table S22. Significantly downregulated miRs with FC > 1.5 in AA+AIT patients vs AA-AIT patients

systematic_name	p ([AA + AIT] Vs [AA - AIT])	Regulation ([AA + AIT] Vs [AA - AIT])	FC ([AA + AIT] Vs [AA - AIT])	control_type	start	chr	stop	active_sequence
hsa-miR-28-5p	0.024158344	down	-7.455312	0	189889279	chr3	189889297	CTCAATAGACTGTGAGCTCC
hsa-miR-324-5p	0.04513676	down	-4.0689654	0				ACACCAATGCCCTAGGG
hsa-miR-374b-5p	0.041954704	down	-7.1784043	0	73438413	chrX	73438396	CACTTAGCAGGTTGTATTA
hsa-miR-1228-3p	0.047235526	down	-4.0796328	0	57588348	chr12	57588357	GGGGGGCGAGG
hsa-miR-151a-5p	0.027208358	down	-11.034382	0	141742693	chr8	141742678	ACTAGACTGTGAGCTCC
hsa-miR-532-3p	0.039720543	down	-3.8990612	0				TGCAAGCCTTGGGTG
hsa-miR-6717-5p	0.03267132	down	-3.2440228	0				TCTCTACATCCCCACATC
hsa-miR-1305	0.047003493	down	-2.8930953	0				TCTCTCCCATTAGAGTTGA
hsa-miR-6131	0.046517484	down	-2.9628332	0				CACTCCCATCTGACC
hsa-miR-6734-5p	0.04893714	down	-3.7749765	0				TCTCCACCTCATTCTCC
hsa-miR-98-5p	0.04513293	down	-4.1704364	0	53583226	chrX	53583207	AACAATACAACTTACTACCTC
hsa-miR-106b-5p	0.029438308	down	-11.049702	0	99691647	chr7	99691632	ATCTGCACTGTCAGCAC
hsa-miR-140-3p	0.013686904	down	-10.485485	0				CCGTGGTTCTACCCT
hsa-miR-30b-5p	0.029909743	down	-8.95347	0	135812800	chr8	135812784	AGCTGAGTGTAGGATGTT
hsa-miR-185-5p	0.010330732	down	-10.844199	0	20020682	chr22	20020697	TCAGGAACTGCCTTTCT
hsa-miR-30d-5p	0.024484977	down	-8.46326	0	135817145	chr8	135817133	CTTCCAGTCGGGGA
hsa-miR-193a-3p	0.044123504	down	-3.6384697	0				ACTGGGACTTTGTAGGC
hsa-miR-324-3p	0.038454916	down	-3.25746	0	7067411	chr17	7067397	CCAGCAGCACCTGGGG
hsa-miR-146a-5p	0.03280165	down	-4.9754696	0	159912383	chr5	159912400	AACCCATGGAATTCAGTTC
hsa-miR-142-3p	0.03657261	down	-10.200315	0				TCCATAAAGTAGGAAACACTACA
hsa-miR-4306	0.02897919	down	-8.569358	0				TACTGCCTTTCTCTCCA

Table S23. Significantly upregulated miRs with FC > 1.5 in AA+AIT patients vs AA-AIT patients

systematic_name	p ([AA + AIT] Vs [AA - AIT])	Regulation ([AA + AIT] Vs [AA - AIT])	FC ([AA + AIT] Vs [AA - AIT])	control_type	start	chr	stop	active_sequence
hsa-miR-3935	0.019666798	up	15.552136	0				GTGGCTGGTGCTCG
hsa-miR-4664-3p	0.041063078	up	7.8833814	0				GACGGGGCTCACA
hsa-miR-3176	0.020715654	up	5.4889126	0				CCGGTAGTCCCAGG
hsa-miR-6824-3p	0.010744545	up	10.463927	0				CTGGGGTGGCAAGA

Table S24. Significantly upregulated mRNA transcripts, predicted as miR targets of downregulated miRs in AA+A

ProbeName	p ([AA+] Vs [AA-])	Regulation ([AA+] Vs [AA-]	FC ([AA+] Vs [AA-])	GeneSymbol	Description
A_22_P00025959	0.008267585	up	3.0188756	PTPN14	Homo sapiens protein tyrosine phosphatase, non-receptor type 14 (PTPN14), mRNA [NM_005401]
A_21_P0007218	0.025259802	up	2.10604	BCAS4	breast carcinoma amplified sequence 4 [Source:HGNC Symbol;Acc:HGNC:14367] [ENST00000463943]
A_24_P119201	0.032267425	up	4.3395677	MBD2	Homo sapiens methyl-CpG binding domain protein 2 (MBD2), transcript variant 2, mRNA [NM_015832]
A_23_P34744	0.018902192	up	2.5394428	CTSK	Homo sapiens cathepsin K (CTSK), mRNA [NM_000396]
A_33_P3351765	0.04824749	up	1.5702411	KLHDC10	Homo sapiens kelch domain containing 10 (KLHDC10), mRNA [NM_014997]
A_33_P3312301	0.013374288	up	2.283162	CIT	Homo sapiens citron rho-interacting serine/threonine kinase (CIT), transcript variant 1, mRNA [NM_001206999]
A_24_P3249	0.04727897	up	2.1390593	RARB	Homo sapiens retinoic acid receptor, beta (RARB), transcript variant 1, mRNA [NM_000965]
A_23_P126167	0.03761459	up	1.9106991	KCNN3	Homo sapiens potassium channel, calcium activated intermediate/small conductance subfamily N alpha, member 3 (KCNN3), transcript variant 1, mRNA [NM_002249]
A_33_P3246927	0.020933459	up	3.163219	CSMD2	CUB and Sushi multiple domains 2 [Source:HGNC Symbol;Acc:HGNC:19290] [ENST00000373377]
A_33_P3215883	0.02669955	up	2.7376387	FLT1	Homo sapiens fms-related tyrosine kinase 1 (FLT1), transcript variant 1, mRNA [NM_002019]
A_23_P354908	0.04764134	up	2.035373	NMNAT2	Homo sapiens nicotinamide nucleotide adenylyltransferase 2 (NMNAT2), transcript variant 1, mRNA [NM_015039]
A_33_P3244013	0.028290942	up	2.7207148	NEBL	Homo sapiens nebulette (NEBL), transcript variant 1, mRNA [NM_006393]
A_33_P3217103	0.043945603	up	2.9351823	RBFOX2	Homo sapiens RNA binding protein, fox-1 homolog (C. elegans) 2 (RBFOX2), transcript variant 1, mRNA [NM_001031695]
A_23_P129695	0.022506306	up	5.5913796	VASN	Homo sapiens vasorin (VASN), mRNA [NM_138440]
A_23_P202810	0.038677886	up	4.2564597	OVOL1	Homo sapiens ovo-like zinc finger 1 (OVOL1), mRNA [NM_004561]
A_33_P3403666	0.018223017	up	2.0489354	NDOR1	Homo sapiens NADPH dependent diflavin oxidoreductase 1 (NDOR1), transcript variant 1, mRNA [NM_001144026]
A_23_P55544	0.039754808	up	2.0705285	CCBE1	Homo sapiens collagen and calcium binding EGF domains 1 (CCBE1), mRNA [NM_133459]
A_23_P204751	0.032223113	up	1.8019806	ASIC1	Homo sapiens acid sensing (proton gated) ion channel 1 (ASIC1), transcript variant 1, mRNA [NM_020039]
A_33_P3235990	0.024862397	up	2.7156081	PTPN21	Homo sapiens protein tyrosine phosphatase, non-receptor type 21 (PTPN21), mRNA [NM_007039]
A_32_P49309	0.007460508	up	3.2892218	MRO	Homo sapiens maestro (MRO), transcript variant 1, mRNA [NM_031939]
A_24_P374943	0.046283748	up	3.106972	CXADR	Homo sapiens coxsackie virus and adenovirus receptor (CXADR), transcript variant 1, mRNA [NM_001338]
A_33_P3264657	0.045290012	up	1.791231	CYP27C1	Homo sapiens cytochrome P450, family 27, subfamily C, polypeptide 1 (CYP27C1), mRNA [NM_001001665]
A_33_P3353372	0.038600575	up	2.0380878	LMBR1	limb development membrane protein 1 [Source:HGNC Symbol;Acc:HGNC:13243] [ENST00000430825]
A_33_P3318097	0.035772443	up	7.6764574	TMPRSS11B	Homo sapiens transmembrane protease, serine 11B (TMPRSS11B), mRNA [NM_182502]
A_23_P393686	0.030650342	up	1.8258917	TDRP	Homo sapiens testis development related protein (TDRP), transcript variant 1, mRNA [NM_175075]
A_33_P3390868	0.010984283	up	2.0363832	SYNPO2	Homo sapiens synaptopodin 2 (SYNPO2), transcript variant 1, mRNA [NM_133477]
A_23_P148422	0.040152688	up	2.0472484	PCYT1B	Homo sapiens phosphate cytidylyltransferase 1, choline, beta (PCYT1B), transcript variant 1, mRNA [NM_004845]
A_21_P0003568	0.02422322	up	2.2027633	FAM90A1	Homo sapiens family with sequence similarity 90, member A1 (FAM90A1), mRNA [NM_018088]
A_24_P330303	0.032011498	up	2.9742773	FRMD6	Homo sapiens FERM domain containing 6 (FRMD6), transcript variant 1, mRNA [NM_001042481]
A_23_P125435	0.03575691	up	1.8281744	GABRB1	Homo sapiens gamma-aminobutyric acid (GABA) A receptor, beta 1 (GABRB1), mRNA [NM_000812]

A_33_P3270429	0.017956872	up	2.2523565	NR1D2	Homo sapiens nuclear receptor subfamily 1, group D, member 2 (NR1D2), transcript variant 3, non-coding RNA [NR_110524]
A_23_P170959	0.042207398	up	2.1120648	LMLN	Homo sapiens leishmanolysin-like (metallopeptidase M8 family) (LMLN), transcript variant 2, mRNA [NM_033029]
A_24_P388786	0.030782059	up	4.549212	DNAH5	Homo sapiens dynein, axonemal, heavy chain 5 (DNAH5), mRNA [NM_001369]
A_24_P938614	0.048504915	up	2.1181788	CDS1	Homo sapiens CDP-diacylglycerol synthase (phosphatidate cytidylyltransferase) 1 (CDS1), mRNA [NM_001263]
A_23_P152970	0.04191233	up	1.7962584	RAPGEFL1	Rap guanine nucleotide exchange factor (GEF)-like 1 [Source:HGNC Symbol;Acc:HGNC:17428] [ENST00000620260]
A_23_P1102	0.048693117	up	1.8448497	ACTA1	Homo sapiens actin, alpha 1, skeletal muscle (ACTA1), mRNA [NM_001100]
A_24_P941557	0.040118728	up	2.0646484	MVB12B	Homo sapiens multivesicular body subunit 12B (MVB12B), transcript variant 2, mRNA [NM_001011703]
A_22_P00013045	0.04385099	up	2.075084	RGS5	Homo sapiens regulator of G-protein signaling 5 (RGS5), transcript variant 3, mRNA [NM_001254748]
A_33_P3406677	0.035089374	up	1.9658946	ADH7	Homo sapiens alcohol dehydrogenase 7 (class IV), mu or sigma polypeptide (ADH7), transcript variant 2, mRNA [NM_000673]
A_23_P212423	0.035312407	up	1.6784135	XYLB	Homo sapiens xylulokinase homolog (H. influenzae) (XYLB), mRNA [NM_005108]
A_24_P262127	0.035093218	up	3.3187585	RRAD	Homo sapiens Ras-related associated with diabetes (RRAD), transcript variant 2, mRNA [NM_004165]
A_33_P3412468	0.029225534	up	2.051281	SLC25A27	Homo sapiens solute carrier family 25, member 27 (SLC25A27), transcript variant 1, mRNA [NM_004277]

Table S25. Significantly downregulated mRNA transcripts, predicted as miR targets of upregulated miRs in AA+AIT vs AA-AIT

ProbeName	p ([AA+] Vs [AA-])	Regulation ([AA+] Vs [AA-])	FC (abs) ([AA+] Vs [AA-])	FC ([AA+] Vs [AA-])	Log FC ([AA+] Vs [AA-])	GeneSymbol	Description
A_23_P103328	0.049066655	down	2.6242142	-2.6242142	-1.3918854	PTGER3	Homo sapiens prostaglandin E receptor 3 (subtype EP3) (PTGER3), transcript variant 4, mRNA [NM_198714]

Table S26. Flowcytometry Antibodies

Antigen	Fluorochrome	company	Cat.#	Isotyp	Clone	Dilution
Lineage	FITC	BioLegend	348801	Mouse IgG1 / IgG2a, κ	UCHT1; HCD14; 3G8; HIB19; 2H7; HCD56	1:200
CD45	APC-Cy7	BioLegend	304014	Mouse IgG1, κ	HI30	1:200
CD127 (IL-7Rα)	BV711	BioLegend	351327	Mouse IgG1, κ	A019D5	1:200
CD294 (CRTH2)	BV650	BD	740616	Rat / IgG2a, κ	BM16	1:200
IL-13	APC	BD	561162	Rat IgG1	JES10-5A2	1:50
Fixable viability stain	V510	BD	564406			1:1000

Table S27. Significantly upregulated miRs with FC > 10 in AA-AIT patients versus HC analyzed by miR microarray (see Suppl.Fig.2)

systematic_name	p ([AA - AIT] Vs [HC])	Regulation ([AA - AIT] Vs [HC])	FC (abs) ([AA - AIT] Vs [HC])
hsa-miR-1233-5p	0,002620704	up	10,037859
hsa-miR-125a-5p	0,012394682	up	11,810931
hsa-miR-130a-3p	0,013393003	up	11,306049
hsa-miR-130b-3p	0,007554296	up	15,6091385
hsa-miR-192-5p	0,013092756	up	10,644565
hsa-miR-199a-3p	0,008666725	up	15,315633
hsa-miR-211-3p	0,001573525	up	11,126227
hsa-miR-212-3p	0,002254702	up	10,611317
hsa-miR-362-3p	0,002103268	up	10,970899
hsa-miR-363-3p	0,016679212	up	11,391617
hsa-miR-424-5p	9,31E-04	up	28,406324
hsa-miR-4463	0,002363124	up	10,404692
hsa-miR-451a	0,03072449	up	21,251144
hsa-miR-590-5p	0,008949685	up	12,158628
hsa-miR-6768-5p	0,002414774	up	10,242666
hsa-miR-6772-5p	0,00259458	up	10,065361
hsa-miR-6880-5p	0,002840157	up	10,099302

Table S28. Gene expression changes of string output genes from Fig. 2D in AA-AIT versus HC (see Suppl.Fig.3)

ProbeName	p ([AA-] Vs [HC])	Regulation ([AA-] Vs [HC])	FC ([AA-] Vs [HC])	GeneSymbol	Description
A_23_P127891	0,01149975	down	-1,8091713	BDNF	Homo sapiens brain-derived neurotrophic factor (BDNF), transcript variant 1, mRNA [NM_170735]
A_23_P154894	0,04197503	down	-2,02658	CSTB	Homo sapiens cystatin B (stefin B) (CSTB), mRNA [NM_000100]
A_23_P156061	0,014953146	down	-1,7880483	LNPEP	Homo sapiens leucyl/cystinyl aminopeptidase (LNPEP), transcript variant 1, mRNA [NM_005575]
A_23_P256413	0,014506795	down	-1,546428	CMTM7	Homo sapiens CKLF-like MARVEL transmembrane domain containing 7 (CMTM7), transcript variant 1, mRNA [NM_138410]
A_23_P37441	0,006178621	down	-1,6903744	B2M	Homo sapiens beta-2-microglobulin (B2M), mRNA [NM_004048]
A_33_P3379886	0,031061854	down	-1,6620039	FGF2	Homo sapiens fibroblast growth factor 2 (basic) (FGF2), mRNA [NM_002006]
A_33_P3351249	0,028651122	down	-2,8922467	CXCL16	Homo sapiens chemokine (C-X-C motif) ligand 16 (CXCL16), transcript variant 2, mRNA [NM_001100812]
A_23_P212617	0,035766084	down	-3,1347427	TFRC	Homo sapiens transferrin receptor (TFRC), transcript variant 1, mRNA [NM_003234]
A_23_P1552	0,03114783	down	-1,9359329	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_33_P3269203	0,009001244	down	-2,067726	SERPINH1	Homo sapiens serpin peptidase inhibitor, clade H (heat shock protein 47), member 1, (collagen binding protein 1) (SERPINH1), transcript variant 1, mRNA [NM_001207014]
A_33_P3292854	0,04606215	down	-1,5553663	CALR	Homo sapiens calreticulin (CALR), mRNA [NM_004343]
A_33_P3280385	0,036897637	down	-1,6241232	COL6A3	Homo sapiens collagen, type VI, alpha 3 (COL6A3), transcript variant 3, mRNA [NM_057165]
A_23_P315364	0,048094835	down	-6,3066316	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_23_P94533	0,04181123	down	-3,1553388	CTSL	Homo sapiens cathepsin L (CTSL), transcript variant 1, mRNA [NM_001912]
A_24_P277367	0,012249339	down	-3,093352	CXCL5	Homo sapiens chemokine (C-X-C motif) ligand 5 (CXCL5), mRNA [NM_002994]
A_24_P784765	0,004449119	down	-2,5754733	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_32_P97169	0,021822024	down	-1,6407976	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_24_P412156	0,042167045	down	-1,6281822	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_23_P112554	0,012973307	down	-1,9025874	COL15A1	Homo sapiens collagen, type XV, alpha 1 (COL15A1), mRNA [NM_001855]
A_24_P365807	0,023668826	down	-1,8524894	EFNB1	Homo sapiens ephrin-B1 (EFNB1), mRNA [NM_004429]
A_23_P48886	0,006874017	down	-1,6188662	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P111402	0,039168965	down	-3,5393105	RSPO3	Homo sapiens R-spondin 3 (RSPO3), mRNA [NM_032784]
A_23_P157580	0,004990098	down	-1,8704803	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_32_P142440	0,03160898	down	-4,4842424	PCSK9	Homo sapiens proprotein convertase subtilisin/kexin type 9 (PCSK9), transcript variant 1, mRNA [NM_174936]
A_23_P30122	0,014566761	down	-2,0826333	IL2	Homo sapiens interleukin 2 (IL2), mRNA [NM_000586]
A_23_P144348	0,025006708	down	-1,6788411	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_23_P8961	5,10E-04	down	-2,4128914	IL7	Homo sapiens interleukin 7 (IL7), transcript variant 1, mRNA [NM_000880]
A_33_P3382177	0,017115137	down	-1,8615247	TIMP2	Homo sapiens TIMP metallopeptidase inhibitor 2 (TIMP2), mRNA [NM_003255]
A_24_P244706	0,02434364	down	-1,6297488	SSTR1	Homo sapiens somatostatin receptor 1 (SSTR1), mRNA [NM_001049]
A_33_P3251552	0,04017219	down	-2,0559099	RSPO4	Homo sapiens R-spondin 4 (RSPO4), transcript variant 1, mRNA [NM_001029871]
A_24_P257416	0,03703572	down	-3,5145414	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_23_P206396	0,029042121	down	-1,5468429	CKLF	Homo sapiens chemokine-like factor (CKLF), transcript variant 5, mRNA [NM_001040138]
A_33_P3272580	0,037699625	down	-1,5141863	FUCA2	Homo sapiens fucosidase, alpha-L- 2, plasma (FUCA2), mRNA [NM_032020]
A_23_P47292	0,023319086	down	-1,7285758	MMP20	Homo sapiens matrix metallopeptidase 20 (MMP20), mRNA [NM_004771]
A_33_P3382856	0,01448115	down	-1,6855268	DCN	Homo sapiens decorin (DCN), transcript variant E, mRNA [NM_133507]
A_23_P111583	0,005921412	down	-1,7987943	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_33_P3368855	0,029727371	down	-1,5539179	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]

Table S29. Gene expression changes of string output genes from Fig. 3D in AR-AIT versus HC (see Suppl.Fig.4)

ProbeName	p ([AR-] Vs [HC])	Regulation ([AR-] Vs [HC])	FC ([AR-] Vs [HC])	GeneSymbol	Description
A_24_P97526	4,79E-04	down	-2,2261345	CMTM6	Homo sapiens CKLF-like MARVEL transmembrane domain containing 6 (CMTM6), mRNA [NM_017801]
A_33_P3337540	8,48E-04	down	-1,5883385	IFNAR2	Homo sapiens interferon (alpha, beta and omega) receptor 2 (IFNAR2), transcript variant 2, mRNA [NM_000874]
A_24_P253003	0,043552887	down	-1,9722588	WNT11	Homo sapiens wingless-type MMTV integration site family, member 11 (WNT11), mRNA [NM_004626]
A_23_P1552	0,001068989	down	-1,8945161	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_23_P44274	0,010869389	down	-1,7501987	FGA	Homo sapiens fibrinogen alpha chain (FGA), transcript variant alpha-E, mRNA [NM_000508]
A_33_P3268472	0,01600956	down	-1,7444068	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 3, mRNA [NM_001114173]
A_33_P3385101	0,001118422	down	-1,5662017	TOLLIP	Homo sapiens toll interacting protein (TOLLIP), mRNA [NM_019009]
A_23_P146539	0,014222398	down	-1,6848571	IFNA8	Homo sapiens interferon, alpha 8 (IFNA8), mRNA [NM_002170]
A_33_P3283480	0,014486304	down	-1,73419	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 2, mRNA [NM_148170]
A_23_P48886	0,001128659	down	-1,7597382	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P134601	0,020336712	down	-1,6759638	WNT16	Homo sapiens wingless-type MMTV integration site family, member 16 (WNT16), transcript variant 1, mRNA [NM_057168]
A_23_P146512	0,015922887	down	-1,7237895	GOLM1	Homo sapiens golgi membrane protein 1 (GOLM1), transcript variant 1, mRNA [NM_016548]
A_33_P3243857	0,020603279	down	-1,5195504	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]

Table S30-1. Gene expression changes of string output genes from Fig. 3E in AA-AIT versus HC (see Suppl.Fig.5)

ProbeName	p ([AR-] Vs [H	Regulation ([AR-] Vs [HC])	FC ([AR-] Vs [HC])	GeneSymbol	Description
A_23_P371682	0,0407429	up	2,2242882	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_23_P1552	0,00106899	down	-1,8945161	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_33_P3268472	0,01600956	down	-1,7444068	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 3, mRNA [NM_001114173]
A_24_P277367	0,02885906	down	-2,02177	CXCL5	Homo sapiens chemokine (C-X-C motif) ligand 5 (CXCL5), mRNA [NM_002994]
A_24_P784765	0,00295499	down	-1,9054285	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_32_P97169	0,00874777	down	-1,6421111	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_33_P3283480	0,0144863	down	-1,73419	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 2, mRNA [NM_148170]
A_24_P412156	0,04541582	down	-1,5474916	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_23_P48886	0,00112866	down	-1,7597382	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P157580	6,93E-05	down	-2,0741844	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_23_P144348	0,00128421	down	-2,1043441	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_33_P3372840	0,00571502	up	1,839947	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 3, mRNA [NM_001033886]
A_23_P111583	0,00864061	down	-1,7669811	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_33_P3368855	0,00946437	down	-1,7247219	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]
A_33_P3243857	0,02060328	down	-1,5195504	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]

Table S30-2. Gene expression changes of string output genes from Fig. 3E in AR-AIT versus HC (see Suppl.Fig.5)

ProbeName	p ([AA-] Vs [H	Regulation ([AA-] Vs [HC])	FC ([AA-] Vs [HC])	GeneSymbol	Description
A_23_P1552	0,03114783	down	-1,9359329	CTSC	Homo sapiens cathepsin C (CTSC), transcript variant 1, mRNA [NM_001814]
A_24_P277367	0,01224934	down	-3,093352	CXCL5	Homo sapiens chemokine (C-X-C motif) ligand 5 (CXCL5), mRNA [NM_002994]
A_24_P784765	0,00444912	down	-2,5754733	CD59	Homo sapiens CD59 molecule, complement regulatory protein (CD59), transcript variant 1, mRNA [NM_203330]
A_32_P97169	0,02182202	down	-1,6407976	GPC6	Homo sapiens glypican 6 (GPC6), mRNA [NM_005708]
A_24_P412156	0,04216705	down	-1,6281822	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 2, mRNA [NM_000609]
A_23_P48886	0,00687402	down	-1,6188662	ADAM10	Homo sapiens ADAM metallopeptidase domain 10 (ADAM10), mRNA [NM_001110]
A_23_P157580	0,0049901	down	-1,8704803	SDCBP	Homo sapiens syndecan binding protein (syntenin) (SDCBP), transcript variant 1, mRNA [NM_005625]
A_23_P144348	0,02500671	down	-1,6788411	SLIT2	Homo sapiens slit homolog 2 (Drosophila) (SLIT2), transcript variant 1, mRNA [NM_004787]
A_33_P3372840	0,01777505	up	1,7006797	CXCL12	Homo sapiens chemokine (C-X-C motif) ligand 12 (CXCL12), transcript variant 3, mRNA [NM_001033886]
A_23_P111583	0,00592141	down	-1,7987943	CD36	Homo sapiens CD36 molecule (thrombospondin receptor) (CD36), transcript variant 2, mRNA [NM_001001547]
A_33_P3368855	0,02972737	down	-1,5539179	GPC5	Homo sapiens glypican 5 (GPC5), mRNA [NM_004466]

Table S31. Gene expression changes of string output genes from Fig. 3F in AA-AIT versus HC (see Suppl.Fig.6)

ProbeName	p ([AA-] Vs [HC])	Regulation ([AA-] Vs [HC])	FC ([AA-] Vs [HC])	GeneSymbol	Description
A_23_P154894	0,04197503	down	-2,02658	CSTB	Homo sapiens cystatin B (stefin B) (CSTB), mRNA [NM_000100]
A_23_P156061	0,014953146	down	-1,7880483	LNPEP	Homo sapiens leucyl/cystinyl aminopeptidase (LNPEP), transcript variant 1, mRNA [NM_005575]
A_23_P37441	0,006178621	down	-1,6903744	B2M	Homo sapiens beta-2-microglobulin (B2M), mRNA [NM_004048]
A_33_P3351249	0,028651122	down	-2,8922467	CXCL16	Homo sapiens chemokine (C-X-C motif) ligand 16 (CXCL16), transcript variant 2, mRNA [NM_001100812]
A_33_P3292854	0,04606215	down	-1,5553663	CALR	Homo sapiens calreticulin (CALR), mRNA [NM_004343]
A_33_P3280385	0,036897637	down	-1,6241232	COL6A3	Homo sapiens collagen, type VI, alpha 3 (COL6A3), transcript variant 3, mRNA [NM_057165]
A_23_P315364	0,048094835	down	-6,3066316	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_23_P94533	0,04181123	down	-3,1553388	CTSL	Homo sapiens cathepsin L (CTSL), transcript variant 1, mRNA [NM_001912]
A_23_P112554	0,012973307	down	-1,9025874	COL15A1	Homo sapiens collagen, type XV, alpha 1 (COL15A1), mRNA [NM_001855]
A_23_P111402	0,039168965	down	-3,5393105	RSPO3	Homo sapiens R-spondin 3 (RSPO3), mRNA [NM_032784]
A_32_P142440	0,03160898	down	-4,4842424	PCSK9	Homo sapiens proprotein convertase subtilisin/kexin type 9 (PCSK9), transcript variant 1, mRNA [NM_174936]
A_23_P30122	0,014566761	down	-2,0826333	IL2	Homo sapiens interleukin 2 (IL2), mRNA [NM_000586]
A_23_P8961	5,10E-04	down	-2,4128914	IL7	Homo sapiens interleukin 7 (IL7), transcript variant 1, mRNA [NM_000880]
A_33_P3382177	0,017115137	down	-1,8615247	TIMP2	Homo sapiens TIMP metallopeptidase inhibitor 2 (TIMP2), mRNA [NM_003255]
A_24_P244706	0,02434364	down	-1,6297488	SSTR1	Homo sapiens somatostatin receptor 1 (SSTR1), mRNA [NM_001049]
A_33_P3251552	0,04017219	down	-2,0559099	RSPO4	Homo sapiens R-spondin 4 (RSPO4), transcript variant 1, mRNA [NM_001029871]
A_24_P257416	0,03703572	down	-3,5145414	CXCL2	Homo sapiens chemokine (C-X-C motif) ligand 2 (CXCL2), mRNA [NM_002089]
A_33_P3272580	0,037699625	down	-1,5141863	FUCA2	Homo sapiens fucosidase, alpha-L- 2, plasma (FUCA2), mRNA [NM_032020]

Table S32. Significantly downregulated miRs with FC > 1.5 in AA+AIT patients vs AA-AIT patients (see Suppl.Fig.7)

systematic_name	p ([AA + AIT] Vs [AA - AIT])	Regulation ([AA + AIT] Vs [AA - AIT])	FC ([AA + AIT] Vs [AA - AIT])
hsa-miR-106b-5p	0,029438308	down	-11,049702
hsa-miR-1228-3p	0,047235526	down	-4,0796328
hsa-miR-1305	0,047003493	down	-2,8930953
hsa-miR-140-3p	0,013686904	down	-10,485485
hsa-miR-142-3p	0,03657261	down	-10,200315
hsa-miR-146a-5p	0,03280165	down	-4,9754696
hsa-miR-151a-5p	0,027208358	down	-11,034382
hsa-miR-185-5p	0,010330732	down	-10,844199
hsa-miR-193a-3p	0,044123504	down	-3,6384697
hsa-miR-28-5p	0,024158344	down	-7,455312
hsa-miR-30b-5p	0,029909743	down	-8,95347
hsa-miR-30d-5p	0,024484977	down	-8,46326
hsa-miR-324-3p	0,038454916	down	-3,25746
hsa-miR-324-5p	0,04513676	down	-4,0689654
hsa-miR-374b-5p	0,041954704	down	-7,1784043
hsa-miR-4306	0,02897919	down	-8,569358
hsa-miR-532-3p	0,039720543	down	-3,8990612
hsa-miR-6131	0,046517484	down	-2,9628332
hsa-miR-6717-5p	0,03267132	down	-3,2440228
hsa-miR-6734-5p	0,04893714	down	-3,7749765
hsa-miR-98-5p	0,04513293	down	-4,1704364

Table S33. Significantly upregulated miRs with FC > 1.5 in AA+AIT patients vs AA-AIT patients (see Suppl.Fig.8)

systematic_name	p ([AA + AIT] Vs [AA - AIT])	Regulation ([AA + AIT] Vs [AA - AIT])	FC ([AA + AIT] Vs [AA - AIT])
hsa-miR-3176	0,020715654	up	5,4889126
hsa-miR-3935	0,019666798	up	15,552136
hsa-miR-4664-3p	0,041063078	up	7,8833814
hsa-miR-6824-3p	0,010744545	up	10,463927

Table S34. Significantly upregulated mRNA transcripts, predicted as miR targets of downregulated miRs in AA+AIT vs. AA-AIT (see Suppl.Fig.9)

ProbeName	p ([AA+] Vs [AA-])	Regulation ([AA+] Vs [AA-])	FC ([AA+] Vs [AA-])	GeneSymbol	Description
A_32_P223777	0,048167884	down	-1,7246135	IL6ST	Homo sapiens interleukin 6 signal transducer (IL6ST), transcript variant 1, mRNA [NM_002184]
A_22_P00025959	0,008267585	up	3,0188756	PTPN14	Homo sapiens protein tyrosine phosphatase, non-receptor type 14 (PTPN14), mRNA [NM_005401]
A_21_P0007218	0,025259802	up	2,10604	BCAS4	breast carcinoma amplified sequence 4 [Source:HGNC Symbol;Acc:HGNC:14367] [ENST00000463943]
A_23_P503072	0,025386205	down	-2,0975192	CCL28	Homo sapiens chemokine (C-C motif) ligand 28 (CCL28), transcript variant 1, mRNA [NM_148672]
A_24_P119201	0,032267425	up	4,3395677	MBD2	Homo sapiens methyl-CpG binding domain protein 2 (MBD2), transcript variant 2, mRNA [NM_015832]
A_23_P34744	0,018902192	up	2,5394428	CTSK	Homo sapiens cathepsin K (CTSK), mRNA [NM_000396]
A_24_P167338	0,040108997	down	-1,8014033	RAB30	Homo sapiens RAB30, member RAS oncogene family (RAB30), transcript variant 2, mRNA [NM_014488]
A_33_P3351765	0,04824749	up	1,5702411	KLHDC10	Homo sapiens kelch domain containing 10 (KLHDC10), mRNA [NM_014997]
A_23_P134433	0,03839302	down	-1,6345108	EN2	Homo sapiens engrailed homeobox 2 (EN2), mRNA [NM_001427]
A_24_P82466	0,036661003	down	-2,0606017	GAS7	Homo sapiens growth arrest-specific 7 (GAS7), transcript variant c, mRNA [NM_201433]
A_33_P3312301	0,013374288	up	2,283162	CIT	Homo sapiens citron rho-interacting serine/threonine kinase (CIT), transcript variant 1, mRNA [NM_001206999]
A_33_P3224680	0,045581456	down	-1,5585234	TRMT13	tRNA methyltransferase 13 homolog (S. cerevisiae) [Source:HGNC Symbol;Acc:HGNC:25502] [ENST00000370143]
A_24_P13041	0,00242736	down	-4,0164514	RTKN2	Homo sapiens rhotekin 2 (RTKN2), transcript variant 1, mRNA [NM_145307]
A_24_P3249	0,04727897	up	2,1390593	RARB	Homo sapiens retinoic acid receptor, beta (RARB), transcript variant 1, mRNA [NM_000965]
A_23_P126167	0,03761459	up	1,9106991	KCNN3	Homo sapiens potassium channel, calcium activated intermediate/small conductance subfamily N alpha, member 3 (KCNN3), transcript variant 1, mRNA [NM_002249]
A_33_P3246927	0,020933459	up	3,163219	CSMD2	CUB and Sushi multiple domains 2 [Source:HGNC Symbol;Acc:HGNC:19290] [ENST00000373377]
A_33_P3215883	0,02669955	up	2,7376387	FLT1	Homo sapiens fms-related tyrosine kinase 1 (FLT1), transcript variant 1, mRNA [NM_002019]
A_23_P404494	0,046840604	down	-1,9488704	IL7R	Homo sapiens interleukin 7 receptor (IL7R), transcript variant 1, mRNA [NM_002185]
A_23_P354908	0,04764134	up	2,035373	NMNAT2	Homo sapiens nicotinamide nucleotide adenylyltransferase 2 (NMNAT2), transcript variant 1, mRNA [NM_015039]
A_33_P3244013	0,028290942	up	2,7207148	NEBL	Homo sapiens nebulette (NEBL), transcript variant 1, mRNA [NM_006393]
A_33_P3217103	0,043945603	up	2,9351823	RBFOX2	Homo sapiens RNA binding protein, fox-1 homolog (C. elegans) 2 (RBFOX2), transcript variant 1, mRNA [NM_001031695]
A_23_P103328	0,049066655	down	-2,6242142	PTGER3	Homo sapiens prostaglandin E receptor 3 (subtype EP3) (PTGER3), transcript variant 4, mRNA [NM_198714]
A_23_P129695	0,022506306	up	5,5913796	VASN	Homo sapiens vasorin (VASN), mRNA [NM_138440]
A_23_P202810	0,038677886	up	4,2564597	OVOL1	Homo sapiens ovo-like zinc finger 1 (OVOL1), mRNA [NM_004561]
A_33_P3403666	0,018223017	up	2,0489354	NDOR1	Homo sapiens NADPH dependent diflavin oxidoreductase 1 (NDOR1), transcript variant 1, mRNA [NM_001144026]
A_23_P55544	0,039754808	up	2,0705285	CCBE1	Homo sapiens collagen and calcium binding EGF domains 1 (CCBE1), mRNA [NM_133459]
A_33_P3288649	0,031899925	down	-1,7332913	HOXA10	Homo sapiens homeobox A10 (HOXA10), transcript variant 1, mRNA [NM_018951]
A_23_P204751	0,032223113	up	1,8019806	ASIC1	Homo sapiens acid sensing (proton gated) ion channel 1 (ASIC1), transcript variant 1, mRNA [NM_020039]
A_33_P3290909	0,021788448	down	-1,6973042	SMC1A	Homo sapiens structural maintenance of chromosomes 1A (SMC1A), transcript variant 2, mRNA [NM_001281463]
A_33_P3235990	0,024862397	up	2,7156081	PTPN21	Homo sapiens protein tyrosine phosphatase, non-receptor type 21 (PTPN21), mRNA [NM_007039]
A_32_P49309	0,007460508	up	3,2892218	MRO	Homo sapiens maestro (MRO), transcript variant 1, mRNA [NM_031939]
A_24_P374943	0,046283748	up	3,106972	CXADR	Homo sapiens coxsackie virus and adenovirus receptor (CXADR), transcript variant 1, mRNA [NM_001338]
A_33_P3264657	0,045290012	up	1,791231	CYP27C1	Homo sapiens cytochrome P450, family 27, subfamily C, polypeptide 1 (CYP27C1), mRNA [NM_001001665]
A_33_P3353372	0,038600575	up	2,0380878	LMBR1	limb development membrane protein 1 [Source:HGNC Symbol;Acc:HGNC:13243] [ENST00000430825]
A_33_P3318097	0,035772443	up	7,6764574	TMPRSS11B	Homo sapiens transmembrane protease, serine 11B (TMPRSS11B), mRNA [NM_182502]
A_23_P393686	0,030650342	up	1,8258917	TDRP	Homo sapiens testis development related protein (TDRP), transcript variant 1, mRNA [NM_175075]
A_33_P3390868	0,010984283	up	2,0363832	SYNPO2	Homo sapiens synaptopodin 2 (SYNPO2), transcript variant 1, mRNA [NM_133477]
A_23_P148422	0,040152688	up	2,0472484	PCYT1B	Homo sapiens phosphate cytidylyltransferase 1, choline, beta (PCYT1B), transcript variant 1, mRNA [NM_004845]
A_23_P145724	0,018119773	down	-2,8103912	PPP1R17	Homo sapiens protein phosphatase 1, regulatory subunit 17 (PPP1R17), transcript variant 1, mRNA [NM_006658]
A_24_P230563	9,82E-04	down	-2,7606	IL2RA	Homo sapiens interleukin 2 receptor, alpha (IL2RA), mRNA [NM_000417]
A_21_P0003568	0,02422322	up	2,2027633	FAM90A1	Homo sapiens family with sequence similarity 90, member A1 (FAM90A1), mRNA [NM_018088]
A_24_P330303	0,032011498	up	2,9742773	FRMD6	Homo sapiens FERM domain containing 6 (FRMD6), transcript variant 1, mRNA [NM_001042481]
A_23_P125435	0,03575691	up	1,8281744	GABRB1	Homo sapiens gamma-aminobutyric acid (GABA) A receptor, beta 1 (GABRB1), mRNA [NM_000812]
A_33_P3270429	0,017956872	up	2,2523565	NR1D2	Homo sapiens nuclear receptor subfamily 1, group D, member 2 (NR1D2), transcript variant 3, non-coding RNA [NR_110524]
A_23_P170959	0,042207398	up	2,1120648	LMLN	Homo sapiens leishmanolysin-like (metallopeptidase M8 family) (LMLN), transcript variant 2, mRNA [NM_033029]
A_23_P53081	0,016007109	down	-2,0661738	OSBPL5	Homo sapiens oxysterol binding protein-like 5 (OSBPL5), transcript variant 1, mRNA [NM_020896]
A_23_P143952	0,03533866	down	-1,9169922	CEP97	Homo sapiens centrosomal protein 97kDa (CEP97), transcript variant 1, mRNA [NM_024548]
A_24_P388786	0,030782059	up	4,549212	DNAH5	Homo sapiens dynein, axonemal, heavy chain 5 (DNAH5), mRNA [NM_001369]
A_33_P3308964	0,040309146	down	-2,3595586	PPP1R17	Homo sapiens protein phosphatase 1, regulatory subunit 17 (PPP1R17), transcript variant 1, mRNA [NM_006658]
A_24_P938614	0,048504915	up	2,1181788	CDS1	Homo sapiens CDP-diacylglycerol synthase (phosphatidate cytidylyltransferase) 1 (CDS1), mRNA [NM_001263]
A_23_P152970	0,04191233	up	1,7962584	RAPGEFL1	Rap guanine nucleotide exchange factor (GEF)-like 1 [Source:HGNC Symbol;Acc:HGNC:17428] [ENST00000620260]
A_23_P1102	0,048693117	up	1,8448497	ACTA1	Homo sapiens actin, alpha 1, skeletal muscle (ACTA1), mRNA [NM_001100]
A_24_P941557	0,040118728	up	2,0646484	MVB12B	Homo sapiens multivesicular body subunit 12B (MVB12B), transcript variant 2, mRNA [NM_001011703]
A_23_P408955	0,044903386	down	-1,6617346	E2F2	Homo sapiens E2F transcription factor 2 (E2F2), mRNA [NM_004091]
A_32_P34920	0,03842371	down	-1,804366	FOXD1	Homo sapiens forkhead box D1 (FOXD1), mRNA [NM_004472]
A_22_P00013045	0,04385099	up	2,075084	RGS5	Homo sapiens regulator of G-protein signaling 5 (RGS5), transcript variant 3, mRNA [NM_001254748]
A_33_P3406677	0,035089374	up	1,9658946	ADH7	Homo sapiens alcohol dehydrogenase 7 (class IV), mu or sigma polypeptide (ADH7), transcript variant 2, mRNA [NM_000673]
A_23_P212423	0,035312407	up	1,6784135	XYLB	Homo sapiens xylulokinase homolog (H. influenzae) (XYLB), mRNA [NM_005108]
A_24_P262127	0,035093218	up	3,3187585	RRAD	Homo sapiens Ras-related associated with diabetes (RRAD), transcript variant 2, mRNA [NM_004165]
A_33_P3412468	0,029225534	up	2,051281	SLC25A27	Homo sapiens solute carrier family 25, member 27 (SLC25A27), transcript variant 1, mRNA [NM_004277]
A_33_P3355185	0,04863243	down	-1,5764586	BCL2	Homo sapiens B-cell CLL/lymphoma 2 (BCL2), transcript variant beta, mRNA [NM_000657]

Table S35. Significantly downregulated mRNA transcripts, predicted as miR targets of upregulated miRs in AA+AIT vs AA-AIT (see Suppl.Fig.10)

ProbeName	p ([AA+] Vs [AA-])	Regulation ([AA+] Vs [AA-])	FC ([AA+] Vs [AA-])	GeneSymbol	Description
A_23_P103328	0,049066655	down	-2,6242142	PTGER3	Homo sapiens prostaglandin E receptor 3 (subtype EP3) (PTGER3), transcript variant 4, mRNA [NM_198714]

Supplemental Information

Supplemental Methods.

Additional patient details. Of the AIT-treated patients, 10 patients were in year 1 of therapy (2 AR, 8 AA), 10 patients were in year 2 (5 AR, 5 AA), and 3 patients were in year 3 (3 AR). Another 20 patients (11 AR, 9 AA) had finished the AIT treatment regularly at the time of sampling. Patients were recruited after having at least one year of successful grass-pollen AIT with a marketable product in Germany at the time point of therapy (with the following vaccines used for therapy: AllerGovit® Grass (Allergopharma), Alutard SQ® Grass (ALK Abello), Pollinex® Quattro Grass/Rye (Bencard/Allergen Therapeutics), Grazax® (ALK-Abello), Oralair® Grass (Stallergen Greer), and Leti Depigoid® Grass (Leti).

Induction of sputum and cell processing. Sputum samples were collected from allergic patients (n=80) and from healthy control subjects (n=44) during grass pollen season (see Table 1). The collection and processing of induced sputum as well as differential cell counts were performed as previously published[1]. In short, after inhaling salbutamol, the subjects inhaled increasing concentrations of nebulized hypertonic saline solution. The samples were resuspended in a sputolysin working solution (Merck Millipore, Burlington, MA, USA) using 4x the volume of weight of the selected sputum plugs according to manufacturer's instructions and incubated for 15 minutes on ice. Afterwards, the samples mixed with 2x the volume of the selected sputum plug weight of PBS and subsequently filtered through a 70µm filter. This filtrate was then centrifuged for 10 min at 790xg without break to remove the cells. The sputum cells were stored in RNA Cell Protect Reagent (Qiagen, Hilden, Germany) at -80°C for subsequent RNA analysis. The sputum supernatants were also stored at -80°C. Sputum cells were further differentiated into macrophages, neutrophils, lymphocytes and eosinophils by microscopy using Pappenheim stain. Since the material extracted from the induced sputa (sputum cells and sputum supernatants) varied between patients, the amount of

patient material limited the analyzes possible. The n-numbers of the individual analyzes therefore vary.

Inclusion criteria for allergic patient in this study.

Allergic patients who wanted to participate in this study had to be between 18 and 70 years of age and had given their written consent to participate in the study.

1.) Patients with documented allergic rhinitis to grass pollen.

a. Positive wheal in skin prick test for grass pollen >3 mm larger than histamine (positive control).

b. History of seasonal allergic rhinitis for over 2 years.

c. ImmunoCAP against Phl1/5 minimum class 2.

2.) Patients with allergic rhinitis and concomitant allergic asthma

a. Evidence of relevant allergic sensitization to seasonal allergens in skin prick test wheal as positive for grass and / or herbs / early bloomers Pollen> 3 mm compared to the positive and negative controls.

b. History of seasonal allergic rhinitis with accompanying seasonal asthmatic symptoms in at least one allergy season the last 3 years.

3.) Patients with chronic sinusitis or rhinitis, undergoing an operation of nose or sinuses.

4.) Wash-out periods of at least 7 days were demanded for anti-histamines and inhaled/nasal steroids.

Comment: As patients have the choice to take any marketed medication in the German health system, we did not restrict our choice to patients treated with specific products.

Exclusion criteria for this study. Among others, such as pregnancy, lactation, active infectious disease, malignancies or active auto-immune disease, patients with severe asthma

and an FEV1 during treatment of less than 80% of the target were not subjected to bronchial sputum induction.

RNA extraction and quality control from sputum cells. Total RNA was extracted and purified using the AllPrep RNA / DNA Micro Kit with Appendix D (Qiagen, Hilden, Germany). The RNA quantification and quality assessment were carried out using UV spectrophotometry (Nanodrop Technologies, Wilmington, DE, USA) and the RNA 6000 Nano Chip Kit for the Agilent 2100 Bioanalyzer (Agilent Technologies, Waldbronn, Germany) according to manufacturer's instructions. The average RIN value of the total RNA samples measured in this study was 8.2.

Human miRNA microarrays. miRNA expression profiles from sputum cells were analyzed using an Agilent human miRNA 8x60K microarray v21.0. MiRNA expression analysis was performed using 25ng of total RNA, which contained also small RNAs due to the special purification method using Appendix D in the QIAGEN extraction kit (see above). The miRNA microarrays were performed using the miRNA Spike-In Kit (Agilent Technologies, Waldbronn, Germany). MiRNAs were labeled and hybridized using the miRNA Complete Labeling and Hybridization Kit (Agil Agilent Technologies, Waldbronn, Germany) according to the manufacturer's protocol. After the labeled RNA had been purified in Micro Bio-Spin 6 columns, the RNA was dried in a vacuum concentrator and hybridized in a hybridization oven (Agilent Technologies, Waldbronn, Germany) at 55°C for 20 hours. After washing, the slides were scanned with the Agilent Microarray Scanner and Feature Extraction Software (Agilent Technologies, Waldbronn, Germany) using the default settings. n=8 for each patient group analyzed with miR microarray; except: n=7 in the mRNA microarray analysis of the AA-AIT group.

Human whole genome mRNA microarrays. The mRNA microarray analysis was performed as previously described[2] using one-color QuickAmp kit with low input, Gene Expression Hybridization Kit, SurePrint G3 Human Gene Expression 8x60K Microarrays (Agilent Technologies, Waldbronn, Germany) according to manufacturer's instructions. The resulting labeled and amplified cRNA was then extracted using the RNeasy mini spin columns (Qiagen, Hilden, Germany). The cRNA was quantified using ultraviolet-visible NanoDrop ND-1000 spectrophotometry (Nanodrop Technologies, Wilmington, DE, USA) to determine the cRNA yield (in µg) and to calculate the specific activity (pmol Cy3 per µg cRNA). The cut-off for the cRNA was >0.825µg or/and specific activity >6.0 pmol Cy3 per µg cRNA. Hybridization with SurePrint G3 Human Gene Expression 8x60K microarrays was performed with the Gene Expression Hybridization Kit (Agilent Technologies, Waldbronn, Germany) according to manufacturer's instructions. The data discussed in this publication meet the MIAME criteria. They have been deposited in the Gene Expression Omnibus from NCBI[3] and are accessible via the accession number of the GEO series XXXXXX (t.b.d.). Gene Ontology analysis was used to filter on secreted factors using the terms GO:0007267 (cell-cell signaling), GO:0005125 (cytokine activity), GO:0008009 (chemokine activity), GO:0005615 (extracellular space). Eight patient samples of each patient group were analyzed, except for AA-AIT: one patient sample did not meet the optimal incorporation quality for mRNA microarray analysis. Therefore, for AA-AIT, samples of seven patients were analyzed in the mRNA microarray analysis.

In silico prediction of miR targets. Target prediction of specific miRs was performed using the miRDB database (http://mirdb.org[4,5]). The target prediction score threshold has been set to >75, which is assigned by a computational algorithm and correlates with the confidence of the prediction. The predicted targets were combined in lists according to the regulated miRs of the specific comparison in the miR microarray analysis and imported into the GeneSpring

software. The imported target lists were then implemented for the mRNA microarray expression analysis as in silico filter.

String network analysis. String network analysis version 11.0 (string-db.org[6-16]) was used to predict protein-protein interactions in order to create a pathway network of regulated miR targets. Please refer to above mentioned references for detailed explanation of the algorithms behind String network analysis. It was also used to perform enrichment analysis of cellular mechanism, for which the string database uses several classification systems like Gene Ontology, KEGG, RCTM. In this study, we have depicted the enriched pathways using the RCTM classification system.

Quantitative real-time PCR. The miR-3935 and miR-103a-3p qPCR analysis was performed using the miCURY LNA miRNA PCR assay Kit (Qiagen, Hilden, Germany) according to the manufacturer's instructions. From the samples for which sufficient material was still available, 100 ng total RNA from sputum samples was used. miR-3935 was normalized to housekeeping miR-104a-3p. For the *PTGER3* qPCR analysis, the total RNA was reverse transcribed with a high-capacity cDNA kit (Applied Biosystems) and amplified using FastStart Universal SYBR Green Mastermix (Roche) according to the manufacturer's instructions. The transcripts were quantified on a ViiA 7 Real-Time PCR System (Applied Biosystems). Specific, exon-exon-spanning primers for the human *PTGER3* transcript variant 4, NCBI accession number NM_198714.2, were used to quantify the human gene *PTGER3* which was subsequently normalized to the human housekeeping gene *ACTB*.

Relative quantification was performed using the ($2^{-\Delta\Delta Ct}$) method. All amplifications were carried out at least in duplicate.

Primer sequences:

PTGER3 forw: TAATAGCTGTTCGCCTGGCT

PTGER3 rev: GTGTGGTACCTGATCTGGCAAA

ACTINB fwd ATTGCCGACAGGATGCAGAA

ACTINB rev TCTTCATTGTGCTGGGTGCC

Immunofluorescence staining of the EP_3 receptor. Air-dryed cytospins were fixed using 4% paraformaldehyde in PBS for 15 min at room temperature (RT). Specimens were subsequently washed three times with PBS for 5 min each. Blocking was performed with 5% BSA in PBS with 0.3% Triton™ X-100 (PBS-T) for 60 min at RT. The primary antibody staining with anti-PTGER3 (Product# PA5-102057; ThermoFisher Scientific) was performed according to the manufacturer's instructions using a dilution of 1:200 in PBS-T for 1h at 37°C. Slides were washed three times for 5 min with PBS-T. Secondary antibodies were diluted as recommended by the manufacturer and incubated for 1h at RT in the dark. Slides were washed with PBS and with millipore water. Following DAPI nuclear staining (Product# D1306; ThermoFisher Scientific) was performed according to the manufacturer's instructions, slides were mounted in anti-fade Vecta Shield Mounting Medium (Vector Laboratories, Burlingame, CA).

Analysis of PGE2 in sputum supernatants. A PGE2-ELISA (Cayman Chemical, Ann Arbor, MI, USA) was used for the eicosanoid analysis of PGE2 in the supernatants of induced sputa according to manufacturer's instructions.

Protein measurement in sputum supernatants. Protein levels of IL-13 and IL-22 were detectable in sputum samples derived from patients with AR and AA and compared to HC subjects. These cytokines were measured by LegendPlex multiplex human inflammation panel assay (Biolegend, CA, USA).

Total serum IgE measurement. Total serum IgE was assessed using diagnostic ImmunoCAP assays on a Phadia 100 device.

Identification of Cell Populations by Flow Cytometry. Sputum cells were stained for flow cytometric analysis with antibodies to surface markers $CD45^+$, $lineage^-$ (CD3, CD14, CD16, CD19, CD20, CD56), $CD127^+$, $CRTH2^+$, $IL\text{-}13^+$ were expressed as a percentage of the $CD45^+$ cells (Table S26). Cells were washed in buffer (phosphate-buffered saline (PBS) containing 5% FCS, and .01% sodium azide), incubated with TrueStain FX (1:20; Biolegend, USA) for 15 min at 4°C to block non-specific binding, washed three times, then labeled in a total volume of 50 µL for 30 min at 4°C in dark. Subsequently, cells were washed three times with 200µL FACS buffer. Controls were used for gating strategies, using unstained, single stain controls and fluorescence-minus-one (FMO). Cells were washed again three times and stained with Fixable Viability Stain (HorizonViolett 510; 1:1000; BD Biosciences) immediately before data acquisition. All stained cells were acquired with a BD LSRII Fortessa flow cytometer (BD Biosciences, Heidelberg, Germany) and analyzed with FlowJo V1.0.8 software (TreeStar, Ashland, OR).

Limitations of this study. Since the material that we were able to extract from the induced sputum samples of the patients varied depending on the patient, not all analyzes could be carried out on all patient samples. Nevertheless, we always used sufficient n-numbers in order to be powered to achieve statistical statements. The material that could be obtained from induced sputa was cleanly prepared but only little amounts of e.g. total RNA or similar material could be extracted from sputum cells. It was therefore sophisticated to perform two whole-genome microarrays (for miR and for mRNA) from the same total RNA sample.

Supplemental Table Titles

Table S1. Significantly upregulated miRs with FC > 10 in AA-AIT patients versus HC analyzed by miR microarray

Table S2. Gene expression changes for secreted genes from cut set in Fig. 2C of AA-AIT versus HC

Table S3. Interactions output of String network analysis of secreted factors (Suppl.Table S2)

Table S4. Reactome pathway enrichment analysis output of String network analysis of secreted factors (Suppl.Table S2)

Table S5. Gene expression changes of string output genes from Fig. 2D in AA-AIT versus HC

Table S6. Gene expression changes for upregulated genes from cut set in Fig. 3A of AR-AIT versus HC

Table S7. Gene expression changes for genes from cut set defined in Fig. 3B of AR-AIT versus HC

Table S8. Gene expression changes for secreted genes from left part of Venn diagram defined in Fig. 3C of AR-AIT versus HC

Table S9. Gene expression changes for secreted genes from cut set defined in Fig. 3C of AA-AIT versus HC

Table S10. Gene expression changes for secreted genes from cut set defined in Fig. 3C tested for AR-AIT versus HC

Table S11. Gene expression changes for secreted genes from right part of Venn diagram defined in Fig. 3C of AA-AIT versus HC

Table S12. Interactions output of String network analysis of secreted factors (Suppl.Table S8)

Table S13. Reactome pathway enrichment analysis output of String network analysis of secreted factors (Suppl.Table S8)

Table S14. Gene expression changes of string output genes from Fig. 3D in AR-AIT versus HC

Table S15. Interactions output of String network analysis of secreted factors (Suppl.Table S9 & S10)

Table S16. Reactome pathway enrichment analysis output of String network analysis of secreted factors (Suppl.Table S9 & S10)

Table S17. Gene expression changes of string output genes from Fig. 3E in AA-AIT versus HC

Table S18. Gene expression changes of string output genes from Fig. 3E in AR-AIT versus HC

Table S19. Interactions output of String network analysis of secreted factors (Suppl.Table S11)

Table S20. Reactome pathway enrichment analysis output of String network analysis of secreted factors (Suppl.Table S11)

Table S21. Gene expression changes of string output genes from Fig. 3F in AA-AIT versus HC

Table S22. Significantly downregulated miRs with FC > 1.5 in AA+AIT patients versus AA-AIT patients analyzed by miR microarray

Table S23. Significantly upregulated miRs with FC > 1.5 in AA+AIT patients versus AA-AIT patients analyzed by miR microarray

Table S24. Significantly upregulated mRNA transcripts, previously predicted as miR targets of downregulated miRs in AA+AIT vs AA-AIT patients

Table S25. Significantly downregulated mRNA transcripts, previously predicted as miR targets of upregulated miRs in AA+AIT vs AA-AIT patients

Table S26. Flowcytometry Antibodies

Individual expression data per patient sample:

Table S27. Significantly upregulated miRs with FC > 10 in AA-AIT patients versus HC analyzed by miR microarray (see Suppl.Fig.2)

Table S28. Gene expression changes of string output genes from Fig. 2D in AA-AIT versus HC (see Suppl.Fig.3)

Table S29. Gene expression changes of string output genes from Fig. 3D in AR-AIT versus HC (see Suppl.Fig.4)

Table S30-1. Gene expression changes of string output genes from Fig. 3E in AA-AIT versus HC (see Suppl.Fig.5)

Table S30-2. Gene expression changes of string output genes from Fig. 3E in AR-AIT versus HC (see Suppl.Fig.5)

Table S31. Gene expression changes of string output genes from Fig. 3F in AA-AIT versus HC (see Suppl.Fig.6)

Table S32. Significantly downregulated miRs with FC > 1.5 in AA+AIT patients vs AA-AIT patients (see Suppl.Fig.7)

Table S33. Significantly upregulated miRs with FC > 1.5 in AA+AIT patients vs AA-AIT patients (see Suppl.Fig.8)

Table S34. Significantly upregulated mRNA transcripts, predicted as miR targets of downregulated miRs in AA+AIT vs. AA-AIT (see Suppl.Fig.9)

Table S35. Significantly downregulated mRNA transcripts, predicted as miR targets of upregulated miRs in AA+AIT vs AA-AIT (see Suppl.Fig.10)

Supplemental Figure Legends.

Supplemental Figure 1. PGE2 correlates with inflammatory parameters. Spearman correlation of (A) sputum IL-22 levels with sputum PGE2 levels, (B) sputum PGE2 levels with local with sputum macrophage frequencies, (C) sputum PGE2 levels with local with sputum neutrophil frequencies. Spearman coefficient r and p values are depicted in each correlation figure. (D) Exemplary flow cytometry gating strategy for sputum ILC2s, defined by singlets/lymphocytes/live/$CD45^+$/$lineage^-$/$CD127^+$/$CRTh2^+$/$IL13^+$. (E) qPCR analysis of miR-3935 normalized to housekeeping miR-103a-3p of total RNA extracted from sputum cells from AA-AIT and AA+AIT patients. (F) qPCR analysis of *PTGER3* normalized to *ACTB* of total RNA extracted from sputum cells from AA-AIT, AA+AIT patients and healthy controls.

Supplemental Figure 2. Heat map of the highest upregulated miRs in AA-AIT patients compared to HC (FC≥10; p≤.05) across the five patient groups - data points for the individual expression data per patient sample (corresponding to Figure 2B). Duplicate miR names indicate the abundance of two or more isoforms of the same gene in the analysis.

Supplemental Figure 3. Heat map of relative expression levels of members of the protein interaction network identified in Fig.2D analyzed by mRNA microarray analysis and significantly downregulated in AA-AIT compared to HC (corresponding to Figure 2E). Duplicate gene names indicate the abundance of two or more isoforms of the same gene in the analysis.

Supplemental Figure 4. Heat map of relative expression levels of members of the protein interaction network identified in 3G analyzed by mRNA microarray analysis and significantly downregulated in AR-AIT versus HC (corresponding to Figure 3G). Duplicate gene names indicate the abundance of two or more isoforms of the same gene in the analysis.

Supplemental Figure 5. Heat map of relative expression levels of members of the protein interaction network identified in Fig.3E analyzed by mRNA microarray analysis and significantly downregulated in AR-AIT and AA-AIT compared to HC (corresponding to Figure 3H). Duplicate gene names indicate the abundance of two or more isoforms of the same gene in the analysis.

Supplemental Figure 6. Heat map of relative expression levels of members of the protein interaction network identified in Fig.3F analyzed by mRNA microarray analysis and significantly downregulated in AA-AIT versus HC (FC≥1.5; p≤.05) (corresponding to Figure 3I). Duplicate gene names indicate the abundance of two or more isoforms of the same gene in the analysis.

Supplemental Figure 7. Heat map of upregulated miRs in sputum cells of AA+AIT versus AA-AIT (FC≥1.5; p≤.05) detected in human miR microarray technology (corresponding to Figure 4A). Duplicate miR names indicate the abundance of two or more isoforms of the same gene in the analysis.

Supplemental Figure 8. Heat map of downregulated miRs in AA+AIT versus AA-AIT (FC≥1.5; p≤.05), detected in human miR microarray technology (corresponding to Figure 4C).

Supplemental Figure 9. Heat map of the 42 genes from the cut set above depicts significantly changed mRNA levels of miR targets of downregulated miRs comparing AA+AIT versus AA-AIT (FC≥1.5; p≤.05) (corresponding to Figure 4D). Duplicate gene names indicate the abundance of two or more isoforms of the same gene in the analysis.

Supplemental Figure 10. Heat map of the one gene from the cut set above depicts significantly changed mRNA levels of miR-target *PTGER3* of upregulated miR-3935 comparing AA+AIT versus AA-AIT (FC≥1.5; p≤.05) (corresponding to Figure 4E).

Supplemental Figure 11. The EP_3 receptor is mainly expressed in sputum macrophages of AA-AIT patients. Immunofluorescence staining of the EP_3 receptor (green) and the cell nuclei (blue) in cytospins from sputum cells from AA-AIT and AA+AIT patients (n=3). The phase contrast displays the cell structure and is merged with the EP_3 staining and DAPI. Representative images are shown.

References for supplemental information.

1. Zissler UM, Ulrich M, Jakwerth CA, et al. Biomatrix for upper and lower airway biomarkers in patients with allergic asthma. *J Allergy Clin Immunol.* 2018;142(6):1980-1983.
2. Zissler UM, Jakwerth CA, Guerth FM, et al. Early IL-10 producing B-cells and coinciding Th/Tr17 shifts during three year grass-pollen AIT. *EBioMedicine.* 2018;36:475-488.
3. Edgar R, Domrachev M, Lash AE. Gene Expression Omnibus: NCBI gene expression and hybridization array data repository. *Nucleic Acids Res.* 2002;30(1):207-210.
4. Chen Y, Wang X. miRDB: an online database for prediction of functional microRNA targets. *Nucleic Acids Res.* 2020;48(D1):D127-D131.
5. Liu W, Wang X. Prediction of functional microRNA targets by integrative modeling of microRNA binding and target expression data. *Genome Biol.* 2019;20(1):18.
6. Franceschini A, Lin J, von Mering C, Jensen LJ. SVD-phy: improved prediction of protein functional associations through singular value decomposition of phylogenetic profiles. *Bioinformatics.* 2016;32(7):1085-1087.
7. Franceschini A, Szklarczyk D, Frankild S, et al. STRING v9.1: protein-protein interaction networks, with increased coverage and integration. *Nucleic Acids Res.* 2013;41(Database issue):D808-815.
8. Jensen LJ, Kuhn M, Stark M, et al. STRING 8--a global view on proteins and their functional interactions in 630 organisms. *Nucleic Acids Res.* 2009;37(Database issue):D412-416.
9. Snel B, Lehmann G, Bork P, Huynen MA. STRING: a web-server to retrieve and display the repeatedly occurring neighbourhood of a gene. *Nucleic Acids Res.* 2000;28(18):3442-3444.
10. Szklarczyk D, Franceschini A, Kuhn M, et al. The STRING database in 2011: functional interaction networks of proteins, globally integrated and scored. *Nucleic Acids Res.* 2011;39(Database issue):D561-568.
11. Szklarczyk D, Franceschini A, Wyder S, et al. STRING v10: protein-protein interaction networks, integrated over the tree of life. *Nucleic Acids Res.* 2015;43(Database issue):D447-452.
12. Szklarczyk D, Gable AL, Lyon D, et al. STRING v11: protein-protein association networks with increased coverage, supporting functional discovery in genome-wide experimental datasets. *Nucleic Acids Res.* 2019;47(D1):D607-D613.
13. Szklarczyk D, Morris JH, Cook H, et al. The STRING database in 2017: quality-controlled protein-protein association networks, made broadly accessible. *Nucleic Acids Res.* 2017;45(D1):D362-D368.
14. von Mering C, Huynen M, Jaeggi D, Schmidt S, Bork P, Snel B. STRING: a database of predicted functional associations between proteins. *Nucleic Acids Res.* 2003;31(1):258-261.
15. von Mering C, Jensen LJ, Kuhn M, et al. STRING 7--recent developments in the integration and prediction of protein interactions. *Nucleic Acids Res.* 2007;35(Database issue):D358-362.
16. von Mering C, Jensen LJ, Snel B, et al. STRING: known and predicted protein-protein associations, integrated and transferred across organisms. *Nucleic Acids Res.* 2005;33(Database issue):D433-437.