

RNA-seq-based profiling of extracellular vesicles in plasma reveals a potential role of miR-122-5p in asthma

To the Editor,

Asthma is a heterogeneous disease encompassing several distinct sub-phenotypes with different etiologies and treatment responses,¹ but we are lacking markers to differentiate patient subgroups.

MicroRNAs (miRNAs) can regulate gene expression post-transcriptionally. Due to their high stability in body fluids, their easy detection, and their functional relevance in asthma, we and others have proposed extracellular miRNAs in noninvasive clinical samples as biomarkers for asthma.^{2,3} Yet, extracellular miRNA profiles can be confounded by unspecific release of miRNAs from dying cells. Transfer of miRNAs by extracellular vesicles (EVs) is, however, supposedly a selective communication mechanism,⁴ and EV-miRNA levels have been shown to be altered in bronchoalveolar lavage (BAL) fluid of patients with asthma.⁵ In this pilot study, we profiled the EV-miRNA signature in plasma of patients with mild-to-moderate (AM) or severe eosinophilic asthma (AS) (as defined by ERS/ATS guidelines⁶) and healthy control (HC) subjects (Tables S1 and S2).

Therefore, we isolated small EVs (EVs) (<200 nm) by size exclusion chromatography (SEC) (qEV, Izon Bioscience) from 1 mL plasma of 45 adult subjects with AM (n = 15) or AS (n = 14), and HC (n = 16) (Table S1). All study participants were enrolled in the all age asthma (ALLIANCE) cohort, a multi-center longitudinal asthma patient cohort of the German Center for Lung Research (DZL).⁷

SEC-isolated particles were confirmed to be <200 nm by nanoparticle tracking analysis (NTA) (ZetaView PMX 110, Particle Metrix) and were equal in concentration and size distribution across groups (Figure 1A). The median particle concentration isolated from 1 mL of plasma was 8.6×10^9 particles/mL (interquartile range [IQR]: 4.5×10^9 – 1.4×10^{10}) for HC, 1.2×10^{10} particles/mL (IQR: 6.6×10^9 – 2.8×10^{10}) for AM, and 1.0×10^{10} particles/mL (IQR: 3.9×10^9 – 3.6×10^{10}) for AS. Furthermore, SEC fractions 7–9 used for sequencing were without protein contamination (Figure 1B) and expressed different amounts of typical small EV markers CD63, CD81, and/or CD9 (Figure S1).

EV-RNA was isolated (miRNeasy Micro Kit; Qiagen) and subjected to RNA sequencing (RNA-seq) (HiSeq 2500, Illumina) of small RNAs (below 35 nt) according to Ref.⁸ While all samples achieved high Phred scores (>30) indicating excellent sequencing quality (Figure

S2A), 46.42% of reads were short or unmapped (39.11%) (Figure 1C). From all mapped reads, 17.15% were classified as miRNAs, while 81.08% were ribosomal RNAs. In total, we detected 139 distinct EV miRNAs with ≥ 10 reads (AM: 115; AS: 114; HC: 128) (Figure S2B, Tables S3–S5), and 35 of which had read counts ≥ 50 . Unsupervised clustering and principal component analysis did not separate the different groups (Figure S2C, D), indicating that there is no difference between asthma patients and healthy controls based on total EV-miRNA expression. However, miR-122-5p was significantly increased in all patients with asthma (log2 fold change (log2FC) = 1.74, false discovery rate (FDR) = 0.03) and in AS (log2FC = 1.77, FDR = 0.02) compared with healthy controls, while miR-3168 was decreased (log2FC = -1.28; FDR = 0.05) (Figure 1D). In AS, we found similar trend for miR-191-5p (log2FC = 0.39, FDR = 0.12) (Figure 1E).

In a bivariate analysis, miR-191-5p normalized read counts correlated negatively with FEV_{1%pred} (Spearman's $R = -.38$; $P = .013$) and lymphocyte percentage in blood ($R = -.5$; $P = .0006$) (Figure 1F). We found a positive correlation with blood neutrophil ($R = .48$; $P = .0012$) counts and a similar trend for blood eosinophil counts ($R = .29$; $P = .058$). miR-3168 read counts correlated significantly with blood eosinophils ($R = -.28$, $P = .012$), neutrophils ($R = -.3$, $P = .05$), and lymphocytes ($R = .38$, $P = .012$). Read counts of miR-122-5p positively correlated with both eosinophil ($R = .32$; $P = .034$) and neutrophil ($R = .39$; $P = .0094$) counts in blood, and trendwise with blood lymphocytes ($R = -.28$; $P = .065$) (Figure 1F). We do acknowledge that some correlation coefficients are quite low ($R < .3$) which could be due to the small sample size and needs to be confirmed in larger future studies.

Next, we isolated EVs from additional plasma samples of the same subjects and 10 new subjects per group (Figure 2A), and found a strong trend for an increase of miR-122-5p (FC = 1.84; $P = .07$) in severe asthma, and in all asthma subjects (FC = 1.96; $P = .09$) (Figure 2A) by RT-qPCR, confirming the sequencing results. miR-191-5p did not differ significantly among the groups, and miR-3168 was not detectable by RT-qPCR. Of note, in a pilot approach both miRNAs could also be detected in EVs isolated from sputum supernatant samples of four healthy control and ten asthma subjects, and we have a first hint that they are increased in asthma compared

Thomas Bahmer and Susanne Krauss-Etschmann contributed equally to this study.

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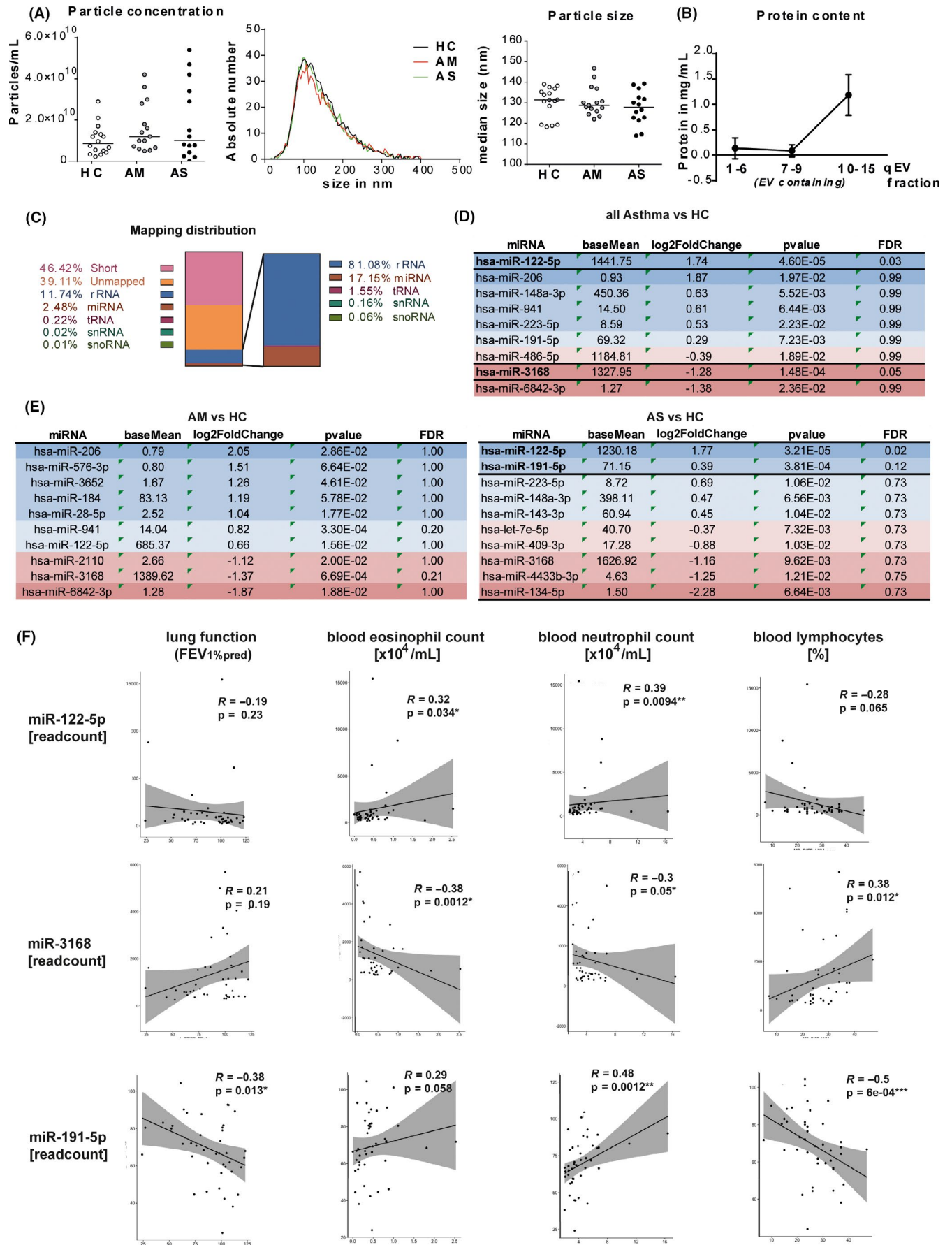


FIGURE 1 small RNA sequencing from plasma EVs. A, EV concentration (left panel), size distribution, and median size (right panels) in plasma EV isolations from healthy controls (HC, $n = 16$), mild-to-moderate (AM, $n = 15$), or severe asthma (AS, $n = 14$) assessed by nanoparticle tracking analysis (lines represent median). B, Protein content of qEV fractions in mg/mL, assessed by microBCA ($n = 45$ per fraction, mean $\pm$ SD). C, Sequencing distribution of small RNA classes in %, with relative distribution within mapped reads (right) (D and E) 10 top-regulated miRNAs (sorted by log2 fold change) in asthma patients vs HC (D) and AM vs HC (left) and AS vs HC (right) (E); FDR = false discovery rate. F, Spearman's correlations of miR-122-5p (upper panels), miR-3168 (middle panels), and miR-191-5p (lower panels) read counts with clinical characteristics of all included subjects ($n = 45$), and each graph depicts correlation co-efficient R and P -value

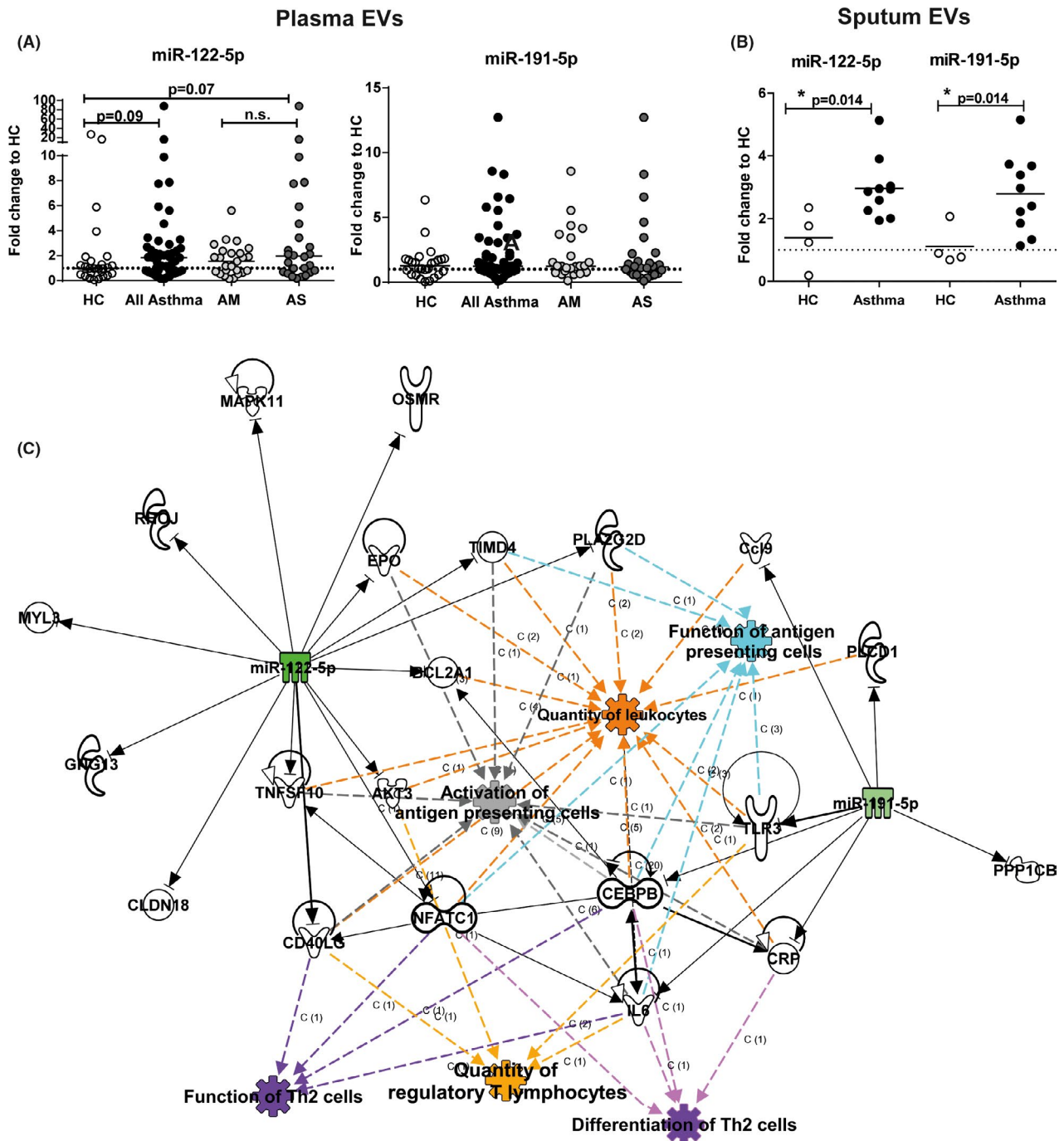


FIGURE 2 EV-miRNA from plasma correlates with clinical characteristics of asthma. A and B, RT-qPCR for miR-122-5p and miR-191-5p normalized to miR-21 levels (reference) in (A) plasma EVs from healthy controls (HC, $n = 26$), all asthma ($n = 51$), mild-to-moderate (AM, $n = 25$) or severe asthma (AS, $n = 26$), or (B) sputum supernatant EVs from healthy controls (HC, $n = 4$) and patients with asthma ($n = 10$). All Mann-Whitney U to HC or AM. * $P \leq .05$, ** $P \leq .01$, *** $P \leq .001$. Graphs depict fold changes to healthy controls with lines indicating the median. (C) Ingenuity pathway analysis showing association of miR-122-5p and miR-191-5p with quantity of leukocytes, function of antigen-presenting cells, activation of antigen-presenting cells, function of Th2 cells, quantity of regulatory T lymphocytes, and differentiation of Th2 cells

with healthy controls (miR-122-5p: FC = 2.90; $P = .014$; miR-191-5p: FC = 2.69, $P = .014$) (Figure 2B).

Ingenuity Pathway Analysis (IPA) of predicted targets of miR-122-5p and miR-191-5p revealed a concise network, containing the biological functions *quantity of leukocytes*, *function of antigen-presenting cells*, *activation of antigen-presenting cells*, *function of Th2 cells*, *quantity of regulatory T lymphocytes*, and *differentiation of Th2 cells* (Figure 2C). This is a first hint that miR-122-5p (and potentially miR-191-5p) could influence immune cell function upon uptake. This could systemically perpetuate the asthmatic phenotype and should be confirmed in larger studies, where also the specificity for asthma vs a general immune reaction should be assessed.

The relatively low number of significantly altered miRNAs here might be due to the isolation of highly pure EVs by SEC. This is in line with previous reports,⁸ but SEC isolation is superior to other methods in separating EVs from contaminating proteins.⁹ Further, we have here focused on eosinophilic asthma of different severities, hampering comparisons of different asthma sub-phenotypes. This will require considerably larger patient numbers and was thus beyond the scope of this study.

In summary, in relatively well-controlled asthma the total miRNA expression in plasma EVs is not different to controls. miR-122-5p is increased in plasma and sputum supernatant EVs derived from patients with (severe) asthma, and this miRNA correlated with immune cell types in the blood. Combined with the IPA-predicted role in lymphocyte differentiation and function, it is intriguing to speculate that this miRNA can sub-differentiate different forms of asthma, such as neutrophilic from eosinophilic asthma. This should be investigated in larger asthma cohort studies with a broad spectrum of clinically well-defined phenotypes and different treatment regimen also including steroid-naïve patients.

ACKNOWLEDGMENTS

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CONFLICT OF INTEREST

This study was supported by an unrestricted grant (Next Generation Award) from Bencard Allergie GmbH to SB, which did not influence the content of the manuscript or the conclusions drawn. The authors declare no further conflict of interest relating to this manuscript.

AUTHOR CONTRIBUTIONS

TB, HW, A-MK, FP, BW, OF E.vM., KFR, GH, and MVK designed and conducted the clinical study including patient recruitment and processing of plasma samples. DB, MWP, J.B, S.K-E., and SB performed experiments and critically analyzed the data. IRK performed the bi-variate analysis with clinical data. SB had primary responsibility for the experimental study design and writing of the manuscript. All authors have contributed to discussion of the data and writing of the manuscript, and approved the final version.

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ETHICAL APPROVAL

The study was approved by the local ethics committee of the Medical School Luebeck, Schleswig-Holstein (Germany, Az. 12-215), and is registered at clinicaltrials.gov (Identifier: NCT02419274). All participants gave their written informed consent.

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Thomas Bahmer^{1,2}

Susanne Krauss-Etschmann^{2,3} 

Dominik Buschmann⁴ 

Jochen Behrends⁵

Henrik Watz⁶

Anne-Marie Kirsten⁶

Frauke Pedersen^{1,6}

Benjamin Waschki^{1,7}

Oliver Fuchs^{8,9}

Michael W. Pfaffl⁴ 

Erika von Mutius¹⁰

Klaus F. Rabe^{1,2}

Gesine Hansen¹¹

Matthias V. Kopp^{8,9}

Inke R. König¹²
 Sabine Bartel^{3,13} 

¹Pneumology, LungenClinic Grosshansdorf, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Grosshansdorf, Germany

²University Hospital Schleswig-Holstein, Campus Kiel, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Kiel, Germany

³Leibniz Lung Center, Research Center Borstel, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Borstel, Germany

⁴Division of Animal Physiology and Immunology, School of Life Sciences Weihenstephan, Technical University of Munich, Munich, Germany

⁵Flow Cytometry Core Unit, Leibniz Lung Center Borstel, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Borstel, Germany

⁶Pulmonary Research Institute, LungenClinic Grosshansdorf, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Grosshansdorf, Germany

⁷Department of General and Interventional Cardiology, University Heart Center Hamburg, Hamburg, Germany

⁸Inselspital Bern, University Children's Hospital, Bern, Switzerland

⁹Department of Pediatric Pulmonology and Allergology, Children's Hospital at the University of Luebeck, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Luebeck, Germany

¹⁰Dr. von Hauner Children's Hospital, Helmholtz Center Munich, Comprehensive Pneumology Center – Munich (CPC-M), Member of the German Center for Lung Research (DZL), Munich, Germany

¹¹Department of Pediatric Pulmonology, Allergology and Neonatology, Hannover Medical School, Member of the German Center for Lung Research (DZL), Biomedical Research in Endstage and Obstructive Lung Disease (BREATH), Hannover, Germany

¹²Institute of Medical Biometry and Statistics, University of Luebeck, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Luebeck, Germany

¹³Department of Pathology and Medical Biology, University of Groningen, University Medical Center Groningen, GRIAC Research Institute, Groningen, The Netherlands

Correspondence

Sabine Bartel, University Medical Center Groningen, Hanzeplein 1, 9700 RB Groningen, The Netherlands.

Email: s.r.bartel@umcg.nl

ORCID

Susanne Krauss-Etschmann  <https://orcid.org/0000-0001-5945-5702>

Dominik Buschmann  <https://orcid.org/0000-0003-0460-6459>

Michael W. Pfaffl  <https://orcid.org/0000-0002-3192-1019>

Sabine Bartel  <https://orcid.org/0000-0002-9163-795X>

SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

Appendix S1**1 RNA-seq based profiling of extracellular vesicles in plasma reveals a potential role of
2 miR-122-5p in asthma****3 Short title: Plasma EV-miR-122-5p in asthma**

4 Thomas Bahmer^{1,2*}, Susanne Krauss-Etschmann^{2,3*}, Dominik Buschmann⁴, Jochen Behrends⁵,
5 Henrik Watz⁶, Anne-Marie Kirsten⁶, Frauke Pedersen^{1,6}, Benjamin Waschki^{1,7}, Oliver Fuchs^{8,9},
6 Michael W. Pfaffl⁴, Erika von Mutius¹⁰, Klaus F. Rabe^{1,2}, Gesine Hansen¹¹, Matthias V. Kopp⁸,
7 Inke R. König¹², Sabine Bartel^{3,13}, and the ALLIANCE study group as part of the German
8 Center for Lung Research (DZL)

¹ LungenClinic Grosshansdorf, Pneumology, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Grosshansdorf, Germany

² Christian Albrecht Universität zu Kiel, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Kiel, Germany

³ Research Center Borstel, Leibniz Lung Center, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Borstel, Germany

⁴ Division of Animal Physiology and Immunology, School of Life Sciences Weihenstephan, Technical University of Munich, Germany

⁵ Flow cytometry core unit, Leibniz Lung Center Borstel, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN) Borstel, Germany

⁶ Pulmonary Research Institute at LungenClinic Grosshansdorf, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Grosshansdorf, Germany

9 ⁷ Department of General and Interventional Cardiology, University Heart Center Hamburg,
10 Hamburg, Germany

⁸ Inselspital Bern, University Children's Hospital, Bern, Switzerland

11 ⁹ Children's Hospital at the University of Luebeck, Department of Pediatric Pulmonology and
12 Allergology, Member of the German Center for Lung Research (DZL), Airway Research
13 Center North (ARCN), Luebeck, Germany

14 ¹⁰ Dr. von Hauner Children's Hospital, Helmholtz Center Munich, Member of the German
15 Center for Lung Research (DZL), Comprehensive Pneumology Center – Munich (CPC-M),
16 Munich, Germany

17 ¹¹ Hannover Medical School, Department of Pediatric Pulmonology, Allergology and
18 Neonatology, Member of the German Center for Lung Research (DZL), Biomedical Research
19 in Endstage and Obstructive Lung Disease (BREATH), Hannover, Germany

¹² Institute of Medical Biometry and Statistics, University of Luebeck, Member of the German Center for Lung Research (DZL), Airway Research Center North (ARCN), Luebeck, Germany

¹³ University of Groningen, University Medical Center Groningen, Department of Pathology and Medical Biology, GRIAC Research Institute, Groningen, The Netherlands

20
21 *T.B. and S.K-E. contributed equally to this study.

22
23 Correspondence:
24 Dr. Sabine Bartel

25 University Medical Center Groningen
26 Hanzeplein 1

27 9700 RB Groningen

28 s.r.bartel@umcg.nl

29

30

MATERIALS & METHODS

Patient cohort

We prospectively recruited patients with asthma at the Pulmonary Research Institute at LungenClinic Grosshansdorf and at the in- and outpatient department of the LungenClinic Grosshansdorf between March 2014 and July 2017. Healthy controls were recruited from the database of the Pulmonary Research Institute at LungenClinic Grosshansdorf. Inclusion criteria for patients were an established diagnosis of asthma according to current guidelines (GINAsthma, available at www.ginasthma.org). This means that patients had to have (1) a typical medical history of variable respiratory symptoms, and (2) confirmed variable expiratory airflow limitation, which has been checked by the responsible study physicians prior to study enrollment. Furthermore, patients were between the age of 18 and 75 years (48-75 years for patients included in this study) at inclusion, were able to read and understand German, and to understand and agree to the informed consent terms.

Recruited asthma patients were classified as having either severe asthma according to the current ERS/ATS guideline (1) or mild-to-moderate asthma. Patients with severe asthma required high intensity ICS treatment ($\geq 1000\mu\text{g}$ fluticasone for the previous year or systemic corticosteroids (OCS) for $\geq 50\%$ of the previous year) and a second controller to prevent asthma from becoming “uncontrolled” or had asthma that remained “uncontrolled” despite this therapy. Patients not meeting criteria for severe asthma were classified as mild-to-moderate asthmatics and were allowed to have a maximum ICS dose of $500\mu\text{g}$ fluticasone per day. Healthy controls were free of any chronic lung disease but were allowed to have atopic or other comorbidities.

The study was approved by the local ethics committee of the Medical School Luebeck, Schleswig-Holstein (Germany, Az. 12-215) and is registered at clinicaltrials.gov (Identifier:

NCT02419274). All participants gave their written informed consent. Further study details have been published previously (2).

Collection and processing of human plasma and induced sputum samples

For this study, blood samples were drawn in K⁺-EDTA tubes and immediately centrifuged at 3,700 rpm at room temperature for 20 minutes. Afterwards, the plasma fraction was stored at -80°C in aliquots and only thawed for EV isolation.

Induced sputum samples were processed as previously described (3) and cell-free sputum supernatant was frozen at -80°C in aliquots. EVs were isolated from 600 µl of sputum supernatant.

Isolation of small extracellular vesicles

1 mL of plasma or sputum was centrifuged at 3,500 g for 10 min to remove platelets and the supernatant was concentrated to approx. 500 µl by centrifuging at 4,000 g for 20 min in Amicon Ultra-4 filter units 10kDa (Merck Millipore, Burlington, USA). 500 µl of the concentrate was loaded on a qEVOriginal column (Izon Biosciences, Oxford, UK) and isolated according to the manufacturer's instruction. Fractions 7-9 were pooled (containing pure EVs) and again concentrated via Amicon ultra filters and subsequently suspended in Qiazol for RNA extraction (Qiagen, Venlo, the Netherlands). We only used fractions 7-9 for further analysis to avoid co-isolation of proteins.

Protein measurements of EV isolation fractions

Protein contents of fractions 1-6, 7-9 and 10-15 were measured with a micro BCA assay (Thermo Fisher, Waltham, USA) according to the manufacturer's recommendations.

Nanoparticle Tracking Analysis

Sizing and concentration measurements of EVs were performed on a PMX 110 Scanning ZetaView (Particle Metrix, Meerbusch, Germany). We recorded two video cycles at constant temperature and conductivity, scanning 11 distinct positions in the cell (30 frames/s). The

following settings were used for EV analysis (minimum brightness: 20, shutter: 70, sensitivity: 85, min size: 5 nm, max size: 1,000 nm) and results were analysed by ZetaView 8.04.02 SP2. For all samples at least 450 traces were completed.

Characterization of extracellular vesicles by flow cytometric analysis

The EV-containing fractions 7-9 of six plasma and six sputum samples measured on a flow cytometric instrument (BD Aria IIIu, Becton Dickinson, Franklin Lakes, USA) according to (4). Shortly, EVs were stained with anti-CD9 (APC labelled, clone SN4 C3-3A2), anti-CD63 (PE labelled, clone H5C6) and anti-CD81 (PerCp-Vio700-labelled, clone REA513); all 1:100, 15 min at RT, all Miltenyi Biotech (Bergisch Gladbach, Germany). Size of EVs was estimated by comparing to Apogee beads (#1493, Apogee Flow Systems, Northam, UK; range between 110-1300 nm). At least one threshold was used (SSC) to reduce noise (Figure S1, A). Additionally, three thresholds (APC, PE and PerCP-Vio770) were added to measure EVs positive for CD9, CD63 and CD81 (Figure S1, B). EV samples from plasma and sputum were measured within 60s at the lowest flowrate (1.0). Compensation was performed using single stained samples. Gates were set upon single positive stained samples. Data was analysed using FCS Express 6 Flow Cytometry software (RUO, V6.06.0021, DeNovo™ Software, Glendale, USA).

miRNA isolation and small RNA-seq

Total EV RNA of fractions 7-9 was isolated with the miRNeasy micro kit (Qiagen) following the manufacturer's instructions. RNA was eluted in 14 µl nuclease-free water and evaporated in a vacuum centrifuge to reduce the volume. All samples were resuspended in 8 µl water and 6 µl RNA were subjected to NGS library preparation using the NEBNext Multiplex Small RNA Library Prep Set for Illumina (New England Biolabs, Ipswich, USA) with minor modifications to the manufacturer's protocol. Briefly, RNA was adaptor-ligated, reverse

transcribed, barcoded and amplified by PCR. Size distribution and quantity of resulting cDNA were assessed using the DNA 1000 Kit on a 2100 Bioanalyzer (Agilent Technologies, Santa Clara, USA) before size selection by high-resolution agarose gel electrophoresis. Bands in the size range of miRNA-containing cDNA fragments were cut from the gel and purified. After verifying the final library by capillary gel electrophoresis (DNA High Sensitivity Kit, Agilent Technologies), 50 cycles of single-end sequencing were performed on a HiSeq 2500 (Illumina, San Diego, USA).

miRNA quantitative real-time PCR (qRT-PCR)

miRNA from sEVs were isolated by using the microRNeasy micro kit (Qiagen, Venlo, the Netherlands), equal volumes for each sample (10 µl) were transcribed to cDNA and analysed by qRT-PCR using the miScript system and specific miScript primer assays (all Qiagen) according to manufacturer's recommendation. qRT-PCR was carried out on a Light Cycler 480 II platform (Roche, Mannheim, Germany). To calculate expression differences, we normalized the expression of the respective miRNAs to miR-21 (which was found to be expressed at equal levels in the RNA-seq and PCR data).

Ingenuity Pathway Analysis

We used the Ingenuity Pathway Analysis (IPA, version 46901286) *miRNA target filter* feature for miR-122-5p and miR-191-5p. miRNA target filters were set to *quantity of leukocytes, function of antigen presenting cells, activation of antigen presenting cells, function of Th2 cells, quantity of regulatory T lymphocytes* and *differentiation of Th2 cells* to generate a network of cellular targets. Only experimentally observed or prediction with high confidence targets were considered.

Statistical analysis

Pre-processing of NGS data was performed as described previously (5). Briefly, sequencing quality and read length distribution were assessed using FastQC (version 0.11.5). Sequencing

adaptors were trimmed using Btrim and reads without detectable adaptors as well as reads shorter than 16 nt were removed from the data set. Next, reads were sequentially mapped to rRNA and tRNA sequences (obtained from RNACentral) and to mature miRNAs (obtained from miRBase, release 22). Remaining reads were mapped to snRNA and snoRNA sequences (obtained from RNACentral). All alignments were performed using Bowtie's "best" algorithm with a one mismatch allowance. Differential miRNA expression between groups was analysed using DESeq2 (version 1.20.0) and the included normalization strategy based on median ratios of mean expression. Results were corrected for false discovery using the Benjamini-Hochberg method. Stringent criteria (mean miRNA expression ≥ 50 reads, $|\log_2FC| \geq 1$ and FDR-adjusted p-value ≤ 0.1) were applied to detect disease-related changes in miRNA expression. Comparisons between patient groups and controls were done by Mann-Whitney U and a $p < 0.05$ was seen as statistically significant.

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163 SUPPLEMENTARY FIGURES

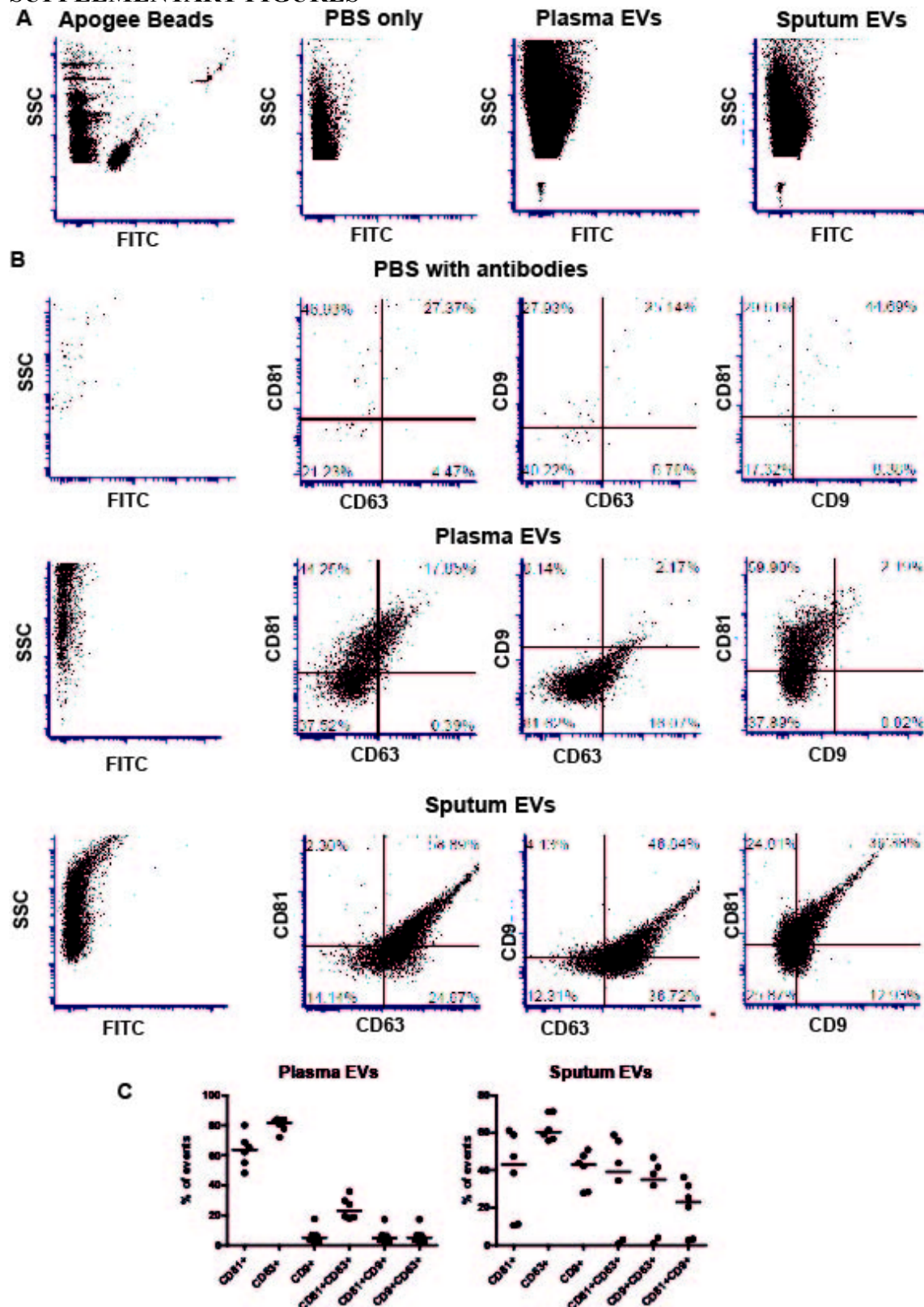


Figure S1: Flow cytometry analysis of isolated EVs

Flow cytometry measurement of isolated EVs from plasma or sputum supernatant and respective controls. A Apogee beads (110nm and 500nm green fluorescent beads with

refractive index $n=1.59$ (polystyrene) and 180nm, 240nm, 300nm, 590nm, 880nm and 1300nm particles with a refractive index $n=1.43$ (silica, SiO_2), PBS only as control, unstained plasma and sputum EVs. Threshold level was only set on SSC with a value of 200. **B** Dotplots for PBS with antibodies (anti-CD9-APC, anti-CD63-PE, anti-CD81-PerCPVio700) as control, plasma EVs and sputum EVs stained with anti-CD9, anti-CD63, and anti-CD81. In combination with the SSC-threshold of 200, also fluorochrome thresholds (APC, PE, PerCP-Vio700) were set with a value of 200, to eliminate negative events, which do not express one of the EV-markers. **C** Graph depicts percentages of different EV populations positive for respective markers of $n=6$ plasma and $n=6$ sputum EV samples according to (B).

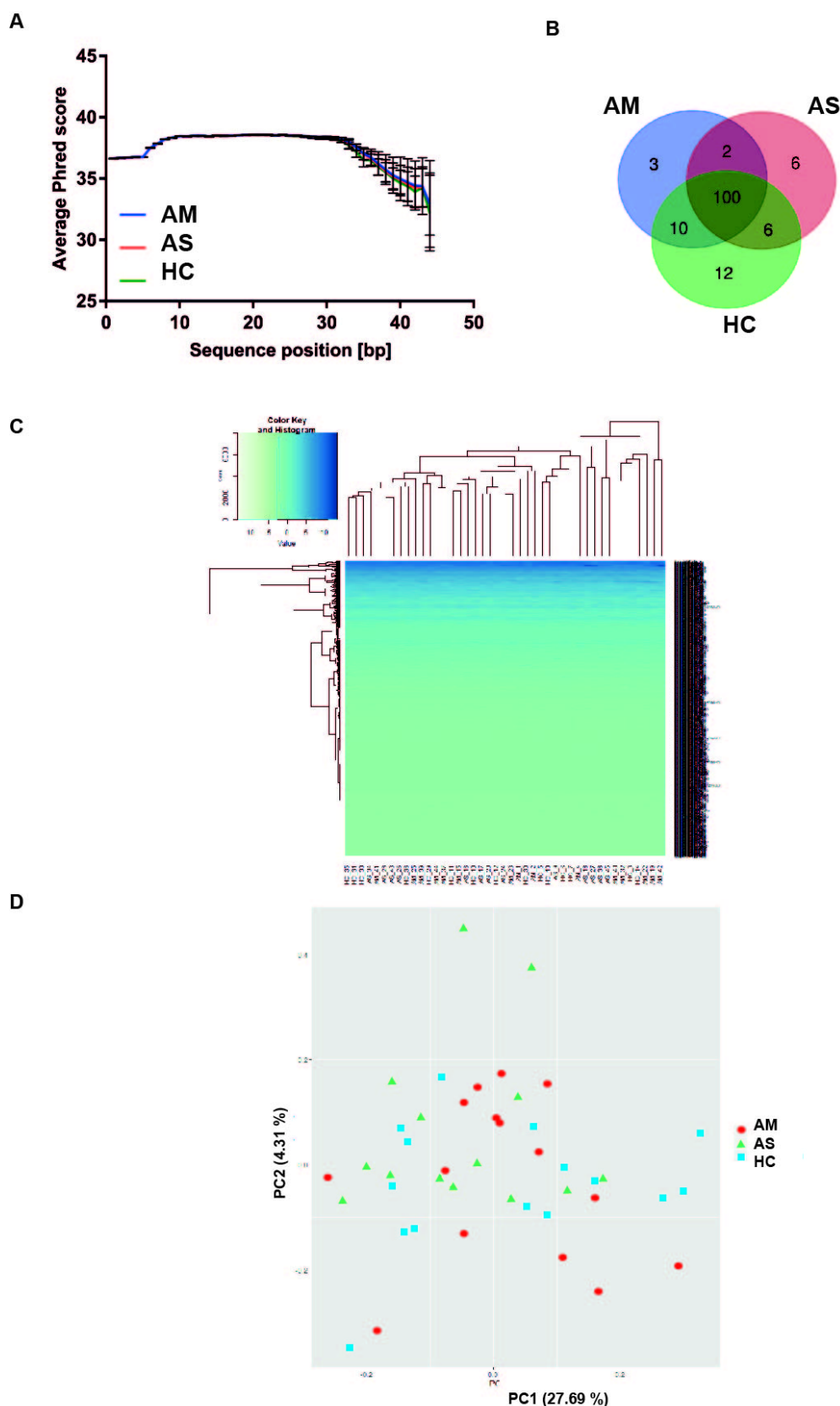


Figure S2: Quality control RNA-seq

A Mean per-group (HC: healthy control; AM: mild-to-moderate asthma; AS: severe asthma) Phred scores $\pm$ standard deviation (SD) for all sequence positions. The widely accepted

184 benchmark Phred score of 30 indicates a 99.9 % base call accuracy. **B** Venn Diagramm
185 showing number of expressed miRNAs per group. **C** Heatmap of unsupervised clustering of
186 total miRNA expression. **D** Principal component analysis of total miRNA expression.
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SUPPLEMENTARY TABLES

Table S1: Clinical and population characteristics cohort for profiling

Parameter	healthy median, IQR	controls, median, IQR	mild-to-moderate asthma, median, IQR	severe asthma, median, IQR
No.	16	15	14	
<i>Population characteristics</i>				
Female sex, no. (%)	8 (50.0)	8 (53.3)	7 (50.0)	
Ethnicity	caucasian	caucasian	caucasian	
Age (y)	58.5 (48.3-62.5)	51.00 (49.0-64.0)	53.00 (50.0-59.0)	
BMI (kg/m ²)	23.21(22.4-26.5)	26.13 (24.6-28.7)	25.10 (23.1-28.5)	
Smoking status never - ex - current	11 - 5 - 0	10 - 5 - 0	10 - 4 - 0	
Pack years of ex-smokers	5.0 (1.5-16.0)	2.0 (1.5-6.0)	3.0 (1.3-4.8)	
<i>Clinical characteristics</i>				
FEV ₁ %pred (pre bronchodilator)	107.0 (100.5-115.8)	84.50 (68.3-101.0) #	72.5 (50.0-99.0) #	
FEV ₁ /FVC	0.8 (0.7-0.8)	0.6 (0.6-0.7) #	0.6 (0.6-0.7) #	
FEF _{25-75%} [L/s]	2.4 (2.1-3.0)	1.3 (0.9-1.6) #	0.9 (0.6-1.8) #	
Serum IgE [U/ml]	34.8 (19.4-66.5)	103.0 (70.8-596.0) #	186.5 (32.25-448.3)	
Blood Eosinophils %	2.0 (1.3-4.0)	8.0 (6.0-11.0) #	4.5 (4.0-8.0) # \$	
Blood Eosinophils abs [1000/μl]	0.1 (0.1-0.2)	0.5 (0.4-0.9) #	0.5 (0.3-0.7) #	
Sputum Eosinophils of non-squamous cells %	0.1 (0.0-0.4)	5.0 (2.9-17.6) #	15.1 (2.4-35.4) #	
FeNO (ppb)	16.0 (11.3-25.0)	33.0 (16.0-40.0) #	45.0 (23.5-84.8) #	
Skin-Prick-Test (Any positive; No. (%))	16 (100)	15 (100)	14 (100)	
Severe Exacerbations in past 12 months	n.a.	1.0 (0.0-2.0) #	3.0 (1.0-6.5) # \$	
Asthma Control Test (sum score)	n.a.	18.0 (11.0-22.0)	16.0 (12.0-18.3)	
ICS dose (Fluticasone-equivalent)	0 (0-0)	400.0 (250.0-400.0)	500.0 (400.0-1000.0)	
2nd controller medication (No. (%))	0 (0)	12 (80)	14 (100)	
Permanent OCS use (No. (%))	0 (0)	0 (0)	8 (57)	

n.a. = not assessed

Mann-Whitney U p<0.05 vs healthy controls

\$ Mann-Whitney U p<0.05 vs mild-to-moderate asthma

195 **SUPPLEMENTARY TABLES****Table S2: Clinical and population characteristics- additional patients for PCR validation**

Parameter	healthy median, IQR	controls, median, IQR	mild-to-moderate asthma, median, IQR	severe asthma, median, IQR
No.	10	10	10	
<i>Population characteristics</i>				
Female sex, no. (%)	5 (50.0)		6 (60.0)	5 (50.0)
Ethnicity	caucasian		caucasian	caucasian
Age (y)	50.5 (28.5-63.3)		51.0 (36.8-62.3)	54.5 (39.0-60.3)
BMI (kg/m ²)	23.9 (22.0-28.4)		26.3 (21.4-27.4)	24.2 (22.5-30.6)
Smoking status never - ex - current	6 - 4 - 0		7 - 3 - 0	4 - 6 - 0
Pack years of ex-smokers	3.0 (3.0-4.5)		5.5 (1.0-10.0)	3.8 (1.0-5.3)
<i>Clinical characteristics</i>				
FEV ₁ %pred (pre bronchodilator)	107.0 (99.8-115.0)		86.5 (77.8-97.3) #	73.5 (59.3-93.5) #
FEV ₁ /FVC	0.74 (0.72-0.78)		0.69 (0.64-0.76)	0.56 (0.47-0.69) #
PEF [L/s]	8.2 (6.8-9.8)		8.1 (6.8-9.1)	7.1 (4.3-10.1)
Serum IgE [U/ml]	28.9 (8.0-53.9)		224.5 (135.6-512.8) #	82.2 (59.7-403.3)
Serum IgE [U/ml]	28.9 (8.0-53.9)		1.0 (1.0-2) #	78.4 (0.75-403.3)
Blood Eosinophils %	2.5 (1.8-3.5)		5.5 (4.0-7.5) #	5.5 (4.8-9.0) #
Blood Eosinophils abs [1000/ μ l]	0.2 (0.1-0.3)		0.4 (0.3-0.5) #	0.5 (0.4-0.7) #
Sputum Eosinophils of non-squamous cells %	0.1 (0.0-1.1)		4.5 (0.7-8.6) #	6.9 (0.9-31.1) #
FeNO (ppb)	17.5 (7.8-53.0)		22.5 (13.0-32.0)	63.0 (39.0-114.0) #
Severe Exacerbations in past 12 months	n.a.		1.0 (1.0-1.0)	0.0 (0.0-0.0)
Asthma Control Test (sum score)	n.a.		23.5 (20.3-25.0)	13.0 (9.8-21.5)\$
ICS dose (Fluticasone-equivalent)	0 (0-0)		500.0 (250.0-500.0)	1050 (475.0-1880.0) #
2nd controller medication (No. (%))	0 (0)		7 (70)	9 (90)
Permanent OCS use (No. (%))	0 (0)		0 (0)	3 (30)

n.a. = not assessed

Mann-Whitney U p<0.05 vs healthy controls

\$ Mann-Whitney U p<0.05 vs mild-to-moderate asthma

201 **Table S3: -miRNA expression in all asthma vs healthy controls**

miRNA	baseMea n	log2FoldChan ge	pvalu e	FDR
hsa-miR-122-5p	1441.750	1.743	0.000	0.032
hsa-miR-3168	1327.945	-1.279	0.000	0.051
hsa-miR-148a-3p	450.357	0.631	0.006	0.994
hsa-miR-941	14.497	0.605	0.006	0.994
hsa-miR-191-5p	69.322	0.295	0.007	0.994
hsa-miR-486-5p	1184.807	-0.390	0.019	0.994
hsa-miR-206	0.932	1.869	0.020	0.994
hsa-miR-223-5p	8.593	0.527	0.022	0.994
hsa-miR-6842-3p	1.270	-1.382	0.024	0.994
hsa-miR-2110	2.697	-0.869	0.024	0.994
hsa-miR-143-3p	59.937	0.332	0.024	0.994
hsa-miR-374b-5p	0.636	-1.506	0.032	0.994
hsa-miR-140-5p	2.839	0.761	0.039	0.994
hsa-miR-28-5p	2.535	0.765	0.052	0.994
hsa-miR-142-5p	5.306	0.494	0.057	0.994
hsa-miR-30d-5p	225.847	-0.125	0.060	0.994
hsa-miR-3652	1.785	1.031	0.072	0.994
hsa-miR-511-5p	0.639	-1.176	0.072	0.994
hsa-miR-485-5p	0.771	-1.211	0.079	0.994
hsa-miR-23b-3p	2.196	0.936	0.081	0.994
hsa-miR-100-5p	39.658	0.421	0.086	0.994
hsa-miR-342-5p	18.452	-0.328	0.089	0.994
hsa-miR-15b-3p	0.566	-1.549	0.094	0.994
hsa-miR-99b-5p	222.103	-0.162	0.097	0.994
hsa-miR-92a-3p	716.086	-0.161	0.102	0.994
hsa-miR-139-3p	17.064	-0.313	0.113	0.994
hsa-miR-200b-3p	4.358	0.766	0.129	0.994
hsa-miR-199a-3p=hsa-miR-199b-3p	5.602	0.400	0.130	0.994
hsa-miR-378i	0.649	1.057	0.131	0.994
hsa-miR-222-3p	11.055	0.261	0.132	0.994
hsa-let-7e-5p	41.429	-0.190	0.141	0.994
hsa-miR-618	0.355	1.570	0.144	0.994
hsa-miR-125b-5p	8.236	0.390	0.148	0.994
hsa-miR-3158-3p	1.308	-0.840	0.150	0.994
hsa-miR-192-5p	15.110	0.364	0.155	0.994
hsa-miR-582-3p	0.847	0.872	0.155	0.994
hsa-miR-338-5p	1.349	0.969	0.168	0.994
hsa-miR-409-3p	17.719	-0.469	0.168	0.994
hsa-miR-195-3p	2.177	-0.560	0.182	0.994
hsa-miR-24-2-5p	2.755	-0.484	0.183	0.994
hsa-miR-197-3p	2.988	0.444	0.207	0.994
hsa-miR-16-5p	5.487	-0.358	0.208	0.994

hsa-miR-184	75.537	0.694	0.211	0.994
hsa-miR-320a-3p	109.230	-0.132	0.221	0.994
hsa-miR-150-3p	6.630	-0.338	0.225	0.994
hsa-miR-493-5p	0.477	1.116	0.227	0.994
hsa-miR-19a-3p	0.951	0.777	0.240	0.994
hsa-miR-423-5p	614.554	-0.151	0.241	0.994
hsa-miR-10b-5p	1329.566	-0.130	0.243	0.994
hsa-miR-142-3p	15.905	0.191	0.247	0.994
hsa-miR-576-3p	0.690	0.899	0.249	0.994
hsa-miR-96-5p	0.600	1.138	0.251	0.994
hsa-miR-4732-3p	0.743	0.834	0.252	0.994
hsa-miR-23a-3p	2.701	0.530	0.252	0.994
hsa-miR-134-5p	1.687	-0.708	0.256	0.994
hsa-miR-101-3p	69.784	-0.105	0.257	0.994
hsa-miR-25-3p	129.280	-0.125	0.263	0.994
hsa-miR-345-5p	1.074	0.689	0.265	0.994
hsa-miR-221-5p	0.265	-1.190	0.269	0.994
hsa-miR-26b-5p	57.676	0.142	0.280	0.994
hsa-miR-425-5p	3.451	0.354	0.280	0.994
hsa-miR-363-3p	30.543	0.189	0.281	0.994
hsa-miR-6747-3p	0.538	-0.957	0.290	0.994
hsa-miR-146b-3p	1.005	-0.861	0.290	0.994
hsa-miR-130b-5p	1.810	0.470	0.292	0.994
hsa-miR-4433b-3p	4.986	-0.496	0.293	0.994
hsa-miR-30b-5p	1.217	0.546	0.298	0.994
hsa-miR-652-3p	1.136	0.628	0.304	0.994
hsa-miR-375-3p	4.080	0.459	0.309	0.994
hsa-let-7b-5p	1094.517	-0.141	0.316	0.994
hsa-miR-532-5p	29.670	0.162	0.317	0.994
hsa-miR-493-3p	1.337	-0.717	0.317	0.994
hsa-miR-148b-5p	0.419	-1.091	0.319	0.994
hsa-miR-335-5p	0.358	1.224	0.320	0.994
hsa-let-7i-5p	1419.726	-0.097	0.325	0.994
hsa-miR-199b-5p	0.568	1.110	0.334	0.994
hsa-miR-16-2-3p	11.878	0.216	0.339	0.994
hsa-miR-374a-3p	1.168	-0.571	0.341	0.994
hsa-miR-424-3p	3.192	0.339	0.343	0.994
hsa-miR-628-3p	0.519	-0.813	0.345	0.994
hsa-miR-32-5p	1.740	0.414	0.348	0.994
hsa-miR-200c-3p	4.299	0.408	0.355	0.994
hsa-miR-26a-5p	1547.479	0.094	0.355	0.994
hsa-miR-152-3p	9.202	0.187	0.360	0.994
hsa-miR-4661-5p	0.382	-1.823	0.363	0.994
hsa-miR-28-3p	21.369	0.134	0.365	0.994
hsa-miR-1-3p	5.033	0.489	0.367	0.994
hsa-let-7a-5p	739.890	-0.050	0.374	0.994

hsa-miR-1301-3p	2.914	-0.401	0.376	0.994
hsa-let-7d-3p	20.698	-0.165	0.378	0.994
hsa-miR-30c-2-3p	1.010	0.725	0.379	0.994
hsa-miR-342-3p	4.650	-0.272	0.381	0.994
hsa-miR-664a-5p	0.303	-1.025	0.384	0.994
hsa-miR-27a-5p	7.980	0.216	0.384	0.994
hsa-miR-132-5p	0.467	-0.909	0.390	0.994
hsa-miR-331-3p	0.468	-0.901	0.393	0.994
hsa-miR-328-3p	7.815	-0.228	0.402	0.994
hsa-miR-339-3p	0.518	-0.704	0.406	0.994
hsa-miR-9-5p	2.335	0.456	0.406	0.994
hsa-miR-1908-5p	0.674	-0.604	0.409	0.994
hsa-miR-411-5p	0.624	-0.784	0.412	0.994
hsa-miR-132-3p	0.307	-0.800	0.416	0.994
hsa-miR-139-5p	58.032	-0.104	0.416	0.994
hsa-miR-193b-5p	0.656	-0.625	0.418	0.994
hsa-miR-1180-3p	1.826	-0.425	0.425	0.994
hsa-miR-450a-5p	0.358	-0.779	0.426	0.994
hsa-miR-34c-5p	0.679	0.983	0.442	0.994
hsa-miR-204-3p	0.631	-0.845	0.443	0.994
hsa-miR-196b-5p	0.402	0.973	0.447	0.994
hsa-miR-1299	0.373	0.831	0.450	0.994
hsa-let-7a-3p	3.149	0.302	0.452	0.994
hsa-miR-320e	0.372	0.653	0.454	0.994
hsa-miR-7-5p	44.122	0.129	0.456	0.994
hsa-miR-19b-3p	0.710	0.517	0.457	0.994
hsa-miR-6721-5p	0.322	-1.070	0.460	0.994
hsa-miR-22-3p	26.461	0.119	0.462	0.994
hsa-miR-483-5p	10.837	-0.234	0.467	0.994
hsa-miR-514a-3p	0.407	1.000	0.468	0.994
hsa-miR-372-3p	0.178	-1.581	0.469	0.994
hsa-miR-335-3p	1.304	-0.423	0.477	0.994
hsa-miR-18a-3p	0.515	0.551	0.480	0.994
hsa-miR-24-3p	47.531	-0.086	0.487	0.994
hsa-miR-205-5p	1.387	0.489	0.491	0.994
hsa-miR-146a-5p	35.707	-0.109	0.501	0.994
hsa-miR-17-5p	4.165	0.229	0.508	0.994
hsa-miR-3613-5p	0.455	0.636	0.510	0.994
hsa-miR-99b-3p	5.460	-0.195	0.514	0.994
hsa-miR-144-3p	9.094	-0.217	0.521	0.994
hsa-miR-151a-5p	1.180	0.379	0.523	0.994
hsa-miR-106a-5p	0.144	-0.865	0.532	0.994
hsa-miR-4481	0.211	-1.151	0.533	0.994
hsa-miR-320c	6.747	0.193	0.540	0.994
hsa-miR-195-5p	0.717	-0.551	0.544	0.994
hsa-miR-30a-5p	52.970	-0.064	0.550	0.994

hsa-miR-92b-3p	6.934	-0.180	0.551	0.994
hsa-miR-449c-5p	0.744	0.518	0.553	0.994
hsa-miR-425-3p	0.229	-0.792	0.555	0.994
hsa-miR-1307-3p	21.808	-0.093	0.564	0.994
hsa-miR-423-3p	95.541	-0.063	0.567	0.994
hsa-miR-340-5p	6.424	0.153	0.569	0.994
hsa-miR-26b-3p	0.095	-1.168	0.571	0.994
hsa-miR-671-3p	2.219	0.308	0.578	0.994
hsa-miR-543	5.075	-0.184	0.583	0.994
hsa-miR-641	0.288	0.718	0.585	0.994
hsa-miR-30c-5p	42.662	0.067	0.592	0.994
hsa-miR-200a-3p	3.713	0.227	0.597	0.994
hsa-miR-20a-5p	5.382	0.140	0.597	0.994
hsa-miR-942-5p	0.263	-0.701	0.598	0.994
hsa-miR-95-3p	3.584	0.214	0.598	0.994
hsa-miR-625-3p	4.251	0.162	0.599	0.994
hsa-miR-499a-5p	0.279	0.643	0.605	0.994
hsa-miR-203a-3p	2.323	-0.245	0.607	0.994
hsa-miR-133a-3p	0.145	-1.143	0.608	0.994
hsa-miR-181a-2-3p	4.927	-0.177	0.609	0.994
hsa-miR-127-3p	10.985	0.149	0.611	0.994
hsa-miR-98-5p	11.950	-0.091	0.616	0.994
hsa-miR-432-5p	1.752	-0.269	0.619	0.994
hsa-miR-186-5p	11.947	0.100	0.622	0.994
hsa-miR-378d	0.200	0.655	0.631	0.994
hsa-miR-200a-5p	0.592	0.620	0.631	0.994
hsa-miR-516b-5p	1.634	0.284	0.632	0.994
hsa-miR-29a-3p	12.015	0.096	0.635	0.994
hsa-miR-598-3p	0.230	0.805	0.636	0.994
hsa-miR-4443	0.925	0.382	0.637	0.994
hsa-miR-10a-5p	637.165	-0.055	0.639	0.994
hsa-miR-125a-3p	0.649	0.410	0.644	0.994
hsa-miR-382-5p	1.521	-0.273	0.656	0.994
hsa-miR-200b-5p	0.218	0.837	0.656	0.994
hsa-miR-939-5p	0.524	0.518	0.657	0.994
hsa-miR-3615	8.530	0.101	0.660	0.994
hsa-miR-3614-5p	0.323	-0.643	0.660	0.994
hsa-miR-215-5p	1.250	-0.282	0.661	0.994
hsa-miR-181b-5p	4.874	0.134	0.662	0.994
hsa-miR-23b-5p	0.288	0.416	0.665	0.994
hsa-miR-30a-3p	25.810	-0.059	0.666	0.994
hsa-miR-151a-3p	327.589	0.066	0.669	0.994
hsa-miR-181a-3p	0.347	-0.371	0.670	0.994
hsa-miR-129-5p	0.205	-0.514	0.671	0.994
hsa-miR-27b-3p	52.331	0.046	0.676	0.994
hsa-miR-93-5p	5.002	-0.117	0.679	0.994

hsa-miR-421	0.383	0.351	0.683	0.994
hsa-miR-223-3p	2.549	0.192	0.689	0.994
hsa-miR-485-3p	0.866	-0.311	0.690	0.994
hsa-miR-769-5p	2.373	0.182	0.690	0.994
hsa-miR-125a-5p	35.875	-0.066	0.693	0.994
hsa-miR-126-3p	3269.582	-0.040	0.693	0.994
hsa-miR-504-5p	0.302	0.515	0.697	0.994
hsa-miR-190b-5p	0.108	-0.906	0.699	0.994
hsa-miR-654-5p	0.647	0.360	0.712	0.994
hsa-miR-642a-3p	0.290	0.595	0.712	0.994
hsa-miR-214-5p	0.123	-0.748	0.713	0.994
hsa-miR-1260a	0.504	-0.269	0.714	0.994
hsa-miR-148a-5p	0.528	0.361	0.719	0.994
hsa-miR-495-3p	0.412	-0.283	0.721	0.994
hsa-let-7c-5p	60.064	0.090	0.726	0.994
hsa-miR-181a-5p	31.162	0.056	0.727	0.994
hsa-miR-1273h-5p	0.175	-0.582	0.730	0.994
hsa-miR-320d	3.558	0.128	0.731	0.994
hsa-miR-1260b	0.518	-0.254	0.735	0.994
hsa-miR-194-5p	2.926	0.131	0.738	0.994
hsa-miR-339-5p	0.821	-0.218	0.741	0.994
hsa-miR-22-5p	1.728	0.172	0.742	0.994
hsa-miR-323a-3p	0.333	-0.354	0.744	0.994
hsa-miR-92a-1-5p	0.292	0.425	0.746	0.994
hsa-miR-433-3p	0.444	0.392	0.747	0.994
hsa-miR-1285-3p	0.221	-0.534	0.748	0.994
hsa-miR-10399-5p	0.087	-0.992	0.749	0.994
hsa-miR-193a-5p	3.064	-0.124	0.756	0.994
hsa-miR-1273h-3p	0.981	-0.230	0.756	0.994
hsa-let-7f-5p	415.824	-0.023	0.757	0.994
hsa-miR-4433b-5p	1.068	0.246	0.758	0.994
hsa-miR-144-5p	4.195	-0.102	0.762	0.994
hsa-miR-4746-5p	0.197	0.574	0.763	0.994
hsa-miR-5010-3p	0.293	0.409	0.775	0.994
hsa-miR-10b-3p	0.582	0.214	0.775	0.994
hsa-miR-183-5p	18.327	-0.081	0.776	0.994
hsa-miR-4707-5p	0.227	-0.590	0.778	0.994
hsa-miR-27a-3p	165.973	0.032	0.779	0.994
hsa-miR-370-3p	6.024	0.121	0.779	0.994
hsa-miR-30e-5p	2.733	0.104	0.780	0.994
hsa-miR-1827	0.154	0.464	0.782	0.994
hsa-let-7g-5p	232.619	0.025	0.783	0.994
hsa-miR-338-3p	0.226	0.404	0.784	0.994
hsa-miR-25-5p	0.753	-0.223	0.785	0.994
hsa-miR-6852-5p	0.347	-0.431	0.787	0.994
hsa-miR-320b	4.188	-0.078	0.788	0.994

hsa-miR-451a	267.618	-0.049	0.790	0.994
hsa-miR-30d-3p	0.149	0.447	0.790	0.994
hsa-miR-99a-5p	267.971	-0.025	0.790	0.994
hsa-miR-18a-5p	0.132	-0.621	0.792	0.994
hsa-miR-141-3p	0.187	-0.503	0.792	0.994
hsa-miR-1323	0.598	-0.212	0.796	0.994
hsa-miR-107	0.409	0.221	0.797	0.994
hsa-miR-21-5p	502.436	0.025	0.797	0.994
hsa-miR-20b-5p	0.556	-0.210	0.799	0.994
hsa-miR-140-3p	20.589	-0.038	0.799	0.994
hsa-miR-4451	0.126	-0.576	0.800	0.994
hsa-miR-6803-3p	0.045	-0.783	0.800	0.994
hsa-miR-410-3p	0.052	-0.783	0.800	0.994
hsa-miR-126-5p	16.684	-0.049	0.801	0.994
hsa-miR-3909	0.181	-0.362	0.804	0.994
hsa-miR-4709-5p	0.040	-0.766	0.805	0.994
hsa-miR-1287-5p	0.089	-0.605	0.805	0.994
hsa-miR-4306	0.099	-0.680	0.807	0.994
hsa-miR-150-5p	68.163	0.041	0.808	0.994
hsa-miR-4535	0.119	-0.553	0.812	0.994
hsa-let-7d-5p	30.329	0.030	0.815	0.994
hsa-miR-136-5p	0.123	-0.525	0.818	0.994
hsa-miR-3120-5p	0.076	-0.680	0.818	0.994
hsa-miR-3151-5p	0.170	0.707	0.818	0.994
hsa-miR-1843	0.310	-0.265	0.819	0.994
hsa-miR-4732-5p	0.663	-0.210	0.821	0.994
hsa-miR-625-5p	0.103	0.545	0.822	0.994
hsa-miR-5701	0.150	0.589	0.823	0.994
hsa-miR-1292-5p	0.122	0.445	0.823	0.994
hsa-miR-654-3p	0.572	-0.176	0.824	0.994
hsa-miR-484	7.882	0.052	0.824	0.994
hsa-miR-4665-5p	0.193	0.365	0.824	0.994
hsa-miR-505-5p	0.935	0.153	0.826	0.994
hsa-miR-505-3p	0.080	-0.680	0.826	0.994
hsa-miR-4654	0.126	-0.680	0.826	0.994
hsa-miR-4455	0.072	-0.680	0.826	0.994
hsa-miR-185-3p	0.294	0.215	0.830	0.994
hsa-miR-6765-5p	0.030	-0.652	0.833	0.994
hsa-miR-378a-3p	24.556	0.033	0.834	0.994
hsa-miR-664a-3p	0.290	0.249	0.836	0.994
hsa-miR-584-5p	4.794	0.062	0.836	0.994
hsa-miR-365a-5p	0.232	0.378	0.837	0.994
hsa-miR-3690	0.230	0.304	0.837	0.994
hsa-miR-106b-5p	1.450	0.127	0.838	0.994
hsa-miR-30b-3p	0.097	-0.372	0.838	0.994
hsa-miR-10399-3p	0.808	0.146	0.840	0.994

hsa-miR-6130	0.219	-0.205	0.840	0.994
hsa-miR-6501-5p	0.168	0.375	0.845	0.994
hsa-miR-382-3p	0.196	0.365	0.846	0.994
hsa-miR-1294	0.107	0.541	0.847	0.994
hsa-miR-6802-5p	0.066	-0.585	0.848	0.994
hsa-miR-766-5p	0.136	0.429	0.849	0.994
hsa-miR-526b-5p	0.049	-0.585	0.850	0.994
hsa-miR-2116-3p	0.032	-0.577	0.852	0.994
hsa-miR-4738-3p	0.030	-0.577	0.852	0.994
hsa-miR-3940-5p	0.030	-0.577	0.852	0.994
hsa-miR-6752-3p	0.030	-0.577	0.852	0.994
hsa-miR-3065-3p	0.057	-0.577	0.852	0.994
hsa-miR-301a-5p	0.029	-0.577	0.852	0.994
hsa-miR-548b-5p	0.030	-0.577	0.852	0.994
hsa-miR-6126	0.035	-0.577	0.852	0.994
hsa-miR-656-3p	0.035	-0.577	0.852	0.994
hsa-miR-4762-3p	0.053	-0.577	0.852	0.994
hsa-miR-4797-3p	0.053	-0.577	0.852	0.994
hsa-miR-6847-5p	0.053	-0.577	0.852	0.994
hsa-miR-6858-5p	0.119	-0.577	0.852	0.994
hsa-miR-3620-5p	0.107	-0.577	0.852	0.994
hsa-miR-429	0.360	0.293	0.852	0.994
hsa-miR-1246	2.897	-0.110	0.853	0.994
hsa-miR-548j-5p	0.182	0.276	0.855	0.994
hsa-miR-589-5p	0.434	0.144	0.856	0.994
hsa-miR-512-3p	0.158	0.340	0.857	0.994
hsa-miR-431-5p	0.123	0.353	0.858	0.994
hsa-miR-210-3p	0.104	-0.321	0.859	0.994
hsa-miR-1261	0.183	-0.261	0.859	0.994
hsa-miR-1224-5p	0.107	-0.482	0.861	0.994
hsa-miR-218-5p	0.325	-0.250	0.861	0.994
hsa-miR-224-5p	4.524	-0.058	0.862	0.994
hsa-miR-532-3p	0.214	-0.364	0.864	0.994
hsa-miR-576-5p	0.129	0.344	0.864	0.994
hsa-miR-181d-5p	0.830	0.115	0.865	0.994
hsa-miR-196a-5p	0.142	-0.386	0.866	0.994
hsa-miR-1227-5p	0.093	-0.474	0.866	0.994
hsa-miR-337-3p	0.020	-0.520	0.867	0.994
hsa-miR-520h	0.020	-0.520	0.867	0.994
hsa-miR-29b-3p	0.235	-0.272	0.869	0.994
hsa-miR-9985	0.234	-0.195	0.871	0.994
hsa-miR-10395-3p	0.327	-0.265	0.871	0.994
hsa-miR-660-5p	0.288	0.230	0.871	0.994
hsa-miR-365a-3p=hsa-miR-365b-3p	0.147	-0.315	0.871	0.994
hsa-miR-1303	0.168	0.340	0.875	0.994

hsa-miR-5189-3p	0.068	-0.474	0.875	0.994
hsa-miR-452-5p	0.144	0.267	0.876	0.994
hsa-miR-361-5p	0.937	-0.104	0.877	0.994
hsa-miR-10a-3p	0.267	-0.218	0.877	0.994
hsa-miR-5010-5p	0.059	-0.474	0.878	0.994
hsa-miR-3177-3p	0.173	-0.253	0.880	0.994
hsa-miR-1255a	0.170	-0.253	0.880	0.994
hsa-miR-330-5p	0.081	-0.371	0.880	0.994
hsa-miR-330-3p	1.236	0.086	0.880	0.994
hsa-miR-155-5p	15.281	-0.025	0.882	0.994
hsa-miR-219a-1-3p	0.068	-0.371	0.884	0.994
hsa-miR-31-5p	0.108	0.340	0.885	0.994
hsa-miR-331-5p	0.205	-0.207	0.886	0.994
hsa-miR-6741-3p	0.080	0.353	0.887	0.994
hsa-miR-191-3p	0.160	0.271	0.888	0.994
hsa-miR-454-3p	0.148	-0.267	0.889	0.994
hsa-miR-4446-3p	1.282	-0.093	0.889	0.994
hsa-miR-497-5p	0.083	0.340	0.890	0.994
hsa-miR-1185-1-3p	0.038	-0.417	0.893	0.994
hsa-miR-29c-3p	0.114	-0.267	0.894	0.994
hsa-miR-106b-3p	4.977	0.038	0.896	0.994
hsa-miR-3173-5p	0.083	-0.371	0.898	0.994
hsa-miR-548ah-3p	0.105	0.353	0.899	0.994
hsa-miR-146b-5p	199.042	0.015	0.899	0.994
hsa-miR-193b-3p	0.078	-0.371	0.900	0.994
hsa-miR-15b-5p	0.310	0.154	0.900	0.994
hsa-let-7f-1-3p	0.099	0.353	0.900	0.994
hsa-miR-374a-5p	1.008	-0.071	0.900	0.994
hsa-miR-629-5p	4.662	-0.042	0.900	0.994
hsa-miR-877-5p	0.072	-0.371	0.901	0.994
hsa-miR-542-3p	0.210	0.182	0.901	0.994
hsa-miR-1250-5p	0.015	-0.372	0.904	0.994
hsa-miR-1295a	0.015	-0.372	0.904	0.994
hsa-miR-4638-5p	0.015	-0.372	0.904	0.994
hsa-miR-4646-5p	0.015	-0.372	0.904	0.994
hsa-miR-5004-3p	0.015	-0.372	0.904	0.994
hsa-miR-7-1-3p	0.015	-0.372	0.904	0.994
hsa-miR-4529-3p	0.015	-0.372	0.904	0.994
hsa-miR-4742-3p	0.015	-0.372	0.904	0.994
hsa-miR-409-5p	0.039	-0.372	0.904	0.994
hsa-miR-4257	0.039	-0.372	0.904	0.994
hsa-miR-550a-5p	0.039	-0.372	0.904	0.994
hsa-miR-141-5p	0.029	-0.372	0.904	0.994
hsa-miR-3918	0.029	-0.372	0.904	0.994
hsa-miR-4775	0.029	-0.372	0.904	0.994
hsa-miR-4999-5p	0.029	-0.372	0.904	0.994

hsa-miR-6515-3p	0.029	-0.372	0.904	0.994
hsa-miR-6850-5p	0.029	-0.372	0.904	0.994
hsa-miR-3195	0.034	-0.372	0.904	0.994
hsa-miR-3198	0.034	-0.372	0.904	0.994
hsa-miR-4436b-3p	0.034	-0.372	0.904	0.994
hsa-miR-4505	0.034	-0.372	0.904	0.994
hsa-miR-4521	0.015	-0.372	0.904	0.994
hsa-miR-508-3p	0.015	-0.372	0.904	0.994
hsa-miR-518e-3p	0.015	-0.372	0.904	0.994
hsa-miR-503-5p	0.016	-0.372	0.904	0.994
hsa-miR-552-3p	0.016	-0.372	0.904	0.994
hsa-miR-668-3p	0.016	-0.372	0.904	0.994
hsa-miR-6731-3p	0.016	-0.372	0.904	0.994
hsa-miR-324-5p	0.015	-0.372	0.904	0.994
hsa-miR-5001-3p	0.015	-0.372	0.904	0.994
hsa-miR-519d-3p	0.015	-0.372	0.904	0.994
hsa-miR-873-5p	0.015	-0.372	0.904	0.994
hsa-miR-1297	0.017	-0.372	0.904	0.994
hsa-miR-24-1-5p	0.017	-0.372	0.904	0.994
hsa-miR-4712-3p	0.017	-0.372	0.904	0.994
hsa-miR-487a-3p	0.017	-0.372	0.904	0.994
hsa-miR-522-3p	0.017	-0.372	0.904	0.994
hsa-miR-548d-5p	0.017	-0.372	0.904	0.994
hsa-miR-628-5p	0.017	-0.372	0.904	0.994
hsa-miR-34b-3p	0.067	-0.372	0.904	0.994
hsa-miR-1268a	0.027	-0.372	0.904	0.994
hsa-miR-4288	0.027	-0.372	0.904	0.994
hsa-miR-4487	0.027	-0.372	0.904	0.994
hsa-miR-5698	0.027	-0.372	0.904	0.994
hsa-miR-664b-5p	0.027	-0.372	0.904	0.994
hsa-miR-3170	0.059	-0.372	0.904	0.994
hsa-miR-935	0.059	-0.372	0.904	0.994
hsa-miR-5009-5p	0.053	-0.372	0.904	0.994
hsa-miR-1270	0.096	-0.371	0.905	0.994
hsa-miR-4683	0.120	0.240	0.905	0.994
hsa-miR-675-5p	0.135	-0.267	0.905	0.994
hsa-miR-11401	0.134	-0.267	0.905	0.994
hsa-miR-323b-3p	0.497	-0.113	0.905	0.994
hsa-miR-92b-5p	1.373	-0.068	0.905	0.994
hsa-miR-3934-5p	0.353	0.121	0.907	0.994
hsa-miR-1227-3p	0.010	-0.363	0.907	0.994
hsa-miR-152-5p	0.010	-0.363	0.907	0.994
hsa-miR-2355-3p	0.010	-0.363	0.907	0.994
hsa-miR-3199	0.010	-0.363	0.907	0.994
hsa-miR-4632-5p	0.010	-0.363	0.907	0.994
hsa-miR-4726-5p	0.010	-0.363	0.907	0.994

hsa-miR-518f-5p	0.010	-0.363	0.907	0.994
hsa-miR-5196-3p	0.010	-0.363	0.907	0.994
hsa-miR-520a-3p	0.010	-0.363	0.907	0.994
hsa-miR-6514-5p	0.010	-0.363	0.907	0.994
hsa-miR-6516-5p	0.139	0.353	0.909	0.994
hsa-miR-450b-5p	0.366	0.123	0.910	0.994
hsa-miR-130b-3p	0.146	-0.254	0.910	0.994
hsa-miR-516a-5p	0.093	-0.268	0.912	0.994
hsa-miR-874-3p	0.269	-0.168	0.912	0.994
hsa-miR-486-3p	8.432	0.024	0.915	0.994
hsa-miR-204-5p	3.767	0.041	0.915	0.994
hsa-miR-494-3p	0.078	-0.314	0.915	0.994
hsa-miR-365b-5p	0.212	-0.169	0.918	0.994
hsa-miR-3605-3p	0.386	-0.088	0.919	0.994
hsa-miR-136-3p	0.089	0.243	0.920	0.994
hsa-miR-4647	0.116	-0.268	0.921	0.994
hsa-miR-221-3p	9.316	0.024	0.922	0.994
hsa-miR-135a-5p	0.207	-0.155	0.925	0.994
hsa-miR-744-5p	16.156	0.019	0.926	0.994
hsa-miR-548bc	0.207	-0.126	0.928	0.994
hsa-miR-889-3p	0.059	0.234	0.929	0.994
hsa-miR-937-3p	0.098	0.243	0.931	0.994
hsa-miR-2115-3p	0.055	-0.269	0.931	0.994
hsa-miR-6734-5p	0.091	-0.269	0.931	0.994
hsa-miR-1266-5p	0.071	-0.269	0.931	0.994
hsa-miR-3064-5p	0.044	-0.269	0.931	0.994
hsa-miR-548ad-5p=hsa-miR-548ae-5p	0.033	-0.269	0.931	0.994
hsa-miR-323a-5p	0.065	-0.269	0.931	0.994
hsa-miR-6716-3p	0.032	-0.269	0.931	0.994
hsa-miR-6859-5p	0.029	-0.269	0.931	0.994
hsa-miR-26a-2-3p	0.056	-0.269	0.931	0.994
hsa-miR-4800-3p	0.043	-0.269	0.931	0.994
hsa-miR-182-5p	14.717	-0.023	0.932	0.994
hsa-miR-149-5p	0.088	0.243	0.932	0.994
hsa-miR-548o-3p	0.334	0.083	0.933	0.994
hsa-miR-877-3p	0.039	-0.260	0.933	0.994
hsa-miR-1247-5p	0.034	-0.260	0.933	0.994
hsa-let-7i-3p	0.026	-0.260	0.933	0.994
hsa-miR-7848-3p	0.026	-0.260	0.933	0.994
hsa-miR-1226-5p	0.030	-0.260	0.933	0.994
hsa-miR-411-3p	0.142	-0.159	0.934	0.994
hsa-miR-148b-3p	14.791	-0.014	0.935	0.994
hsa-miR-1306-5p	0.070	0.243	0.936	0.994
hsa-miR-5193	0.088	0.230	0.936	0.994
hsa-miR-483-3p	0.596	-0.066	0.937	0.994

hsa-miR-6738-3p	0.136	0.243	0.937	0.994
hsa-miR-187-3p	0.063	0.243	0.937	0.994
hsa-miR-6894-3p	0.096	0.243	0.937	0.994
hsa-miR-4482-3p	0.104	0.243	0.937	0.994
hsa-miR-222-5p	0.053	0.243	0.937	0.994
hsa-miR-3074-5p	0.064	0.240	0.938	0.994
hsa-miR-449a	0.112	0.156	0.939	0.994
hsa-miR-6787-3p	0.060	0.236	0.939	0.994
hsa-miR-574-3p	0.660	0.061	0.939	0.994
hsa-miR-185-5p	13.089	-0.014	0.940	0.994
hsa-miR-766-3p	0.182	-0.159	0.940	0.994
hsa-miR-501-3p	0.631	-0.058	0.941	0.994
hsa-miR-758-3p	0.168	-0.159	0.941	0.994
hsa-miR-6842-5p	0.041	0.223	0.943	0.994
hsa-miR-23a-5p	0.159	-0.138	0.943	0.994
hsa-miR-500a-3p	0.117	-0.160	0.945	0.994
hsa-miR-27b-5p	0.742	-0.047	0.946	0.994
hsa-miR-1304-5p	0.074	-0.211	0.946	0.994
hsa-miR-21-3p	0.105	-0.160	0.946	0.994
hsa-miR-7706	1.019	-0.041	0.950	0.994
hsa-miR-10527-5p	0.142	-0.160	0.951	0.994
hsa-miR-130a-3p	0.109	-0.166	0.951	0.994
hsa-miR-4433a-3p	0.099	-0.166	0.952	0.994
hsa-miR-128-3p	60.123	0.007	0.952	0.994
hsa-miR-651-5p	0.095	-0.166	0.953	0.994
hsa-miR-30c-1-3p	0.086	-0.166	0.954	0.994
hsa-miR-659-5p	0.081	-0.168	0.954	0.994
hsa-miR-7704	0.076	-0.166	0.955	0.994
hsa-miR-32-3p	0.095	-0.160	0.955	0.994
hsa-miR-1255b-5p	0.063	-0.166	0.957	0.994
hsa-miR-1298-5p	0.062	-0.166	0.957	0.994
hsa-miR-548k	0.049	-0.166	0.957	0.994
hsa-miR-378a-5p	0.058	-0.166	0.957	0.994
hsa-miR-4677-3p	0.049	-0.166	0.957	0.994
hsa-miR-422a	0.056	-0.166	0.957	0.994
hsa-miR-517a-3p=hsa-miR-517b-3p	0.051	-0.166	0.957	0.994
hsa-miR-212-5p	0.054	-0.166	0.957	0.994
hsa-miR-181b-2-3p	0.091	-0.166	0.957	0.994
hsa-miR-145-5p	0.079	-0.166	0.957	0.994
hsa-miR-556-5p	0.039	-0.166	0.957	0.994
hsa-miR-6131	0.071	-0.157	0.958	0.994
hsa-let-7e-3p	0.137	-0.102	0.959	0.994
hsa-miR-487b-3p	0.046	-0.156	0.960	0.994
hsa-miR-7110-3p	0.040	-0.156	0.960	0.994
hsa-miR-33a-5p	0.050	-0.156	0.960	0.994

hsa-miR-550a-3-5p	0.494	0.068	0.960	0.994
hsa-miR-4664-3p	0.081	0.135	0.963	0.994
hsa-miR-1249-3p	0.125	-0.104	0.964	0.994
hsa-miR-6855-5p	0.070	0.135	0.964	0.994
hsa-miR-214-3p	0.068	0.135	0.964	0.994
hsa-miR-671-5p	0.054	0.135	0.965	0.994
hsa-miR-3135a	0.066	0.135	0.965	0.994
hsa-miR-6504-5p	0.058	0.135	0.965	0.994
hsa-miR-676-3p	0.068	0.135	0.965	0.994
hsa-miR-3912-3p	0.071	0.135	0.965	0.994
hsa-miR-1976	0.045	0.135	0.965	0.994
hsa-miR-326	0.075	0.135	0.965	0.994
hsa-miR-4293	0.095	0.135	0.965	0.994
hsa-miR-5586-5p	0.053	0.135	0.965	0.994
hsa-miR-4473	0.046	0.135	0.965	0.994
hsa-miR-6780a-5p	0.063	0.135	0.965	0.994
hsa-miR-5690	0.042	0.135	0.965	0.994
hsa-miR-34a-5p	0.079	0.135	0.965	0.994
hsa-miR-4426	0.082	0.135	0.965	0.994
hsa-miR-6513-3p	0.073	0.135	0.965	0.994
hsa-miR-5000-3p	0.109	0.135	0.965	0.994
hsa-miR-1228-5p	0.140	-0.103	0.969	0.994
hsa-miR-1468-5p	0.430	-0.036	0.970	0.994
hsa-miR-379-5p	2.989	0.016	0.972	0.994
hsa-miR-4500	0.235	0.060	0.974	0.994
hsa-miR-151b	0.202	0.054	0.977	0.994
hsa-miR-340-3p	2.312	-0.013	0.978	0.994
hsa-miR-455-5p	0.267	0.034	0.978	0.994
hsa-miR-518e-5p=hsa-miR-519a-5p=hsa-miR-519b-5p=hsa-miR-519c-5p=hsa-miR-522-5p=hsa-miR-523-5p	0.069	-0.063	0.980	0.994
hsa-let-7b-3p	1.516	-0.015	0.981	0.994
hsa-miR-454-5p	0.164	0.046	0.981	0.994
hsa-miR-548e-3p	0.134	0.045	0.981	0.994
hsa-miR-369-5p	0.020	-0.071	0.982	0.994
hsa-miR-4297	0.036	-0.071	0.982	0.994
hsa-miR-4662a-5p	0.036	-0.071	0.982	0.994
hsa-miR-6129	0.036	-0.071	0.982	0.994
hsa-miR-6763-5p	0.036	-0.071	0.982	0.994
hsa-miR-6786-3p	0.036	-0.071	0.982	0.994
hsa-miR-4429	0.037	-0.071	0.982	0.994
hsa-miR-6769b-3p	0.037	-0.071	0.982	0.994
hsa-miR-143-5p	0.029	-0.071	0.982	0.994
hsa-miR-487a-5p	0.029	-0.071	0.982	0.994
hsa-miR-1237-3p	0.018	-0.071	0.982	0.994

hsa-miR-3200-3p	0.018	-0.071	0.982	0.994
hsa-miR-3682-3p	0.018	-0.071	0.982	0.994
hsa-miR-4525	0.018	-0.071	0.982	0.994
hsa-miR-548u	0.018	-0.071	0.982	0.994
hsa-miR-31-3p	0.022	-0.071	0.982	0.994
hsa-miR-11181-3p	0.012	-0.071	0.982	0.994
hsa-miR-3133	0.012	-0.071	0.982	0.994
hsa-miR-337-5p	0.012	-0.071	0.982	0.994
hsa-miR-4483	0.012	-0.071	0.982	0.994
hsa-miR-6772-3p	0.012	-0.071	0.982	0.994
hsa-miR-6813-5p	0.012	-0.071	0.982	0.994
hsa-miR-1229-3p	0.020	-0.071	0.982	0.994
hsa-miR-190a-5p	0.020	-0.071	0.982	0.994
hsa-miR-296-3p	0.020	-0.071	0.982	0.994
hsa-miR-374b-3p	0.020	-0.071	0.982	0.994
hsa-miR-3940-3p	0.020	-0.071	0.982	0.994
hsa-miR-4709-3p	0.020	-0.071	0.982	0.994
hsa-miR-6503-3p	0.020	-0.071	0.982	0.994
hsa-miR-2277-5p	0.032	-0.071	0.982	0.994
hsa-miR-4688	0.032	-0.071	0.982	0.994
hsa-miR-4781-3p	0.032	-0.071	0.982	0.994
hsa-miR-655-3p	0.032	-0.071	0.982	0.994
hsa-miR-211-3p	0.024	-0.071	0.982	0.994
hsa-miR-4303	0.024	-0.071	0.982	0.994
hsa-miR-4672	0.024	-0.071	0.982	0.994
hsa-let-7c-3p	0.024	-0.071	0.982	0.994
hsa-let-7f-2-3p	0.024	-0.071	0.982	0.994
hsa-miR-6510-3p	0.024	-0.071	0.982	0.994
hsa-miR-6511a-3p	0.024	-0.071	0.982	0.994
hsa-miR-6808-3p	0.024	-0.071	0.982	0.994
hsa-miR-4754	0.032	-0.071	0.982	0.994
hsa-miR-6857-3p	0.032	-0.071	0.982	0.994
hsa-miR-4710	0.033	-0.071	0.982	0.994
hsa-miR-4759	0.033	-0.071	0.982	0.994
hsa-miR-4489	0.026	-0.071	0.982	0.994
hsa-miR-3201	0.018	-0.071	0.982	0.994
hsa-miR-548ag	0.018	-0.071	0.982	0.994
hsa-miR-581	0.018	-0.071	0.982	0.994
hsa-miR-6761-5p	0.018	-0.071	0.982	0.994
hsa-miR-147b-3p	0.017	-0.071	0.982	0.994
hsa-miR-9983-3p	0.017	-0.071	0.982	0.994
hsa-miR-3127-3p	0.012	-0.071	0.982	0.994
hsa-miR-4786-5p	0.012	-0.071	0.982	0.994
hsa-miR-7856-5p	0.012	-0.071	0.982	0.994
hsa-miR-92a-2-5p	0.012	-0.071	0.982	0.994
hsa-miR-4772-3p	0.025	-0.071	0.982	0.994

hsa-miR-6892-5p	0.025	-0.071	0.982	0.994
hsa-miR-3146	0.056	-0.071	0.982	0.994
hsa-miR-4433a-5p	0.056	-0.071	0.982	0.994
hsa-miR-1248	0.011	-0.071	0.982	0.994
hsa-miR-128-2-5p	0.011	-0.071	0.982	0.994
hsa-miR-3124-5p	0.011	-0.071	0.982	0.994
hsa-miR-379-3p	0.011	-0.071	0.982	0.994
hsa-miR-1271-5p	0.018	-0.071	0.982	0.994
hsa-miR-299-3p	0.018	-0.071	0.982	0.994
hsa-miR-3659	0.010	-0.071	0.982	0.994
hsa-miR-376a-3p	0.010	-0.071	0.982	0.994
hsa-miR-4311	0.010	-0.071	0.982	0.994
hsa-miR-4499	0.010	-0.071	0.982	0.994
hsa-miR-4676-5p	0.010	-0.071	0.982	0.994
hsa-miR-549a-3p	0.010	-0.071	0.982	0.994
hsa-miR-6806-3p	0.010	-0.071	0.982	0.994
hsa-miR-6877-5p	0.010	-0.071	0.982	0.994
hsa-miR-4770	0.014	-0.071	0.982	0.994
hsa-miR-6726-3p	0.014	-0.071	0.982	0.994
hsa-miR-6766-3p	0.014	-0.071	0.982	0.994
hsa-miR-6810-5p	0.014	-0.071	0.982	0.994
hsa-miR-885-5p	0.026	-0.071	0.982	0.994
hsa-miR-149-3p	0.020	-0.071	0.982	0.994
hsa-miR-3929	0.020	-0.071	0.982	0.994
hsa-miR-4435	0.020	-0.071	0.982	0.994
hsa-miR-4510	0.020	-0.071	0.982	0.994
hsa-miR-455-3p	0.020	-0.071	0.982	0.994
hsa-miR-4742-5p	0.020	-0.071	0.982	0.994
hsa-miR-548ay-5p	0.014	-0.071	0.982	0.994
hsa-miR-6502-5p	0.014	-0.071	0.982	0.994
hsa-miR-6798-3p	0.014	-0.071	0.982	0.994
hsa-miR-6893-5p	0.014	-0.071	0.982	0.994
hsa-miR-93-3p	0.014	-0.071	0.982	0.994
hsa-miR-125b-1-3p	0.028	-0.071	0.982	0.994
hsa-miR-3960	0.028	-0.071	0.982	0.994
hsa-miR-4508	0.028	-0.071	0.982	0.994
hsa-miR-5090	0.028	-0.071	0.982	0.994
hsa-miR-539-3p	0.028	-0.071	0.982	0.994
hsa-miR-642a-5p	0.028	-0.071	0.982	0.994
hsa-miR-10400-5p	0.040	-0.071	0.982	0.994
hsa-miR-4772-5p	0.040	-0.071	0.982	0.994
hsa-miR-199a-5p	2.802	-0.009	0.982	0.994
hsa-miR-6805-5p	0.093	-0.063	0.982	0.994
hsa-miR-7976	0.075	-0.063	0.983	0.994
hsa-miR-6515-5p	0.151	0.045	0.983	0.994
hsa-miR-3928-3p	0.094	-0.063	0.984	0.994

hsa-miR-1278	0.046	-0.063	0.984	0.994
hsa-miR-362-5p	0.118	0.045	0.984	0.994
hsa-miR-574-5p	0.047	-0.053	0.984	0.994
hsa-miR-30e-3p	29.249	0.002	0.985	0.994
hsa-miR-145-3p	0.427	0.022	0.985	0.994
hsa-miR-3913-5p	0.099	-0.044	0.986	0.994
hsa-miR-11400	1.422	0.010	0.986	0.994
hsa-miR-3164	0.150	0.045	0.986	0.994
hsa-miR-7977	0.055	-0.053	0.986	0.994
hsa-miR-6741-5p	0.056	0.052	0.987	0.994
hsa-miR-363-5p	0.086	0.045	0.987	0.994
hsa-miR-29c-5p	0.124	-0.029	0.989	0.994
hsa-miR-1275	0.091	0.039	0.989	0.994
hsa-miR-615-3p	0.081	0.033	0.989	0.994
hsa-miR-502-3p	0.200	-0.019	0.990	0.994
hsa-miR-1304-3p	0.067	0.037	0.990	0.994
hsa-miR-548l	0.041	0.032	0.992	0.994
hsa-miR-5683	0.041	0.032	0.992	0.994
hsa-miR-4511	0.049	0.032	0.992	0.994
hsa-miR-3605-5p	0.048	0.032	0.992	0.994
hsa-miR-378e	0.056	0.032	0.992	0.994
hsa-miR-518b	0.033	0.032	0.992	0.994
hsa-miR-345-3p	0.044	0.032	0.992	0.994
hsa-miR-6511b-3p	0.044	0.032	0.992	0.994
hsa-miR-380-5p	0.024	0.032	0.992	0.994
hsa-miR-424-5p	0.032	0.032	0.992	0.994
hsa-miR-517-5p	0.024	0.032	0.992	0.994
hsa-miR-675-3p	0.024	0.032	0.992	0.994
hsa-miR-6870-3p	0.043	0.032	0.992	0.994
hsa-miR-1307-5p	0.047	0.032	0.992	0.994
hsa-miR-135b-5p	0.047	0.032	0.992	0.994
hsa-miR-3150a-5p	0.048	0.032	0.992	0.994
hsa-miR-509-3-5p	0.047	0.032	0.992	0.994
hsa-miR-548am-3p	0.035	0.032	0.992	0.994
hsa-miR-1290	0.044	0.032	0.992	0.994
hsa-miR-329-3p	0.064	0.032	0.992	0.994
hsa-miR-3175	0.066	0.032	0.992	0.994
hsa-miR-539-5p	0.066	0.032	0.992	0.994
hsa-miR-6792-5p	0.066	0.032	0.992	0.994
hsa-miR-3120-3p	0.052	0.032	0.992	0.994
hsa-miR-518a-3p	0.052	0.032	0.992	0.994
hsa-miR-1234-3p	0.036	0.032	0.992	0.994
hsa-miR-1306-3p	0.036	0.032	0.992	0.994
hsa-miR-548av-3p	0.032	0.032	0.992	0.994
hsa-miR-125b-2-3p	0.053	0.032	0.992	0.994
hsa-miR-181c-5p	0.046	0.032	0.992	0.994

hsa-miR-5003-3p	0.053	0.032	0.992	0.994
hsa-miR-1277-3p	0.036	0.032	0.992	0.994
hsa-miR-194-3p	0.033	0.032	0.992	0.994
hsa-miR-4659b-3p	0.033	0.032	0.992	0.994
hsa-miR-4685-3p	0.024	0.032	0.992	0.994
hsa-miR-4763-3p	0.024	0.032	0.992	0.994
hsa-miR-548n	0.024	0.032	0.992	0.994
hsa-miR-6783-3p	0.040	0.032	0.992	0.994
hsa-miR-6843-3p	0.055	0.032	0.992	0.994
hsa-miR-103a-3p	18.696	-0.002	0.993	0.994
hsa-miR-760	0.231	0.012	0.993	0.994
hsa-miR-361-3p	9.381	-0.002	0.993	0.994
hsa-miR-381-3p	2.739	-0.002	0.997	0.997

203 **Table S4: miRNA expression in mild-to-moderate asthma vs healthy controls**

miRNA	baseMea n	log2FoldChan ge	pvalu e	FDR
hsa-miR-941	14.040	0.821	0.000	0.203
hsa-miR-3168	1389.616	-1.371	0.001	0.206
hsa-miR-122-5p	685.365	0.658	0.016	0.998
hsa-miR-28-5p	2.521	1.036	0.018	0.998
hsa-miR-6842-3p	1.278	-1.865	0.019	0.998
hsa-miR-2110	2.656	-1.118	0.020	0.998
hsa-miR-206	0.792	2.051	0.029	0.998
hsa-miR-3652	1.674	1.256	0.046	0.998
hsa-miR-184	83.134	1.192	0.058	0.998
hsa-miR-576-3p	0.798	1.507	0.066	0.998
hsa-miR-30d-5p	213.052	-0.140	0.081	0.998
hsa-miR-148a-3p	340.822	0.264	0.081	0.998
hsa-miR-27a-5p	8.152	0.503	0.084	0.998
hsa-miR-140-5p	2.476	0.739	0.089	0.998
hsa-miR-486-5p	1181.545	-0.307	0.090	0.998
hsa-miR-100-5p	35.723	0.429	0.103	0.998
hsa-miR-374b-5p	0.695	-1.442	0.110	0.998
hsa-miR-582-3p	0.821	1.186	0.110	0.998
hsa-miR-4732-3p	0.817	1.296	0.130	0.998
hsa-miR-143-3p	52.193	0.231	0.132	0.998
hsa-miR-195-5p	0.527	-1.672	0.132	0.998
hsa-miR-374a-3p	1.044	-1.056	0.138	0.998
hsa-miR-126-3p	2937.772	-0.176	0.139	0.998
hsa-miR-338-5p	1.297	1.292	0.142	0.998
hsa-miR-191-5p	60.689	0.197	0.144	0.998
hsa-miR-30c-2-3p	1.120	1.302	0.151	0.998
hsa-miR-485-5p	0.824	-1.156	0.163	0.998
hsa-miR-215-5p	0.926	-1.019	0.163	0.998
hsa-miR-24-3p	43.227	-0.202	0.169	0.998
hsa-miR-223-5p	7.172	0.349	0.172	0.998
hsa-miR-511-5p	0.682	-1.090	0.173	0.998
hsa-miR-28-3p	20.266	0.227	0.198	0.998
hsa-let-7c-5p	62.376	0.390	0.209	0.998
hsa-miR-3613-5p	0.519	1.216	0.210	0.998
hsa-miR-4443	1.056	1.022	0.213	0.998
hsa-miR-3158-3p	1.326	-0.945	0.213	0.998
hsa-miR-205-5p	0.774	-1.024	0.217	0.998
hsa-miR-139-5p	53.641	-0.190	0.226	0.998
hsa-miR-125b-5p	7.460	0.409	0.232	0.998
hsa-miR-142-3p	14.838	0.246	0.233	0.998
hsa-miR-127-3p	10.990	0.390	0.233	0.998
hsa-miR-95-3p	3.752	0.565	0.233	0.998
hsa-miR-199a-3p=hsa-miR-199b-	4.906	0.383	0.236	0.998

3p				
hsa-miR-139-3p	16.951	-0.269	0.249	0.998
hsa-miR-483-5p	9.869	-0.423	0.249	0.998
hsa-miR-328-3p	7.064	-0.391	0.255	0.998
hsa-miR-342-3p	4.293	-0.469	0.259	0.998
hsa-miR-194-5p	2.345	-0.506	0.265	0.998
hsa-miR-193b-5p	0.566	-1.298	0.269	0.998
hsa-miR-30e-5p	2.167	-0.502	0.292	0.998
hsa-miR-342-5p	18.264	-0.231	0.292	0.998
hsa-miR-23b-3p	1.679	0.713	0.293	0.998
hsa-miR-744-5p	16.195	0.231	0.298	0.998
hsa-miR-24-2-5p	2.754	-0.467	0.301	0.998
hsa-miR-450a-5p	0.250	-1.409	0.302	0.998
hsa-miR-30a-3p	23.749	-0.181	0.306	0.998
hsa-miR-93-5p	4.461	-0.341	0.309	0.998
hsa-miR-1-3p	4.588	0.557	0.310	0.998
hsa-miR-132-3p	0.278	-1.227	0.312	0.998
hsa-miR-625-3p	4.254	0.365	0.315	0.998
hsa-miR-142-5p	4.417	0.318	0.317	0.998
hsa-miR-516b-5p	1.713	0.660	0.318	0.998
hsa-miR-370-3p	6.238	0.436	0.319	0.998
hsa-miR-652-3p	1.042	0.740	0.326	0.998
hsa-miR-618	0.269	1.687	0.330	0.998
hsa-miR-532-5p	27.493	0.193	0.334	0.998
hsa-miR-9-5p	2.102	0.553	0.336	0.998
hsa-miR-15b-3p	0.735	-0.974	0.345	0.998
hsa-miR-425-5p	3.075	0.389	0.346	0.998
hsa-miR-335-5p	0.343	1.578	0.347	0.998
hsa-miR-499a-5p	0.314	1.249	0.360	0.998
hsa-miR-92a-3p	693.158	-0.103	0.364	0.998
hsa-miR-3615	8.189	0.245	0.368	0.998
hsa-miR-654-5p	0.717	0.916	0.371	0.998
hsa-miR-6747-3p	0.585	-0.900	0.375	0.998
hsa-miR-30a-5p	48.853	-0.124	0.377	0.998
hsa-miR-126-5p	15.055	-0.205	0.379	0.998
hsa-miR-221-5p	0.271	-1.176	0.382	0.998
hsa-miR-148b-3p	14.770	0.173	0.384	0.998
hsa-miR-151a-3p	314.474	0.159	0.386	0.998
hsa-miR-181b-5p	4.708	0.309	0.390	0.998
hsa-miR-4661-5p	0.515	-1.595	0.393	0.998
hsa-miR-19b-3p	0.655	0.705	0.395	0.998
hsa-miR-99a-5p	245.916	-0.093	0.397	0.998
hsa-miR-11400	1.580	0.506	0.400	0.998
hsa-miR-10b-5p	1265.605	-0.122	0.403	0.998
hsa-miR-486-3p	8.476	0.217	0.403	0.998
hsa-miR-514a-3p	0.373	1.413	0.410	0.998

hsa-miR-99b-5p	215.405	-0.102	0.417	0.998
hsa-miR-25-3p	123.255	-0.104	0.428	0.998
hsa-miR-1908-5p	0.685	-0.692	0.434	0.998
hsa-miR-130b-5p	1.628	0.428	0.437	0.998
hsa-miR-378i	0.421	0.775	0.439	0.998
hsa-miR-4433b-5p	1.152	0.682	0.439	0.998
hsa-miR-339-3p	0.546	-0.844	0.440	0.998
hsa-miR-152-3p	8.408	0.195	0.440	0.998
hsa-miR-664a-5p	0.275	-1.297	0.441	0.998
hsa-miR-345-5p	0.945	0.604	0.444	0.998
hsa-miR-23a-3p	2.249	0.424	0.447	0.998
hsa-miR-204-3p	0.614	-1.028	0.454	0.998
hsa-miR-320a-3p	104.785	-0.097	0.457	0.998
hsa-miR-671-3p	2.125	0.442	0.459	0.998
hsa-miR-628-3p	0.564	-0.736	0.474	0.998
hsa-miR-144-5p	3.732	-0.293	0.488	0.998
hsa-miR-19a-3p	0.720	0.554	0.494	0.998
hsa-miR-335-3p	1.272	-0.518	0.496	0.998
hsa-miR-144-3p	8.604	-0.263	0.501	0.998
hsa-miR-4732-5p	0.482	-0.707	0.501	0.998
hsa-miR-6721-5p	0.264	-1.178	0.502	0.998
hsa-miR-125a-3p	0.632	0.747	0.503	0.998
hsa-miR-339-5p	0.713	-0.550	0.507	0.998
hsa-miR-493-3p	1.425	-0.503	0.510	0.998
hsa-miR-372-3p	0.228	-1.546	0.511	0.998
hsa-miR-155-5p	13.873	-0.128	0.511	0.998
hsa-miR-92b-3p	6.461	-0.256	0.517	0.998
hsa-miR-27a-3p	147.991	-0.092	0.521	0.998
hsa-miR-193a-5p	2.705	-0.328	0.524	0.998
hsa-miR-16-5p	5.579	-0.222	0.528	0.998
hsa-miR-411-5p	0.659	-0.663	0.530	0.998
hsa-miR-363-3p	27.012	0.119	0.541	0.998
hsa-miR-16-2-3p	10.766	0.179	0.541	0.998
hsa-miR-340-5p	6.062	0.205	0.546	0.998
hsa-miR-203a-3p	2.203	-0.348	0.547	0.998
hsa-miR-10399-3p	0.835	0.465	0.554	0.998
hsa-miR-424-3p	2.785	0.258	0.554	0.998
hsa-miR-132-5p	0.529	-0.737	0.557	0.998
hsa-miR-27b-3p	46.512	-0.080	0.559	0.998
hsa-miR-106b-3p	4.845	0.204	0.565	0.998
hsa-miR-654-3p	0.443	-0.621	0.566	0.998
hsa-miR-148b-5p	0.486	-0.689	0.566	0.998
hsa-miR-106a-5p	0.149	-0.934	0.567	0.998
hsa-miR-4746-5p	0.210	1.172	0.570	0.998
hsa-miR-505-5p	0.961	0.489	0.572	0.998
hsa-miR-1260b	0.429	-0.568	0.583	0.998

hsa-miR-182-5p	13.036	-0.159	0.584	0.998
hsa-miR-26b-3p	0.129	-1.023	0.589	0.998
hsa-miR-30b-5p	1.017	0.348	0.593	0.998
hsa-miR-7706	1.111	0.399	0.595	0.998
hsa-let-7d-5p	28.640	0.083	0.605	0.998
hsa-miR-185-5p	12.017	-0.121	0.605	0.998
hsa-miR-125a-5p	33.236	-0.108	0.610	0.998
hsa-miR-101-3p	66.995	-0.058	0.613	0.998
hsa-miR-942-5p	0.246	-0.868	0.614	0.998
hsa-miR-10b-3p	0.394	-0.520	0.617	0.998
hsa-miR-107	0.421	0.524	0.623	0.998
hsa-miR-504-5p	0.266	0.851	0.623	0.998
hsa-miR-3690	0.259	0.847	0.628	0.998
hsa-miR-4481	0.283	-0.818	0.629	0.998
hsa-miR-3151-5p	0.225	1.342	0.631	0.998
hsa-miR-1307-3p	20.642	-0.088	0.635	0.998
hsa-miR-409-3p	19.064	-0.181	0.636	0.998
hsa-miR-382-3p	0.240	0.950	0.636	0.998
hsa-miR-320d	3.424	0.205	0.641	0.998
hsa-miR-425-3p	0.163	-0.994	0.645	0.998
hsa-let-7d-3p	20.167	-0.104	0.650	0.998
hsa-miR-192-5p	12.261	0.112	0.650	0.998
hsa-miR-3605-3p	0.453	0.449	0.651	0.998
hsa-miR-200a-5p	0.324	-0.592	0.658	0.998
hsa-miR-374a-5p	1.032	0.282	0.659	0.998
hsa-miR-133a-3p	0.193	-0.901	0.659	0.998
hsa-miR-23b-5p	0.253	0.596	0.663	0.998
hsa-miR-760	0.285	0.592	0.663	0.998
hsa-let-7b-5p	1062.817	-0.071	0.666	0.998
hsa-miR-222-3p	9.505	0.094	0.669	0.998
hsa-miR-148a-5p	0.284	-0.634	0.672	0.998
hsa-miR-4665-5p	0.206	0.737	0.672	0.998
hsa-miR-5010-3p	0.329	0.687	0.674	0.998
hsa-miR-340-3p	2.111	-0.271	0.674	0.998
hsa-miR-1301-3p	3.088	-0.226	0.679	0.998
hsa-miR-641	0.225	0.824	0.681	0.998
hsa-miR-512-3p	0.199	0.799	0.691	0.998
hsa-miR-1180-3p	1.860	-0.255	0.693	0.998
hsa-miR-576-5p	0.154	0.850	0.694	0.998
hsa-miR-421	0.338	0.418	0.695	0.998
hsa-miR-574-3p	0.486	-0.428	0.695	0.998
hsa-let-7a-5p	701.163	-0.026	0.695	0.998
hsa-miR-320e	0.256	0.481	0.696	0.998
hsa-miR-3934-5p	0.223	-0.610	0.697	0.998
hsa-miR-150-3p	6.740	-0.135	0.700	0.998
hsa-miR-99b-3p	5.357	-0.129	0.702	0.998

hsa-miR-129-5p	0.193	-0.595	0.703	0.998
hsa-miR-196b-5p	0.232	0.664	0.705	0.998
hsa-miR-939-5p	0.536	0.570	0.705	0.998
hsa-miR-30d-3p	0.149	0.800	0.707	0.998
hsa-miR-18a-3p	0.404	0.374	0.708	0.998
hsa-miR-320b	3.789	-0.132	0.721	0.998
hsa-miR-218-5p	0.180	-0.863	0.721	0.998
hsa-miR-874-3p	0.348	0.568	0.721	0.998
hsa-miR-642a-3p	0.246	0.827	0.721	0.998
hsa-miR-379-5p	2.547	-0.209	0.722	0.998
hsa-miR-18a-5p	0.109	-0.964	0.723	0.998
hsa-miR-151a-5p	1.007	0.261	0.724	0.998
hsa-miR-361-5p	1.070	0.269	0.726	0.998
hsa-miR-106b-5p	1.414	0.267	0.726	0.998
hsa-miR-195-3p	2.401	-0.171	0.729	0.998
hsa-miR-25-5p	0.835	0.327	0.730	0.998
hsa-miR-495-3p	0.409	-0.339	0.730	0.998
hsa-miR-1299	0.220	0.471	0.737	0.998
hsa-miR-21-5p	469.834	0.038	0.738	0.998
hsa-miR-17-5p	3.771	0.137	0.739	0.998
hsa-miR-378d	0.157	0.601	0.742	0.998
hsa-miR-381-3p	2.671	0.157	0.743	0.998
hsa-miR-26b-5p	51.386	0.053	0.743	0.998
hsa-miR-140-3p	19.336	-0.064	0.743	0.998
hsa-miR-183-5p	17.102	-0.109	0.745	0.998
hsa-miR-4500	0.296	0.618	0.748	0.998
hsa-miR-103a-3p	17.974	0.072	0.748	0.998
hsa-miR-455-5p	0.147	-0.673	0.755	0.998
hsa-miR-190b-5p	0.145	-0.667	0.756	0.998
hsa-miR-1843	0.270	-0.420	0.762	0.998
hsa-miR-200a-3p	3.255	0.127	0.763	0.998
hsa-miR-589-5p	0.404	0.292	0.764	0.998
hsa-miR-451a	261.359	0.064	0.766	0.998
hsa-miR-493-5p	0.254	0.521	0.767	0.998
hsa-miR-331-3p	0.570	-0.342	0.768	0.998
hsa-miR-6852-5p	0.288	-0.655	0.770	0.998
hsa-let-7g-5p	217.355	0.033	0.771	0.998
hsa-miR-10399-5p	0.117	-0.855	0.774	0.998
hsa-miR-1292-5p	0.128	0.734	0.777	0.998
hsa-miR-485-3p	0.849	-0.283	0.779	0.998
hsa-miR-6738-3p	0.183	0.804	0.780	0.998
hsa-miR-937-3p	0.132	0.715	0.781	0.998
hsa-miR-6516-5p	0.167	0.804	0.787	0.998
hsa-miR-181a-5p	29.140	0.051	0.787	0.998
hsa-miR-543	5.310	0.101	0.791	0.998
hsa-miR-32-5p	1.434	0.144	0.792	0.998

hsa-miR-196a-5p	0.074	-0.782	0.793	0.998
hsa-miR-29a-3p	10.524	-0.068	0.794	0.998
hsa-miR-769-5p	2.133	0.155	0.794	0.998
hsa-miR-146b-3p	1.231	-0.219	0.795	0.998
hsa-miR-146b-5p	186.875	0.034	0.796	0.998
hsa-miR-30e-3p	27.554	0.039	0.796	0.998
hsa-miR-3614-5p	0.363	-0.436	0.797	0.998
hsa-miR-361-3p	8.667	-0.076	0.798	0.998
hsa-miR-3164	0.199	0.606	0.799	0.998
hsa-miR-181a-2-3p	5.081	0.095	0.799	0.998
hsa-let-7e-5p	41.558	-0.036	0.801	0.998
hsa-miR-320c	5.897	0.078	0.803	0.998
hsa-miR-423-5p	606.393	-0.034	0.804	0.998
hsa-miR-214-5p	0.131	-0.650	0.806	0.998
hsa-miR-429	0.350	0.576	0.806	0.998
hsa-miR-191-3p	0.145	0.606	0.812	0.998
hsa-miR-34c-5p	0.423	0.363	0.813	0.998
hsa-miR-146a-5p	35.392	0.042	0.814	0.998
hsa-miR-29b-3p	0.119	-0.628	0.814	0.998
hsa-miR-598-3p	0.130	0.607	0.816	0.998
hsa-miR-141-3p	0.171	-0.487	0.817	0.998
hsa-miR-22-5p	1.467	-0.153	0.819	0.998
hsa-miR-27b-5p	0.758	0.181	0.819	0.998
hsa-miR-532-3p	0.195	-0.640	0.821	0.998
hsa-miR-1273h-5p	0.203	-0.459	0.822	0.998
hsa-miR-9985	0.201	-0.387	0.825	0.998
hsa-miR-431-5p	0.113	0.583	0.826	0.998
hsa-miR-199b-5p	0.374	0.414	0.828	0.998
hsa-miR-433-3p	0.330	0.302	0.828	0.998
hsa-miR-4654	0.154	-0.641	0.830	0.998
hsa-miR-4455	0.068	-0.641	0.830	0.998
hsa-miR-410-3p	0.068	-0.641	0.830	0.998
hsa-miR-505-3p	0.064	-0.641	0.830	0.998
hsa-miR-6803-3p	0.061	-0.641	0.830	0.998
hsa-miR-483-3p	0.482	-0.229	0.830	0.998
hsa-miR-199a-5p	2.566	-0.108	0.831	0.998
hsa-miR-550a-3-5p	0.574	0.356	0.831	0.998
hsa-miR-186-5p	10.353	-0.061	0.832	0.998
hsa-miR-181a-3p	0.408	0.198	0.832	0.998
hsa-miR-4709-5p	0.054	-0.630	0.832	0.998
hsa-miR-1285-3p	0.238	-0.413	0.837	0.998
hsa-miR-1273h-3p	1.027	0.145	0.838	0.998
hsa-miR-1827	0.098	0.558	0.839	0.998
hsa-miR-197-3p	2.305	0.092	0.841	0.998
hsa-miR-365a-3p=hsa-miR-365b-3p	0.107	-0.591	0.843	0.998

hsa-miR-5000-3p	0.147	0.584	0.845	0.998
hsa-miR-4293	0.126	0.584	0.845	0.998
hsa-miR-548ah-3p	0.109	0.584	0.845	0.998
hsa-miR-326	0.100	0.584	0.845	0.998
hsa-miR-3912-3p	0.094	0.584	0.845	0.998
hsa-miR-3135a	0.085	0.584	0.845	0.998
hsa-miR-671-5p	0.073	0.584	0.845	0.998
hsa-miR-30c-5p	38.392	-0.029	0.845	0.998
hsa-miR-4535	0.106	-0.530	0.846	0.998
hsa-miR-542-3p	0.188	0.399	0.847	0.998
hsa-miR-6741-3p	0.075	0.558	0.850	0.998
hsa-miR-1260a	0.467	-0.174	0.851	0.998
hsa-miR-502-3p	0.131	-0.418	0.851	0.998
hsa-miR-330-3p	1.061	-0.122	0.852	0.998
hsa-miR-6802-5p	0.062	-0.549	0.854	0.998
hsa-miR-526b-5p	0.047	-0.549	0.854	0.998
hsa-miR-889-3p	0.065	0.536	0.857	0.998
hsa-miR-323b-3p	0.521	0.205	0.858	0.998
hsa-miR-4306	0.134	-0.448	0.862	0.998
hsa-miR-6765-5p	0.040	-0.515	0.863	0.998
hsa-miR-185-3p	0.276	0.225	0.864	0.998
hsa-miR-629-5p	4.578	0.073	0.866	0.998
hsa-miR-1255a	0.112	-0.448	0.867	0.998
hsa-miR-23a-5p	0.107	-0.448	0.869	0.998
hsa-miR-3120-5p	0.101	-0.448	0.870	0.998
hsa-miR-204-5p	3.377	-0.083	0.874	0.998
hsa-let-7b-3p	1.464	-0.128	0.874	0.998
hsa-miR-136-5p	0.141	-0.399	0.875	0.998
hsa-miR-452-5p	0.097	0.361	0.877	0.998
hsa-miR-548bc	0.158	-0.335	0.877	0.998
hsa-miR-365b-5p	0.245	0.261	0.879	0.998
hsa-miR-221-3p	8.432	-0.045	0.879	0.998
hsa-miR-362-5p	0.136	0.387	0.880	0.998
hsa-miR-1304-3p	0.089	0.432	0.880	0.998
hsa-miR-6858-5p	0.160	-0.435	0.884	0.998
hsa-miR-3620-5p	0.138	-0.435	0.884	0.998
hsa-miR-1270	0.086	-0.435	0.884	0.998
hsa-miR-3065-3p	0.076	-0.435	0.884	0.998
hsa-miR-4762-3p	0.070	-0.435	0.884	0.998
hsa-miR-4797-3p	0.070	-0.435	0.884	0.998
hsa-miR-6847-5p	0.070	-0.435	0.884	0.998
hsa-miR-4647	0.045	-0.435	0.884	0.998
hsa-miR-6126	0.045	-0.435	0.884	0.998
hsa-miR-656-3p	0.045	-0.435	0.884	0.998
hsa-miR-32-3p	0.043	-0.435	0.884	0.998
hsa-miR-4738-3p	0.041	-0.435	0.884	0.998

hsa-miR-548b-5p	0.041	-0.435	0.884	0.998
hsa-miR-3940-5p	0.039	-0.435	0.884	0.998
hsa-miR-6752-3p	0.039	-0.435	0.884	0.998
hsa-miR-500a-3p	0.081	-0.435	0.884	0.998
hsa-miR-5010-5p	0.066	-0.435	0.884	0.998
hsa-miR-548j-5p	0.057	-0.435	0.884	0.998
hsa-miR-193b-3p	0.055	-0.435	0.884	0.998
hsa-miR-2116-3p	0.043	-0.435	0.884	0.998
hsa-miR-301a-5p	0.040	-0.435	0.884	0.998
hsa-miR-6515-5p	0.187	0.342	0.886	0.998
hsa-miR-660-5p	0.178	-0.259	0.887	0.998
hsa-miR-6130	0.183	-0.195	0.889	0.998
hsa-miR-3913-5p	0.060	-0.406	0.892	0.998
hsa-miR-3909	0.169	-0.241	0.893	0.998
hsa-miR-26a-5p	1395.078	0.017	0.894	0.998
hsa-miR-1468-5p	0.366	-0.186	0.895	0.998
hsa-miR-3928-3p	0.129	0.388	0.896	0.998
hsa-miR-1275	0.105	0.388	0.896	0.998
hsa-miR-1185-1-3p	0.027	-0.381	0.898	0.998
hsa-miR-337-3p	0.027	-0.381	0.898	0.998
hsa-miR-520h	0.027	-0.381	0.898	0.998
hsa-miR-1287-5p	0.120	-0.278	0.902	0.998
hsa-miR-1303	0.151	0.364	0.903	0.998
hsa-miR-329-3p	0.084	0.364	0.903	0.998
hsa-miR-6855-5p	0.073	0.364	0.903	0.998
hsa-miR-5701	0.067	0.364	0.903	0.998
hsa-miR-149-5p	0.065	0.364	0.903	0.998
hsa-miR-3150a-5p	0.064	0.364	0.903	0.998
hsa-miR-3605-5p	0.063	0.364	0.903	0.998
hsa-miR-1307-5p	0.063	0.364	0.903	0.998
hsa-miR-135b-5p	0.063	0.364	0.903	0.998
hsa-miR-509-3-5p	0.063	0.364	0.903	0.998
hsa-miR-31-5p	0.057	0.364	0.903	0.998
hsa-miR-345-3p	0.057	0.364	0.903	0.998
hsa-miR-6511b-3p	0.057	0.364	0.903	0.998
hsa-miR-6894-3p	0.057	0.364	0.903	0.998
hsa-miR-548l	0.055	0.364	0.903	0.998
hsa-miR-5683	0.055	0.364	0.903	0.998
hsa-miR-1306-5p	0.055	0.364	0.903	0.998
hsa-miR-6504-5p	0.055	0.364	0.903	0.998
hsa-miR-380-5p	0.032	0.364	0.903	0.998
hsa-miR-517-5p	0.032	0.364	0.903	0.998
hsa-miR-675-3p	0.032	0.364	0.903	0.998
hsa-miR-145-3p	0.414	0.167	0.904	0.998
hsa-miR-128-3p	55.951	-0.018	0.905	0.998
hsa-miR-484	7.170	0.036	0.905	0.998

hsa-miR-15b-5p	0.229	-0.238	0.905	0.998
hsa-miR-4451	0.168	-0.242	0.907	0.998
hsa-miR-6870-3p	0.057	0.341	0.909	0.998
hsa-miR-1323	0.533	-0.103	0.911	0.998
hsa-miR-10a-3p	0.255	-0.176	0.912	0.998
hsa-miR-449c-5p	0.548	0.111	0.913	0.998
hsa-miR-4707-5p	0.284	-0.245	0.913	0.998
hsa-miR-548o-3p	0.266	-0.168	0.913	0.998
hsa-miR-223-3p	2.271	0.065	0.914	0.998
hsa-miR-1294	0.027	0.322	0.914	0.998
hsa-miR-181d-5p	0.704	-0.090	0.914	0.998
hsa-miR-4433b-3p	5.558	-0.047	0.922	0.998
hsa-miR-10a-5p	608.571	-0.013	0.926	0.998
hsa-miR-1227-5p	0.123	-0.242	0.926	0.998
hsa-miR-92a-1-5p	0.201	0.180	0.928	0.998
hsa-miR-29c-3p	0.105	-0.243	0.929	0.998
hsa-miR-432-5p	1.883	0.057	0.929	0.998
hsa-miR-411-3p	0.097	-0.243	0.930	0.998
hsa-miR-516a-5p	0.093	-0.243	0.930	0.998
hsa-miR-330-5p	0.093	-0.243	0.931	0.998
hsa-miR-200c-3p	3.385	0.039	0.931	0.998
hsa-miR-5189-3p	0.091	-0.243	0.931	0.998
hsa-miR-20b-5p	0.567	-0.088	0.931	0.998
hsa-miR-3177-3p	0.205	0.149	0.933	0.998
hsa-miR-382-5p	1.578	-0.058	0.934	0.998
hsa-let-7i-5p	1379.082	-0.009	0.934	0.998
hsa-miR-675-5p	0.111	-0.243	0.935	0.998
hsa-miR-454-5p	0.079	-0.243	0.935	0.998
hsa-miR-877-5p	0.074	-0.243	0.935	0.998
hsa-miR-219a-1-3p	0.067	-0.243	0.935	0.998
hsa-miR-584-5p	4.344	0.028	0.936	0.998
hsa-let-7f-5p	393.850	0.008	0.936	0.998
hsa-miR-1304-5p	0.100	0.236	0.937	0.998
hsa-miR-20a-5p	4.762	0.024	0.938	0.998
hsa-miR-34b-3p	0.091	-0.230	0.938	0.998
hsa-miR-3170	0.080	-0.230	0.938	0.998
hsa-miR-935	0.080	-0.230	0.938	0.998
hsa-miR-6501-5p	0.069	-0.230	0.938	0.998
hsa-miR-5009-5p	0.069	-0.230	0.938	0.998
hsa-miR-323a-5p	0.051	-0.230	0.938	0.998
hsa-miR-409-5p	0.051	-0.230	0.938	0.998
hsa-miR-4257	0.051	-0.230	0.938	0.998
hsa-miR-550a-5p	0.051	-0.230	0.938	0.998
hsa-miR-3195	0.047	-0.230	0.938	0.998
hsa-miR-3198	0.047	-0.230	0.938	0.998
hsa-miR-4436b-3p	0.047	-0.230	0.938	0.998

hsa-miR-4505	0.047	-0.230	0.938	0.998
hsa-miR-26a-2-3p	0.038	-0.230	0.938	0.998
hsa-miR-141-5p	0.038	-0.230	0.938	0.998
hsa-miR-3918	0.038	-0.230	0.938	0.998
hsa-miR-4775	0.038	-0.230	0.938	0.998
hsa-miR-4999-5p	0.038	-0.230	0.938	0.998
hsa-miR-6515-3p	0.038	-0.230	0.938	0.998
hsa-miR-6850-5p	0.038	-0.230	0.938	0.998
hsa-miR-1268a	0.035	-0.230	0.938	0.998
hsa-miR-4288	0.035	-0.230	0.938	0.998
hsa-miR-4487	0.035	-0.230	0.938	0.998
hsa-miR-5698	0.035	-0.230	0.938	0.998
hsa-miR-664b-5p	0.035	-0.230	0.938	0.998
hsa-miR-6859-5p	0.023	-0.230	0.938	0.998
hsa-miR-1297	0.023	-0.230	0.938	0.998
hsa-miR-24-1-5p	0.023	-0.230	0.938	0.998
hsa-miR-4712-3p	0.023	-0.230	0.938	0.998
hsa-miR-487a-3p	0.023	-0.230	0.938	0.998
hsa-miR-522-3p	0.023	-0.230	0.938	0.998
hsa-miR-548d-5p	0.023	-0.230	0.938	0.998
hsa-miR-628-5p	0.023	-0.230	0.938	0.998
hsa-miR-6716-3p	0.021	-0.230	0.938	0.998
hsa-miR-503-5p	0.021	-0.230	0.938	0.998
hsa-miR-552-3p	0.021	-0.230	0.938	0.998
hsa-miR-668-3p	0.021	-0.230	0.938	0.998
hsa-miR-6731-3p	0.021	-0.230	0.938	0.998
hsa-miR-363-5p	0.020	-0.230	0.938	0.998
hsa-miR-548ad-5p=hsa-miR-548ae-5p	0.020	-0.230	0.938	0.998
hsa-miR-324-5p	0.020	-0.230	0.938	0.998
hsa-miR-5001-3p	0.020	-0.230	0.938	0.998
hsa-miR-519d-3p	0.020	-0.230	0.938	0.998
hsa-miR-873-5p	0.020	-0.230	0.938	0.998
hsa-miR-517a-3p=hsa-miR-517b-3p	0.019	-0.230	0.938	0.998
hsa-miR-4521	0.019	-0.230	0.938	0.998
hsa-miR-508-3p	0.019	-0.230	0.938	0.998
hsa-miR-518e-3p	0.019	-0.230	0.938	0.998
hsa-miR-30c-1-3p	0.043	-0.230	0.938	0.998
hsa-miR-1278	0.020	-0.230	0.938	0.998
hsa-miR-4800-3p	0.020	-0.230	0.938	0.998
hsa-miR-1250-5p	0.020	-0.230	0.938	0.998
hsa-miR-1295a	0.020	-0.230	0.938	0.998
hsa-miR-4638-5p	0.020	-0.230	0.938	0.998
hsa-miR-4646-5p	0.020	-0.230	0.938	0.998
hsa-miR-5004-3p	0.020	-0.230	0.938	0.998

hsa-miR-7-1-3p	0.020	-0.230	0.938	0.998
hsa-miR-4529-3p	0.020	-0.230	0.938	0.998
hsa-miR-4742-3p	0.020	-0.230	0.938	0.998
hsa-miR-7110-3p	0.013	-0.223	0.940	0.998
hsa-let-7i-3p	0.013	-0.223	0.940	0.998
hsa-miR-7848-3p	0.013	-0.223	0.940	0.998
hsa-miR-1226-5p	0.013	-0.223	0.940	0.998
hsa-miR-33a-5p	0.013	-0.223	0.940	0.998
hsa-miR-1227-3p	0.013	-0.223	0.940	0.998
hsa-miR-152-5p	0.013	-0.223	0.940	0.998
hsa-miR-2355-3p	0.013	-0.223	0.940	0.998
hsa-miR-3199	0.013	-0.223	0.940	0.998
hsa-miR-4632-5p	0.013	-0.223	0.940	0.998
hsa-miR-4726-5p	0.013	-0.223	0.940	0.998
hsa-miR-518f-5p	0.013	-0.223	0.940	0.998
hsa-miR-5196-3p	0.013	-0.223	0.940	0.998
hsa-miR-520a-3p	0.013	-0.223	0.940	0.998
hsa-miR-6514-5p	0.013	-0.223	0.940	0.998
hsa-miR-29c-5p	0.128	0.163	0.941	0.998
hsa-miR-210-3p	0.138	0.123	0.941	0.998
hsa-miR-21-3p	0.116	0.182	0.946	0.998
hsa-miR-135a-5p	0.239	0.129	0.948	0.998
hsa-miR-1249-3p	0.060	-0.189	0.949	0.998
hsa-miR-494-3p	0.051	-0.189	0.949	0.998
hsa-miR-98-5p	11.484	-0.014	0.950	0.998
hsa-miR-6131	0.095	0.175	0.950	0.998
hsa-miR-365a-5p	0.111	0.168	0.950	0.998
hsa-miR-548e-3p	0.109	0.168	0.950	0.998
hsa-miR-7704	0.102	0.168	0.951	0.998
hsa-miR-134-5p	2.087	0.037	0.951	0.998
hsa-miR-1224-5p	0.144	-0.153	0.952	0.998
hsa-miR-1255b-5p	0.082	0.168	0.953	0.998
hsa-miR-758-3p	0.203	0.137	0.954	0.998
hsa-miR-449a	0.080	0.168	0.954	0.998
hsa-miR-615-3p	0.080	0.168	0.954	0.998
hsa-miR-96-5p	0.242	0.103	0.954	0.998
hsa-miR-450b-5p	0.282	-0.088	0.955	0.998
hsa-miR-181b-2-3p	0.122	0.168	0.955	0.998
hsa-miR-145-5p	0.106	0.168	0.955	0.998
hsa-miR-6805-5p	0.086	0.168	0.955	0.998
hsa-miR-375-3p	3.222	0.029	0.955	0.998
hsa-miR-3146	0.076	0.159	0.957	0.998
hsa-miR-4433a-5p	0.076	0.159	0.957	0.998
hsa-miR-5193	0.076	0.159	0.957	0.998
hsa-miR-4429	0.050	0.159	0.957	0.998
hsa-miR-4511	0.050	0.159	0.957	0.998

hsa-miR-6769b-3p	0.050	0.159	0.957	0.998
hsa-miR-4297	0.049	0.159	0.957	0.998
hsa-miR-4662a-5p	0.049	0.159	0.957	0.998
hsa-miR-6129	0.049	0.159	0.957	0.998
hsa-miR-6763-5p	0.049	0.159	0.957	0.998
hsa-miR-6786-3p	0.049	0.159	0.957	0.998
hsa-miR-2277-5p	0.043	0.159	0.957	0.998
hsa-miR-4688	0.043	0.159	0.957	0.998
hsa-miR-4781-3p	0.043	0.159	0.957	0.998
hsa-miR-655-3p	0.043	0.159	0.957	0.998
hsa-miR-676-3p	0.043	0.159	0.957	0.998
hsa-miR-1290	0.042	0.159	0.957	0.998
hsa-miR-4664-3p	0.042	0.159	0.957	0.998
hsa-miR-4754	0.042	0.159	0.957	0.998
hsa-miR-6857-3p	0.042	0.159	0.957	0.998
hsa-miR-143-5p	0.039	0.159	0.957	0.998
hsa-miR-378e	0.039	0.159	0.957	0.998
hsa-miR-487a-5p	0.039	0.159	0.957	0.998
hsa-miR-4772-3p	0.033	0.159	0.957	0.998
hsa-miR-6892-5p	0.033	0.159	0.957	0.998
hsa-let-7c-3p	0.033	0.159	0.957	0.998
hsa-let-7f-2-3p	0.033	0.159	0.957	0.998
hsa-miR-1976	0.033	0.159	0.957	0.998
hsa-miR-6510-3p	0.033	0.159	0.957	0.998
hsa-miR-6511a-3p	0.033	0.159	0.957	0.998
hsa-miR-6808-3p	0.033	0.159	0.957	0.998
hsa-miR-211-3p	0.031	0.159	0.957	0.998
hsa-miR-4303	0.031	0.159	0.957	0.998
hsa-miR-4672	0.031	0.159	0.957	0.998
hsa-miR-548am-3p	0.031	0.159	0.957	0.998
hsa-miR-766-5p	0.031	0.159	0.957	0.998
hsa-miR-31-3p	0.028	0.159	0.957	0.998
hsa-miR-369-5p	0.028	0.159	0.957	0.998
hsa-miR-1229-3p	0.027	0.159	0.957	0.998
hsa-miR-190a-5p	0.027	0.159	0.957	0.998
hsa-miR-296-3p	0.027	0.159	0.957	0.998
hsa-miR-374b-3p	0.027	0.159	0.957	0.998
hsa-miR-3940-3p	0.027	0.159	0.957	0.998
hsa-miR-4709-3p	0.027	0.159	0.957	0.998
hsa-miR-6503-3p	0.027	0.159	0.957	0.998
hsa-miR-1237-3p	0.024	0.159	0.957	0.998
hsa-miR-200b-5p	0.024	0.159	0.957	0.998
hsa-miR-214-3p	0.024	0.159	0.957	0.998
hsa-miR-3200-3p	0.024	0.159	0.957	0.998
hsa-miR-3682-3p	0.024	0.159	0.957	0.998
hsa-miR-4525	0.024	0.159	0.957	0.998

hsa-miR-497-5p	0.024	0.159	0.957	0.998
hsa-miR-518b	0.024	0.159	0.957	0.998
hsa-miR-548u	0.024	0.159	0.957	0.998
hsa-let-7f-1-3p	0.016	0.159	0.957	0.998
hsa-miR-11181-3p	0.016	0.159	0.957	0.998
hsa-miR-136-3p	0.016	0.159	0.957	0.998
hsa-miR-3133	0.016	0.159	0.957	0.998
hsa-miR-337-5p	0.016	0.159	0.957	0.998
hsa-miR-424-5p	0.016	0.159	0.957	0.998
hsa-miR-4483	0.016	0.159	0.957	0.998
hsa-miR-6772-3p	0.016	0.159	0.957	0.998
hsa-miR-6813-5p	0.016	0.159	0.957	0.998
hsa-miR-1248	0.014	0.159	0.958	0.998
hsa-miR-128-2-5p	0.014	0.159	0.958	0.998
hsa-miR-3074-5p	0.014	0.159	0.958	0.998
hsa-miR-3124-5p	0.014	0.159	0.958	0.998
hsa-miR-379-3p	0.014	0.159	0.958	0.998
hsa-miR-625-5p	0.014	0.159	0.958	0.998
hsa-miR-6842-5p	0.014	0.159	0.958	0.998
hsa-let-7e-3p	0.103	-0.143	0.959	0.998
hsa-miR-501-3p	0.581	-0.053	0.960	0.998
hsa-miR-92b-5p	1.324	0.030	0.962	0.998
hsa-miR-1246	2.875	0.029	0.963	0.998
hsa-miR-200b-3p	2.771	-0.022	0.963	0.998
hsa-miR-30b-3p	0.117	-0.086	0.965	0.998
hsa-miR-7-5p	38.729	0.006	0.970	0.998
hsa-miR-1261	0.181	-0.068	0.970	0.998
hsa-miR-150-5p	62.623	0.008	0.971	0.998
hsa-miR-224-5p	4.375	-0.013	0.972	0.998
hsa-miR-378a-3p	22.630	0.005	0.976	0.998
hsa-miR-10395-3p	0.379	-0.047	0.978	0.998
hsa-miR-130b-3p	0.124	-0.069	0.979	0.998
hsa-miR-4446-3p	1.270	0.018	0.980	0.998
hsa-miR-659-5p	0.081	0.062	0.983	0.998
hsa-miR-454-3p	0.173	-0.037	0.986	0.998
hsa-miR-11401	0.155	-0.037	0.988	0.998
hsa-miR-151b	0.150	-0.037	0.988	0.998
hsa-miR-423-3p	91.704	-0.002	0.988	0.998
hsa-miR-3173-5p	0.110	-0.037	0.989	0.998
hsa-miR-22-3p	23.519	0.003	0.989	0.998
hsa-miR-766-3p	0.189	-0.037	0.989	0.998
hsa-miR-3064-5p	0.060	-0.038	0.990	0.998
hsa-miR-4677-3p	0.052	-0.038	0.990	0.998
hsa-miR-556-5p	0.033	-0.038	0.990	0.998
hsa-miR-10527-5p	0.142	-0.038	0.990	0.998
hsa-miR-6734-5p	0.122	-0.037	0.990	0.998

hsa-miR-130a-3p	0.111	-0.037	0.990	0.998
hsa-miR-4433a-3p	0.111	-0.037	0.990	0.998
hsa-miR-651-5p	0.108	-0.037	0.990	0.998
hsa-miR-1266-5p	0.096	-0.037	0.990	0.998
hsa-miR-4683	0.080	-0.037	0.990	0.998
hsa-miR-2115-3p	0.075	-0.037	0.990	0.998
hsa-miR-1298-5p	0.064	-0.037	0.990	0.998
hsa-miR-518e-5p=hsa-miR-519a-5p=hsa-miR-519b-5p=hsa-miR-519c-5p=hsa-miR-522-5p=hsa-miR-523-5p	0.062	-0.037	0.990	0.998
hsa-miR-422a	0.061	-0.037	0.990	0.998
hsa-miR-378a-5p	0.054	-0.037	0.990	0.998
hsa-miR-7976	0.053	-0.037	0.990	0.998
hsa-miR-212-5p	0.049	-0.037	0.990	0.998
hsa-miR-548k	0.047	-0.037	0.990	0.998
hsa-miR-664a-3p	0.255	-0.024	0.990	0.998
hsa-miR-331-5p	0.215	0.020	0.991	0.998
hsa-miR-574-5p	0.027	-0.030	0.992	0.998
hsa-miR-6741-5p	0.027	-0.030	0.992	0.998
hsa-miR-877-3p	0.052	-0.030	0.992	0.998
hsa-miR-1247-5p	0.045	-0.030	0.992	0.998
hsa-miR-487b-3p	0.042	-0.030	0.992	0.998
hsa-miR-7977	0.042	-0.030	0.992	0.998
hsa-miR-338-3p	0.097	0.016	0.995	0.999
hsa-miR-1228-5p	0.082	0.016	0.996	0.999
hsa-miR-323a-3p	0.397	0.004	0.997	0.999
hsa-let-7a-3p	2.533	0.000	0.999	0.999

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206 **Table S5: miRNA expression in severe asthma vs healthy controls**

miRNA	baseMean	log2FoldChange	pvalue	FDR
hsa-miR-122-5p	1230.17948	1.774	0.000	0.020
hsa-miR-191-5p	71.1473092	0.394	0.000	0.118
hsa-miR-148a-3p	398.110023	0.473	0.007	0.732
hsa-miR-134-5p	1.50468758	-2.279	0.007	0.732
hsa-let-7e-5p	40.6972323	-0.373	0.007	0.732
hsa-miR-3168	1626.925	-1.158	0.010	0.732
hsa-miR-409-3p	17.2777158	-0.884	0.010	0.732
hsa-miR-143-3p	60.935042	0.445	0.010	0.732
hsa-miR-223-5p	8.72304384	0.693	0.011	0.732
hsa-miR-4433b-3p	4.63101128	-1.253	0.012	0.750
hsa-miR-486-5p	1240.80558	-0.481	0.020	0.993
hsa-miR-200b-3p	5.22002537	1.326	0.021	0.993
hsa-miR-142-5p	5.49357871	0.652	0.024	0.993
hsa-miR-342-5p	18.9638952	-0.437	0.034	0.993
hsa-miR-195-3p	2.06378386	-1.090	0.036	0.993
hsa-miR-99b-5p	226.786783	-0.230	0.036	0.993
hsa-miR-192-5p	16.3805738	0.624	0.036	0.993
hsa-miR-222-3p	11.7605401	0.404	0.045	0.993
hsa-miR-423-5p	613.524254	-0.292	0.048	0.993
hsa-miR-23b-3p	2.12943123	1.175	0.049	0.993
hsa-miR-197-3p	3.21366064	0.758	0.054	0.993
hsa-miR-92a-3p	731.603245	-0.223	0.058	0.993

hsa-miR-15b-3p	0.6313796 4	-2.258	0.058	0.99 3
hsa-miR-146b-3p	0.9741226 3	-2.060	0.063	0.99 3
hsa-miR-96-5p	0.7786164 8	1.870	0.064	0.99 3
hsa-miR-150-3p	6.4656451 7	-0.575	0.065	0.99 3
hsa-miR-26a-5p	1606.9158 7	0.177	0.070	0.99 3
hsa-miR-374b-5p	0.7904772 2	-1.558	0.073	0.99 3
hsa-miR-205-5p	1.9176786 9	1.287	0.081	0.99 3
hsa-miR-493-5p	0.5505784 2	1.585	0.085	0.99 3
hsa-miR-146a-5p	35.229573 2	-0.297	0.088	0.99 3
hsa-miR-100-5p	37.998848 9	0.408	0.090	0.99 3
hsa-miR-26b-5p	59.796836 7	0.232	0.093	0.99 3
hsa-miR-140-5p	2.6326510 4	0.779	0.094	0.99 3
hsa-let-7i-5p	1420.5259 7	-0.199	0.100	0.99 3
hsa-miR-378i	0.6651670 3	1.336	0.100	0.99 3
hsa-miR-206	0.7013498 6	1.660	0.104	0.99 3
hsa-miR-543	4.6884896 8	-0.571	0.105	0.99 3
hsa-miR-16-5p	5.6068421 7	-0.514	0.109	0.99 3
hsa-let-7c-5p	52.869043 4	-0.344	0.117	0.99 3
hsa-miR-375-3p	4.6580612 4	0.809	0.124	0.99 3
hsa-miR-511-5p	0.7365610 3	-1.251	0.128	0.99 3
hsa-miR-139-3p	17.995963 9	-0.378	0.135	0.99 3
hsa-miR-101-3p	71.083571 3	-0.158	0.139	0.99 3
hsa-miR-194-5p	3.4930943 3	0.598	0.147	0.99 3
hsa-miR-485-5p	0.9092462	-1.300	0.147	0.99

	2		3	
hsa-miR-199b-5p	0.6608058	1.639	0.153	0.99
	7		3	
hsa-miR-22-3p	27.975440	0.244	0.153	0.99
	3		3	
hsa-miR-2110	3.3258909	-0.648	0.154	0.99
	3		3	
hsa-miR-200c-3p	4.6925853	0.713	0.154	0.99
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hsa-miR-320a-3p	112.06008	-0.165	0.163	0.99
	8		3	
hsa-miR-363-3p	31.581966	0.273	0.167	0.99
	3		3	
hsa-miR-125b-5p	7.8994237	0.377	0.172	0.99
	5		3	
hsa-miR-30e-5p	3.2647731	0.543	0.174	0.99
	1		3	
hsa-miR-27b-3p	55.370224	0.181	0.176	0.99
	7		3	
hsa-miR-27a-3p	176.85512	0.163	0.177	0.99
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hsa-miR-6842-3p	1.6957383	-0.985	0.177	0.99
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hsa-miR-199a-3p=hsa-miR-199b-3p	5.4393134	0.448	0.180	0.99
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hsa-let-7b-5p	1112.3360	-0.219	0.184	0.99
	4		3	
hsa-miR-30d-5p	235.67032	-0.106	0.191	0.99
	6		3	
hsa-miR-148b-5p	0.4670326	-1.779	0.191	0.99
	6		3	
hsa-miR-19a-3p	0.9829380	0.980	0.194	0.99
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hsa-miR-181a-2-3p	4.7168832	-0.547	0.195	0.99
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hsa-miR-7-5p	46.605118	0.270	0.202	0.99
	4		3	
hsa-miR-493-3p	1.3062196	-1.025	0.209	0.99
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hsa-miR-32-5p	1.8730033	0.629	0.214	0.99
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hsa-miR-148b-3p	14.153883	-0.247	0.216	0.99
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hsa-let-7a-3p	3.5125145	0.566	0.217	0.99
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hsa-miR-23a-3p	2.6798367	0.627	0.221	0.99
	3		3	

hsa-miR-24-2-5p	2.9936967 4	-0.514	0.226	0.99 3
hsa-miR-29a-3p	12.855190 9	0.256	0.230	0.99 3
hsa-miR-331-3p	0.4200274	-1.578	0.232	0.99 3
hsa-miR-186-5p	12.805875 2	0.242	0.233	0.99 3
hsa-miR-30b-5p	1.2953349 2	0.717	0.236	0.99 3
hsa-miR-10b-5p	1379.2771	-0.137	0.239	0.99 3
hsa-miR-941	11.884243 7	0.302	0.240	0.99 3
hsa-miR-148a-5p	0.7154343 6	1.219	0.240	0.99 3
hsa-miR-1301-3p	3.0199419 5	-0.692	0.246	0.99 3
hsa-miR-30c-5p	44.900253 6	0.162	0.252	0.99 3
hsa-miR-11400	1.2449523 9	-0.778	0.252	0.99 3
hsa-miR-432-5p	1.6528364 7	-0.772	0.253	0.99 3
hsa-let-7d-3p	21.084617 5	-0.229	0.256	0.99 3
hsa-miR-3158-3p	1.5711405 6	-0.776	0.260	0.99 3
hsa-miR-744-5p	15.001906 8	-0.267	0.261	0.99 3
hsa-let-7a-5p	753.42221 5	-0.074	0.266	0.99 3
hsa-miR-221-5p	0.3644873 5	-1.211	0.269	0.99 3
hsa-miR-3652	1.4330319 2	0.754	0.270	0.99 3
hsa-miR-34c-5p	0.826977	1.545	0.279	0.99 3
hsa-miR-345-5p	0.9619889 5	0.772	0.286	0.99 3
hsa-miR-423-3p	96.358142 5	-0.133	0.295	0.99 3
hsa-miR-25-3p	133.64072 3	-0.143	0.298	0.99 3
hsa-miR-25-5p	0.5780896 9	-1.077	0.302	0.99 3
hsa-miR-181a-3p	0.2721225	-1.198	0.324	0.99

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hsa-miR-449c-5p	0.8553358	0.910	0.337 0.99
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hsa-miR-6747-3p	0.6162599	-1.054	0.341 0.99
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hsa-miR-424-3p	3.2620357	0.410	0.343 0.99
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hsa-miR-200a-5p	0.7666963	1.382	0.344 0.99
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hsa-miR-451a	262.89181	-0.195	0.348 0.99
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hsa-miR-1180-3p	1.8281402	-0.594	0.360 0.99
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hsa-miR-10b-3p	0.7353793	0.750	0.361 0.99
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hsa-miR-16-2-3p	12.039476	0.239	0.362 0.99
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hsa-miR-28-5p	1.9818657	0.419	0.368 0.99
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hsa-miR-618	0.2375953	1.356	0.370 0.99
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hsa-miR-126-3p	3520.1048	0.105	0.373 0.99
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hsa-miR-132-5p	0.5049686	-1.104	0.380 0.99
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hsa-miR-425-5p	3.2935914	0.360	0.383 0.99
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hsa-miR-7706	0.8845506	-0.722	0.387 0.99
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hsa-miR-200b-5p	0.3156736	1.688	0.392 0.99
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hsa-miR-1299	0.3924864	1.170	0.394 0.99
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hsa-miR-10a-5p	646.25574	-0.101	0.398 0.99
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hsa-miR-196b-5p	0.3860067	1.464	0.399 0.99
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hsa-miR-372-3p	0.2844094	-1.621	0.411 0.99
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hsa-miR-486-3p	8.0485696	-0.216	0.412 0.99
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hsa-miR-320c	7.0356065	0.318	0.419 0.99
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hsa-miR-130b-5p	1.7816221	0.454	0.419 0.99
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hsa-miR-532-5p	29.279848	0.128	0.420 0.99
	9		3

hsa-miR-652-3p	1.0020252 4	0.525	0.428	0.99 3
hsa-miR-320e	0.3833656 6	0.878	0.432	0.99 3
hsa-miR-411-5p	0.6597678 2	-0.896	0.434	0.99 3
hsa-miR-628-3p	0.5651659 5	-0.933	0.435	0.99 3
hsa-miR-338-5p	0.9975968	0.601	0.435	0.99 3
hsa-miR-20a-5p	5.6932715 8	0.246	0.438	0.99 3
hsa-miR-184	30.621839 7	-0.298	0.442	0.99 3
hsa-miR-382-5p	1.5248095 5	-0.564	0.445	0.99 3
hsa-miR-98-5p	12.011225 1	-0.174	0.447	0.99 3
hsa-miR-18a-3p	0.5169169 9	0.719	0.448	0.99 3
hsa-miR-1273h-3p	0.9420861 5	-0.802	0.451	0.99 3
hsa-miR-4481	0.2241679 7	-1.495	0.454	0.99 3
hsa-miR-152-3p	9.1931099	0.179	0.463	0.99 3
hsa-miR-99b-3p	5.6454681 7	-0.274	0.463	0.99 3
hsa-miR-26b-3p	0.1500084 2	-1.326	0.468	0.99 3
hsa-miR-4443	0.6156198 6	-0.854	0.479	0.99 3
hsa-miR-548j-5p	0.2891827	0.956	0.479	0.99 3
hsa-miR-370-3p	5.1702946 4	-0.343	0.481	0.99 3
hsa-miR-4661-5p	0.5461793 4	-2.085	0.484	0.99 3
hsa-miR-142-3p	15.599368 7	0.126	0.486	0.99 3
hsa-miR-582-3p	0.5748672 7	0.572	0.502	0.99 3
hsa-miR-361-5p	0.8266924 3	-0.595	0.505	0.99 3
hsa-miR-151a-5p	1.2184819 1	0.484	0.509	0.99 3
hsa-let-7f-5p	420.63976	-0.054	0.510	0.99

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hsa-miR-17-5p	4.3788996	0.280	0.513	0.99
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hsa-miR-374a-5p	0.848203	-0.520	0.514	0.99
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hsa-miR-664a-5p	0.4495532	-0.767	0.516	0.99
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hsa-miR-200a-3p	3.9048929	0.340	0.520	0.99
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hsa-miR-3605-3p	0.2436196	-0.789	0.526	0.99
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hsa-miR-22-5p	1.9965145	0.401	0.528	0.99
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hsa-miR-3934-5p	0.4692343	0.703	0.530	0.99
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hsa-miR-223-3p	2.6333844	0.329	0.535	0.99
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hsa-miR-27a-5p	6.8287157	-0.152	0.540	0.99
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hsa-miR-1-3p	4.7364561	0.423	0.541	0.99
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hsa-miR-6721-5p	0.4652041	-0.905	0.548	0.99
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hsa-miR-1908-5p	0.7815187	-0.537	0.556	0.99
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hsa-miR-339-3p	0.6197813	-0.572	0.556	0.99
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hsa-miR-3614-5p	0.3500315	-0.861	0.559	0.99
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hsa-miR-6501-5p	0.2610356	0.986	0.565	0.99
			3	
hsa-miR-106a-5p	0.2082149	-0.798	0.569	0.99
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hsa-miR-574-3p	0.7560480	0.494	0.570	0.99
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hsa-miR-4433b-5p	0.8798123	-0.541	0.570	0.99
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hsa-miR-133a-3p	0.1689037	-1.405	0.570	0.99
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hsa-miR-127-3p	9.8064417	-0.171	0.576	0.99
	5		3	
hsa-miR-95-3p	3.0029100	-0.269	0.585	0.99
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hsa-miR-9-5p	2.3087143	0.365	0.591	0.99
	7		3	
hsa-miR-455-5p	0.3851241	0.657	0.592	0.99
	9		3	

hsa-miR-106b-3p	4.7893403	-0.174	0.597	0.99
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hsa-miR-92a-1-5p	0.3587401	0.775	0.601	0.99
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hsa-miR-1307-3p	22.778901	-0.102	0.602	0.99
	3			3
hsa-miR-654-5p	0.4420879	-0.681	0.616	0.99
	1			3
hsa-miR-598-3p	0.2320484	1.022	0.616	0.99
	2			3
hsa-miR-323a-3p	0.2942683	-0.667	0.617	0.99
	3			3
hsa-miR-204-3p	0.7790738	-0.645	0.618	0.99
	2			3
hsa-miR-335-3p	1.4650002	-0.324	0.620	0.99
	3			3
hsa-miR-126-5p	18.078437	0.105	0.623	0.99
	3			3
hsa-miR-338-3p	0.2755611	0.825	0.629	0.99
	3			3
hsa-miR-485-3p	0.9299351	-0.378	0.633	0.99
	8			3
hsa-miR-323b-3p	0.4813697	-0.559	0.641	0.99
	3			3
hsa-miR-769-5p	2.3890245	0.235	0.643	0.99
	4			3
hsa-miR-99a-5p	280.7395	0.054	0.646	0.99
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hsa-miR-190b-5p	0.1310269	-1.167	0.654	0.99
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hsa-miR-629-5p	4.6043274	-0.194	0.656	0.99
	7			3
hsa-miR-27b-5p	0.7156824	-0.362	0.658	0.99
	3			3
hsa-miR-505-5p	0.7870606	-0.349	0.658	0.99
	4			3
hsa-miR-1260a	0.5285080	-0.405	0.663	0.99
	4			3
hsa-miR-144-3p	9.7720067	-0.155	0.664	0.99
	5			3
hsa-miR-103a-3p	18.698723	-0.091	0.665	0.99
	4			3
hsa-miR-379-5p	3.2712250	0.216	0.675	0.99
	5			3
hsa-miR-150-5p	70.104429	0.081	0.678	0.99
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hsa-miR-132-3p	0.4371384	-0.426	0.682	0.99

	2		3
hsa-miR-214-5p	0.1633278	-0.878	0.684 0.99
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hsa-miR-204-5p	3.9820676	0.173	0.686 0.99
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hsa-miR-4732-5p	0.8470207	0.421	0.686 0.99
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hsa-miR-182-5p	15.906567	0.130	0.687 0.99
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hsa-miR-15b-5p	0.3212360	0.544	0.688 0.99
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hsa-miR-330-3p	1.3829767	0.281	0.688 0.99
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hsa-miR-335-5p	0.1959973	0.705	0.689 0.99
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hsa-miR-942-5p	0.3813135	-0.521	0.692 0.99
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hsa-miR-30a-3p	27.641604	0.061	0.692 0.99
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hsa-miR-181d-5p	0.8917884	0.315	0.694 0.99
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hsa-miR-425-3p	0.3285497	-0.544	0.695 0.99
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hsa-miR-381-3p	2.5844266	-0.205	0.697 0.99
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hsa-miR-155-5p	16.094217	0.079	0.700 0.99
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hsa-miR-4707-5p	0.1798047	-0.944	0.701 0.99
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hsa-miR-10399-5p	0.1352940	-1.143	0.702 0.99
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hsa-miR-874-3p	0.1259106	-1.022	0.706 0.99
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hsa-miR-195-5p	1.0632161	0.354	0.707 0.99
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hsa-miR-1246	2.7870105	-0.274	0.711 0.99
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hsa-miR-641	0.2151584	0.636	0.715 0.99
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hsa-miR-664a-3p	0.2927245	0.488	0.716 0.99
	3		3
hsa-miR-215-5p	1.6045339	0.248	0.718 0.99
	3		3
hsa-miR-185-5p	13.949482	0.080	0.718 0.99
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hsa-miR-20b-5p	0.5795106	-0.384	0.719 0.99
	6		3

hsa-miR-19b-3p	0.5940585 4	0.311	0.720	0.99 3
hsa-miR-660-5p	0.3492705 1	0.629	0.721	0.99 3
hsa-miR-625-5p	0.1492318 7	0.920	0.721	0.99 3
hsa-miR-1273h-5p	0.2216502	-0.716	0.723	0.99 3
hsa-miR-340-3p	2.5805858 6	0.182	0.726	0.99 3
hsa-miR-516b-5p	1.3231336 4	-0.254	0.727	0.99 3
hsa-miR-221-3p	9.6615506 3	0.101	0.729	0.99 3
hsa-miR-1323	0.6849686 1	-0.372	0.735	0.99 3
hsa-miR-433-3p	0.4303891	0.532	0.739	0.99 3
hsa-miR-218-5p	0.5036486 6	0.443	0.741	0.99 3
hsa-miR-1285-3p	0.2481573 3	-0.657	0.744	0.99 3
hsa-miR-340-5p	6.2401484 2	0.102	0.744	0.99 3
hsa-miR-378a-3p	25.177836 9	0.064	0.744	0.99 3
hsa-miR-1287-5p	0.071362	-0.976	0.744	0.99 3
hsa-miR-328-3p	8.7688133 8	-0.092	0.747	0.99 3
hsa-miR-10399-3p	0.7366724 3	-0.324	0.753	0.99 3
hsa-miR-378d	0.1512135 9	0.690	0.753	0.99 3
hsa-miR-4306	0.1385451 1	-0.938	0.754	0.99 3
hsa-miR-4451	0.1095207 5	-0.938	0.754	0.99 3
hsa-miR-410-3p	0.0823250 3	-0.938	0.754	0.99 3
hsa-miR-3120-5p	0.0746154 7	-0.938	0.754	0.99 3
hsa-miR-6803-3p	0.0692335 3	-0.938	0.754	0.99 3
hsa-miR-4709-5p	0.0640222 1	-0.936	0.755	0.99 3
hsa-miR-514a-3p	0.2312002	0.626	0.757	0.99

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hsa-miR-939-5p	0.4881285	0.465	0.758 0.99
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hsa-miR-5701	0.1569475	0.912	0.760 0.99
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hsa-miR-129-5p	0.2348142	-0.418	0.761 0.99
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hsa-miR-151a-3p	319.23572	-0.042	0.762 0.99
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hsa-miR-365a-5p	0.2552064	0.710	0.763 0.99
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hsa-miR-210-3p	0.0625875	-0.891	0.766 0.99
	9		3
hsa-miR-450b-5p	0.4116418	0.340	0.767 0.99
	2		3
hsa-miR-342-3p	5.2591051	-0.097	0.768 0.99
	8		3
hsa-miR-766-5p	0.1735154	0.718	0.770 0.99
	3		3
hsa-miR-1294	0.1377149	0.870	0.771 0.99
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hsa-miR-181a-5p	31.713423	0.056	0.773 0.99
	4		3
hsa-miR-421	0.3403616	0.334	0.774 0.99
	7		3
hsa-miR-365b-5p	0.1588794	-0.715	0.774 0.99
	3		3
hsa-miR-3909	0.2123786	-0.490	0.774 0.99
	5		3
hsa-miR-584-5p	4.9968147	0.101	0.775 0.99
	8		3
hsa-miR-224-5p	4.7056832	-0.113	0.776 0.99
	9		3
hsa-miR-1224-5p	0.0553564	-0.852	0.776 0.99
	5		3
hsa-miR-374a-3p	1.4322067	-0.199	0.779 0.99
	6		3
hsa-miR-548o-3p	0.3391967	0.347	0.779 0.99
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hsa-miR-203a-3p	2.5486802	-0.160	0.780 0.99
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hsa-miR-6765-5p	0.0480166	-0.819	0.784 0.99
	6		3
hsa-miR-136-5p	0.1695006	-0.669	0.785 0.99
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hsa-miR-4446-3p	1.3329639	-0.257	0.789 0.99
	8		3

hsa-let-7d-5p	30.412146	-0.037	0.789	0.99
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hsa-miR-654-3p	0.7169493	0.244	0.793	0.99
	9			3
hsa-miR-92b-3p	7.3623918	-0.090	0.794	0.99
	5			3
hsa-miR-3177-3p	0.1019086	-0.716	0.796	0.99
	5			3
hsa-miR-331-5p	0.1892512	-0.449	0.797	0.99
				3
hsa-miR-361-3p	9.9772813	0.068	0.799	0.99
	7			3
hsa-miR-4654	0.2029390	-0.716	0.802	0.99
	3			3
hsa-miR-30b-3p	0.0853992	-0.716	0.804	0.99
				3
hsa-miR-548b-5p	0.0461556	-0.733	0.807	0.99
	8			3
hsa-miR-6858-5p	0.1847788	-0.733	0.807	0.99
	4			3
hsa-miR-3620-5p	0.1596082	-0.733	0.807	0.99
				3
hsa-miR-3065-3p	0.0891384	-0.733	0.807	0.99
				3
hsa-miR-4762-3p	0.0794305	-0.733	0.807	0.99
	8			3
hsa-miR-4797-3p	0.0794305	-0.733	0.807	0.99
	8			3
hsa-miR-6847-5p	0.0794305	-0.733	0.807	0.99
	8			3
hsa-miR-6126	0.0548833	-0.733	0.807	0.99
	5			3
hsa-miR-656-3p	0.0548833	-0.733	0.807	0.99
	5			3
hsa-miR-3173-5p	0.0471737	-0.733	0.807	0.99
	9			3
hsa-miR-3940-5p	0.0471737	-0.733	0.807	0.99
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hsa-miR-21-5p	509.38663	0.018	0.862 0.99
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hsa-miR-659-5p	0.0785633 1	-0.511	0.864	0.99 3
hsa-miR-877-5p	0.0745322 1	-0.511	0.864	0.99 3
hsa-miR-193a-5p	3.3602578 5	0.077	0.869	0.99 3
hsa-miR-130b-3p	0.1535841 2	-0.494	0.869	0.99 3
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hsa-miR-1185-1-3p	0.0603876 3	-0.462	0.877	0.99 3
hsa-miR-3613-5p	0.2379054	-0.244	0.878	0.99 3
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hsa-miR-107	0.3290615 1	-0.161	0.889	0.99 3
hsa-miR-10a-3p	0.2627003 8	-0.251	0.890	0.99 3
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hsa-miR-1468-5p	0.4403406	0.101	0.924 0.99
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hsa-miR-320d	3.5212608	0.037	0.934 0.99
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hsa-miR-32-3p	0.1545993	0.207	0.935 0.99
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hsa-miR-6852-5p	0.3624815	-0.137	0.936 0.99
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hsa-miR-199a-5p	3.0482823	0.035	0.942 0.99
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hsa-miR-125a-3p	0.5087615 8	-0.076	0.944	0.99 3
hsa-miR-339-5p	0.9701074 2	0.052	0.950	0.99 3
hsa-miR-151b	0.2269783 1	0.144	0.951	0.99 3
hsa-miR-146b-5p	201.35932 9	-0.009	0.951	0.99 3
hsa-miR-452-5p	0.1390096 2	0.153	0.952	0.99 3
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hsa-miR-449a	0.1083453 3	0.152	0.956	0.99 3
hsa-miR-6741-5p	0.0703794 4	0.154	0.959	0.99 3
hsa-miR-5010-3p	0.1821441 1	0.121	0.961	0.99 3
hsa-miR-320b	4.4366507 8	-0.016	0.961	0.99 3
hsa-miR-3175	0.1015906 6	0.111	0.970	0.99 3
hsa-miR-539-5p	0.1015906 6	0.111	0.970	0.99 3
hsa-miR-6792-5p	0.1015906 6	0.111	0.970	0.99 3
hsa-miR-6843-3p	0.0866859 2	0.111	0.970	0.99 3
hsa-miR-6894-3p	0.0845987	0.111	0.970	0.99 3
hsa-miR-3120-3p	0.0845987	0.111	0.970	0.99 3
hsa-miR-518a-3p	0.0845987	0.111	0.970	0.99 3
hsa-miR-125b-2-3p	0.0802568 6	0.111	0.970	0.99 3
hsa-miR-5003-3p	0.0802568 6	0.111	0.970	0.99 3
hsa-miR-214-3p	0.0789979	0.111	0.970	0.99 3
hsa-miR-4664-3p	0.0782370 1	0.111	0.970	0.99 3
hsa-miR-181c-5p	0.0715179 4	0.111	0.970	0.99 3
hsa-miR-149-5p	0.0627790	0.111	0.970	0.99

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hsa-miR-6783-3p	0.0627790	0.111	0.970	0.99
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hsa-miR-30d-3p	0.0592411	0.111	0.970	0.99
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hsa-miR-191-3p	0.1051799	-0.084	0.975	0.99
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hsa-miR-542-3p	0.1776813	-0.052	0.977	0.99
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hsa-miR-517a-3p=hsa-miR-517b-3p	0.0793719	-0.084	0.977	0.99
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hsa-miR-518e-5p=hsa-miR-519a-5p=hsa-miR-519b-5p=hsa-miR-519c-5p=hsa-miR-522-5p=hsa-miR-523-5p	0.0737380	-0.084	0.978	0.99
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hsa-let-7e-3p	0.1638746	-0.060	0.978	0.99
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hsa-miR-4665-5p	0.1374064	-0.084	0.978	0.99
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hsa-miR-7976	0.0824843	-0.084	0.978	0.99
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hsa-miR-33a-5p	0.0787845	-0.079	0.979	0.99
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hsa-miR-7110-3p	0.0625067	-0.079	0.979	0.99
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hsa-miR-574-5p	0.0593454	-0.079	0.979	0.99
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hsa-miR-7977	0.0522548	-0.079	0.979	0.99
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hsa-miR-411-3p	0.1767605	-0.052	0.980	0.99
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hsa-miR-429	0.2819678	-0.043	0.981	0.99 3
hsa-miR-365a-3p=hsa-miR-365b-3p	0.2317716	0.040	0.981	0.99 3
hsa-miR-4647	0.1816977	-0.052	0.983	0.99 3
hsa-miR-501-3p	0.6179570	-0.013	0.989	0.99 7
hsa-miR-196a-5p	0.2198698	-0.025	0.990	0.99 7
hsa-miR-9985	0.2613258	-0.005	0.997	1.00 0
hsa-miR-1249-3p	0.1562586	-0.004	0.999	1.00 0
hsa-miR-1255a	0.2136007	-0.001	0.999	1.00 0
hsa-miR-532-3p	0.3335545	0.000	1.000	1.00 0

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208
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