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Transmission of allergen-specific IgG and IgE from maternal blood into breast milk visualized with microarray technology

To the Editor:

Data from experimental animal models have previously shown that allergen-specific IgG antibodies are transmitted from the mother to the offspring via breast milk^{1,2} and have provided evidence that the transmitted allergen-specific IgG antibodies protect specifically against allergic sensitization.² In some studies, it has been demonstrated for humans that breast-feeding has a prophylactic effect against atopic disease but there are also reports arguing against this and the underlying mechanisms are not known.³ There is evidence that IgG antibodies against bacterial antigens (ie, pneumococcal antigens) are transferred from the blood of mothers into their breast milk.⁴ Furthermore, it was possible to detect IgA and IgG against different food antigens in human serum, saliva, colostrums, and milk samples.⁵ Another study found that total IgE levels in breast milk and blood were associated but allergen-specific IgE was not analyzed.⁶

With the FP7-funded European Union research program Mechanisms of the Development of ALLergy (MeDALL; <http://medall-fp7.eu/>), we have recently developed a microarray containing a large number of purified natural and recombinant respiratory, food, and insect allergens that allows highly sensitive measurement of allergen-specific IgE and IgG levels with minute amounts of blood.⁷ A major advantage of the microarray technology is that it allows one to measure antibody reactivities

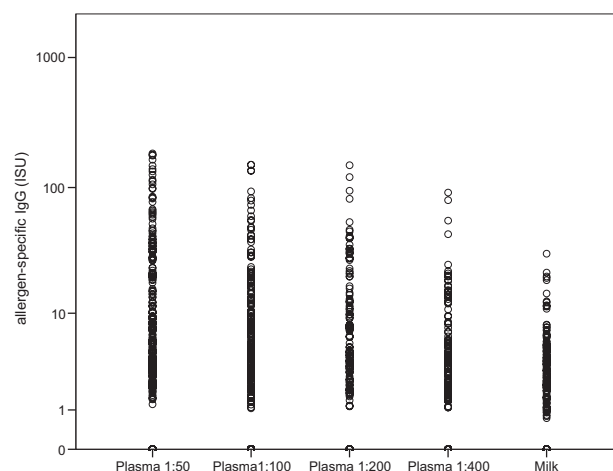


FIG 1. Comparison of allergen-specific IgG levels (ISAC standardized unit [ISU]) measured in different plasma dilutions of 4 mothers with allergen-specific IgG levels in their breast milk samples.

toward a large panel of different allergens. Here, we investigated whether the MeDALL chip is suitable for (1) the measurement of allergen-specific IgG and IgE levels in human breast milk samples, (2) whether there is a transmission of allergen-specific antibodies from blood into breast milk, and (3) whether the reactivity profile of allergens recognized by antibodies in blood and milk is similar. For this purpose, we analyzed plasma and breast milk samples from sensitized ($n = 23$) and nonallergic mothers ($n = 6$) from the ALADDIN birth cohort.⁸ None of the mothers was on allergen-specific immunotherapy. Maternal blood samples were collected in the period around delivery (-1 to $+2$ months), and the breast milk samples were obtained 2 months after delivery. The study was approved by the local Research Ethical Committee, and written informed consent was obtained from all families.

The breast milk samples were centrifuged for 10 minutes at 2500g before use to remove the lipids. For comparison of IgG titers in plasma and breast milk, the plasma samples were diluted 1:50, 1:100, 1:200, and 1:400 before analysis. Microarrays were incubated with 30 μ L of the plasma dilutions or undiluted breast milk samples and allergen-specific IgG and IgE antibodies were detected with fluorophore-conjugated anti-IgG and anti-IgE antibodies, respectively.⁷ The fluorescence intensities were measured with a biochip scanner. Results were expressed in ISAC standardized units (ThermoFisher, Uppsala, Sweden). Correlation coefficients were calculated with SPSS.

Detailed analysis of allergen-specific IgG and IgE levels in plasma and breast milk samples indicated that allergen-specific IgG antibodies are transmitted from the blood into breast milk in a highly specific manner and that breast milk IgG mirrored the profile of IgG reactivity in the blood (see Fig E1 in this article's Online Repository at www.jacionline.org). A comparison of allergen-specific IgG levels measured in 4 plasma dilutions with that of undiluted breast milk samples (Fig 1) indicated that allergen-specific IgG levels in breast milk were approximately 200- to 400-fold lower than in plasma. Allergen-specific IgG reactivities in plasma and breast milk were significantly correlated; for the 1:200 dilution, Spearman correlation coefficient was 0.608 ($P < .001$) and for the 1:400 dilution, Spearman correlation coefficient was 0.604 ($P < .001$) (Fig 2). Detailed results are displayed

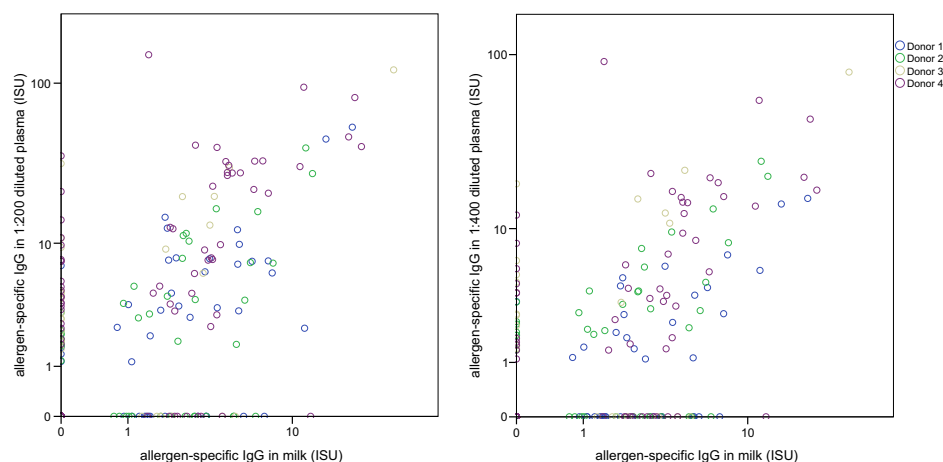


FIG 2. Correlation of allergen-specific IgG levels (ISAC standardized unit [ISU]) in plasma samples (left: dilution 1:200; right: dilution 1:400) from 4 mothers (the donors are labeled in different colors) with allergen-specific IgG levels in their corresponding undiluted breast milk samples.

for each allergen in the heat map (Fig E1). For the vast majority of allergens, plasma- and milk-derived IgG antibody reactivities were correlated. However, in certain instances (eg, milk allergens recognized by donor 3), specific IgGs were high in plasma but did not appear in milk; in some other cases, allergen-specific IgG was detected only in milk but not in plasma (Fig E1). Possible explanations for lack of allergen-specific IgG binding in milk are that certain antigens are present in milk and inhibit IgG binding and/or low affinity/avidity of IgG may prevent binding despite high titers in blood. In fact, the presence of certain respiratory and food allergens in breast milk has been recently demonstrated.^{9,10} However, milk-specific IgG may appear because of local IgG production without corresponding IgG in blood.

The presence of allergen-specific IgG in breast milk may be due to specific transmission of allergen-specific IgG from the blood of mothers into their breast milk or eventually because of local production. For transmission, active transport by the IgG receptor FcRn, which in fact is expressed in the human mammary gland,¹¹ and/or transudation from blood into the mammary glands, as was found for allergen-specific IgG in mucosal fluids, may be considered.¹² Interestingly, for mothers with high levels of allergen-specific IgE in their plasma (donors 1, 9, 13, 15, 16, and 19), we also found that specific IgE antibodies were present in breast milk. In all but 1 case (donor 3, Phl p 5-specific IgE), the presence of allergen-specific IgE was associated with levels of IgE in the blood. The allergen-specific IgE reactivity profiles in blood and breast milk are summarized in detail in Figs E1 and E2 in this article's Online Repository at www.jacionline.org.

In none of the 6 nonallergic mothers (donors 24–29), who served as negative controls, allergen-specific IgE was detected in plasma or in breast milk, demonstrating the specificity of IgE test results (Fig E2).

Our results thus demonstrate that allergen-specific IgG and IgE antibodies with similar specificity are present in blood and in breast milk. Furthermore, our study shows that the MeDALL allergen chip is suitable for the measurement of allergen-specific IgG and IgE antibodies not only in blood but also in breast milk, which opens the possibility to study the transmission of allergen-specific IgG antibodies from mothers to offsprings on the development of allergic sensitization in birth cohorts.

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FIG E1. Heat map of allergen-specific IgG and IgE reactivities measured in different plasma dilutions for 4 mothers (donors 1-4) and in their corresponding undiluted breast milk samples. A color code for the antibody levels (ISU) is shown. Cutoff for IgG and IgE: 0.1 ISU. *ISU*, ISAC standardized unit; *M*, milk; *PI*, plasma.

FIG E2. Heat map of allergen-specific IgE reactivities measured in undiluted plasma samples of 19 sensitized (donors 5-23) and 6 nonallergic mothers (donors 24-29) and in the corresponding undiluted breast milk samples. A color code for the antibody levels (ISU) is shown. Cutoff for IgG and IgE: 0.1 ISU. *ISU*, ISAC standardized unit; *M*, milk; *PI*, plasma.

Supplementary Figure E1

Donor 1	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M	PI	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M
Method	IgG					IgE					
Act d 2	0	0	0	0	0	0	0	0	0	0	0
Act d 5	0	0	0	0	0	0	0	0	0	0	0
Act d 8	0	0	0	0	0	0	0	0	0	0	0
Aln g 1	0	0	0	0	0	0	0	0	0	0	0
Alt a 1	0	0	0	0	0	0	0	0	0	0	0
Alt a 6	0	0	0	0	0	0	0	0	0	0	0
Amb a 1	0	0	0	0	0	0	0	0	0	0	0
V Ana o 1	0	0	0	0	0	0	0	0	0	0	0
Ana o 2	0	0	0	0	0	0	0	0	0	0	0
V Ana o 2	0	0	0	0	0	0	0	0	0	0	0
V nAna o 2	0	0	0	0	0	0	0	0	0	0	0
V Ana o 3	0	0	0	0	1.48	0	0	0	0	0	0
Ani s 3	0	0	0	0	1.25	0	0	0	0	0	0
Api m 1	0	0	0	0	0	0.45	0.56	0.55	0.42	0.33	0
Api m 4	0	0	0	0	0	0	0	0	0	0	0
Ara h 1	0	0	0	0	0	0	0.96	4.33	0.56	0	0
Ara h 2	0	0	0	0	0	0	0	0	0	0	0
Ara h 3	0	0	0	0	0	0	0	0	0	0	0
Ara h 6	0	0	0	0	0	0	0	0	0	0	0
Ara h 8	0	0	0	0	0	0	0	0	0	0	0
Ara h 9	0	0	0	0	0	0	0	0	0	0	0
Art v 1	5.05	2.87	1.13	0	1.08	22.16	1.71	0.88	0.56	0.30	0
Art v 3	0	0	0	0	0	0	0	0	0	0	0
Asp f 1	0	0	0	0	0	0	0	0	0	0	0
Asp f 3	0	0	0	0	0	0	0	0	0	0	0
Asp f 6	0	0	0	0	0	0	0	0	0	0	0
Ber e 1	0	0	0	0	0	0	0	0	0	0	0
Bet v 1	23.58	9.25	7.23	1.12	5.25	101.93	10.68	4.74	3.54	1.78	0.69
Bet v 2	31.41	15.49	7.61	2.72	7.57	8.89	1.13	0.81	0.36	0	0
Bet v 4	0	0	0	0	0	0.52	0	0	0	0	0
Bla g 1	0	0	0	0	0	0	0	0	0	0	0
Bla g 2	8.99	6.38	3.35	1.93	1.81	0	0	0	0	0	0
Bla g 5	20.09	0	0	0	0	0.23	0	0	0	0	0
Bla g 7	0	0	0	0	3.14	0	0	0	0	0	0
Blo t 5	0	0	0	0	0	0	0	0	0	0	0
Bos d 4	0	0	0	0	0	0	0	0	0	0	0
V Bos d 4	0	0	0	0	0	0	0	0	0	0	0
Bos d 5	3.71	0	0	0	0.92	0	0	0	0	0	0
V Bos d 5	37.66	21.94	9.83	3.71	5.35	0	0	0	0	0	0
Bos d Lactoferrin	32.92	14.67	7.56	4.19	6.25	0	0	0	0	0	0
Bos d 8	0	0	0	0	0	0	0	0	0	0	0
V Bos d 8	8.33	4.22	2.05	0	1.52	0	0	0	0	0	0
aS1-casein	0	0	0	0	0	0	0	0	0	0	0
aS2-casein	0	0	0	0	0	0	0	0	0	0	0
b-casein	0	0	0	0	0	0	0	0	0	0	0
K-casein	4.83	3.08	0	0	0	0	0	0	0	0	0
Transferrin	36.68	22.89	12.26	0	5.23	0	0	0	0	0	0
Bos d 6	15.40	5.53	3.31	0	5.31	0	0	0	0	0	0
V BSA	0	0	0	0	3.49	0	0	0	0	0	0
Can f 1	0	0	0	0	0	0	0	0	0	0	0
Can f 2	0	0	0	0	0	0	0	0	0	0	0
Can f 3	0	0	0	0	0	0	0	0	0	0	0
V Can f 4	0	0	0	0	0	0	0	0	0	0	0
Can f 5	0	0	0	0	0	1.17	0	0	0	0	0
V Can f 5	0	0	0	0	0	0	0	0	0	0	0
V Can f 6	0	0	0	0	0	0	0	0	0	0	0
Che a 1	0	0	0	0	0	0	0	0	0	0	0
Cla h 8	0	0	0	0	1.42	0	0	0	0	0	0
Cor a 1.0401	1.77	1.06	0	0	1.52	26.73	1.34	0.69	0.46	0.27	0
Cor a 8	0	0	0	0	5.64	0	0	0	0	0	0
Cor a 9	0	0	0	0	0	0	0	0	0	0	0
Cry j 1	13.58	6.54	3.61	1.38	2.39	6.81	0.57	0	0	0	0
Cyn d 1	48.22	29.21	12.55	4.88	2.01	145.57	10.47	5.91	3.36	1.78	0.66
Cup a 1	21.44	10.37	4.51	1.74	2.14	9.48	0.88	0.63	0	0	0
Der f 1	2.33	0	0	0	0	0	0	0	0	0	0
Der f 2	0	0	0	0	0	0	0	0	0	0	0
Der p 1	0	0	0	0	0	0	0	0	0	0	0
Der p 2	0	0	0	0	0	0	0	0	0	0	0
V Der p 4	0	0	0	0	0	0	0	0	0	0	0
V Der p 5	1.90	0	0	0	0	0	0	0	0	0	0
V Der p 7	0	0	0	0	1.08	0	0	0	0	0	0
Der p 10	0	0	0	0	0	0	0	0	0	0	0
V Der p 11	0	0	0	0	0	0	0	0	0	0	0
V Der p 14	0	0	0	0	0	0	0	0	0	0	0
V Der p 15	3.83	0	0	0	0	0	0	0	0	0	0
V Der p 18	0	0	0	0	0	0	0	0	0	0	0
V Der p 21	0	0	0	0	0	0	0	0	0	0	0
V Der p 23	0	0	0	0	0	0	0	0	0	0	0
V clone 16	0	0	0	0	0	0	0	0	0	0	0

Donor 1	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M	PI	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M
Method	IgG					IgE					
Equ c 1	0	0	0	0	0	0.46	0	0	0	0	0
Equ c 3	0	0	0	0	0	0.84	0	0	0	0	0
Fag e 2	0	0	0	0	0	0	0	0	0	0	0
Fel d 1	4.43	2.50	0	0	0	2.94	0.79	0	0	0	0
Fel d 2	0	0	0	0	0	4.14	0	0	0	0	0
Fel d 4	2.88	1.89	1.14	0	0	0	0	0	0	0	0
Gad c 1	0	0	0	0	0	0	0	0	0	0	0
Gal d 1	15.90	7.78	3.70	1.43	1.01	0	0	0	0	0	0
Gal d 2	2.22	1.46	0	0	0	0	0	0	0	0	0
Gal d 3	0	0	0	0	0	0	0	0	0	0	0
Gal d 5	0	0	0	0	1.94	0	0	0	0	0	0
Gly m 4	0	0	0	0	0	0	0	0	0	0	0
Gly m 5	0	0	0	0	0	0	0	0	0	0	0
Gly m 6	0	0	0	0	0	0.32	0	0	0	0	0
Hev b 1	0	0	0	0	0	0	0	0	0	0	0
Hev b 3	0	0	0	0	0	0	0	0	0	0	0
Hev b 5	0	0	0	0	1.38	0	0	0	0	0	0
Hev b 6.01	0	0	0	0	0	0	0	0	0	0	0
Hev b 8	147.53	93.29	53.88	15.16	19.50	24.82	3.35	2.01	0.98	0.54	0.42
Jug r 1	0	0	0	0	0	0.76	0	0	0	0	0
Jug r 2	33.46	21.33	7.98	0	2.30	1.65	0.67	0.47	0	0	0
Jug r 3	0	0	0	0	0	0	0	0	0	0	0
Lep d 2	0	0	0	0	0	0	0	0	0	0	0
Mal d 1	20.74	11.98	6.40	0	3.45	30.6	1.84	1.03	0.61	0.39	0.37
Mer a 1	33.21	23.90	6.29	6.87	7.93	6.32	0.92	0.87	0.46	0.21	0
Mus m 1	0	0	0	0	0	0	0	0	0	0	0
MUXF3	3.36	0	0	0	0	0	0	0	0	0	0
Ole e 1	2.04	0	0	0	0	0.50	0	0	0	0	0
Ole e 7	0	0	0	0	0	0	0	0	0	0	0
Ole e 9	20.85	12.15	3.50	2.33	4.05	0	0	0	0	0	0
Par j 2	3.17	0	0	0	7.23	0	0	0	0	0	0
Pen m 1	0	0	0	0	0	0	0	0	0	0	0
Pen m 2	0	0	0	0	0	0	0	0	0	0	0
Pen m 4	1.41	0	0	0	0	14.19	0	0	0	0	0
Phl p 1	10.44	5.09	2.94	1.09	2.81	138.7	13.69	7.60	4.55	2.51	0.72
Phl p 2	0	0	0	0	0	1.56	0	0	0	0	0
Phl p 4	44.07	28.67	14.76	4.30	1.94	3.43	0.72	0.59	0	0	0
Phl p 5	10.12	4.94	1.60	0	0	106.67	4.13	3.31	1.83	0.88	0.47
Phl p 6	3.24	1.96	0	0	0	40.29	2.96	1.78	0.91	0.48	0
Phl p 7	0	0	0	0	0	0.66	0	0	0	0	0
Phl p 11	0	0	0	0	0	1.24	0.44	0	0	0	0
Phl p 12	1.21	1.31	0	0	0	0.69	0	0	0	0	0
V Pis v 3	0	0	0	0	0	0	0	0	0	0	0
Pla a 1	0	0	0	0	0	0.50	0	0	0	0	0
Pla a 2	27.28	14.76	7.71	2.68	2.05	4.95	0.41	0.43	0	0	0
Pla a 3	0	0	0	0	0	0	0	0	0	0	0
Pla l 1	0	0	0	0	0	0	0	0	0	0	0
Pol d 5	0	0	0	0	0	29.35	1.26	0.79	0.35	0	0
Pru p 1	0	0	0	0	0	17.08	0	0	0	0	0
Pru p 3	11.56	10.03	2.39	5.46	11.49	0	0	0	0	0	0
V Pru du 3	0	0	0	0	0	0	0	0	0	0	0
V Pru du 4	114.64	73.39	45.54	14.05	14.59	15.20	3.06	1.87	0.93	0.59	0.31
V Pru du 6	1.81	1.20	0	0	3.52	0	0	0	0	0	0
V Pru du 6.01	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6.02	0	0	0	0	0	0	0	0	0	0	0
Sal k 1	3.54	1.92	0	0	0	0.39	0	0	0	0	0
Ses i 1	0	0	0	0	0	0	0	0	0	0	0
Tri a 14	0	0	0	0	0	0	0	0	0	0	0
Tri a 19.0101	0	0	0	0	0	0	0	0	0	0	0
Tri a aa_Tl	19.00	13.29	7.07	3.34	0	0	0	0	0	0	0
V Tri a 36 191	0	0	0	0	0	0	0	0	0	0	0
V Tri a 36	0	0	0	0	0	0	0	0	0	0	0
V m43	7.82	4.05	2.43	1.13	0.79	0.92	0	0	0	0	0
V m82	0	0	0	0	0	0	0	0	0	0	0
Serine	5.39	2.73	1.37	0	0	0	0	0	0	0	0
Thioredoxin	0	0	0	0	0	0	0	0	0	0	0
Glutathione	0	0	0	0	0	0	0	0	0	0	0
peroxiredoxin	0	0	0	0	0	0.53	0	0	0	0	0
Profilin	39.03	16.69	7.87	5.81	3.67	8.05	0.98	0.66	0	0	0
Dehydrin	3.41	0	0	0	0	1.42	0	0	0	0	0
purothionin	1.96	0	0	0	0	0	0	0	0	0	0
LTP	0	0	0	0	0	0	0	0	0	0	0
V Ves v 1	0	0	0	0	0	0	0	0	0	0	0
Ves v 5	0	0	0	0	0	0	0	0	0	0	0
V Ves v 5	0	0	0	0	0	0	0	0	0	0	0

IgE	0.1-0.99	
	1-14.99	
	≥ 15	

IgG	0.1-0.99	
	1-14.99	
	≥ 15	

Donor 2	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M	PI	M
Method	IgG					IgE	
Act d 2	0	0	0	0	0	0	0
Act d 5	0	0	0	0	0	0	0
Act d 8	0	0	0	0	0	0	0
Aln g 1	0	0	0	0	0	0	0
Alt a 1	0	0	0	0	0	0	0
Alt a 6	0	0	0	0	0	0	0
Amb a 1	0	0	0	0	0	0	0
V Ana o 1	0	0	0	0	0	0	0
Ana o 2	0	0	0	0	0	0	0
V Ana o 2	0	0	0	0	0	0	0
V nAna o 2	11.45	5.43	2.91	1.86	1.23	0	0
V Ana o 3	4.15	0	0	0	2.12	0	0
Ani s 3	4.65	0	0	0	3.50	0	0
Api m 1	0	0	0	0	1.02	0.21	0
Api m 4	0	0	0	0	0	0	0
Ara h 1	0	0	0	2.05	1.09	0	0
Ara h 2	0	0	0	0	0	0	0
Ara h 3	0	0	0	0	0	0	0
Ara h 6	0	0	0	0	0	0	0
Ara h 8	0	0	0	0	0	0	0
Ara h 9	14.31	3.83	1.82	1.48	0	0	0
Art v 1	4.12	0	0	0	0	0	0
Art v 3	0	0	0	0	0	0	0
Asp f 1	0	0	0	0	0	0	0
Asp f 3	0	0	0	0	0	0	0
Asp f 6	0	0	0	0	0	0	0
Ber e 1	0	0	0	0	0	0	0
Bet v 1	0	0	0	0	0	0	0
Bet v 2	0	0	0	0	0	0	0
Bet v 4	0	0	0	0	0	0	0
Bla g 1	9.05	7.70	5.06	3.97	1.13	0	0
Bla g 2	66.25	42.31	27.87	20.41	12.56	0	0
Bla g 5	63.02	5.25	0	0	1.81	0	0
Bla g 7	5.87	0	0	0	0.73	0	0
Blo t 5	4.03	3.01	0	0	0	0	0
Bos d 4	0	0	0	0	0	0	0
V Bos d 4	0	0	0	0	0	0	0
Bos d 5	36.53	17.65	11.23	3.97	2.55	0	0
V Bos d 5	133.17	82.85	40.17	24.93	11.65	0.15	0
Bos d Lactoferrin	8.41	3.03	2.10	0	0	0	0
Bos d 8	0	0	0	0	0	0	0
V Bos d 8	17.86	10.45	4.28	3.19	2.01	0	0
aS1-casein	0	1.77	0	0	0	0	0
aS2-casein	3.45	3.90	1.83	0	2.36	0	0
b-casein	0	0	0	0	0	0	0
K-casein	7.49	4.30	1.65	0	0	0	0
Transferrin	10.20	5.76	2.29	0	0	0	0
Bos d 6	7.01	3.21	0	0	0.97	0	0
V BSA	4.29	0	0	0	0	0	0
Can f 1	0	0	0	0	0	0	0
Can f 2	0	0	0	0	0	0	0
Can f 3	2.92	0	0	0	0	0	0
V Can f 4	0	0	0	0	0	0	0
Can f 5	3.09	0	0	0	0	0	0
V Can f 5	6.48	0	0	0	0	0	0
V Can f 6	0	0	0	0	0	0	0
Che a 1	0	0	0	0	0	0	0
Cla h 8	7.39	0	0	0	0	0	0
Cor a 1.0401	0	0	0	0	0	0	0
Cor a 8	46.38	16.85	7.35	8.19	8.01	0	0
Cor a 9	5.07	1.59	0	0	0	0	0
Cry j 1	0	0	0	0	0	0	0
Cyn d 1	8.21	0	0	0	0	0.53	0
Cup a 1	5.46	0	0	0	0	0	0
Der f 1	0	0	0	0	0	0	0
Der f 2	0	0	0	0	0	0	0
Der p 1	0	0	0	0	0	0	0
Der p 2	0	0	0	0	0	0	0
V Der p 4	0	0	0	0	0	0	0
V Der p 5	0	0	0	0	0	0	0
V Der p 7	0	0	0	0	0	0	0
Der p 10	0	0	0	0	0	0	0
V Der p 11	3.96	0	0	0	2.62	0	0
V Der p 14	12.45	8.34	4.00	2.87	5.72	0	0
V Der p 15	6.58	2.28	1.71	0	5.16	0	0
V Der p 18	0	0	0	0	0	0	0
V Der p 21	4.81	2.04	1.16	0	0	0	0
V Der p 23	34.72	21.39	11.61	7.54	2.66	0	0
V clone 16	0	0	0	0	6.52	0	0

Donor 2	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M	PI	M
Method	IgG					IgE	
Equ c 1	0	0	0	0	0	0	0
Equ c 3	0	0	0	0	0	0	0
Fag e 2	0	0	0	0	0	0	0
Fel d 1	0	0	0	0	0	0	0
Fel d 2	0	0	0	0	0	0	0
Fel d 4	0	0	0	0	0	0	0
Gad c 1	0	0	0	0	0	0	0
Gal d 1	19.68	9.53	4.04	2.96	3.02	0	0
Gal d 2	8.16	3.48	1.70	1.35	0	0	0
Gal d 3	0	0	0	0	0	0	0
Gal d 5	0	0	0	0	2.98	0	0
Gly m 4	0	0	0	0	0	0	0
Gly m 5	0	0	0	0	0	0	0
Gly m 6	0	0	0	0	0	0	0
Hev b 1	0	0	0	0	4.99	0	0
Hev b 3	0	0	0	0	3.01	0	0
Hev b 5	0	0	0	0	0	0	0
Hev b 6.01	0	0	0	2.11	4.99	0	0
Hev b 8	0	0	0	0	0	0	0
Jug r 1	0	0	0	0	0	0	0
Jug r 2	3.75	2.52	2.15	1.83	0	0	0
Jug r 3	6.22	3.16	1.90	0	0	0	0
Lep d 2	0	0	0	0	0	0	0
Mal d 1	7.30	2.73	0	0	0.83	0	0
Mer a 1	0	0	0	0	0	0	0
Mus m 1	0	0	0	0	0	0	0
MUXF3	0	0	0	0	0	0	0
Ole e 1	0	0	0	0	0	0	0
Ole e 7	0	0	0	0	0	0	0
Ole e 9	39.70	17.86	7.92	3.92	2.52	0	0
Par j 2	41.29	8.95	7.41	4.55	6.12	0	0
Pen m 1	0	0	0	0	0	0	0
Pen m 2	0	0	0	0	0	0	0
Pen m 4	0	0	0	0	0	0	0
Phl p 1	10.08	3.85	3.13	2.00	1.50	0	0
Phl p 2	0	0	0	0	0	0	0
Phl p 4	8.80	4.76	1.89	1.94	0	0.28	0
Phl p 5	0	0	0	0	0	0	0
Phl p 6	0	0	0	0	0	0	0
Phl p 7	0	0	0	0	0	0	0
Phl p 11	0	0	0	0	0	0	0
Phl p 12	0	0	0	0	0	0	0
V Pis v 3	4.47	1.99	0	0	0	0	0
Pla a 1	0	0	0	0	0	0	0
Pla a 2	4.58	1.81	0	0	0	0.20	0
Pla a 3	5.63	0	0	0	0	0	0
Pla l 1	0	0	0	0	0	0	0
Pol d 5	7.09	4.90	0	3.32	0	0.30	0
Pru p 1	0	5.30	0	2.36	0	0	0
Pru p 3	39.56	29.54	16.04	13.13	6.69	0	0
V Pru du 3	0	0	0	0	0	0	0
V Pru du 4	0	0	0	0	0	0	0
V Pru du 6	57.26	39.61	16.73	9.53	4.00	0	0
V Pru du 6.01	0	0	0	0	0	0	0
V Pru du 6.02	3.74	1.94	0	0	0	0	0
Sal k 1	0	0	0	0	0	0	0
Ses i 1	3.38	0	0	1.82	0	0	0
Tri a 14	0	0	0	0	0	0	0
Tri a 19.0101	0	0	0	0	0	0	0
Tri a aA TI	34.88	18.82	10.32	5.74	2.77	0	0
V Tri a 36 191	2.98	0	0	0	0	0	0
V Tri a 36	3.57	0	0	0	0	0	0
V m43	0	0	0	0	0	0	0
V m82	0	0	0	0	0	0	0
Serine	0	0	0	0	0	0	0
Thioredoxin	0	0	0	0	0	0	0
Glutathione	0	0	0	0	0	0	0
peroxiredoxin	0	0	0	0	0	0	0
Profilin	14.51	8.56	3.78	2.77	0.91	0	0
Dehydrin	0	0	0	0	0	0	0
purothionin	4.05	2.54	0	0	0	0	0
LTP	0	0	0	0	0	0	0
V Ves v 1	0	0	0	0	0	0	0
Ves v 5	0	6.83	3.21	2.26	0	0.29	0
V Ves v 5	0	0	0	0	0	0	0

Donor 3	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M	PI	M
Method	IgG					IgE	
Act d 2	0	0	0	0	0	0	0
Act d 5	0	0	0	0	0	0	0
Act d 8	0	0	0	0	0	0	0
Aln g 1	0	0	0	0	0	0	0
Alt a 1	0	0	0	0	0	0	0
Alt a 6	31.52	19.54	10.77	6.32	0	0.27	0
Amb a 1	0	0	0	0	0	0	0
V Ana o 1	0	0	0	0	2.17	0	0
Ana o 2	0	0	0	0	0	0	0
V Ana o 2	2.39	0	0	0	0	0	0
V nAna o 2	1.70	0	0	0	0	0	0
V Ana o 3	2.28	0	0	0	0	0	0
Ani s 3	0	0	0	0	0	0	0
Api m 1	3.20	3.12	0	0	0	0.31	0
Api m 4	0	0	0	0	0	0	0
Ara h 1	0	0	0	0	0	0.28	0
Ara h 2	0	0	0	0	0	0	0
Ara h 3	0	0	0	0	0	0	0
Ara h 6	0	0	0	0	0	0	0
Ara h 8	0	0	0	0	0	0	0
Ara h 9	0	0	0	0	0	0	0
Art v 1	0	0	0	0	0	0	0
Art v 3	0	0	0	0	0	0	0
Asp f 1	0	0	0	0	0	0	0
Asp f 3	18.70	7.93	4.48	1.70	0	0	0
Asp f 6	0	0	0	0	0	0	0
Ber e 1	0	0	0	0	0	0	0
Bet v 1	2.91	1.94	0	0	0	0	0
Bet v 2	0	0	0	0	0	0	0
Bet v 4	0	0	0	0	0	0	0
Bla g 1	4.69	10.34	4.56	3.86	0	0	0
Bla g 2	13.60	13.24	13.14	12.41	3.68	0	0
Bla g 5	0	0	0	0	0	0	0
Bla g 7	0	0	0	0	0	0	0
Blo t 5	0	0	0	0	0	0	0
Bos d 4	0	0	0	0	0	0	0
V Bos d 4	2.11	0	0	0	0	0	0
Bos d 5	32.48	12.45	4.67	2.19	0	0	0
V Bos d 5	111.41	59.91	32.15	18.45	0	0.29	0
Bos d Lactoferrin	7.16	0	1.85	0	0	0	0
Bos d 8	0	0	0	0	0	0	0
V Bos d 8	21.15	11.47	4.28	2.70	0	0	0
aS1-casein	5.43	0	0	0	0	0	0
aS2-casein	3.50	2.88	0	0	0	0	0
b-casein	0	0	0	0	0	0	0
K-casein	10.22	6.61	2.26	1.39	0	0	0
Transferrin	11.47	7.38	2.85	1.48	0	0	0
Bos d 6	9.07	4.39	0	0	0	0	0
V BSA	5.56	2.98	0	0	0	0.26	0
Can f 1	0	0	0	0	0	0	0
Can f 2	0	0	0	0	0	0	0
Can f 3	5.59	2.5	0	0	0	0	0
V Can f 4	0	0	0	0	0	0	0
Can f 5	0	0	0	0	0	0	0
V Can f 5	0	0	0	0	0	0	0
V Can f 6	0	0	0	0	0	0	0
Che a 1	0	0	0	0	0	0	0
Cla h 8	7.68	0	0	0	0	0	0
Cor a 1.0401	0	0	0	0	0	0	0
Cor a 8	19.64	13.38	9.38	4.56	0	0	0
Cor a 9	0	0	0	0	0	0	0
Cry j 1	1.46	0	0	0	0	0.27	0
Cyn d 1	0	0	0	0	0	0	0
Cup a 1	4.00	2.21	0	0	0	0	0
Der f 1	2.08	0	0	0	0	0	0
Der f 2	0	0	0	0	0	0	0
Der p 1	0	0	0	0	0	0	0
Der p 2	0	0	0	0	0	0	0
V Der p 4	0	0	0	0	0	0	0
V Der p 5	4.58	0	0	0	0	0	0
V Der p 7	0	0	0	0	0	0	0
Der p 10	0	0	0	0	0	0	0
V Der p 11	0	0	0	0	0	0	0
V Der p 14	2.08	0	0	0	0	0	0
V Der p 15	0	0	0	0	0	0	0
V Der p 18	0	0	0	0	0	0	0
V Der p 21	0	0	0	0	0	0	0
V Der p 23	0	0	0	0	0	0	0
V clone 16	2.19	0	0	0	0	0	0

Donor 3	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M	PI	M
Method	IgG					IgE	
Equ c 1	0	0	0	0	0	0	0
Equ c 3	0	0	0	0	0	0	0
Fag e 2	0	0	0	0	0	0	0
Fel d 1	1.96	1.85	0	0	0	0	0
Fel d 2	0	0	0	0	0	0	0
Fel d 4	0	0	0	0	0	0	0
Gad c 1	0	0	0	0	0	0	0
Gal d 1	77.34	29.03	9.14	3.30	1.96	0	0
Gal d 2	64.51	31.21	20.04	10.78	3.90	0	0
Gal d 3	2.77	0	0	0	0	0	0
Gal d 5	0	0	0	0	0	0	0
Gly m 4	0	0	0	0	0	0	0
Gly m 5	0	0	0	0	0	0	0
Gly m 6	0	0	0	0	0	0	0
Hev b 1	3.19	2.61	0	0	0	0	0
Hev b 3	0	0	0	0	0	0	0
Hev b 5	0	0	0	0	0	0	0
Hev b 6.01	6.07	3.54	0	0	1.31	0	0
Hev b 8	0	0	0	0	0	0	0
Jug r 1	0	0	0	0	0	0	0
Jug r 2	0	0	4.11	5.12	0	0	0
Jug r 3	0	0	0	0	0	0	0
Lep d 2	0	0	0	0	0	0	0
Mal d 1	20.71	1.85	0	0	1.82	0	0
Mer a 1	0	0	0	0	0	0	0
Mus m 1	0	0	0	0	0	0	0
MUXF3	0	0	0	0	0	0	0
Ole e 1	0	0	0	0	0	0	0
Ole e 7	0	0	0	0	0	0	0
Ole e 9	97.54	47.00	30.39	22.12	4.73	0	0
Par j 2	37.07	8.05	6.26	0	3.36	0	0
Pen m 1	0	0	0	0	0	0	0
Pen m 2	8.08	3.39	1.54	0	0	0	0
Pen m 4	0	0	0	0	0	0	0
Phl p 1	7.53	3.96	1.82	0	0	0.29	0
Phl p 2	0	0	0	0	0	0	0
Phl p 4	0	0	0	0	0	0	0
Phl p 5	0	0	0	0	0	0	0.30
Phl p 6	0	0	0	0	0	0	0
Phl p 7	0	0	0	0	1.70	0	0
Phl p 11	0	0	0	0	0	0	0
Phl p 12	0	0	0	0	0	0	0
V Pis v3	0	0	0	0	0	0	0
Pla a 1	0	0	0	0	0	0	0
Pla a 2	0	0	0	0	0	0	0
Pla a 3	0	0	0	0	0	0	0
Pla l 1	0	0	0	0	0	0	0
Pol d 5	0	4.33	0	0	0	0	0
Pru p 1	0	0	0	0	0	0	0
Pru p 3	41.96	39.51	19.98	15.05	2.52	0	0
V Pru du 3	0	0	0	0	0	0	0
V Pru du 4	5.60	0	0	0	0	0	0
V Pru du 6	0	0	0	0	0	0	0
V Pru du 6.01	0	0	0	0	0	0	0
V Pru du 6.02	0	0	0	0	0	0	0
Sal k 1	183.27	150.07	120.39	79.79	30.46	0	0
Ses i 1	2.65	4.30	2.88	2.65	0	0	0
Tri a 14	0	0	0	0	0	0	0
Tri a 19.0101	0	0	0	0	0	0	0
Tri a aA TI	8.30	0	3.19	0	0	0	0
V Tri a 36 191	2.03	0	0	0	0	0	0
V Tri a 36	0	0	0	0	0	0	0
V m43	3.10	0	0	0	0	0	0
V m82	0	0	0	0	0	0	0
Serine	0	0	0	0	4.32	0	0
Thioredoxin	0	0	0	0	0	0	0
Glutathione	0	0	0	0	0	0	0
peroxiredoxin	0	0	0	0	0	0	0
Profilin	0	0	0	0	5.09	0	0
Dehydrin	0	0	0	0	0	0	0
purothionin	0	0	0	0	0	0	0
LTP	0	0	0	0	0	0	0
V Ves v 1	0	0	0	0	0	0	0
Ves v 5	0	0	0	0	0	0	0
V Ves v 5	0	0	0	0	0	0	0

Donor 4	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M	PI	M
Method	IgG					IgE	
Act d 2	0	0	0	0	0	0	0
Act d 5	0	0	0	0	0	0	0
Act d 8	0	0	0	0	0	0	0
Aln g 1	0	0	0	0	0	0	0
Alt a 1	0	0	0	0	0	0	0
Alt a 6	3.78	1.78	1.72	0	0	0	0
Amb a 1	0	0	0	0	0	0	0
V Ana o 1	0	0	0	0	0	0	0
Ana o 2	3.92	0	0	0	0	0	0
V Ana o 2	3.41	0	0	0	0	0	0
V nAna o 2	61.56	55.11	28.10	14.30	4.90	0	0
V Ana o 3	12.41	3.48	7.70	3.35	3.59	0	0
Ani s 3	2.61	0	0	0	0	0	0
Api m 1	0	0	0	0	1.45	0.35	0
Api m 4	0	0	0	0	0	0	0
Ara h 1	1.97	0	5.50	0	0	0.29	0
Ara h 2	0	0	0	0	0	0	0
Ara h 3	0	0	0	0	0	0	0
Ara h 6	0	0	0	0	0	0	0
Ara h 8	0	0	0	0	0	0	0
Ara h 9	0	0	0	0	0	0	0
Art v 1	0	0	0	0	0	0	0
Art v 3	0	0	0	0	0	0	0
Asp f 1	0	0	0	0	0	0	0
Asp f 3	0	0	0	0	0	0	0
Asp f 6	0	0	0	0	0	0	0
Ber e 1	0	0	0	0	0	0	0
Bet v 1	0	0	0	0	0	0	0
Bet v 2	0	0	0	0	0	0	0
Bet v 4	0	0	0	0	0	0	0
Bla g 1	2.65	1.53	0	0	0	0	0
Bla g 2	8.41	9.32	2.47	1.38	3.72	0	0
Bla g 5	10.29	6.15	4.23	1.72	0	0	0
Bla g 7	2.44	0	0	0	0	0	0
Blo t 5	0	0	0	0	0	0	0
Bos d 4	52.17	20.91	21.50	12.07	0	0	0
V Bos d 4	98.89	56.06	41.78	21.21	3.03	0.30	0
Bos d 5	23.43	21.43	35.87	8.12	0	0	0
V Bos d 5	179.00	149.65	148.61	91.44	1.48	0.37	0
Bos d Lactoferrin	37.54	20.06	28.15	8.47	5.42	0	0
Bos d 8	9.32	0	7.76	4.45	0	0	0
V Bos d 8	176.54	135.52	81.76	43.36	20.04	0.30	0
aS1-casein	28.49	2.9	22.17	5.34	6.38	0	0
aS2-casein	1.46	1.48	0	0	0	0	0
b-casein	0	0	0	0	4.32	0	0
K-casein	2.72	20.98	20.99	15.54	7.58	0	0
Transferrin	67.89	18.05	33.08	15.35	4.52	0.27	0
Bos d 6	138.68	79.24	46.98	20.15	18.73	0.32	0
V BSA	125.33	66.4	40.93	16.96	21.53	0.30	0
Can f 1	0	0	0	0	0	0	0
Can f 2	0	0	0	0	0	0	0
Can f 3	5.87	3.13	0	0	3.27	0	0
V Can f 4	0	0	0	0	0	0	0
Can f 5	0	0	0	0	0	0	0
V Can f 5	0	0	0	0	0	0	0
V Can f 6	0	0	0	0	0	0	0
Che a 1	0	0	0	0	0	0	0
Cla h 8	0	0	3.39	0	0	0	0
Cor a 1.0401	0	0	0	0	0	0	0
Cor a 8	8.29	2.69	7.78	0	3.81	0	0
Cor a 9	28.89	18.31	14.19	5.60	0	0	0
Cry j 1	9.31	3.90	3.60	1.50	0	0	0
Cyn d 1	28.13	14.44	12.44	4.14	2.19	0	0
Cup a 1	8.21	3.56	3.82	1.09	0	0	0
Der f 1	7.39	4.04	7.60	3.85	0	0	0
Der f 2	0	0	0	0	0	0	0
Der p 1	0	0	1.93	0	0	0	0
Der p 2	0	0	0	0	0	0	0
V Der p 4	0	0	0	0	0	0	0
V Der p 5	0	0	0	0	0	0	0
V Der p 7	2.59	0	0	0	0	0	0
Der p 10	0	0	0	0	0	0	0
V Der p 11	4.47	4.83	0	0	2.34	0	0
V Der p 14	15.33	10.47	4.50	0	2.88	0	0
V Der p 15	0	1.30	0	0	3.14	0	0
V Der p 18	3.01	0	0	0	0	0	0
V Der p 21	5.36	2.45	0	0	0	0	0
V Der p 23	20.06	9.96	23.22	6.95	3.82	0	0
V clone 16	0	0	0	0	0	0	0

Donor 4	PI 1:50	PI 1:100	PI 1:200	PI 1:400	M	PI	M
Method	IgG					IgE	
Equ c 1	0	0	0	0	0	0	0
Equ c 3	0	0	0	0	0	0	0
Fag e 2	0	0	0	0	0	0	0
Fel d 1	5.34	4.43	3.30	1.53	2.25	0	0
Fel d 2	2.59	1.89	3.74	0	2.10	0	0
Fel d 4	0	0	0	0	0	0	0
Gad c 1	0	0	0	0	0	0	0
Gal d 1	105.84	48.87	30.79	13.64	10.91	0	0
Gal d 2	45.88	32.88	33.29	20.01	6.45	0	0
Gal d 3	0	0	0	0	2.69	0	0
Gal d 5	0	1.52	0	0	12.30	0.36	0
Gly m 4	0	0	0	0	0	0	0
Gly m 5	0	0	0	0	0	0	0
Gly m 6	2.83	1.81	0	0	0	0	0
Hev b 1	21.44	9.89	9.02	4.10	3.43	0	0
Hev b 3	26.85	16.41	7.98	3.70	3.75	0.25	0
Hev b 5	0	0	0	0	0	0	0
Hev b 6.01	31.62	12.91	9.78	3.10	4.22	0.29	0
Hev b 8	22.37	11.82	7.56	1.59	0	0	0
Jug r 1	7.32	2.45	0	0	0	0	0
Jug r 2	15.06	7.13	3.08	1.74	4.03	0	0
Jug r 3	3.65	0	2.61	1.34	0	0	0
Lep d 2	0	0	0	0	0	0	0
Mal d 1	1.60	7.67	10.88	0	0	0.27	0
Mer a 1	0	0	0	0	0	0	0
Mus m 1	0	0	0	0	0	0	0
MUXF3	0	0	0	0	0	0	0
Ole e 1	0	0	0	0	0	0	0
Ole e 7	0	0	0	0	0	0	0
Ole e 9	82.19	42.81	31.35	12.33	4.69	0	0
Par j 2	10.07	3.24	27.13	9.38	4.61	0	0
Pen m 1	3.30	0	0	0	0	0	0
Pen m 2	0	0	0	0	0	0	0
Pen m 4	0	0	0	0	0	0	0
Phl p 1	11.38	6.70	6.23	3.52	2.99	0.28	0
Phl p 2	0	0	0	0	0	0	0
Phl p 4	35.37	18.30	12.71	5.93	2.10	0	0
Phl p 5	83.68	37.55	40.47	16.66	4.04	0	0
Phl p 6	0	0	0	0	0	0	0
Phl p 7	0	0	0	0	0	0	0
Phl p 11	0	0	0	0	0	0	0
Phl p 12	0	0	0	0	0	0	0
V Pis v3	0	0	0	0	2.07	0	0
Pla a 1	0	0	0	0	0	0	0
Pla a 2	12.09	5.28	5.02	0	0	0	0
Pla a 3	0	0	0	0	0	0	0
Pla l 1	0	0	0	0	0	0	0
Pol d 5	2.17	1.10	0	0	0	0	0
Pru p 1	0	0	0	0	0	0	0
Pru p 3	84.98	48.89	33.4	18.74	7.10	0	0
V Pru du 3	0	0	0	0	0	0	0
V Pru du 4	2.28	0	0	0	0	0	0
V Pru du 6	27.82	13.43	9.72	3.85	0	0	0
V Pru du 6.01	5.86	4.10	0	0	0	0	0
V Pru du 6.02	4.07	2.30	0	0	0	0	0
Sal k 1	0	0	0	0	0	0.27	0
Ses i 1	0	0	2.39	0	0	0	0
Tri a 14	59.34	31.10	28.30	14.40	4.61	0	0
Tri a 19.0101	0	0	4.23	0	0	0	0
Tri a aA TI	164.08	134.51	94.46	55.35	11.39	0	0
V Tri a 36 191	9.42	2.79	3.79	0	0	0	0
V Tri a 36	0	4.59	4.72	0	0	0	0
V m43	5.49	3.63	4.51	1.34	1.60	0	0
V m82	0	0	0	0	0	0	0
Serine	0	0	0	0	0	0	0
Thioredoxin	0	1.57	0	0	0	0	0
Glutathione	4.63	0	0	0	0	0	0
peroxiredoxin	0	0	0	0	0	0	0
Profilin	0	1.90	0	0	2.25	0	0
Dehydrin	0	0	0	0	0	0	0
purothionin	9.47	7.24	5.07	2.45	1.78	0	0
LTP	1.53	0	0	0	0	0	0
V Ves v 1	0	0	0	0	0	0	0
Ves v 5	2.01	0	0	0	0	0	0
V Ves v 5	0	1.35	0	0	0	0	0

Supplementary Figure E2

Sensitized mothers (Donors 5-23)

Patient	Donor 5		Donor 6		Donor 7		Donor 8		Donor 9		Donor 10	
Sample	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M
Method	IgE		IgE		IgE		IgE		IgE		IgE	
Act d 2	0	0	0	0	0	0	0	0	0	0	0	0
Act d 5	0	0	0	0	0	0	0	0	0	0	0	0
Act d 8	0	0	0	0	0	0	0	0	0	0	0	0
Aln g 1	0	0	0	0	0	0	0.25	0	8.39	0	0	0
Alt a 1	0	0	0	0	0	0	0	0	0	0	0	0
Alt a 6	0	0	0	0	0	0	0	0	0	0	0	0
Amb a 1	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 1	0	0	0	0	0	0	0	0	0	0	0	0
Ana o 2	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 2	0	0	0	0	0	0	0	0	0	0	0	0
V nAna o 2	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 3	0	0	0	0	0	0	0	0	0	0	0	0
Ani s 3	0	0	0	0	0	0	0	0	0	0	0	0
Api m 1	0	0	0	0	0	0	0	0	0	0	0	0
Api m 4	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 1	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 2	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 3	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 6	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 8	0	0	0	0	0	0	0.19	0	11.45	0	0	0
Ara h 9	0	0	0	0	0	0	0	0	0	0	0	0
Art v 1	0	0	2.66	0	0	0	0	0	0	0	3.41	0
Art v 3	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 1	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 3	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 6	0	0	0	0	0	0	0	0	0	0	0	0
Ber e 1	0	0	0	0	0	0	0	0	0	0	0	0
Bet v 1	0	0	0	0	0	0	5.21	0	71.92	0.19	0	0
Bet v 2	0	0	0	0	0	0	0	0	0	0	0	0
Bet v 4	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 1	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 2	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 5	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 7	0	0	0	0	0	0	0	0	0	0	0	0
Blo t 5	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 4	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 4	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 5	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 5	0	0	0	0	0	0	0	0	0	0	0	0
Bos d Lactoferrin	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 8	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 8	0	0	0	0	0	0	0	0	0	0	0	0
aS1-casein	0	0	0	0	0	0	0	0	0	0	0	0
aS2-casein	0	0	0	0	0	0	0	0	0	0	0	0
b-casein	0	0	0	0	0	0	0	0	0	0	0	0
K-casein	0	0	0	0	0	0	0	0	0	0	0	0
Transferrin	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 6	0	0	0	0	0	0	0	0	0	0	0	0
V BSA	0	0	0	0	0	0	0	0	0	0	0	0
Can f 1	0	0	0	0	0	0	19.78	0	0	0	0	0
Can f 2	0	0	0	0	0	0	8.10	0	0	0	0	0
Can f 3	0	0	0	0	0	0	0	0	0	0	0	0
V Can f 4	0	0	0	0	0	0	0	0	0	0	0	0
Can f 5	0	0	0	0	0	0	11.17	0	0	0	0.18	0
V Can f 5	0	0	0	0	0	0	0.24	0	0	0	0	0
V Can f 6	0	0	0	0	0	0	4.54	0	0	0	0	0
Che a 1	0	0	0	0	0	0	0	0	0	0	0	0
Cla h 8	0	0	0	0	0	0	0	0	0	0	0	0
Cor a 1.0401	0	0	0	0	0	0	0.21	0	24.08	0	0	0
Cor a 8	0	0	0	0	0	0	0	0	0	0	0	0
Cor a 9	0	0	0	0	0	0	0	0	0	0	0	0
Cry j 1	0	0	0	0	0	0	0	0	0	0	0	0
Cyn d 1	0	0	5.08	0	45.82	0	1.11	0	0.64	0	1.98	0
Cup a 1	0	0	0	0	0	0	0	0	0	0	0	0
Der f 1	0	0	0	0	0	0	0	0	0	0	0	0
Der f 2	0.40	0	0	0	0	0	0	0	0	0	0	0
Der p 1	0	0	0	0	0	0	0	0	0	0	0	0
Der p 2	0.44	0	0	0	0	0	0	0	0	0	0	0
V Der p 4	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 5	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 7	0	0	0	0	0	0	0	0	0	0	0	0
Der p 10	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 11	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 14	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 15	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 18	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 21	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 23	0.62	0	0	0	0	0	0	0	0	0	0	0
V clone 16	0	0	0	0	0	0	0	0	0	0	0	0

Patient	Donor 5		Donor 6		Donor 7		Donor 8		Donor 9		Donor 10	
Sample	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M
Method	IgE		IgE		IgE		IgE		IgE		IgE	
Equ c 1	0	0	0	0	0	0	31.07	0	0	0	0	0
Equ c 3	0	0	0	0	0	0	0	0	0	0	0	0
Fag e 2	0	0	0	0	0	0	0	0	0	0	0	0
Fel d 1	13.28	0	0	0	0	0	1.44	0	0	0	0	0
Fel d 2	0	0	0	0	0	0	0	0	0	0	0	0
Fel d 4	0	0	0	0	0	0	1.59	0	0	0	0	0
Gad c 1	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 1	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 2	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 3	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 5	0	0	0	0	0	0	0	0	0	0	0	0
Gly m 4	0	0	0	0	0	0	0	0	0.91	0	0	0
Gly m 5	0	0	0	0	0	0	0	0	0	0	0	0
Gly m 6	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 1	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 3	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 5	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 6.01	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 8	0	0	0	0	0	0	0	0	0	0	0	0
Jug r 1	0	0	0	0	0	0	0	0	0	0	0	0
Jug r 2	0	0	0	0	0.11	0	0	0	0	0	0	0
Jug r 3	0	0	0	0	0	0	0	0	0	0	0	0
Lep d 2	0	0	0	0	0	0	0	0	0	0	0	0
Mal d 1	0	0	0	0	0	0	0.82	0	1.06	0	0	0
Mer a 1	0	0	0	0	0	0	0	0	0	0	0	0
Mus m 1	0	0	0	0	0	0	1.96	0	0	0	0	0
MUXF3	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 1	0.43	0	0	0	0	0	0	0	0	0	0	0
Ole e 7	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 9	0	0	0	0	0	0	0	0	0	0	0	0
Par j 2	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 1	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 2	0	0	0	0	0.19	0	0	0	0	0	0	0
Pen m 4	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 1	0.23	0	46.22	0	58.75	0	7.93	0	10.00	0	7.10	0
Phl p 2	0	0	0	0	0	0	2.80	0	0	0	0	0
Phl p 4	0	0	0.18	0	10.67	0	2.39	0	0	0	0	0
Phl p 5	0	0	29.97	0	8.87	0	12.00	0	0	0	0	0
Phl p 6	0	0	13.75	0	8.02	0	0.42	0	0	0	0	0
Phl p 7	0	0	0.17	0	6.44	0	0	0	0	0	0	0
Phl p 11	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 12	0	0	0	0	0	0	0	0	0	0	0	0
V Pis v 3	0	0	0	0	0	0	0	0	0	0	0	0
Pla a 1	0	0	0	0	0	0	0	0	0	0	0	0
Pla a 2	0	0	0	0	0.13	0	0	0	0	0	0	0
Pla a 3	0	0	0	0	0	0	0	0	0	0	0	0
Pla l 1	0	0	0	0	0	0	0	0	0	0	0	0
Pol d 5	0	0	1.88	0	0.11	0	0	0	0	0	0	0
Pru p 1	0	0	0	0	0	0	0	0	3.08	0	0	0
Pru p 3	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 3	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 4	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6.01	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6.02	0	0	0	0	0	0	0	0	0	0	0	0
Sal k 1	0	0	0	0	0	0	0	0	0	0	0	0
Ses i 1	0	0	0	0	0	0	0	0	0	0	0	0
Tri a 14	0	0	0	0	0	0	0	0	0	0	0	0
Tri a 19.0101	0	0	0	0	0	0	0	0	0	0	0	0
Tri a aA_Tl	0	0	0	0	0	0	0	0	0	0	0	0
V Tri a 36 191	0	0	0	0	0	0	0	0	0	0	0	0
V Tri a 36	0	0	0	0	0	0	0	0	0	0	0	0
V m43	0	0	0	0	0	0	0	0	0	0	0	0
V m82	0	0	0	0	0	0	0	0	0	0	0	0
Serine	0	0	0	0	0	0	0	0	0	0	0	0
Thioredoxin	0	0	0	0	0	0	0	0	0	0	0	0
Glutathione	0	0	0	0	0	0	0	0	0	0	0	0
peroxiredoxin	0	0	0	0	0	0	0	0	0	0	0	0
Profilin	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrin	0	0	0	0	0	0	0	0	0	0	0	0
purothionin	0	0	0	0	0	0	0	0	0	0	0	0
LTP	0	0	0	0	0	0	0	0	0	0	0	0
V Ves v 1	0	0	0	0	0	0	0	0	0	0	0	0
Ves v 5	0	0	2.58	0	0	0	0	0	0.16	0	0	0
V Ves v 5	0	0	0	0	0	0	0	0	0	0	0	0

IgE

0.1-0.99	
1-14.99	
≥ 15	

Patient Sample Method	Donor 11		Donor 12		Donor 13		Donor 14		Donor 15		Donor 16	
	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M
	IgE		IgE		IgE		IgE		IgE		IgE	
Act d 2	0	0	0	0	0	0	0	0	0	0	0	0
Act d 5	0	0	0	0	0	0	0	0	0	0	0	0
Act d 8	0	0	0	0	0	0	0	0	0	0	0	0
Aln g 1	0	0	0.11	0	16.73	0	0.81	0	10.38	0	1.53	0
Alt a 1	0	0	0	0	0	0	0.57	0	0	0	0	0
Alt a 6	0	0	0	0	0	0	0	0	0	0	0	0
Amb a 1	0	0	0	0	3.52	0	0	0	0	0	0	0
V Ana o 1	0	0	0	0	0	0	0	0	0	0	0	0
Ana o 2	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 2	0	0	0	0	0	0	0	0	0	0	0	0
V nAna o 2	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 3	0	0	0	0	0	0	0	0	0	0	0	0
Ani s 3	0	0	0	0	0	0	0	0	0	0	0	0
Api m 1	0	0	0	0	0.61	0	0	0	0	0	0	0
Api m 4	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 1	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 2	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 3	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 6	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 8	0	0	0	0	18.15	0	0.13	0	1.77	0	0.41	0
Ara h 9	0	0	0	0	0	0	0	0	0	0	0	0
Art v 1	0	0	0.26	0	0	0	0	0	0	0	0	0
Art v 3	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 1	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 3	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 6	0	0	0	0	0	0	0	0	0	0	0	0
Ber e 1	0	0	0	0	0	0	0	0	0	0	0	0
Bet v 1	0.64	0	1.90	0	83.41	0.15	11.28	0	68.86	0.11	5.56	0
Bet v 2	0	0	0	0	0	0	0	0	0	0	0	0
Bet v 4	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 1	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 2	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 5	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 7	0	0	0	0	0	0	0	0	0	0	0	0
Blo t 5	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 4	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 4	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 5	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 5	0	0	0	0	0	0	0	0	0	0	0	0
Bos d Lactoferrin	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 8	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 8	0	0	0	0	0	0	0	0	0	0	0	0
aS1-casein	0	0	0	0	0	0	0	0	0	0	0	0
aS2-casein	0	0	0	0	0	0	0	0	0	0	0	0
b-casein	0	0	0	0	0	0	0	0	0	0	0	0
K-casein	0	0	0	0	0	0	0	0	0	0	0	0
Transferrin	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 6	0	0	0	0	0	0	0	0	0	0	0	0
V BSA	0	0	0	0	0	0	0	0	0	0	0	0
Can f 1	0	0	0.48	0	0	0	0	0	0	0	0	0
Can f 2	0	0	0.81	0	0	0	0	0	0	0	0	0
Can f 3	0	0	0	0	0	0	0	0	0	0	0	0
V Can f 4	0	0	0	0	0	0	0	0	0	0	0	0
Can f 5	0	0	4.18	0	0	0	0	0	0	0	0	0
V Can f 5	0	0	0	0	0	0	0	0	0	0	0	0
V Can f 6	0.14	0	7.86	0	0	0	0	0	0	0	0.31	0
Che a 1	0	0	0	0	0	0	0	0	0	0	0	0
Cla h 8	0	0	0	0	0	0	0	0	0	0	0	0
Cor a 1.0401	0.52	0	0.51	0	22.00	0	0.66	0	9.25	0	1.41	0
Cor a 8	0	0	0	0	0	0	0	0	0	0	0	0
Cor a 9	0	0	0	0	0	0	0	0	0	0	0	0
Cry j 1	0	0	0	0	0	0	0	0	0	0	0	0
Cyn d 1	0	0	0	0	1.72	0	0.72	0	5.51	0	0.73	0
Cup a 1	0	0	0	0	0	0	0	0	0	0	0	0
Der f 1	0	0	0	0	3.06	0	0	0	0	0	0	0
Der f 2	0.57	0	0	0	9.53	0	0	0	0	0	0	0
Der p 1	0	0	0	0	1.83	0	0	0	0	0	0	0
Der p 2	0.78	0	0	0	8.48	0	0	0	0	0	0	0
V Der p 4	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 5	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 7	0	0	0	0	2.44	0	0	0	0	0	0	0
Der p 10	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 11	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 14	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 15	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 18	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 21	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 23	0	0	0	0	0.87	0	0	0	0	0	0	0
V clone 16	0	0	0	0	0	0	0	0	0	0	0	0

Patient	Donor 11		Donor 12		Donor 13		Donor 14		Donor 15		Donor 16	
Sample	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M
Method	IgE		IgE		IgE		IgE		IgE		IgE	
Equ c 1	0	0	1.24	0	0	0	0	0	0	0	32.54	0.14
Equ c 3	0	0	0	0	0	0	0	0	0	0	0.23	0
Fag e 2	0	0	0	0	0	0	0	0	0	0	0	0
Fel d 1	0.29	0	10.90	0	0	0	7.58	0	2.28	0	1.93	0
Fel d 2	0	0	0	0	0	0	0	0	0	0	0	0
Fel d 4	0.39	0	9.60	0	0	0	0	0	0	0	0.54	0
Gad c 1	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 1	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 2	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 3	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 5	0	0	0	0	0	0	0	0	0	0	0	0
Gly m 4	0	0	0	0	12.19	0	0	0	0.14	0	0	0
Gly m 5	0	0	0	0	0	0	0	0	0	0	0	0
Gly m 6	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 1	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 3	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 5	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 6.01	0	0	0	0	0	0	0.10	0	0	0	0	0
Hev b 8	0	0	0	0	0	0	0	0	0	0	0	0
Jug r 1	0	0	0	0	0	0	0	0	0	0	0	0
Jug r 2	0	0	0	0	0.57	0	0	0	0	0	0	0
Jug r 3	0	0	0	0	0	0	0	0	0	0	0	0
Lep d 2	0	0	0	0	0	0	0	0	0	0	0	0
Mal d 1	0.42	0	0.11	0	33.68	0	0.42	0	12.36	0	0.51	0
Mer a 1	0	0	0	0	0	0	0	0	0	0	0	0
Mus m 1	0.26	0	0.60	0	0.54	0	2.06	0	0	0	4.09	0
MUXF3	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 1	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 7	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 9	0	0	0	0	0	0	0	0	0	0	0	0
Par j 2	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 1	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 2	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 4	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 1	0	0	3.95	0	0.52	0	7.41	0	20.39	0	8.11	0
Phl p 2	0	0	0	0	0	0	0.88	0	0	0	0	0
Phl p 4	0.48	0	0	0	1.82	0	0.11	0	0	0	2.99	0
Phl p 5	0	0	0	0	0	0	0.35	0	0	0	0	0
Phl p 6	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 7	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 11	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 12	0	0	0	0	0	0	0	0	0	0	0	0
V Pis v3	0	0	0	0	0	0	0	0	0	0	0	0
Pla a 1	0	0	0	0	0	0	0	0	0	0	0	0
Pla a 2	0	0	0	0	0.29	0	0	0	0	0	0	0
Pla a 3	0	0	0	0	0	0	0	0	0	0	0	0
Pla l 1	0	0	0	0	0	0	0	0	0	0	0	0
Pol d 5	0	0	0.13	0	2.10	0	0	0	0	0	1.00	0
Pru p 1	0	0	0	0	0.57	0	0.16	0	2.91	0	0.17	0
Pru p 3	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 3	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 4	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6.01	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6.02	0	0	0	0	0	0	0	0	0	0	0	0
Sal k 1	0	0	0	0	0	0	0	0	0	0	0	0
Ses i 1	0	0	0	0	0	0	0	0	0	0	0	0
Tri a 14	0	0	0	0	0	0	0	0	0	0	0	0
Tri a 19.0101	0	0	0	0	0	0	0	0	0	0	0	0
Tri a aA TI	0	0	0	0	0	0	0	0	0	0	0	0
V Tri a 36 191	0	0	0	0	0	0	0	0	3.69	0	0	0
V Tri a 36	0	0	0	0	0	0	0	0	0	0	0	0
V m43	0	0	0	0	0	0	0	0	0	0	0	0
V m82	0	0	0	0	0	0	0	0	0	0	0	0
Serine	0	0	0	0	0	0	0	0	0	0	0	0
Thioredoxin	0	0	0	0	0	0	0	0	0	0	0	0
Glutathione	0	0	0	0	0	0	0	0	0	0	0	0
peroxiredoxin	0	0	0	0	0	0	0	0	0	0	0	0
Profilin	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrin	0	0	0	0	0	0	0	0	0	0	0	0
purothionin	0	0	0	0	0	0	0	0	0	0	0	0
LTP	0	0	0	0	0	0	0	0	0	0	0	0
V Ves v1	0	0	0	0	0	0	0	0	0	0	0	0
Ves v5	0	0	0	0	2.04	0	0	0	0	0	3.94	0
V Ves v5	0	0	0	0	0	0	0	0	0	0	0	0

Patient Sample Method	Donor 17		Donor 18		Donor 19		Donor 20		Donor 21		Donor 22		Donor 23	
	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M
	IgE		IgE		IgE		IgE		IgE		IgE		IgE	
Act d 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Act d 5	0.14	0	0	0	0	0	0	0	0	0	0	0	0	0
Act d 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aln g 1	0.36	0	0.21	0	3.34	0	0	0	0	0	0	0	4.05	0
Alt a 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt a 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Amb a 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ana o 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V nAna o 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ani s 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Api m 1	0	0	0	0	0	0	0	0	0	0	0	0	0.46	0
Api m 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 8	0.77	0	0.28	0	0	0	0	0	0	0	0	0	2.90	0
Ara h 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Art v 1	0	0	0.31	0	0.20	0	0.31	0	0	0	0	0	0	0
Art v 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 6	0	0	0.32	0	0	0	0	0	0.13	0	0.18	0	0	0
Ber e 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bet v 1	5.55	0	3.02	0	15.08	0	0	0	0	0	0	0	24.92	0
Bet v 2	1.15	0	0	0	2.76	0	0	0	0	0	0	0	0	0
Bet v 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 5	0	0	0	0	0.13	0	0	0	0	0	0	0	0	0
Bla g 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Blo t 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bos d Lactoferrin	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
aS1-casein	0	0	0	0	0	0	0	0	0	0	0	0	0	0
aS2-casein	0	0	0	0	0	0	0	0	0	0	0	0	0	0
b-casein	0	0	0	0	0	0	0	0	0	0	0	0	0	0
K-casein	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transferrin	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V BSA	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Can f 1	0	0	0	0	15.17	0	0	0	0	0	0	0	0	0
Can f 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Can f 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Can f 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Can f 5	0	0	0	0	27.08	0.11	0	0	0	0	0	0	0	0
V Can f 5	0	0	0	0	0.19	0	0	0	0	0	0	0	0	0
V Can f 6	0	0	0	0	1.14	0	0	0	0	0	0	0	0	0
Che a 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cla h 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cor a 1.0401	1.25	0	0.92	0	4.74	0	0	0	0	0	0	0	5.16	0
Cor a 8	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cor a 9	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cry j 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cyn d 1	5.30	0	0	0	0	0	0	0	1.62	0	1.09	0	1.50	0
Cup a 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Der f 1	0.15	0	7.18	0	0	0	9.88	0	0	0	0	0	3.84	0
Der f 2	0.33	0	0	0	0	0	27.46	0	0	0	0	0	14.89	0
Der p 1	0.16	0	0	0	0	0	6.76	0	0	0	0	0	2.20	0
Der p 2	0.49	0	0	0	0	0	21.64	0	0	0	0	0	13.02	0
V Der p 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 7	0	0	1.77	0	0	0	0	0	0	0	0	0	5.68	0
Der p 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 18	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 21	0	0	1.15	0	0	0	0	0	0	0	0	0	0	0
V Der p 23	0.29	0	0	0	0	0	0	0	0	0	0	0	2.44	0
V clone 16	0	0	0.18	0	0	0	0	0	0	0	0	0	0	0

Patient	Donor 17		Donor 18		Donor 19		Donor 20		Donor 21		Donor 22		Donor 23	
Sample	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M
Method	IgE		IgE		IgE		IgE		IgE		IgE		IgE	
Equ c 1	0	0	0	0	4.41	0	0	0	0	0	0	0	0	0
Equ c 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fag e 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fel d 1	0.14	0	0	0	44.67	0.27	0	0	0	0	0	0	0	0
Fel d 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fel d 4	0	0	0	0	3.33	0	0	0	0	0	0	0	0	0
Gad c 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gly m 4	0.15	0	0	0	0	0	0	0	0	0	0	0	2.34	0
Gly m 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gly m 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 6.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 8	1.31	0	0	0	0	0	0	0	0	0	0	0	0	0
Jug r 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jug r 2	0	0	0	0	0	0	0	0	0	0	0	0	0.57	0
Jug r 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lep d 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mal d 1	0.84	0	0.97	0	0.43	0	0	0	0	0	0	0	8.68	0
Mer a 1	2.10	0	0	0	0	0	0	0	0	0	0	0	0	0
Mus m 1	0	0	0	0	4.2	0	0	0	0	0	0	0	1.85	0
MUXF3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 1	0	0	0.49	0	0	0	0	0	0	0	0	0	0	0
Ole e 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 9	0	0	0	0	0	0	0	0	0.20	0	0	0	0	0
Par j 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 1	19.64	0	0.30	0	2.10	0	0	0	2.82	0	1.38	0	0	0
Phl p 2	14.88	0	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 4	5.86	0	0.16	0	0	0	0	0	2.66	0	1.60	0	2.06	0
Phl p 5	11.28	0	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 6	12.30	0	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 7	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 11	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 12	9.17	0	0	0	0	0	0	0	0	0	0	0	0	0
V Pis v3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pla a 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pla a 2	0	0	0	0	0	0	0	0	0	0	0	0	0.34	0
Pla a 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pla l 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pol d 5	0	0	0	0	0	0	0.14	0	0.14	0	0.24	0	4.96	0
Pru p 1	0.12	0	0.12	0	0	0	0	0	0	0	0	0	0.62	0
Pru p 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 4	0.79	0	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6.01	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6.02	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sal k 1	0	0	0	0	0	0	0	0	0.10	0	0	0	0	0
Ses i 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tri a 14	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tri a 19.0101	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tri a aA_Tl	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Tri a 36 191	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Tri a 36	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V m43	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V m82	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Serine	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thioredoxin	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Glutathione	0	0	0	0	0	0	0	0	0	0	0	0	0	0
peroxiredoxin	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Profilin	1.71	0	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrin	0	0	0	0	0	0	0	0	0	0	0	0	0	0
purothionin	0	0	0	0	0	0	0	0	0	0	0	0	0	0
LTP	0	0	0	0	0	0	0	0	0	0	0	0	0	0
V Ves v1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ves v5	0	0	0	0	0	0	0.30	0	0.15	0	0.25	0	2.88	0
V Ves v5	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Non-sensitized mothers (Donors 24-29)

Patient	Donor 24		Donor 25		Donor 26		Donor 27		Donor 28		Donor 29	
Sample	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M
Method	IgE		IgE		IgE		IgE		IgE		IgE	
Act d 2	0	0	0	0	0	0	0	0	0	0	0	0
Act d 5	0	0	0	0	0	0	0	0	0	0	0	0
Act d 8	0	0	0	0	0	0	0	0	0	0	0	0
Aln g 1	0	0	0	0	0	0	0	0	0	0	0	0
Alt a 1	0	0	0	0	0	0	0	0	0	0	0	0
Alt a 6	0	0	0	0	0	0	0	0	0	0	0	0
Amb a 1	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 1	0	0	0	0	0	0	0	0	0	0	0	0
Ana o 2	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 2	0	0	0	0	0	0	0	0	0	0	0	0
V nAna o 2	0	0	0	0	0	0	0	0	0	0	0	0
V Ana o 3	0	0	0	0	0	0	0	0	0	0	0	0
Ani s 3	0	0	0	0	0	0	0	0	0	0	0	0
Api m 1	0	0	0	0	0	0	0	0	0	0	0	0
Api m 4	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 1	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 2	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 3	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 6	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 8	0	0	0	0	0	0	0	0	0	0	0	0
Ara h 9	0	0	0	0	0	0	0	0	0	0	0	0
Art v 1	0	0	0	0	0	0	0	0	0	0	0	0
Art v 3	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 1	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 3	0	0	0	0	0	0	0	0	0	0	0	0
Asp f 6	0	0	0	0	0	0	0	0	0	0	0	0
Ber e 1	0	0	0	0	0	0	0	0	0	0	0	0
Bet v 1	0	0	0	0	0	0	0	0	0	0	0	0
Bet v 2	0	0	0	0	0	0	0	0	0	0	0	0
Bet v 4	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 1	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 2	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 5	0	0	0	0	0	0	0	0	0	0	0	0
Bla g 7	0	0	0	0	0	0	0	0	0	0	0	0
Blo t 5	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 4	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 4	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 5	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 5	0	0	0	0	0	0	0	0	0	0	0	0
Bos d Lactoferrin	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 8	0	0	0	0	0	0	0	0	0	0	0	0
V Bos d 8	0	0	0	0	0	0	0	0	0	0	0	0
aS1-casein	0	0	0	0	0	0	0	0	0	0	0	0
aS2-casein	0	0	0	0	0	0	0	0	0	0	0	0
b-casein	0	0	0	0	0	0	0	0	0	0	0	0
K-casein	0	0	0	0	0	0	0	0	0	0	0	0
Transferrin	0	0	0	0	0	0	0	0	0	0	0	0
Bos d 6	0	0	0	0	0	0	0	0	0	0	0	0
V BSA	0	0	0	0	0	0	0	0	0	0	0	0
Can f 1	0	0	0	0	0	0	0	0	0	0	0	0
Can f 2	0	0	0	0	0	0	0	0	0	0	0	0
Can f 3	0	0	0	0	0	0	0	0	0	0	0	0
V Can f 4	0	0	0	0	0	0	0	0	0	0	0	0
Can f 5	0	0	0	0	0	0	0	0	0	0	0	0
V Can f 5	0	0	0	0	0	0	0	0	0	0	0	0
V Can f 6	0	0	0	0	0	0	0	0	0	0	0	0
Che a 1	0	0	0	0	0	0	0	0	0	0	0	0
Cla h 8	0	0	0	0	0	0	0	0	0	0	0	0
Cor a 1.0401	0	0	0	0	0	0	0	0	0	0	0	0
Cor a 8	0	0	0	0	0	0	0	0	0	0	0	0
Cor a 9	0	0	0	0	0	0	0	0	0	0	0	0
Cry j 1	0	0	0	0	0	0	0	0	0	0	0	0
Cyn d 1	0	0	0	0	0	0	0	0	0	0	0	0
Cup a 1	0	0	0	0	0	0	0	0	0	0	0	0
Der f 1	0	0	0	0	0	0	0	0	0	0	0	0
Der f 2	0	0	0	0	0	0	0	0	0	0	0	0
Der p 1	0	0	0	0	0	0	0	0	0	0	0	0
Der p 2	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 4	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 5	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 7	0	0	0	0	0	0	0	0	0	0	0	0
Der p 10	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 11	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 14	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 15	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 18	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 21	0	0	0	0	0	0	0	0	0	0	0	0
V Der p 23	0	0	0	0	0	0	0	0	0	0	0	0
V clone 16	0	0	0	0	0	0	0	0	0	0	0	0

Patient	Donor 24		Donor 25		Donor 26		Donor 27		Donor 28		Donor 29	
Sample	PI	M	PI	M	PI	M	PI	M	PI	M	PI	M
Method	IgE		IgE		IgE		IgE		IgE		IgE	
Equ c 1	0	0	0	0	0	0	0	0	0	0	0	0
Equ c 3	0	0	0	0	0	0	0	0	0	0	0	0
Fag e 2	0	0	0	0	0	0	0	0	0	0	0	0
Fel d 1	0	0	0	0	0	0	0	0	0	0	0	0
Fel d 2	0	0	0	0	0	0	0	0	0	0	0	0
Fel d 4	0	0	0	0	0	0	0	0	0	0	0	0
Gad c 1	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 1	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 2	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 3	0	0	0	0	0	0	0	0	0	0	0	0
Gal d 5	0	0	0	0	0	0	0	0	0	0	0	0
Gly m 4	0	0	0	0	0	0	0	0	0	0	0	0
Gly m 5	0	0	0	0	0	0	0	0	0	0	0	0
Gly m 6	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 1	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 3	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 5	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 6.01	0	0	0	0	0	0	0	0	0	0	0	0
Hev b 8	0	0	0	0	0	0	0	0	0	0	0	0
Jug r 1	0	0	0	0	0	0	0	0	0	0	0	0
Jug r 2	0	0	0	0	0	0	0	0	0	0	0	0
Jug r 3	0	0	0	0	0	0	0	0	0	0	0	0
Lep d 2	0	0	0	0	0	0	0	0	0	0	0	0
Mal d 1	0	0	0	0	0	0	0	0	0	0	0	0
Mer a 1	0	0	0	0	0	0	0	0	0	0	0	0
Mus m 1	0	0	0	0	0	0	0	0	0	0	0	0
MUXF3	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 1	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 7	0	0	0	0	0	0	0	0	0	0	0	0
Ole e 9	0	0	0	0	0	0	0	0	0	0	0	0
Par j 2	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 1	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 2	0	0	0	0	0	0	0	0	0	0	0	0
Pen m 4	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 1	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 2	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 4	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 5	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 6	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 7	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 11	0	0	0	0	0	0	0	0	0	0	0	0
Phl p 12	0	0	0	0	0	0	0	0	0	0	0	0
V Pis v 3	0	0	0	0	0	0	0	0	0	0	0	0
Pla a 1	0	0	0	0	0	0	0	0	0	0	0	0
Pla a 2	0	0	0	0	0	0	0	0	0	0	0	0
Pla a 3	0	0	0	0	0	0	0	0	0	0	0	0
Pla l 1	0	0	0	0	0	0	0	0	0	0	0	0
Pol d 5	0	0	0	0	0	0	0	0	0	0	0	0
Pru p 1	0	0	0	0	0	0	0	0	0	0	0	0
Pru p 3	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 3	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 4	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6.01	0	0	0	0	0	0	0	0	0	0	0	0
V Pru du 6.02	0	0	0	0	0	0	0	0	0	0	0	0
Sal k 1	0	0	0	0	0	0	0	0	0	0	0	0
Ses i 1	0	0	0	0	0	0	0	0	0	0	0	0
Tri a 14	0	0	0	0	0	0	0	0	0	0	0	0
Tri a 19.0101	0	0	0	0	0	0	0	0	0	0	0	0
Tri a aA TI	0	0	0	0	0	0	0	0	0	0	0	0
V Tri a 36 191	0	0	0	0	0	0	0	0	0	0	0	0
V Tri a 36	0	0	0	0	0	0	0	0	0	0	0	0
V m43	0	0	0	0	0	0	0	0	0	0	0	0
V m82	0	0	0	0	0	0	0	0	0	0	0	0
Serine	0	0	0	0	0	0	0	0	0	0	0	0
Thioredoxin	0	0	0	0	0	0	0	0	0	0	0	0
Glutathione	0	0	0	0	0	0	0	0	0	0	0	0
peroxiredoxin	0	0	0	0	0	0	0	0	0	0	0	0
Profilin	0	0	0	0	0	0	0	0	0	0	0	0
Dehydrin	0	0	0	0	0	0	0	0	0	0	0	0
purothionin	0	0	0	0	0	0	0	0	0	0	0	0
LTP	0	0	0	0	0	0	0	0	0	0	0	0
V Ves v 1	0	0	0	0	0	0	0	0	0	0	0	0
Ves v 5	0	0	0	0	0	0	0	0	0	0	0	0
V Ves v 5	0	0	0	0	0	0	0	0	0	0	0	0