

11 **TABLE II.** Allergen-specific IgE and IgA values in paired CB and MB samples, and BU ratio and correlation between CB and MB positive  
 12 only.

IgE positive in	CB (n=92)		MB (n=92)		CB/MB-positive only				
	n	%*	n	%*	n	%**	BU ratio <sup>†</sup> (CB BU <sub>e</sub> /MB BU <sub>e</sub> ±SD)	Correlation between CB & MB ( <i>r<sub>s</sub></i> ) <sup>‡</sup>	<i>P</i> value
<b>Food</b>									
α-Casein	28	30.4	25	27.2	18	72.0	1.09 ±0.60	0.63	.005
β-Casein	16	17.4	15	16.3	11	73.3	1.10 ±0.63	0.69	.002
α-Lactalbumin	6	6.5	1	1.1	1	100	0.95±0.00	NA	
β-Lactoglobulin	15	16.3	5	5.4	5	100	1.26±0.65	0.30	.006
Ovalbumin	34	37.0	12	13.0	11	91.7	1.44±0.70	0.44	.180
Ovomucoid	64	69.6	55	59.8	55	100	1.89±0.82	0.89	<.001
Milk	18	19.6	22	23.9	12	54.5	1.14 ±0.54	0.87	<.001
Egg white	23	25.0	8	8.7	8	100	1.06±0.25	0.81	<.001
Mean						86.4	1.24±0.60		
<b>Inhalant</b>									
Cedar pollen	6	6.5	67	72.8	6	9.0	0.34±0.16	0.83	.042
Df	26	28.3	74	80.4	25	33.8	0.59 ±0.58	0.06	.830
Dp	18	19.6	78	84.8	15	19.2	0.70 ±0.74	0.21	.300
Mean						20.7	0.54±0.50		
IgA positive in	CB (n=92)		MB (n=92)		CB/MB-positive only				
	n	%*	n	%*	n	%**	BU ratio <sup>†</sup> (CB BU <sub>a</sub> /MB BU <sub>a</sub> ±SD)	Correlation between CB and MB <sup>‡</sup> ( <i>r<sub>s</sub></i> )	<i>P</i> value
<b>Food</b>									
α-Casein	0	NA	46	50.0	0	NA	NA	NA	
β-Casein	0	NA	50	54.3	0	NA	NA	NA	
α-Lactalbumin	0	NA	7	7.6	0	NA	NA	NA	
β-Lactoglobulin	0	NA	15	16.3	0	NA	NA	NA	
Ovalbumin	0	NA	17	18.5	0	NA	NA	NA	
Ovomucoid	0	NA	19	20.7	0	NA	NA	NA	
Milk	0	NA	71	77.2	0	NA	NA	NA	
Egg white	0	NA	16	17.4	0	NA	NA	NA	
Mean									
<b>Inhalant</b>									
Cedar pollen	0	NA	21	22.8	0	NA	NA	NA	
Df	0	NA	35	38.0	0	NA	NA	NA	
Dp	0	NA	26	28.3	0	NA	NA	NA	
Mean									

14 \*Percentages of allergen-specific IgE and IgA-positive samples.

15 \*\*Percentages of allergen-specific IgE and IgA-positive samples from MB-positive only.

16 †BU ratios (CB BU<sub>e</sub>/MB BU<sub>e</sub>, CB BU<sub>a</sub>/MB BU<sub>a</sub>) and ‡correlation coefficient analyzed Spearman's rank correlation test ( $r_s$ ,  $P$  value) of

17 allergen-specific IgE and IgA-positive CB and MB-positive only.

18 NA, Not available due to lack of positive cases.



21 \*Percentages of allergen-specific IgG and IgG4-positive samples.

22 \*\*Percentages of allergen-specific IgG and IgG4-positive samples from MB-positive only.

23 †BU ratios (CB BUg/MB BUg, CB BUg4/MB BUg4) and ‡correlation coefficient analyzed Spearman's rank correlation test ( $r_s$ ,  $P$  value) of  
24 allergen-specific IgG and IgG4-positive CB and MB-positive only.

25 NA, Not available due to lack of positive cases.

26

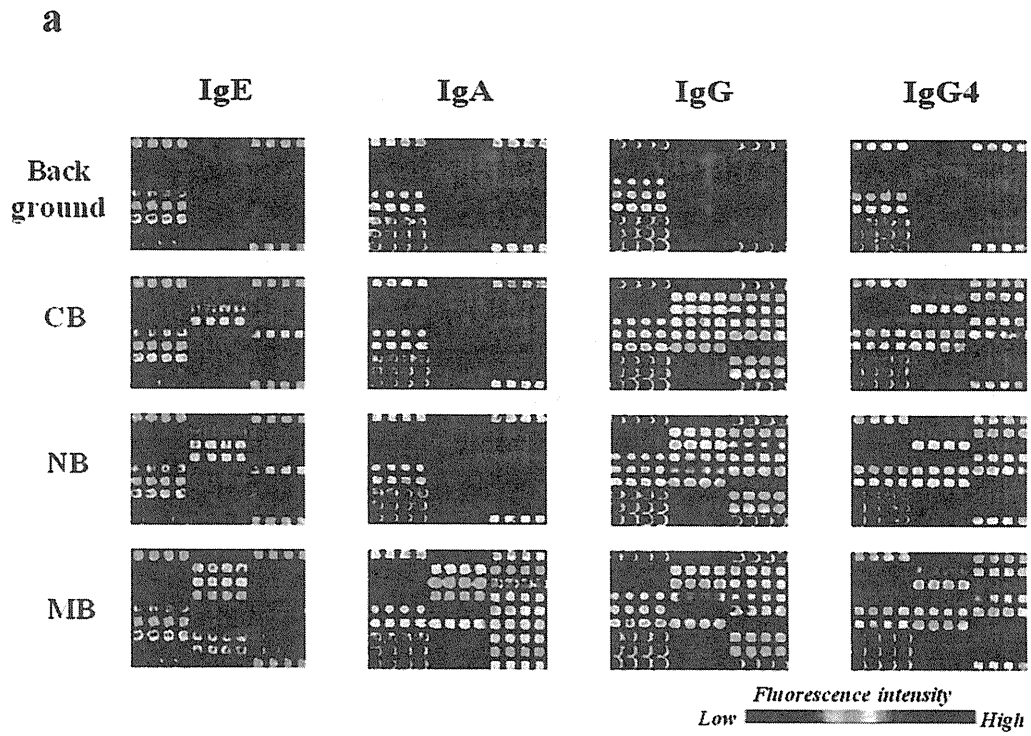
**TABLE IV.** Correlation of allergen-specific IgE, IgG and IgG4 BU between the 92 paired CB and MB.

Allergen	Correlation between CB and MB					
	IgE		IgG		IgG4	
	$r_s$	$P$	$r_s$	$P$	$r_s$	$P$
Food						
$\alpha$ -Casein	0.69	<.001	0.92	<.001	0.94	<.001
$\beta$ -Casein	0.70	<.001	0.74	<.001	0.85	<.001
$\alpha$ -Lactoalbumin	0.37	<.001	NA		0.68	<.001
$\beta$ -Lactoglobulin	0.59	<.001	0.58	<.001	0.97	<.001
Ovalbumin	0.56	<.001	0.93	<.001	0.96	<.001
Ovomucoid	0.94	<.001	0.94	<.001	0.97	<.001
Milk	0.60	<.001	0.91	<.001	0.95	<.001
Egg white	0.53	<.001	0.94	<.001	0.97	<.001
Inhalant						
Cedar pollen	0.30	.004	NA		NA	
Df	0.01	.906	0.83	<.001	NA	
Dp	0.19	.073	0.83	<.001	NA	

30

NA, Not available due to lack of positive cases.

FIG 1.



**b**

GD	Blank	GD
Blank	Milk	Egg white
Std	$\alpha$ -Casein	Egg yolk
	$\beta$ -Casein	Ovalbumin
	$\alpha$ -Lactalbumin	Ovomucoid
	$\beta$ -Lactoglobulin	Conalbumin
	Cedar pollen	Dp
	House dust	Dr
	Blank	GD

FIG 2.

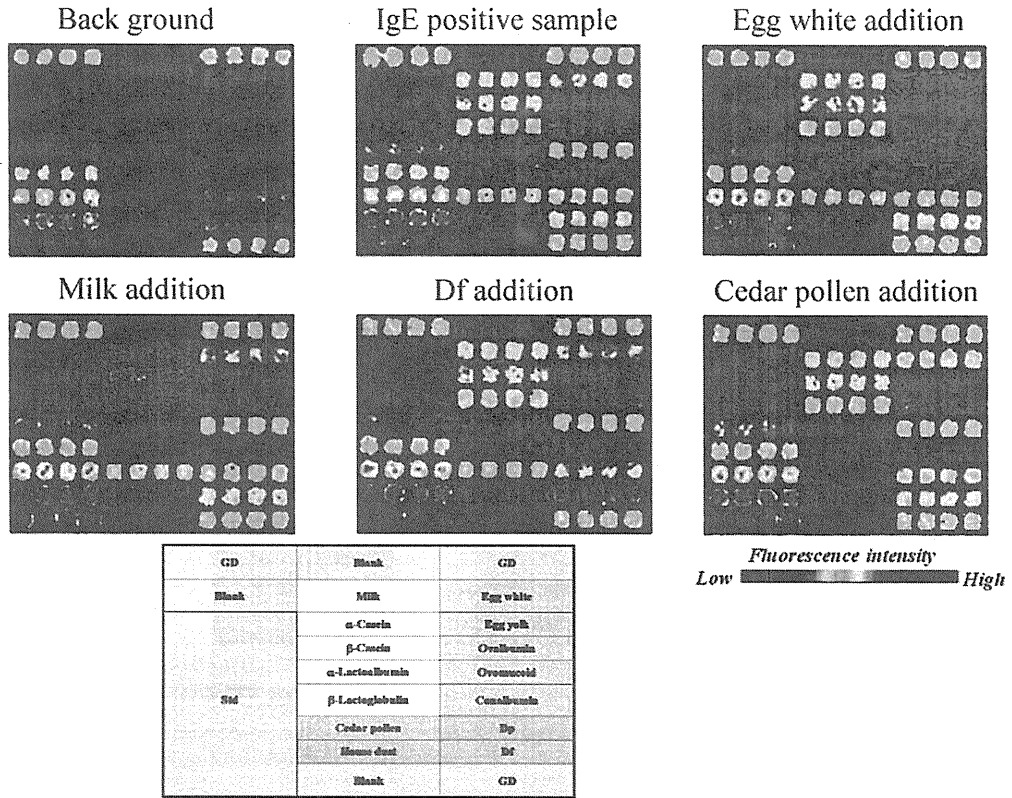


FIG 3.

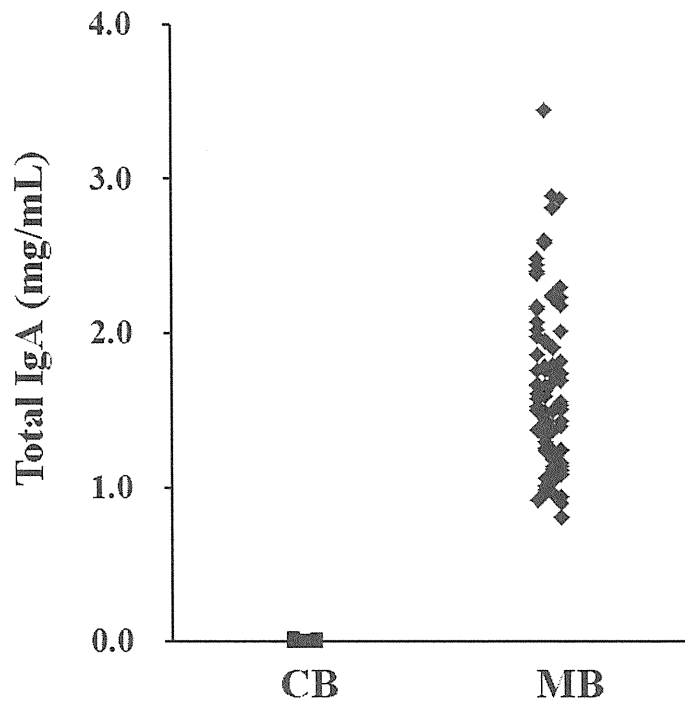
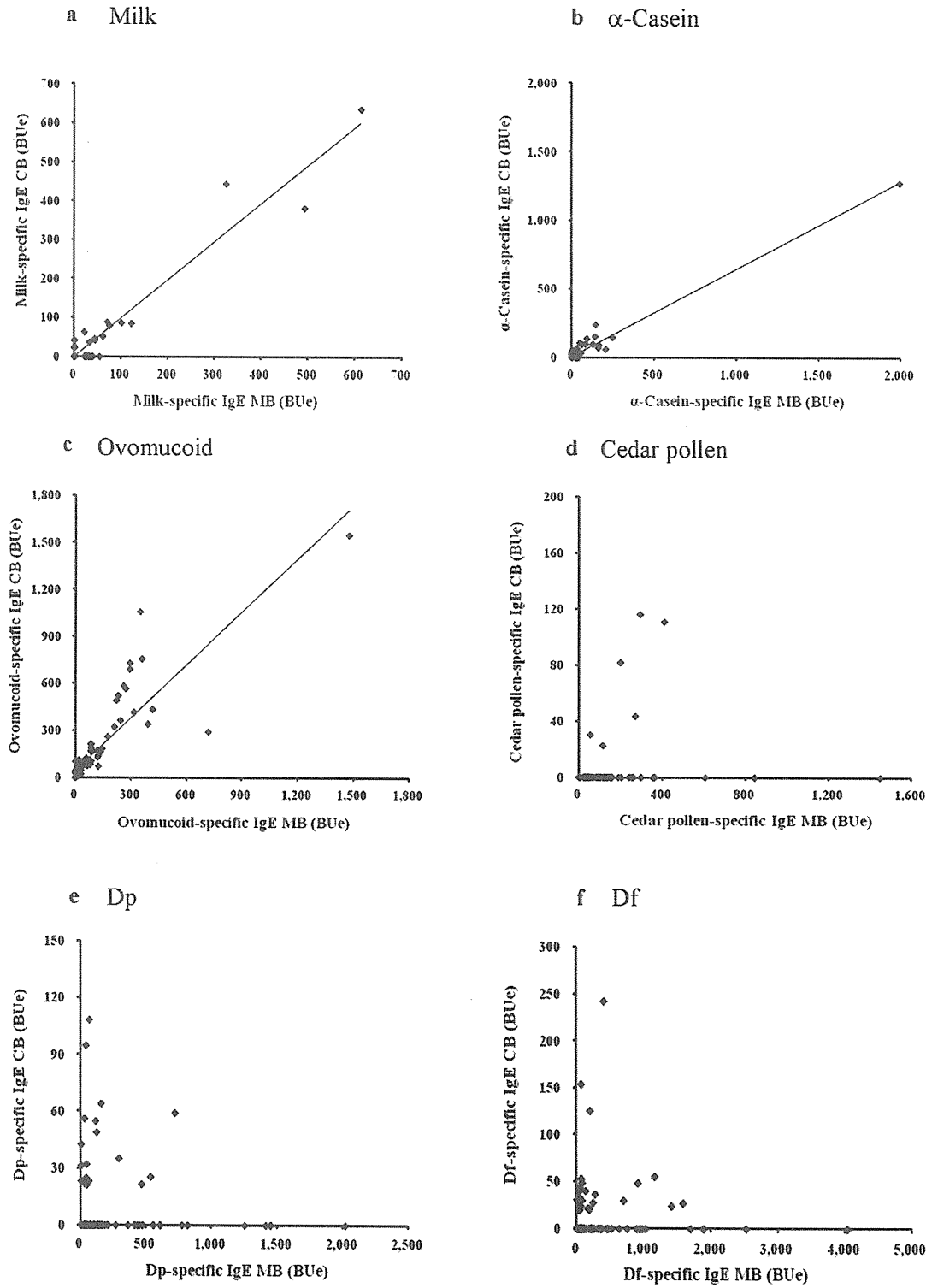




FIG 4.



**TABLE I.** Comparison of assay sensitivity in detecting antigen-specific IgE in CB and MB against food allergens and inhalant allergens using the DLC chip system and UniCAP system.

Allergen	CB (1:1 dilution)		MB (1:1 dilution)	
	DLC chip (BUe/mL)	UniCAP (PRU)	DLC chip (BUe/mL)	UniCAP (PRU)
<b>Food</b>				
Egg white	30.35	ND <sup>#</sup>	77.41	0.545
	11.02	ND	23.65	ND
Ovomucoid	180.0	ND	134.8	0.960
	84.89	ND	64.66	ND
	13.30	ND	23.15	ND
Milk	221.4	ND	182.7	1.095
	30.90	ND	61.71	0.540
	18.05	ND	23.15	ND
<b>Inhalant</b>				
Cedar pollen	55.55	ND	90.98	0.960
	21.78	ND	32.20	ND
Df	54.01	ND	80.76	1.275
	47.38	ND	25.53	ND
Dp	63.04	ND	215.6	2.950
	26.48	ND	60.70	ND

CB serum (1:1 dilution) and MB serum (1:50 dilution) were used for measurement of allergen-specific IgE levels on the UniCAP system and the DLC chip.

ND<sup>#</sup> of UniCAP assay: <.35

Detection limit on the DLC chip: 10 BUe/mL

11 **TABLE II.** Allergen-specific IgE and IgA values in paired CB and MB samples, and BU ratio and correlation between CB and MB positive  
 12 only.

IgE positive in	CB (n=92)		MB (n=92)		CB/MB-positive only				
	n	%*	n	%*	n	%**	BU ratio <sup>†</sup> (CB BU <sub>e</sub> /MB BU <sub>e</sub> ±SD)	Correlation between CB & MB ( <i>r<sub>s</sub></i> ) <sup>‡</sup>	<i>P</i> value
Food									
α-Casein	28	30.4	25	27.2	18	72.0	1.09 ±0.60	0.63	.005
β-Casein	16	17.4	15	16.3	11	73.3	1.10 ±0.63	0.69	.002
α-Lactalbumin	6	6.5	1	1.1	1	100	0.95±0.00	NA	
β-Lactoglobulin	15	16.3	5	5.4	5	100	1.26±0.65	0.30	.006
Ovalbumin	34	37.0	12	13.0	11	91.7	1.44±0.70	0.44	.180
Ovomucoid	64	69.6	55	59.8	55	100	1.89±0.82	0.89	<.001
Milk	18	19.6	22	23.9	12	54.5	1.14 ±0.54	0.87	<.001
Egg white	23	25.0	8	8.7	8	100	1.06±0.25	0.81	<.001
Mean						86.4	1.24±0.60		
Inhalant									
Cedar pollen	6	6.5	67	72.8	6	9.0	0.34±0.16	0.83	.042
Df	26	28.3	74	80.4	25	33.8	0.59 ±0.58	0.06	.830
Dp	18	19.6	78	84.8	15	19.2	0.70 ±0.74	0.21	.300
Mean						20.7	0.54±0.50		
IgA positive in	CB (n=92)		MB (n=92)		CB/MB-positive only				
	n	%*	n	%*	n	%**	BU ratio <sup>†</sup> (CB BU <sub>a</sub> /MB BU <sub>a</sub> ±SD)	Correlation between CB and MB <sup>‡</sup> ( <i>r<sub>s</sub></i> )	<i>P</i> value
Food									
α-Casein	0	NA	46	50.0	0	NA	NA	NA	
β-Casein	0	NA	50	54.3	0	NA	NA	NA	
α-Lactalbumin	0	NA	7	7.6	0	NA	NA	NA	
β-Lactoglobulin	0	NA	15	16.3	0	NA	NA	NA	
Ovalbumin	0	NA	17	18.5	0	NA	NA	NA	
Ovomucoid	0	NA	19	20.7	0	NA	NA	NA	
Milk	0	NA	71	77.2	0	NA	NA	NA	
Egg white	0	NA	16	17.4	0	NA	NA	NA	
Mean									
Inhalant									
Cedar pollen	0	NA	21	22.8	0	NA	NA	NA	
Df	0	NA	35	38.0	0	NA	NA	NA	
Dp	0	NA	26	28.3	0	NA	NA	NA	
Mean									

14 \*Percentages of allergen-specific IgE and IgA-positive samples.

15 \*\*Percentages of allergen-specific IgE and IgA-positive samples from MB-positive only.

16 †BU ratios (CB BU<sub>e</sub>/MB BU<sub>e</sub>, CB BU<sub>a</sub>/MB BU<sub>a</sub>) and ‡correlation coefficient analyzed Spearman's rank correlation test ( $r_s$ ,  $P$  value) of  
17 allergen-specific IgE and IgA-positive CB and MB-positive only.

18 NA, Not available due to lack of positive cases.

19



22 \*Percentages of allergen-specific IgG and IgG4-positive samples.

23 \*\*Percentages of allergen-specific IgG and IgG4-positive samples from MB-positive only.

24 †BU ratios (CB BU<sub>g</sub>/MB BU<sub>g</sub>, CB BU<sub>g4</sub>/MB BU<sub>g4</sub>) and ‡correlation coefficient analyzed Spearman's rank correlation test ( $r_s$ ,  $P$  value) of  
25 allergen-specific IgG and IgG4-positive CB and MB-positive only.

26 NA, Not available due to lack of positive cases.

27

**TABLE IV.** Correlation of allergen-specific IgE, IgG and IgG4 BU between the 92 paired CB and MB.

30

Allergen	Correlation between CB and MB					
	IgE		IgG		IgG4	
	$r_s$	$P$	$r_s$	$P$	$r_s$	$P$
Food						
$\alpha$ -Casein	0.69	<.001	0.92	<.001	0.94	<.001
$\beta$ -Casein	0.70	<.001	0.74	<.001	0.85	<.001
$\alpha$ -Lactoalbumin	0.37	<.001	NA		0.68	<.001
$\beta$ -Lactoglobulin	0.59	<.001	0.58	<.001	0.97	<.001
Ovalbumin	0.56	<.001	0.93	<.001	0.96	<.001
Ovomucoid	0.94	<.001	0.94	<.001	0.97	<.001
Milk	0.60	<.001	0.91	<.001	0.95	<.001
Egg white	0.53	<.001	0.94	<.001	0.97	<.001
Inhalant						
Cedar pollen	0.30	.004	NA		NA	
Df	0.01	.906	0.83	<.001	NA	
Dp	0.19	.073	0.83	<.001	NA	

NA, Not available due to lack of positive cases.

1 **TABLE I.** Comparison of assay sensitivity in detecting antigen-specific IgE in CB and MB  
 2 against food allergens and inhalant allergens using the DLC chip system and UniCAP system.

3

Allergen	CB (1:1 dilution)		MB (1:1 dilution)	
	DLC chip (BUe/mL)	UniCAP (PRU)	DLC chip (BUe/mL)	UniCAP (PRU)
Food				
Egg white	30.35	ND <sup>#</sup>	77.41	0.545
	11.02	ND	23.65	ND
Ovomucoid	180.0	ND	134.8	0.960
	84.89	ND	64.66	ND
Milk	13.30	ND	23.15	ND
	221.4	ND	182.7	1.095
	30.90	ND	61.71	0.540
	18.05	ND	23.15	ND
Inhalant				
Cedar pollen	55.55	ND	90.98	0.960
	21.78	ND	32.20	ND
Df	54.01	ND	80.76	1.275
	47.38	ND	25.53	ND
Dp	63.04	ND	215.6	2.950
	26.48	ND	60.70	ND

4  
 5  
 6 CB serum (1:1 dilution) and MB serum (1:50 dilution) were used for measurement of  
 7 allergen-specific IgE levels on the UniCAP system and the DLC chip.

8 ND<sup>#</sup> of UniCAP assay: <.35

9 Detection limit on the DLC chip: 10 BUe/mL

10



11 **TABLE II.** Allergen-specific IgE and IgA values in paired CB and MB samples, and BU ratio and correlation between CB and MB positive  
 12 only.

IgE positive in	CB (n=92)		MB (n=92)		CB/MB-positive only				
	n	%*	n	%*	n	%**	BU ratio <sup>†</sup> (CB BUe/MB BUe ±SD)	Correlation between CB & MB ( $r_s$ ) <sup>‡</sup>	<i>P</i> value
<b>Food</b>									
α-Casein	28	30.4	25	27.2	18	72.0	1.09±0.60	0.63	.005
β-Casein	16	17.4	15	16.3	11	73.3	1.10±0.63	0.69	.002
α-Lactalbumin	6	6.5	1	1.1	1	100	0.95±0.00	NA	
β-Lactoglobulin	15	16.3	5	5.4	5	100	1.26±0.65	0.30	.006
Ovalbumin	34	37.0	12	13.0	11	91.7	1.44±0.70	0.44	.180
Ovomucoid	64	69.6	55	59.8	55	100	1.89±0.82	0.89	<.001
Milk	18	19.6	22	23.9	12	54.5	1.14±0.54	0.87	<.001
Egg white	23	25.0	8	8.7	8	100	1.06±0.25	0.81	<.001
Mean						86.4	1.24±0.60		
<b>Inhalant</b>									
Cedar pollen	6	6.5	67	72.8	6	9.0	0.34±0.16	0.83	.042
Df	26	28.3	74	80.4	25	33.8	0.59±0.58	0.06	.830
Dp	18	19.6	78	84.8	15	19.2	0.70±0.74	0.21	.300
Mean						20.7	0.54±0.50		
IgA positive in	CB (n=92)		MB (n=92)		CB/MB-positive only				
	n	%*	n	%*	n	%**	BU ratio <sup>†</sup> (CB BUa/MB BUa ±SD)	Correlation between CB and MB <sup>‡</sup> ( $r_s$ )	<i>P</i> value
<b>Food</b>									
α-Casein	0	NA	46	50.0	0	NA	NA	NA	
β-Casein	0	NA	50	54.3	0	NA	NA	NA	
α-Lactalbumin	0	NA	7	7.6	0	NA	NA	NA	
β-Lactoglobulin	0	NA	15	16.3	0	NA	NA	NA	
Ovalbumin	0	NA	17	18.5	0	NA	NA	NA	
Ovomucoid	0	NA	19	20.7	0	NA	NA	NA	
Milk	0	NA	71	77.2	0	NA	NA	NA	
Egg white	0	NA	16	17.4	0	NA	NA	NA	
Mean									
<b>Inhalant</b>									
Cedar pollen	0	NA	21	22.8	0	NA	NA	NA	
Df	0	NA	35	38.0	0	NA	NA	NA	
Dp	0	NA	26	28.3	0	NA	NA	NA	
Mean									

14 \*Percentages of allergen-specific IgE and IgA-positive samples.

15 \*\*Percentages of allergen-specific IgE and IgA-positive samples from MB-positive only.

16 †BU ratios (CB BU<sub>e</sub>/MB BU<sub>e</sub>, CB BU<sub>a</sub>/MB BU<sub>a</sub>) and ‡correlation coefficient analyzed Spearman's rank correlation test ( $r_s$ ,  $P$  value) of

17 allergen-specific IgE and IgA-positive CB and MB-positive only.

18 NA, Not available due to lack of positive cases.

19



22 \*Percentages of allergen-specific IgG and IgG4-positive samples.

23 \*\*Percentages of allergen-specific IgG and IgG4-positive samples from MB-positive only.

24 †BU ratios (CB BUg/MB BUg, CB BUg4/MB BUg4) and ‡correlation coefficient analyzed Spearman's rank correlation test ( $r_s$ ,  $P$  value) of  
25 allergen-specific IgG and IgG4-positive CB and MB-positive only.

26 NA, Not available due to lack of positive cases.

27