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## APPENDICES

## Appendix 1

### Specific activity of papain and Alcalase

#### 1. Casein substrate solution

Disperse 1 g of Casein hammarsten (moisture free basis) in 50 ml of 0.05 M sodium phosphate solution, and heat at the temperature about 50°C for 30 minutes with sometime shaking. Cool to room temperature with shaking. Adjust to pH 6.0±0.1 by add of 0.05 M of citric acid solution. Adjust volume to 100 ml by distilled water.

#### 2. Buffer solution for the assay of papain activity

##### 2.1 Phosphate-Cysteine-EDTA

Na <sub>2</sub> HPO <sub>4</sub> ·2H <sub>2</sub> O	2.2	g
H <sub>2</sub> O	200	ml
EDTA	0.93	g
Cysteine.HCl	0.785	g

(Adjust pH to 6.0 with 0.1 M HCl or 0.1 M NaOH)

(Adjust volume to 250 ml by distilled water)

#### 3. Buffer solution for the assay of Alcalase activity

##### 3.1 0.05 M Tris-HCl buffer pH 9.4-10

Tris	6.057	g
H <sub>2</sub> O	50	ml

(Adjust pH to 9.4-10 with 0.1 M HCl or 0.1 M NaOH)

(Adjust volume to 100 ml by distilled water)

##### 3.2 10% Trichloroacetic acid (100 ml)

Trichloroacetic acid (TCA)	10	g
H <sub>2</sub> O	100	ml

#### 4. Calculation

##### 4.1 Papain activity

Papain activity was calculated in CDU (casein digestion unit) as follow:

$$\text{Papain activity (CDU/mg)} = \frac{\text{net OD 280} \times 10}{\text{Slope} \times W \times t}$$

Where net OD 280: different between OD 280 of sample and blank tube

10 : total volume of the final incubation mixture (ml)

Slope : slope of standard curve ( $\mu\text{g/ OD 280}$ )

W : weight in mg of original enzyme preparation in the 2 ml  
aliquot of test solution added to the incubation mixture (mg)

t : incubation time (min)

##### 4.2 Alcalase activity

Alcalase activity was calculated in CDU as follow:

$$\text{Alcalase activity (CDU/mg)} = \frac{\text{net OD 280} \times 4}{\text{Slope} \times W \times t}$$

Where net OD 280: different between OD 280 of sample and blank tube

4 : total volume of the final incubation mixture (ml)

Slope : slope of standard curve ( $\mu\text{g/ OD 280}$ )

W : weight in mg of original enzyme preparation in the 0.1 ml  
aliquot of test solution added to the incubation mixture (mg)

t : incubation time (min)

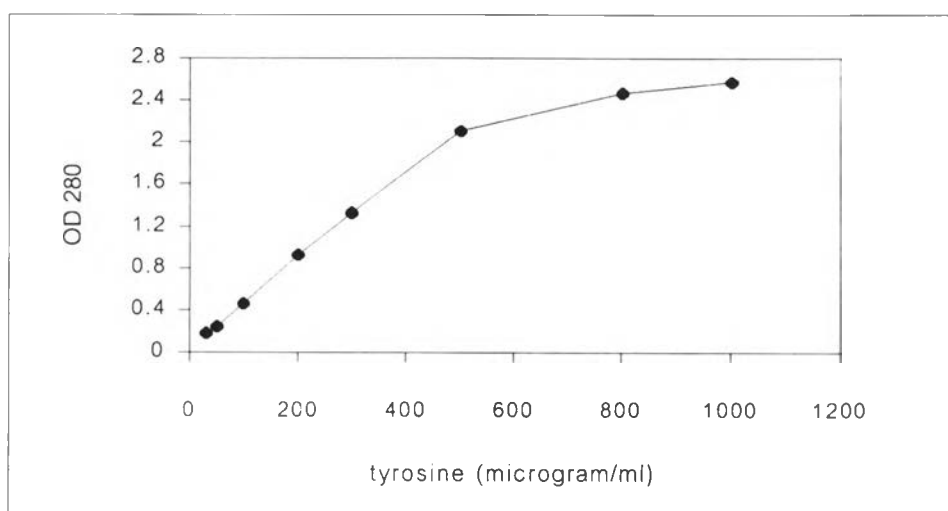


Figure A1.1 Tyrosine Standard Curve

Slope of tyrosine standard curve =  $4.3 \times 10^{-3}$

Tyrosine concentration =  $\text{OD } 280 \times 1/\text{slope}$

## Appendix 2

### 1. Stock solution for preparation of deproteinized natural rubber (DPNR)

#### 1. 5% Papain solution (1 L)

Papain (Commercial grade) was cracked to small pieces and weighted about 50 g. Added with 1 liter of distilled water and mixed by swirling. Removed undissolved papain by centrifugation at 3,500xg for 20 minutes then obtained clear filtrate, and kept this solution at 4°C.

#### 2. 5% Alcalase solution (1 L)

Alcalase (Commercial grade) was weighted about 50 g, added with 1 liter of distilled water and mixed completely. Removed undissolved alcalase by centrifugation at 3,500xg for 20 minutes. Then obtained clear filtrate and kept this solution at 4°C.

#### 3. 10% Hydroxylamine Hydrochloride (1 L)

Hydroxylamine hydrochloride was weighted about 100 g and adjust with water to the final volume of 1 liter.

#### 4. 10% Sodium metabisulfite (500 ml)

Sodium metabisulfite 50 g was weighted and adjust to 500 ml by water.

#### 5. 10% Wing Stay-L (500 ml)

An aliquot of 50 ml of Wing Stay-L was taken and added water to 500 ml final volume.

## 2. Optimum Condition for Deproteinization of Fresh Latex by Papain

Table A2.1 Content of Total Nitrogen, % Nitrogen Reduction, Protein Concentration and % Yield in Solid Rubber, (50°C, 5 min, dilution 1 fold, vary papain concentration)

Papain concentration (phr), n=3	% Nitrogen (g%), n=6	% Nitrogen reduction (g%)		% Yield of Solid Rubber
		Compare with A	Compare with B	
A	0.69 ± 0.013	0	-	-
B	0.53 ± 0.041	23.72 ± 4.95	0	91.45 ± 0.873
0.1	0.24 ± 0.021	65.76 ± 2.919	54.98 ± 4.535	91.37 ± 1.217
0.2	0.19 ± 0.028	72.04 ± 3.762	63.35 ± 4.458	91.46 ± 1.309
0.3	0.14 ± 0.032	80.37 ± 4.388	74.32 ± 5.611	90.08 ± 1.137
0.4	0.17 ± 0.022	75.81 ± 2.777	68.44 ± 2.285	89.80 ± 2.40
0.5	0.17 ± 0.014	75.46 ± 1.941	68.12 ± 4.085	91.59 ± 0.715
0.6	0.20 ± 0.032	71.55 ± 4.413	62.75 ± 5.026	89.63 ± 1.588

A: Control production; STR5L

B: Control; papain treatment (papain 0 phr)



Table A2.2 Content of Total Nitrogen, % Nitrogen Reduction, Protein Concentration and % Yield in Solid Rubber, (50°C, papain 0.3 phr, dilution 1 fold, vary time)

Time (min), n=3	% Nitrogen (g%), n=6	% Nitrogen reduction (g%)		% Yield in Solid Rubber
		Compare with A	Compare with B	
A	0.74 ± 0.076	0	-	-
B	0.68 ± 0.083	7.37 ± 2.577	0	97.88 ± 0.779
5	0.16 ± 0.055	79.60 ± 4.444	77.41 ± 6.129	96.14 ± 0.167
10	0.16 ± 0.051	79.05 ± 5.382	69.44 ± 23.522	96.35 ± 0.133
20	0.16 ± 0.050	78.12 ± 5.480	76.41 ± 5.557	96.70 ± 0.436
30	0.20 ± 0.084	73.06 ± 8.875	71.02 ± 8.954	96.73 ± 0.259
40	0.17 ± 0.041	77.30 ± 3.608	75.52 ± 3.569	96.88 ± 0.905
60	0.18 ± 0.061	76.30 ± 5.843	74.49 ± 5.758	97.32 ± 0.726

A: Control production; STR5L

B: Control; papain treatment (papain 0 phr)

Table A2.3 Content of Total Nitrogen, % Nitrogen Reduction, Protein Concentration and % Yield in Solid Rubber, (50°C, 5 min, papain 0.3 phr, vary dilution)

Dilution (fold), n=3	% Nitrogen (g%), n=6	% Nitrogen reduction (g%)		% Yield in Solid Rubber
		Compare with A	Compare with B	
A	0.77 ± 0.065	0	-	-
B	0.60 ± 0.050	21.92 ± 2.275	0	98.88 ± 0.179
0.5	0.16 ± 0.025	78.71 ± 3.934	72.75 ± 4.929	97.00 ± 0.507
1.0	0.15 ± 0.022	80.51 ± 4.202	75.01 ± 5.579	92.21 ± 6.646
1.5	0.16 ± 0.020	78.90 ± 4.240	72.99 ± 5.351	94.77 ± 2.423
2.0	0.17 ± 0.049	79.01 ± 7.727	71.08 ± 11.127	94.67 ± 1.772
2.5	0.16 ± 0.008	80.73 ± 4.336	75.32 ± 5.544	93.24 ± 1.745
3.0	0.16 ± 0.028	79.56 ± 5.275	73.80 ± 6.915	93.28 ± 2.141

A: Control production; STR5L

B: Control; papain treatment (papain 0 phr)

### 3. Optimum Condition for Deproteinization of Fresh Latex by Alcalase

Table A2.4 Content of Total Nitrogen, % Nitrogen Reduction, Protein Concentration and % Yield in Solid Rubber, (50°C, 5 min, dilution 1 fold, vary Alcalase concentration)

Alcalase concentration (phr), n=3	% Nitrogen (g%), n=6	% Nitrogen reduction (g%)		% Yield in Solid Rubber
		Compare with A	Compare with B	
A	0.55 ± 0.019	0	-	-
B	0.52 ± 0.027	5.96 ± 5.018	0	97.99 ± 0.237
0.03	0.45 ± 0.077	18.28 ± 13.554	13.29 ± 13.467	95.54 ± 2.399
0.06	0.41 ± 0.049	24.46 ± 7.151	20.45 ± 9.379	94.00 ± 0.458
0.10	0.41 ± 0.024	25.39 ± 5.540	20.55 ± 5.978	94.40 ± 0.698
0.20	0.34 ± 0.025	38.73 ± 4.333	34.73 ± 5.039	94.51 ± 0.649
0.30	0.37 ± 0.042	33.39 ± 6.667	28.98 ± 7.929	94.47 ± 0.815

A: Control production; STR5L

B: Control; Alcalase treatment (Alcalase 0 phr)

Table A2.5 Content of Total Nitrogen, % Nitrogen Reduction, Protein Concentration and % Yield in Solid Rubber, (50°C, Alcalase 0.06 phr, dilution 1 fold, vary time)

Time (min), n=3	% Nitrogen (g%), n=6	% Nitrogen reduction (g%)		% Yield in Solid Rubber
		Compare with A	Compare with B	
A	0.55 ± 0.007	0	-	-
B	0.51 ± 0.029	7.59 ± 4.748	0	78.70 ± 0.715
5	0.46 ± 0.056	17.04 ± 9.915	10.40 ± 7.336	93.09 ± 2.334
10	0.46 ± 0.054	17.70 ± 9.097	10.89 ± 8.854	93.73 ± 1.043
20	0.42 ± 0.067	23.69 ± 11.594	17.48 ± 11.091	93.30 ± 0.699
30	0.43 ± 0.066	23.29 ± 11.745	16.75 ± 13.435	96.21 ± 1.101
40	0.44 ± 0.066	19.81 ± 12.019	12.10 ± 12.760	95.21 ± 1.881
50	0.39 ± 0.085	29.91 ± 15.094	23.66 ± 18.398	92.20 ± 3.833

A: Control production; STR5L

B: Control; Alcalase treatment (Alcalase 0 phr)

Table A2.6 Content of Total Nitrogen, % Nitrogen Reduction, Protein Concentration and % Yield in Solid Rubber, (50°C, 5 min, Alcalase 0.06 phr, vary dilution)

Dilution (fold), n=3	% Nitrogen (g%), n=6	% Nitrogen reduction (g%)		% Yield in Solid Rubber
		Compare with A	Compare with B	
A	0.55 ± 0.007	0	-	-
B	0.50 ± 0.007	10.57 ± 1.898	0	96.88 ± 0.169
0.5	0.45 ± 0.031	19.23 ± 5.510	9.67 ± 5.516	96.30 ± 0.340
1.0	0.42 ± 0.072	22.51 ± 12.41	18.20 ± 13.636	96.85 ± 0.634
1.5	0.43 ± 0.060	21.77 ± 11.343	14.65 ± 11.556	96.07 ± 0.482
2.0	0.42 ± 0.059	24.98 ± 11.042	16.14 ± 11.906	95.41 ± 0.441
2.5	0.42 ± 0.059	23.04 ± 11.248	14.57 ± 11.833	94.64 ± 0.550

A: Control production; STR5L

B: Control; Alcalase treatment (Alcalase 0 phr)

## Appendix 3

## Statistic of raw rubber properties (Tukey HSD)

## Descriptive

			N	Mean	Standard Deviation
Nitrogen	1	STR5L	15	0.4427	7.988E-03
	2	CDPNR	15	0.3880	3.278E-02
	3	DPNR	15	0.1773	5.106E-02
	Total		45	0.3360	0.1207
ASH	1	STR5L	15	0.2260	2.197E-02
	2	CDPNR	15	0.2240	1.639E-02
	3	DPNR	15	0.3087	3.777E-02
	Total		45	0.2529	4.780E-02
Dirt	1	STR5L	15	1.900E-02	8.2289E-03
	2	CDPNR	15	2.460E-02	4.2728E-03
	3	DPNR	15	2.627E-02	5.9217E-03
	Total		45	2.329E-02	6.9564E-03
Volatile Matter	1	STR5L	15	0.3300	7.000E-02
	2	CDPNR	15	0.3360	6.080E-02
	3	DPNR	15	0.1753	4.291E-02
	Total		45	0.2804	9.475E-02
Po	1	STR5L	15	38.6560	0.6143
	2	CDPNR	15	38.5267	0.6442
	3	DPNR	15	26.8800	1.8793
	Total		45	34.6876	5.7053
PRI	1	STR5L	15	95.5960	4.6225
	2	CDPNR	15	95.4180	4.4854
	3	DPNR	15	36.1200	9.7038
	Total		45	75.7113	29.0640
Color	1	STR5L	15	2.8000	0.4928
	2	CDPNR	15	2.8000	0.4928
	3	DPNR	15	3.6000	0.3873
	Total		45	3.0667	0.5897
Mooney	1	STR5L	15	59.1000	0.8369
	2	CDPNR	15	58.7080	1.8140
	3	DPNR	15	57.8600	2.9376
	Total		45	58.5560	2.0711

## Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig
Nitrogen	16.723	2	42	0.000
Ash	7.979	2	42	0.001
Dirt	2.621	2	42	0.085
Volatile Matter	2.456	2	42	0.098
Po	13.554	2	42	0.000
PRI	3.104	2	42	0.055
Color	0.324	2	42	0.725
Mooney	23.421	2	42	0.000

\* The mean difference is significant at the 0.05 level.



## ANOVA

		Sum of Squares	df	F	Sig
Nitrogen	Between Groups	0.589	2	235.871	0.000
	Within Groups	5.243E-02	42		
	Total	0.641	44		
Ash	Between Groups	7.003E-02	2	48.229	0.000
	Within Groups	3.049E-02	42		
	Total	0.101	44		
Dirt	Between Groups	4.347E-04	2	5.387	0.008
	Within Groups	1.695E-03	42		
	Total	2.129E-03	44		
Volatile Matter	Between Groups	0.249	2	35.762	0.000
	Within Groups	0.146	42		
	Total	0.395	44		
Po	Between Groups	1371.679	2	475.834	0.000
	Within Groups	60.536	42		
	Total	1432.215	44		
PRI	Between Groups	35268.395	2	389.993	0.000
	Within Groups	1899.100	42		
	Total	37167.495	44		
Color	Between Groups	6.400	2	15.101	0.000
	Within Groups	8.900	42		
	Total	15.300	44		
Mooney	Between Groups	12.052	2	1.432	0.250
	Within Groups	176.688	42		
	Total	188.740	44		

\* The mean difference is significant at the 0.05 level.

## Multiple Comparisons (Tukey HSD)

Dependent Variable	(I) GR	(J) GR	Sig
Nitrogen	1 STR5L	2 CDPNR	0.000
		3 DPNR	0.000
	2 CDPNR	1 STR5L	0.000
		3 DPNR	0.000
	3 DPNR	1 STR5L	0.000
		2 CDPNR	0.000
Ash	1 STR5L	2 CDPNR	0.977
		3 DPNR	0.000
	2 CDPNR	1 STR5L	0.977
		3 DPNR	0.000
	3 DPNR	1 STR5L	0.000
		2 CDPNR	0.000
Dirt	1 STR5L	2 CDPNR	0.052
		3 DPNR	0.009
	2 CDPNR	1 STR5L	0.052
		3 DPNR	0.754
	3 DPNR	1 STR5L	0.009
		2 CDPNR	0.754
Volatile Matter	1 STR5L	2 CDPNR	0.958
		3 DPNR	0.000
	2 CDPNR	1 STR5L	0.958
		3 DPNR	0.000
	3 DPNR	1 STR5L	0.000
		2 CDPNR	0.000
Po	1 STR5L	2 CDPNR	0.953
		3 DPNR	0.000
	2 CDPNR	1 STR5L	0.953
		3 DPNR	0.000
	3 DPNR	1 STR5L	0.000
		2 CDPNR	0.000
PRI	1 STR5L	2 CDPNR	0.997
		3 DPNR	0.000
	2 CDPNR	1 STR5L	0.997
		3 DPNR	0.000
	3 DPNR	1 STR5L	0.000
		3 CDPNR	0.000

Dependent Variable	(I) GR	(J) GR	Sig
Color	1 STR5L	2 CDPNR	1.000
		3 DPNR	0.000
	2 CDPNR	1 STR5L	1.000
		3 DPNR	0.000
	3 DPNR	1 STR5L	0.000
		2 CDPNR	0.000
Mooney	1 STR5L	2 CDPNR	0.860
		3 DPNR	0.234
	2 CDPNR	1 STR5L	0.860
		3 DPNR	0.500
	3 DPNR	1 STR5L	0.234
		3 CDPNR	0.500

\* The mean difference is significant at the 0.05 level.

## Appendix 4

### Protein Determination by Modified Lowery Method

#### 1. Solution for Modified Lowery Method

Solution A : Alkali copper sulfate (10 parts of C : 0.2 parts of D)

Solution B : Dilute Folin Reagent (Phenol Reagent)

Solution C : 6% w/v of sodium carbonate

Solution D : 1.5% w/v of copper sulfate in 3% w/v of sodium citrate

Solution DA: Alkali sulfate (10 parts of C : 0.2 parts of DD)

Solution DD: 3% w/v of sodium citrate



Table A4.1 Protein determination modified lowry's method

The absorbance OD 750 of papain and protein sample

Sample	OD 750, CuSO <sub>4</sub> (A)	OD 750, no CuSO <sub>4</sub> (B)	(A) - (B)	Protein Concentration ( $\mu\text{g/ml}$ )
Papain (Oringin) 1	0.224	0.093	0.131	110
Papain (Oringin) 2	0.206	0.1	0.106	
Papain (Oringin) 3	0.215	0.096	0.119	
Papain (Lab) 1	0.359	0.199	0.16	200
Papain (Lab) 2	0.403	0.202	0.201	
Papain (Lab) 3	0.381	0.2	0.181	
Papain (Microwave) 1	0.222	0.113	0.109	100
Papain (Microwave) 2	0.233	0.112	0.121	
Papain (Microwave) 3	0.228	0.113	0.115	
STR5L 1	0.205	0.137	0.068	64
STR5L 2	0.202	0.135	0.067	
STR5L 3	0.206	0.134	0.072	
Concentrated Latex 60% 1	0.371	0.272	0.099	112
Concentrated Latex 60% 2	0.347	0.264	0.083	
Concentrated Latex 60% 3	0.358	0.267	0.091	
CDPNR(day 1) 1	0.136	0.073	0.063	32
CDPNR(day 1) 2	0.157	0.111	0.046	
CDPNR(day 1) 3	0.148	0.098	0.05	
CDPNR(day 2) 1	0.14	0.088	0.052	40
CDPNR(day 2) 2	0.152	0.093	0.059	
CDPNR(day 2) 3	0.148	0.097	0.054	
CDPNR(day 3) 1	0.16	0.117	0.043	40
CDPNR(day 3) 2	0.158	0.111	0.047	
CDPNR(day 3) 3	0.165	0.126	0.039	
CDPNR(day 4) 1	0.168	0.105	0.063	48
CDPNR(day 4) 2	0.175	0.119	0.056	
CDPNR(day 4) 3	0.173	0.115	0.058	

Sample	OD 750, CuSO <sub>4</sub> (A)	OD 750, no CuSO <sub>4</sub> (B)	(A) - (B)	Protein Concentration ( $\mu$ g/ml)
CDPNR(day 5) 1	0.184	0.132	0.052	48
CDPNR(day 5) 2	0.2	0.143	0.057	
CDPNR(day 5) 3	0.162	0.109	0.053	
DPNR(day 1) 1	0.291	0.241	0.05	10.5
DPNR(day 1) 2	0.274	0.216	0.058	
DPNR(day 1) 3	0.28	0.223	0.057	
DPNR(day 2) 1	0.301	0.239	0.062	15.2
DPNR(day 2) 2	0.274	0.219	0.055	
DPNR(day 2) 3	0.256	0.184	0.072	
DPNR(day 3) 1	0.283	0.216	0.067	16.4
DPNR(day 3) 2	0.275	0.211	0.064	
DPNR(day 3) 3	0.28	0.204	0.076	
DPNR(day 4) 1	0.31	0.253	0.057	12.6
DPNR(day 4) 2	0.264	0.201	0.063	
DPNR(day 4) 3	0.247	0.187	0.06	
DPNR(day 5) 1	0.224	0.189	0.035	16.8
DPNR(day 5) 2	0.2	0.157	0.043	
DPNR(day 5) 3	0.218	0.176	0.042	
Glove (No. 1) 1	0.203	0.188	0.015	ND
Glove (No. 1) 2	0.202	0.189	0.013	
Glove (No. 1) 3	0.187	0.175	0.012	
Glove (No. 2) 1	1.03	1.003	0.027	150
Glove (No. 2) 2	1.083	0.965	0.118	
Glove (No. 2) 3	0.987	0.914	0.073	
Glove (No. 3) 1	1.152	0.975	0.177	750
Glove (No. 3) 2	1.098	0.84	0.258	
Glove (No. 3) 3	0.994	0.776	0.218	

Table A4.2 Water extractable protein of STR5L, 60% Concentrated Latex, CDPNR, DPNR and Glove

Sample	Weight (g)	Redissolved volume ( $\mu$ )	Protein Concentration ( $\mu$ g/g)
STR5L	1.038	800	640
60% Concentrated Latex	1.011	800	1120
CDPNR(1)	1.012	800	320
CDPNR(2)	1.01	800	400
CDPNR(3)	1.018	1000	400
CDPNR(4)	1.013	800	480
CDPNR(5)	1.015	1000	480
DPNR(1)	1.01	210	105
DPNR(2)	1.023	200	152
DPNR(3)	1.012	200	164
DPNR(4)	1.018	210	126
DPNR(5)	1.01	210	168
Glove (1)	1.014	1500	ND
Glove (2)	1.012	1500	1150
Glove (3)	1.01	1500	7500

## 2. Calculation

2.1 STR5L : OD 750 = 0.061, Protein evaluated from standard ovalbumin = 40  $\mu\text{g}$

Extraction ~ 1 g of STR5L / 10 ml of water then the solution was lyophilized and redissolved of 50  $\mu\text{l}$  water.

$$\text{Then water extractable protein} = 40 \times 800/50 = 640 \mu\text{g}$$

$$\begin{aligned} \text{Total water extractable protein} &= 640 \mu\text{g} \\ &= 640 \mu\text{g}/10 \mu\text{l} = 64 \mu\text{g/ml} \\ &= 640 \mu\text{g}/1 \text{ g} = 640 \mu\text{g/g} \end{aligned}$$

2.2 Other Sample : Same calculation

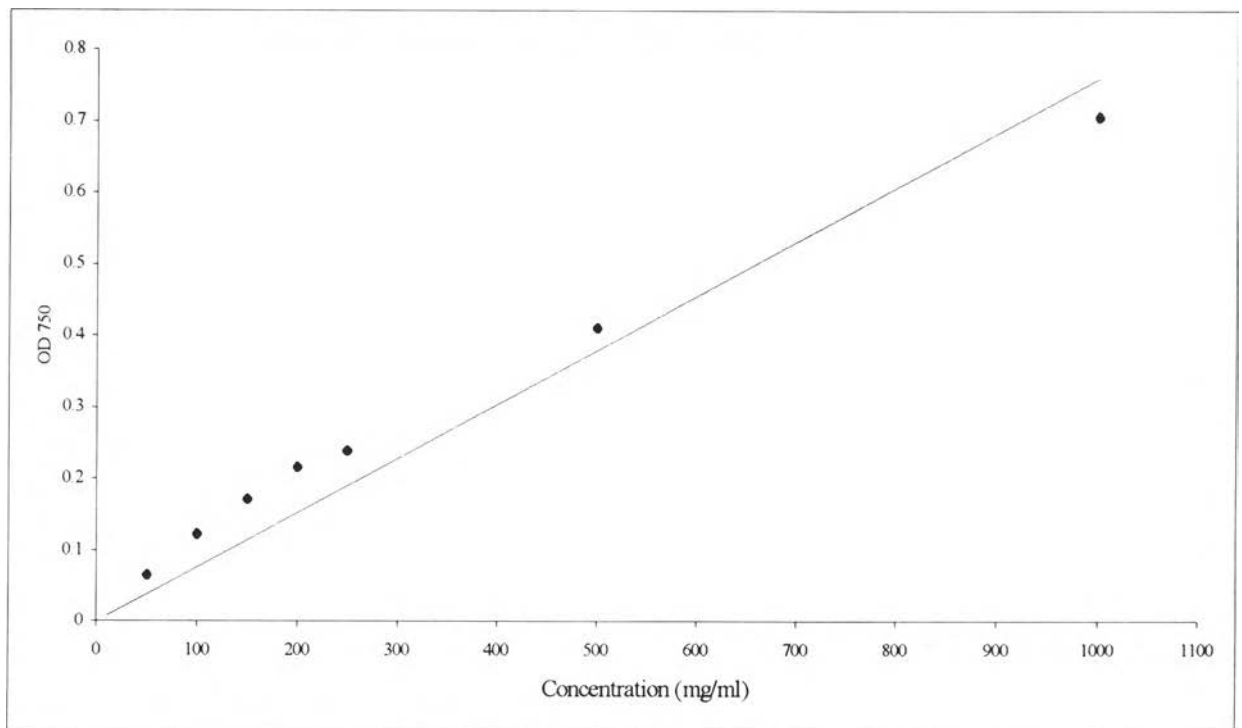


Figure A4.1 Standard Curve of ovalbumin measure by modified Lowry

## Appendix 5

## Molecular weight markers calibration curve

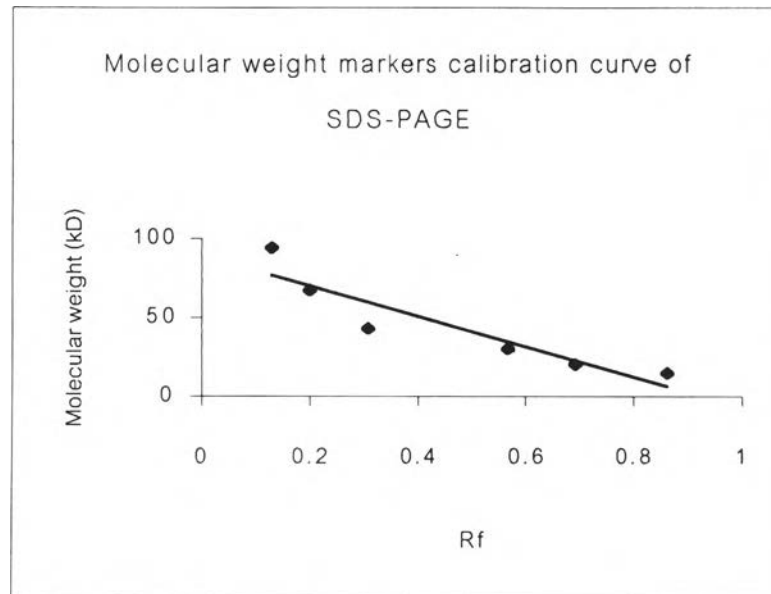


Figure 5.1 Molecular weight markers calibration curve of SDS-PAGE

### Appendix 6

Example one of the EAST from ELISA microplate reader

LABSYSTEMS GENESIS V3.04

Sunday, 15 October 2000

19:41

Qualitative Results - Ranged Report

	1	2	3	4	5	6	7	8	9	10	11	12
A	—	—	—	—	—	—	—	—	—	—	—	—
B	—	—	—	—	—	—	+	0	6	—	—	—
C	—	0	—	—	—	—	—	—	—	—	—	—
D	—	—	—	—	1	—	—	—	—	—	—	—
E	—	—	—	—	—	0	—	0	—	—	—	—
F	—	—	—	—	—	—	—	—	6	—	—	—
G	—	—	—	—	—	—	—	—	—	—	—	—
H	—	—	—	—	—	2	—	0	—	—	—	—

Lower Limit = 0.090

Upper Limit = 0.324

Key Table

Lower Limit	Cell Type	Upper Limit
0.09 <	—	
0.09 >=	0	< 0.116
0.116 >=	1	< 0.142
0.142 >=	2	< 0.168
0.168 >=	3	< 0.194
0.194 >=	4	< 0.220
0.220 >=	5	< 0.246
0.246 >=	6	< 0.272
0.272 >=	7	< 0.298
0.298 >=	8	< 0.324
0.324 >=	9	< 0.350
	+	< 0.324

c:\protocol\lab-protein2\15OCT00W.001

LABSYSTEMS GENESIS V3.04 Results Sunday, 15 October 2000 19:41

Raw data filename : c:\protocol\lab-protein2\15OCT00W.001  
 Processed by Protocol : c:\genesis\protocol\protein\east.prt  
 Plate layout file : c:\genesis\protocol\east3\cs&s.plt  
 Reading type : Single Wavelength, One Reading  
 Instrument version : MULTISKAN EX PRIMARY EIA V. 2.1 - 0  
 Filter 1 : 405 nm  
 Lag time : 00:00:15  
 Mix : Yes  
 Mix RPM : Med  
 Mix ON period : 00:00:15  
 Mix OFF period : 00:00:00

PLATE LAYOUT: (c:\genesis\protocol\east3\cs&amp;s.plt)

	1	2	3	4	5	6	7	8	9	10	11	12
A	U1	U9	U17	U25	U33	U41	U49	U57	U65	U73	U81	U89
B	U2	U10	U18	U26	U34	U42	U50	U58	U66	U74	U82	U90
C	U3	U11	U19	U27	U35	U43	U51	U59	U67	U75	U83	U91
D	U4	U12	U20	U28	U36	U44	U52	U60	U68	U76	U84	U92
E	U5	U13	U21	U29	U37	U45	U53	U61	U69	U77	U85	U93
F	U6	U14	U22	U30	U38	U46	U54	U62	U70	78	U86	U94
G	U7	U15	U23	U31	U39	U47	U55	U63	U71	U79	U87	U95
H	U8	U16	U24	U32	U40	U48	U56	U64	U72	U80	U88	U96

Raw data values (detailed) - Scan 1 :

	1	2	3	4	5	6	7	8	9	10	11	12
A	0.084	0.060	0.062	0.062	0.067	0.066	0.071	0.065	0.069	0.046	0.051	0.056
B	0.065	0.067	0.057	0.063	0.061	0.072	0.436	0.093	0.270	0.048	0.054	0.051
C	0.063	0.112	0.059	0.069	0.059	0.067	0.062	0.072	0.063	0.049	0.054	0.051
D	0.061	0.059	0.059	0.062	0.130	0.065	0.050	0.068	0.075	0.046	0.051	0.054
E	0.075	0.064	0.068	0.076	0.070	0.091	0.052	0.091	0.079	0.050	0.054	0.053
F	0.059	0.060	0.070	0.061	0.059	0.068	0.050	0.068	0.270	0.051	0.051	0.057
G	0.063	0.068	0.063	0.056	0.058	0.067	0.051	0.077	0.049	0.051	0.050	0.053
H	0.062	0.064	0.078	0.061	0.065	0.149	0.051	0.101	0.049	0.049	0.051	0.052

## UNKNOWNNS

U1	U17	U33	U49	U65	U81						
Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.
A01	0.084	B05	0.061	C09	0.063	E01	0.075	F05	0.06	G09	0
Mean	0.084	Mean	0.061	Mean	0.063	Mean	0.075	Mean	0.06	Mean	0
U2	U18	U34	U50	U66	U82						
Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.
A02	0.06	B05	0.072	C10	0.049	E02	0.064	F06	0.07	G10	0.1
Mean	0.06	Mean	0.072	Mean	0.049	Mean	0.064	Mean	0.07	Mean	0.1
U3	U19	U35	U51	U67	U83						
Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.
A03	0.062	B07	0.436	C11	0.054	E03	0.068	F07	0.05	G11	0.1
Mean	0.062	Mean	0.436	Mean	0.054	Mean	0.068	Mean	0.05	Mean	0.1
U4	U20	U36	U52	U68	U84						
Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.
A04	0.062	B03	0.093	C12	0.051	E04	0.076	F08	0.07	G12	0.1
Mean	0.062	Mean	0.093	Mean	0.051	Mean	0.076	Mean	0.07	Mean	0.1
U5	U21	U37	U53	U69	U85						
Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.
A05	0.067	B09	0.27	D01	0.061	E05	0.07	F09	0.27	H01	0.1
Mean	0.067	Mean	0.27	Mean	0.061	Mean	0.07	Mean	0.27	Mean	0.1
U6	U22	U38	U54	U70	U86						
Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.
A06	0.066	B10	0.048	D02	0.059	E06	0.091	F10	0.05	H02	0.1
Mean	0.066	Mean	0.048	Mean	0.059	Mean	0.091	Mean	0.05	Mean	0.1
U7	U23	U39	U55	U71	U87						
Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.
A07	0.071	B11	0.054	D03	0.059	E07	0.052	F11	0.05	H03	0.1
Mean	0.071	Mean	0.054	Mean	0.059	Mean	0.052	Mean	0.05	Mean	0.1
U8	U24	U40	U56	U72	U88						
Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.	Well	Absorb.
A08	0.065	B12	0.051	D04	0.062	E08	0.091	F12	0.06	H04	0.1
Mean	0.065	Mean	0.051	Mean	0.062	Mean	0.091	Mean	0.06	Mean	0.1



U9	U25	U41	U57	U73	U89
Well	Well	Well	Well	Well	Well
Absorb.	Absorb.	Absorb.	Absorb.	Absorb.	Absorb.
A09	C01	D05	E09	G01	H05
0.069	0.063	0.13	0.079	0.06	0.1
Mean	Mean	Mean	Mean	Mean	Mean
0.069	0.063	0.13	0.079	0.06	0.1
U10	U26	U42	U58	U74	U90
Well	Well	Well	Well	Well	Well
Absorb.	Absorb.	Absorb.	Absorb.	Absorb.	Absorb.
A10	C02	D06	E10	G02	H06
0.046	0.112	0.065	0.05	0.07	0.1
Mean	Mean	Mean	Mean	Mean	Mean
0.046	0.112	0.065	0.05	0.07	0.1
U11	U27	U43	U59	U75	U91
Well	Well	Well	Well	Well	Well
Absorb.	Absorb.	Absorb.	Absorb.	Absorb.	Absorb.
A11	C03	D07	E11	G03	H07
0.051	0.059	0.05	0.054	0.06	0.1
Mean	Mean	Mean	Mean	Mean	Mean
0.051	0.059	0.05	0.054	0.06	0.1
U12	U28	U44	U60	U76	U92
Well	Well	Well	Well	Well	Well
Absorb.	Absorb.	Absorb.	Absorb.	Absorb.	Absorb.
A12	C04	D08	E12	G04	H08
0.056	0.069	0.068	0.053	0.06	0.1
Mean	Mean	Mean	Mean	Mean	Mean
0.056	0.069	0.068	0.053	0.06	0.1
U13	U29	U45	U61	U77	U93
Well	Well	Well	Well	Well	Well
Absorb.	Absorb.	Absorb.	Absorb.	Absorb.	Absorb.
B01	C05	D09	F01	G05	H09
0.065	0.059	0.075	0.059	0.06	0
Mean	Mean	Mean	Mean	Mean	Mean
0.065	0.059	0.075	0.059	0.06	0
U14	U30	U46	U62	U78	U94
Well	Well	Well	Well	Well	Well
Absorb.	Absorb.	Absorb.	Absorb.	Absorb.	Absorb.
B02	C06	D10	F02	G06	H10
0.067	0.067	0.046	0.06	0.07	0
Mean	Mean	Mean	Mean	Mean	Mean
0.067	0.067	0.046	0.06	0.07	0
U15	U31	U47	U63	U79	U95
Well	Well	Well	Well	Well	Well
Absorb.	Absorb.	Absorb.	Absorb.	Absorb.	Absorb.
B03	C07	D11	F03	G07	H11
0.057	0.062	0.051	0.07	0.05	0.1
Mean	Mean	Mean	Mean	Mean	Mean
0.057	0.062	0.051	0.07	0.05	0.1
U16	U32	U48	U64	U80	U96
Well	Well	Well	Well	Well	Well
Absorb.	Absorb.	Absorb.	Absorb.	Absorb.	Absorb.
B04	C03	D12	F04	G08	H12
0.063	0.072	0.054	0.061	0.08	0.1
Mean	Mean	Mean	Mean	Mean	Mean
0.063	0.072	0.054	0.061	0.08	0.1

## Appendix 7

## Statistic of EAST test with standard latex allergen

## T-Test

## Group Statistics

	GR1	N	Mean	Standard Deviation
NEWA405	1 positive	41	0.20722	6.0360E-02
	2 negative	259	4.104E-02	2.1274E-02

## Independent Samples Test

		Levene's Test for Equality of Variances	
		F	Sig.
NEWA405	Equal variances assumed	148.623	0.000
	Equal variances not assumed		

\* The mean difference is significant at the 0.05 level.

## Independent Samples Test

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
NEWA405	Equal variances assumed	33.312	298	0.000
	Equal variances not assumed	17.458	41.586	0.000

\* The mean difference is significant at the 0.05 level.

## Appendix 8

## Statistic of positive EAST test with standard latex allergen, CDPNR and DPNR

Descriptive

A405

	N	Mean	Standard Deviation
1 Concentrated latex 60%	41	0.20722	6.0360E-02
2 CDPNR	41	0.16983	4.3765E-02
3 DPNR	41	3.168E-02	1.7681E-02
Total	123	0.13624	8.7586E-02

Test of Homogeneity of Variances

A405

Levene Statistic	df1	df2	Sig.
20.952	2	120	0.000

\* The mean difference is significant at the 0.05 level.

ANOVA

A405

	Sum of Squares	df	F	Sig.
Between Groups	0.701	2	179.102	0.000
Within Groups	0.235	120		
Total	0.936	122		

\* The mean difference is significant at the 0.05 level.

Multiple Comparisons

Dependent Variable: A405

	(I) GR	(J) GR	Sig.
Tukey HSD	1 Concentrated latex 60%	2 CDPNR	0.001
		3 DPNR	0.000
	2 CDPNR	1 Concentrated latex 60%	0.001
		3 DPNR	0.000
	3 DPNR	1 Concentrated latex 60%	0.000
		2 CDPNR	0.000

\* The mean difference is significant at the 0.05 level.

## Appendix 9

## Statistic of prevalence of latex allergy

## Atopic patient

SEX \* RESULT

			RESULT	
			1 Positive	2 Negative
SEX	1 Male	Count	2	32
		% within SEX	5.9%	94.1%
		% within RESULT	25.0%	34.8%
	2 Female	Count	6	60
		% within SEX	9.1%	90.9%
		% within RESULT	75.0%	65.2%
Total	Count	8	92	
	% within SEX	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	0.314 <sup>b</sup>	1	0.713
Continuity Correction <sup>a</sup>	0.029	1	
Likelihood Ratio	0.329	1	
Fisher's Exact Test			
Linear-by-Linear Association	0.311	1	
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 1 cells (25%) have expected count less than 5. The minimum expected count is 2.72.

## Prior allergic diseases \* RESULT

			RESULT	
			1 Positive	2 Negative
Prior allergic diseases	1 Yes	Count	5	64
		% within Prior allergic diseases	7.2%	92.8%
		% within RESULT	62.5%	69.6%
	2 No	Count	3	28
		% within Prior allergic diseases	9.7%	90.3%
		% within RESULT	37.5%	30.4%
Total	Count	8	92	
	% within Prior allergic diseases	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	0.172 <sup>b</sup>	1	0.700
Continuity Correction <sup>a</sup>	0.000	1	
Likelihood Ratio	0.167	1	
Fisher's Exact Test			
Linear-by-Linear Association	0.170	1	
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 1 cells (25%) have expected count less than 5. The minimum expected count is 2.48.

## Family history of atopy \* RESULT

			RESULT	
			1 Positive	2 Negative
Family history of atopy	1 Present	Count	6	63
		% within Family history of atopy	8.7%	91.3%
		% within RESULT	75.0%	68.5%
	2 Absent	Count	0	7
		% within Family history of atopy		100.0%
		% within RESULT		7.6%
	3 Unknown	Count	2	22
		% within Family history of atopy	8.3%	91.7%
		% within RESULT	25.0%	23.9%
Total	Count	8	92	
	% within Family history of atopy	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp Sig. (2-sided)
Pearson Chi-Square	0.658 <sup>a</sup>	2	0.720
Likelihood Ratio	1.215	2	0.545
Linear-by-Linear Association	0.030	1	0.863
N of Valid Cases	100		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 0.56.

## Contact with latex \* RESULT

			RESULT	
			1 Positive	2 Negative
Contact with latex	1 < 25 hr/wk	Count	3	23
		% within Contact with latex	11.5%	88.5%
		% within RESULT	37.5%	25.0%
	2 >= 25 hr/wk	Count	2	35
		% within Contact with latex	5.4%	94.6%
		% within RESULT	25.0%	38.0%
	3 Unknown	Count	3	34
		% within Contact with latex	8.1%	91.9%
		% within RESULT	37.5%	37.0%
Total	Count	8	92	
	% within Contact with latex	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp Sig. (2-sided)
Pearson Chi-Square	0.781 <sup>a</sup>	2	0.677
Likelihood Ratio	0.773	2	0.680
Linear-by-Linear Association	0.169	1	0.681
N of Valid Cases	100		

a. 3 cells (50.0%) have expected count less than 5. The minimum expected count is 2.08.

## Number gloves/day \* RESULT

			RESULT	
			1 Positive	2 Negative
Number gloves/day	1 < 10 pairs	Count	0	13
		% within Number gloves/day		100.0%
		% within RESULT		14.1%
	2 >= 10 pairs	Count	6	60
		% within Number gloves/day	9.1%	90.9%
		% within RESULT	75.0%	65.2%
3 Unknown	Count	2	19	
	% within Number gloves/day	9.5%	90.5%	
	% within RESULT	25.0%	20.7%	
Total	Count	8	92	
	% within Number gloves/day	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp Sig. (2-sided)
Pearson Chi-Square	1.303 <sup>a</sup>	2	0.521
Likelihood Ratio	2.333	2	0.311
Linear-by-Linear Association	0.746	1	0.388
N of Valid Cases	100		

a. 2 cells (33.3%) have expected count less than 5. The minimum expected count is 1.04.

## Skin reaction \* RESULT

			RESULT	
			1 Positive	2 Negative
Skin reaction	1 Yes	Count	5	33
		% within Skin reaction	13.2%	86.8%
		% within RESULT	62.5%	35.9%
	2 No	Count	3	59
		% within Skin reaction	4.8%	95.2%
		% within RESULT	37.5%	64.1%
Total	Count	8	92	
	% within Skin reaction	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	2.215 <sup>b</sup>	1	0.253
Continuity Correction <sup>a</sup>	1.229	1	
Likelihood Ratio	2.138	1	
Fisher's Exact Test			
Linear-by-Linear Association	2.193	1	
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 2 cells (50.0%) have expected count less than 5. The minimum expected count is 3.04.

## Urticaria/Angioedema \* RESULT

			RESULT	
			1 Positive	2 Negative
Urticaria/Angioedema	1 Yes	Count	4	25
		% within Urticaria/Angioedema	13.8%	86.2%
		% within RESULT	50.0%	27.2%
	2 No	Count	4	67
		% within Urticaria/Angioedema	5.6%	94.4%
		% within RESULT	50.0%	72.8%
Total	Count	8	92	
	% within Urticaria/Angioedema	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	1.862 <sup>b</sup>	1	0.225
Continuity Correction <sup>a</sup>	0.919	1	
Likelihood Ratio	1.703	1	
Fisher's Exact Test			
Linear-by-Linear Association	1.844	1	
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.32.



Asthma \* RESULT

			RESULT	
			1 Positive	2 Negative
Asthma	1 Yes	Count	1	18
		% within Asthma	5.3%	94.7%
		% within RESULT	12.5%	19.6%
	2 No	Count	7	74
		% within Asthma	8.6	91.4%
		% within RESULT	87.5%	80.4%
Total	Count	8	92	
	% within Asthma	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	0.239 <sup>b</sup>	1	1.000
Continuity Correction <sup>a</sup>	0.000	1	
Likelihood Ratio	0.262	1	
Fisher's Exact Test			
Linear-by-Linear Association	0.236	1	
N of Valid Cases	100		

- a. Computed only for a 2x2 table
- b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.52.

Conjunctivitis \* RESULT

			RESULT	
			1 Positive	2 Negative
Conjunctivitis	1 Yes	Count	1	14
		% within Conjunctivitis	6.7%	93.3%
		% within RESULT	12.5%	15.2%
	2 No	Count	7	78
		% within Conjunctivitis	8.2%	91.8%
		% within RESULT	87.5%	84.8%
Total	Count	8	92	
	% within Conjunctivitis	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	0.043 <sup>b</sup>	1	1.000
Continuity Correction <sup>a</sup>	0.000	1	
Likelihood Ratio	0.045	1	
Fisher's Exact Test			
Linear-by-Linear Association	0.042	1	
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.20.

## Allergic rhinitis \* RESULT

			RESULT	
			1 Positive	2 Negative
Allergic rhinitis	1 Yes	Count	4	32
		% within Allergic rhinitis	11.1%	88.9%
		% within RESULT	50.0%	34.8%
	2 No	Count	4	60
		% within Allergic rhinitis	6.3%	93.8%
		% within RESULT	50.0%	65.2%
Total	Count	8	92	
	% within Allergic rhinitis	8.0%	92.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	0.740 <sup>b</sup>	1	0.454
Continuity Correction <sup>a</sup>	0.227	1	
Likelihood Ratio	0.713	1	
Fisher's Exact Test			
Linear-by-Linear Association	0.732	1	
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.88.

## None \* RESULT

			RESULT	
			1 Positive	2 Negative
None	1 Yes	Count	3	28
		% within None	9.7%	90.3%
		% within RESULT	37.5%	30.4%
	2 No	Count	5	64
		% within None	7.2%	92.8%
		% within RESULT	62.5%	69.6%
Total	Count		8	92
	% within None		8.0%	92.0%
	% within RESULT		100.0%	100.0%

## Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	0.172 <sup>b</sup>	1	0.700
Continuity Correction <sup>a</sup>	0.000	1	
Likelihood Ratio	0.167	1	
Fisher's Exact Test			
Linear-by-Linear Association	0.170	1	
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.48.

## T-Test

## Group Statistics

	Result	N	Mean	Standard Deviation
Age	1 Positive	8	29.88	3.87
	2 Negative	92	31.26	6.36
Working duration	1 Positive	8	92.75	48.34
	2 Negative	92	106.57	81.15

## Independent Samples Test

		Levene's Test for Equality of Variances	
		F	Sig.
Age	Equal variances assumed	2.030	0.157
	Equal variances not assumed		
Working duration	Equal variances assumed	2.606	0.110
	Equal variances not assumed		

## Independent Samples Test

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
Age	Equal variances assumed	- 0.605	98	0.546
	Equal variances not assumed	- 0.911	10.624	0.382
Working duration	Equal variances assumed	- 0.473	98	0.637
	Equal variances not assumed	- 0.724	10.801	0.484

## Atopic healthcare worker

SEX \* RESULT

			RESULT	
			1 Positive	2 Negative
SEX	1 Male	Count	3	7
		% within SEX	30.0%	70.0%
		% within RESULT	10.0%	10.0%
	2 Female	Count	27	63
		% within SEX	30.0%	70.0%
		% within RESULT	90.0%	90.0%
Total	Count	30	70	
	% within SEX	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	0.000 <sup>b</sup>	1	1.000
Continuity Correction <sup>a</sup>	0.000	1	
Likelihood Ratio	0.000	1	
Fisher's Exact Test			
Linear-by-Linear Association	0.000	1	
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 1 cells (25%) have expected count less than 5. The minimum expected count is 3.00.

Prior allergic diseases \* RESULT

			RESULT	
			1 Positive	2 Negative
Prior allergic diseases	1 Yes	Count	24	47
		% within Prior allergic diseases	33.8%	66.2%
		% within RESULT	80.0%	67.1%
	2 No	Count	6	23
		% within Prior allergic diseases	20.7%	79.3%
		% within RESULT	20.0%	32.9%
Total	Count	30	70	
	% within Prior allergic diseases	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.686 <sup>b</sup>	1	0.194
Continuity Correction <sup>a</sup>	1.119	1	0.290
Likelihood Ratio	1.763	1	0.184
Fisher's Exact Test			
Linear-by-Linear	1.669	1	0.196
Association			
N of Valid Cases	100		



- a. Computed only for a 2x2 table
- b. 0 cells (0%) have expected count less than 5. The minimum expected count is 8.70.

## Family history of atopy \* RESULT

			RESULT	
			1 Positive	2 Negative
Family history of atopy	1 Present	Count	15	34
		% within Family history of atopy	30.6%	69.4%
		% within RESULT	50.0%	48.6%
	2 Absent	Count	6	12
		% within Family history of atopy	33.3%	66.7%
		% within RESULT	20.0%	17.1%
	3 Unknown	Count	9	24
		% within Family history of atopy	27.3%	72.7%
		% within RESULT	30.0%	34.3%
Total	Count	30	70	
	% within Family history of atopy	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp Sig. (2-sided)
Pearson Chi-Square	0.221 <sup>a</sup>	2	0.895
Likelihood Ratio	0.221	2	0.895
Linear-by-Linear	0.085	1	0.770
Association			
N of Valid Cases	100		

- a. 0 cells (0%) have expected count less than 5. The minimum expected count is 5.40.

## Contact with latex \* RESULT

			RESULT	
			1 Positive	2 Negative
Contact with latex	1 < 25 hr/wk	Count	17	19
		% within Contact with latex	47.2%	52.8%
		% within RESULT	56.7%	27.1%
	2 >= 25 hr/wk	Count	7	34
		% within Contact with latex	17.1%	82.9%
		% within RESULT	23.3%	48.6%
	3 Unknown	Count	6	17
		% within Contact with latex	26.1%	73.9%
		% within RESULT	20.0%	24.3%
Total	Count	30	70	
	% within Contact with latex	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp Sig. (2-sided)
Pearson Chi-Square	8.515 <sup>a</sup>	2	0.014
Likelihood Ratio	8.497	2	0.014
Linear-by-Linear Association	4.147	1	0.042
N of Valid Cases	100		

a. 0 cells (0%) have expected count less than 5. The minimum expected count is 6.90.

## Number gloves/day \* RESULT

			RESULT	
			1 Positive	2 Negative
Number gloves/day	1 < 10 pairs	Count	15	11
		% within Number gloves/day	57.7%	42.3%
		% within RESULT	50.0%	15.7%
	2 >= 10 pairs	Count	7	41
		% within Number gloves/day	14.6%	85.4%
		% within RESULT	23.3%	58.6%
	3 Unknown	Count	8	18
		% within Number gloves/day	30.8%	69.2%
		% within RESULT	26.7%	25.7%
Total	Count	30	70	
	% within Number gloves/day	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.934 <sup>a</sup>	2	0.001
Likelihood Ratio	14.771	2	0.001
Linear-by-Linear Association	4.442	1	0.035
N of Valid Cases	100		

a. 0 cells (0%) have expected count less than 5. The minimum expected count is 7.80.

## Skin reaction \* RESULT

			RESULT	
			1 Positive	2 Negative
Skin reaction	1 Yes	Count	21	29
		% within Skin reaction	42.0%	58.0%
		% within RESULT	70.0%	41.4%
	2 No	Count	9	41
		% within Skin reaction	18.0%	82.0%
		% within RESULT	30.0%	58.6%
Total	Count	30	70	
	% within Skin reaction	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.857 <sup>b</sup>	1	0.009
Continuity Correction <sup>a</sup>	5.762	1	0.016
Likelihood Ratio	7.004	1	0.008
Fisher's Exact Test			
Linear-by-Linear Association	6.789	1	0.009
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 0 cells (0%) have expected count less than 5. The minimum expected count is 15.0.



## Urticaria/Angioedema \* RESULT

			RESULT	
			1 Positive	2 Negative
Urticaria/Angioedema	1 Yes	Count	22	30
		% within Urticaria/Angioedema	42.3%	57.7%
		% within RESULT	73.3%	42.9%
	2 No	Count	8	40
		% within Urticaria/Angioedema	16.7%	83.3%
		% within RESULT	26.7%	57.1%
Total	Count	30	70	
	% within Urticaria/Angioedema	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.814 <sup>b</sup>	1	0.005
Continuity Correction <sup>a</sup>	6.641	1	0.010
Likelihood Ratio	8.067	1	0.005
Fisher's Exact Test			
Linear-by-Linear Association	7.736	1	0.005
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 0 cells (0%) have expected count less than 5. The minimum expected count is 14.40.

## Asthma \* RESULT

			RESULT	
			1 Positive	2 Negative
Asthma	1 Yes	Count	11	15
		% within Asthma	42.3%	57.7%
		% within RESULT	36.7%	21.4%
	2 No	Count	19	55
		% within Asthma	25.7%	74.3%
		% within RESULT	63.3%	78.6%
Total	Count	30	70	
	% within Asthma	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2.534 <sup>b</sup>	1	0.111
Continuity Correction <sup>a</sup>	1.804	1	0.179
Likelihood Ratio	2.441	1	0.118
Fisher's Exact Test			
Linear-by-Linear Association	2.509	1	0.113
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 0 cells (0%) have expected count less than 5. The minimum expected count is 7.80.

## Conjunctivitis \* RESULT

			RESULT	
			1 Positive	2 Negative
Conjunctivitis	1 Yes	Count	3	9
		% within Conjunctivitis	25.0%	75.0%
		% within RESULT	10.0%	12.9%
	2 No	Count	27	61
		% within Conjunctivitis	30.7%	69.3%
		% within RESULT	90.0%	87.1%
Total	Count	30	70	
	% within Conjunctivitis	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Exact Sig. (2-sided)
Pearson Chi-Square	0.162 <sup>d</sup>	1	
Continuity Correction <sup>a</sup>	0.005	1	
Likelihood Ratio	0.167	1	
Fisher's Exact Test			1.000
Linear-by-Linear Association	0.161	1	
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 1 cells (25.0%) have expected count less than 5. The minimum expected count is 3.60.

## Allergic rhinitis \* RESULT

			RESULT	
			1 Positive	2 Negative
Allergic rhinitis	1 Yes	Count	18	32
		% within Allergic rhinitis	36.0%	64.0%
		% within RESULT	60.0%	45.7%
	2 No	Count	12	38
		% within Allergic rhinitis	24.0%	76.0%
		% within RESULT	40.0%	54.3%
Total	Count	30	70	
	% within Allergic rhinitis	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

## Chi-square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1.714 <sup>b</sup>	1	0.190
Continuity Correction <sup>a</sup>	1.190	1	0.275
Likelihood Ratio	1.723	1	0.189
Fisher's Exact Test			
Linear-by-Linear Association	1.697	1	0.193
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 0 cells (0%) have expected count less than 5. The minimum expected count is 15.0.

## None \* RESULT

			RESULT	
			1 Positive	2 Negative
None	1 Yes	Count	4	23
		% within None	14.8%	85.2%
		% within RESULT	13.3%	32.9%
	2 No	Count	26	47
		% within None	35.6%	64.4%
		% within RESULT	86.7%	67.1%
Total	Count	30	70	
	% within None	30.0%	70.0%	
	% within RESULT	100.0%	100.0%	

### Chi-square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	4.061 <sup>b</sup>	1	0.044
Continuity Correction <sup>a</sup>	3.131	1	0.077
Likelihood Ratio	4.449	1	0.035
Fisher's Exact Test			
Linear-by-Linear Association	4.021	1	0.045
N of Valid Cases	100		

a. Computed only for a 2x2 table

b. 0 cells (0%) have expected count less than 5. The minimum expected count is 8.10.

### T-Test

#### Group Statistics

	Result	N	Mean	Standard Deviation
Age	3 Positive	30	32.90	5.16
	4 Negative	70	29.91	4.72
Working duration	1 Positive	30	127.73	57.92
	2 Negative	70	82.14	53.11

#### Independent Samples Test

		Levene's Test for Equality of Variances	
		F	Sig.
Age	Equal variances assumed	0.877	0.351
	Equal variances not assumed		
Working duration	Equal variances assumed	0.474	0.493
	Equal variances not assumed		

#### Independent Samples Test

		t-test for Equality of Means		
		t	df	Sig. (2-tailed)
Age	Equal variances assumed	2.819	98	0.006
	Equal variances not assumed	2.719	50.743	0.009
Working duration	Equal variances assumed	3.819	98	0.000
	Equal variances not assumed	3.689	51.166	0.001

\* The mean difference is significant at the 0.05 level.

## BIOGRAPHY

Punsunan Chainrungsang was born on February 11,1976. She conferred her Bachelor degree of Science in Biochemistry from Chulalongkorn University in 1997. She continued her study in the Master Program of Biotechnology at Chulalongkorn University.