Quantitative analysis of certain periodontal pathogens in EGAT 2/2 population

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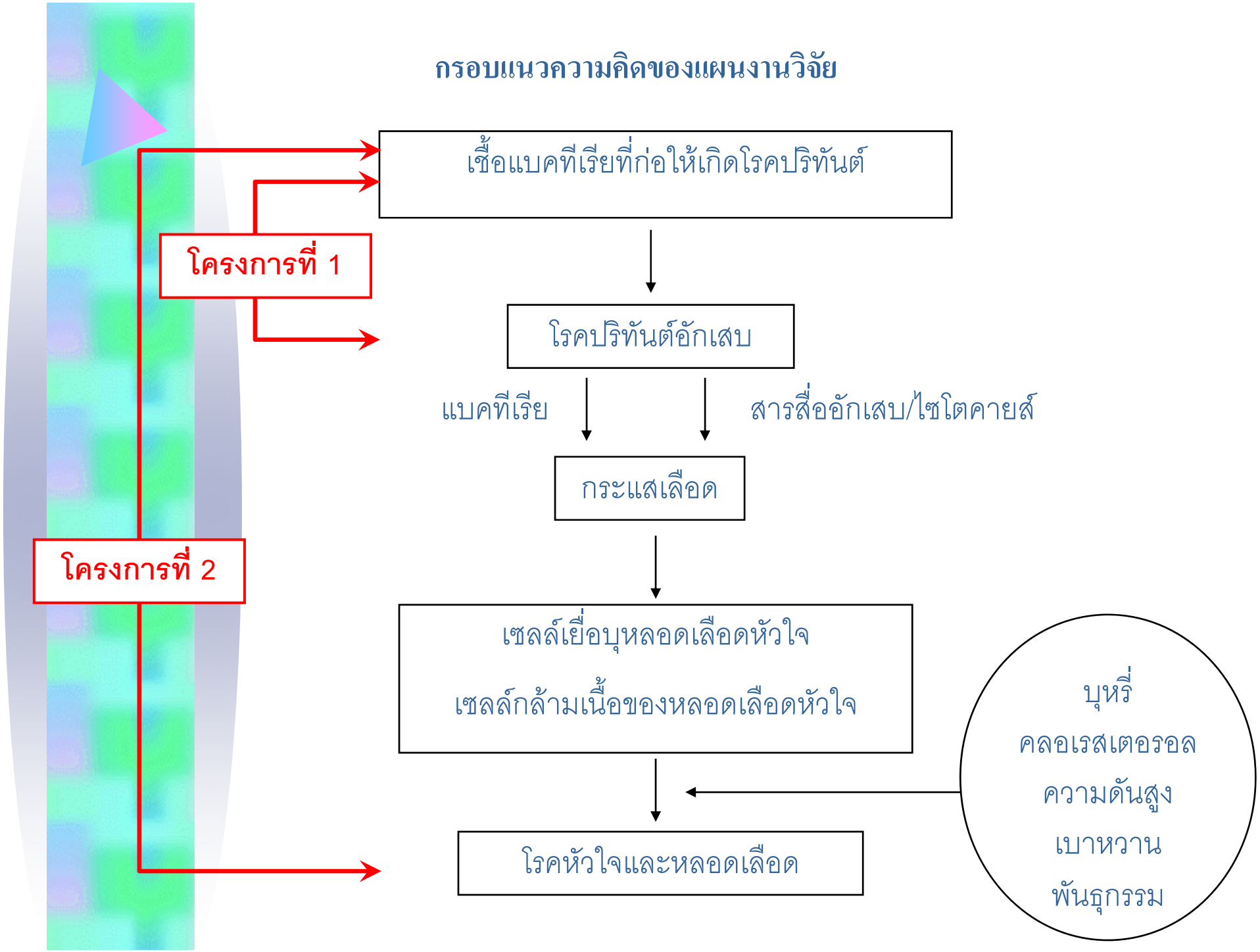

กรอบแนวความคิดของแผนงานวิจัย
เชื้อแบคทีเรียที่ก่อให้เกิดโรคปริทันต์
โครงการที่ 1
โรคปริทันต์อักเสบ
แบคทีเรีย
สารสื่ออักเสบ/ไซโตคายส์
กระแสเลือด
โครงการที่ 2
เซลล์เยื่อบุหลอดเลือดหัวใจ
เซลล์กล้ามเนื้อของหลอดเลือดหัวใจ
บุหรี่
คลอเรสเตอรอล
ความดันสูง
เบาหวาน
พันธุกรรม
โรคหัวใจและหลอดเลือด

Dental plaque

Bacteria > 400 species

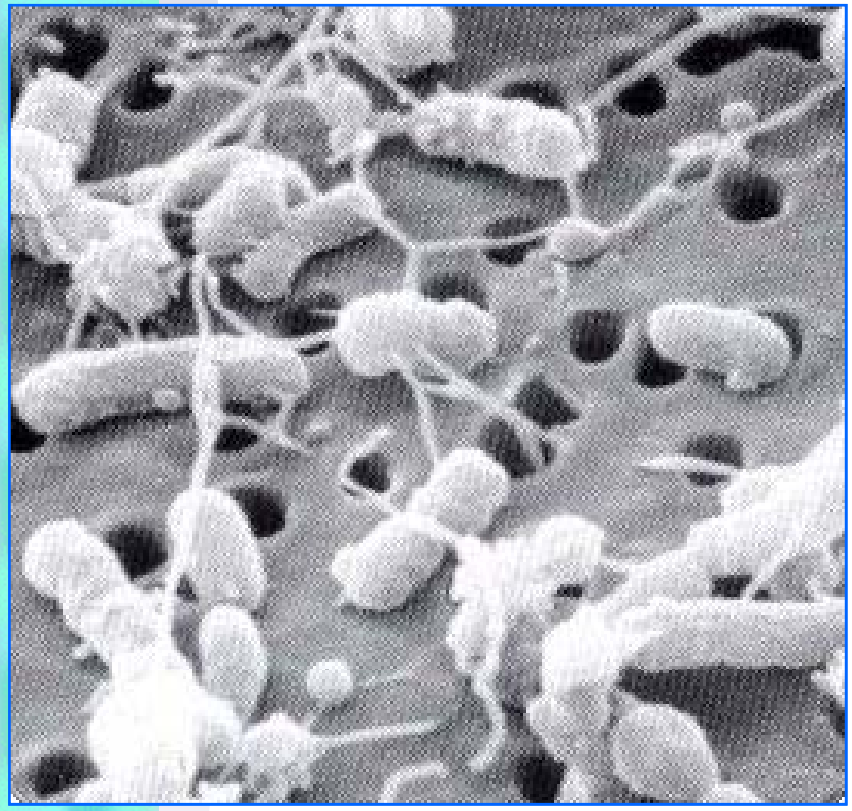
Only certain bacteria are associated with periodontitis

A. actinomycetemcomitans

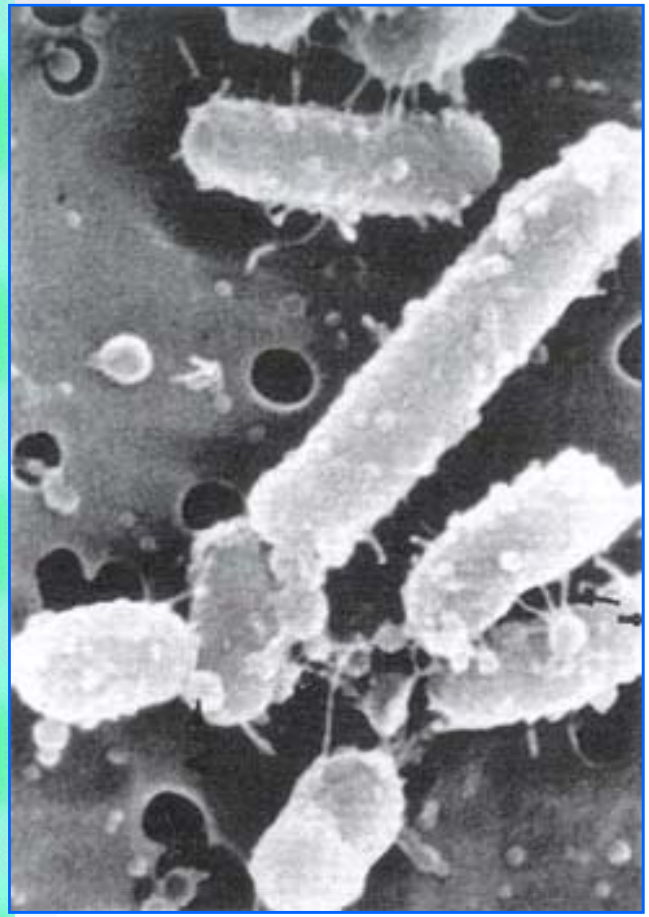
P. gingivalis

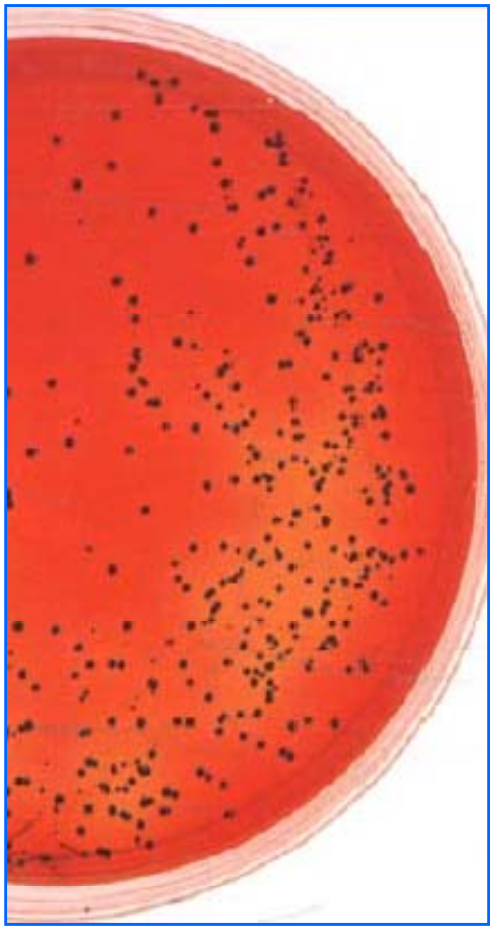
T. forsythia

A. actinomycetemcomitans

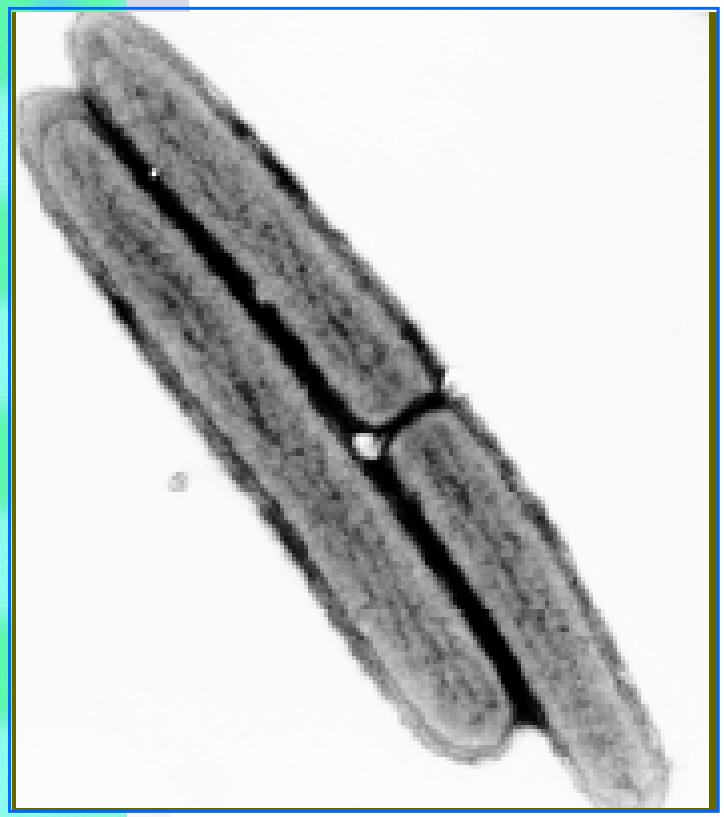


P. gingivalis

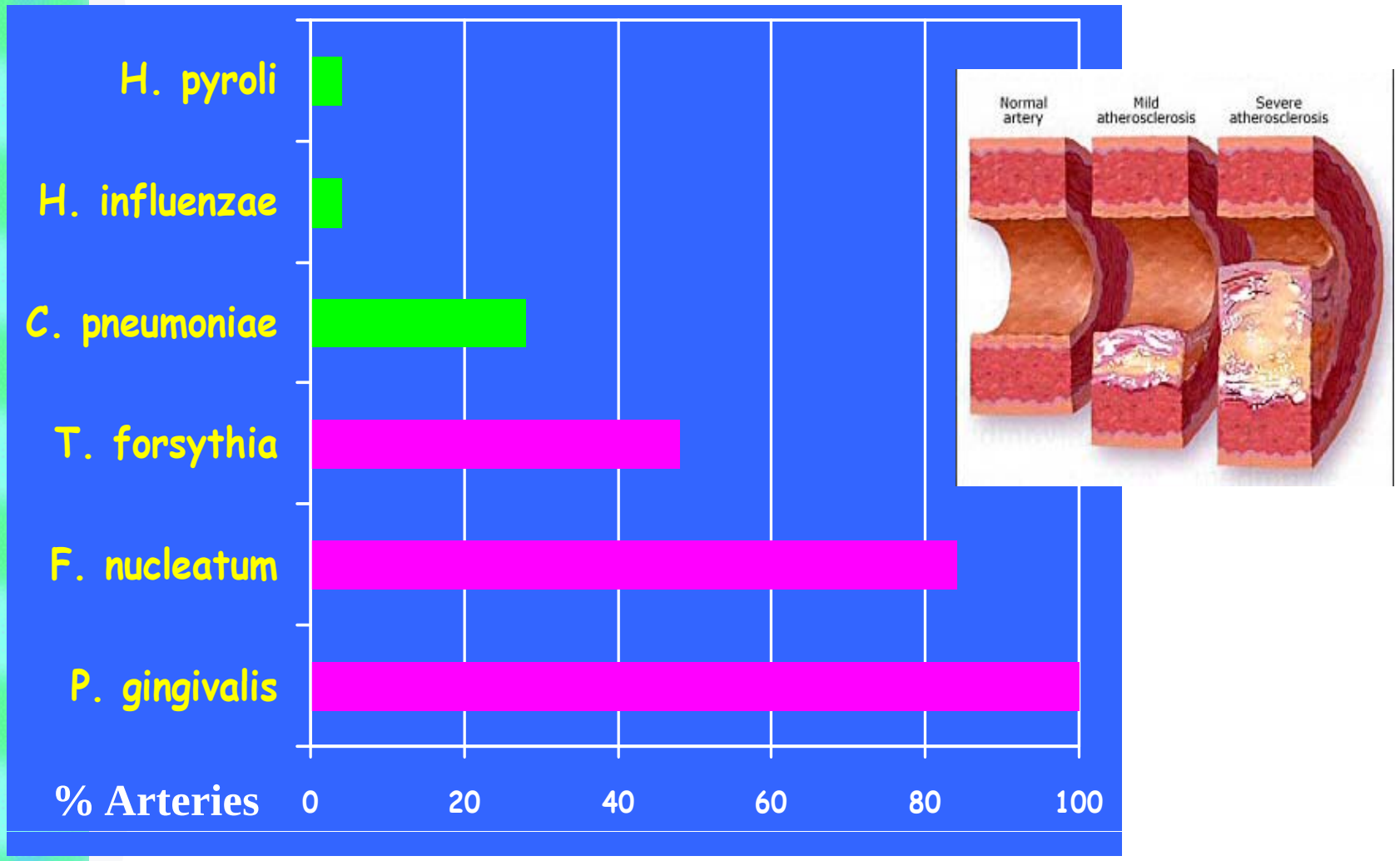




T. forsythia



Periodontal pathogens infect arterial wall in pts undergoing carotid endartectomies



Ford PJ, et al. Oral Microbiol Immunol 2005;20:296

Epidemiological study

Variable	Median Log Value		Adjusted†	
	Cases	Controls	OR (95% CI)	*P* Value
Total periodontal pathogen burden	79×10^3	38×10^3	1.92 (1.34-2.74)	<.001
Actinobacillus actinomycetemcomitans	30×10^3	8×10^3	2.70 (1.79-4.07)	<.001
Porphyromonas gingivalis	5×10^3	8×10^3	1.36 (0.94-1.95)	.10
Tannerella forsythensis	1×10^3	5×10^3	0.95 (0.65-1.39)	.79
Prevotella intermedia	10×10^3	10×10^3	1.43 (1.00-2.03)	.049
Treponema denticola	1×10^3	5×10^3	0.94 (0.66-1.34)	.74

Adjusted for age, sex, body mass index (calculated as weight in kilograms divided by the square of height in meters), smoking, alcohol consumption, diabetes mellitus, hypertension, hyperlipoproteinemia, level of education, physical activity, and statin intake.

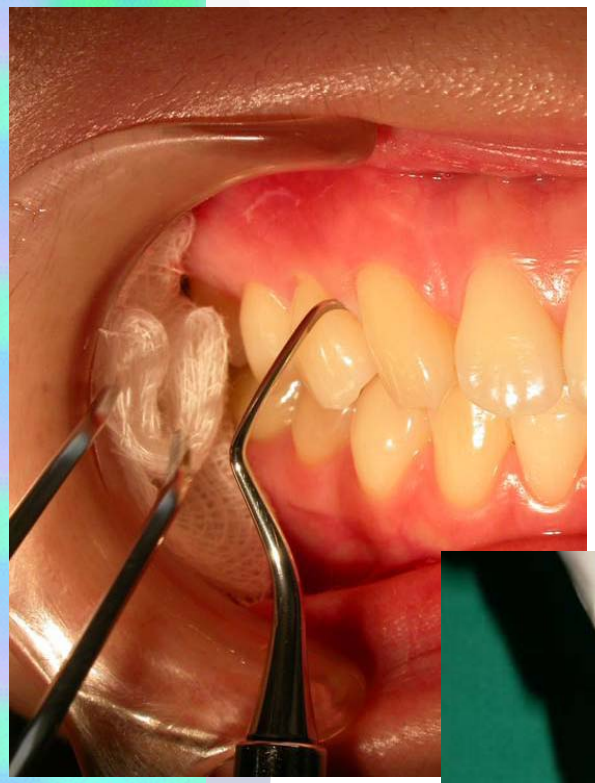
An increase in log10 of Aa was associated with CHD

Spahr A, et al. Arch Intern Med 2006;166:554

Research Question

- Do these bacteria exist in dental plaque in EGAT population?
- Are they associated with periodontitis in EGAT population?

Study population



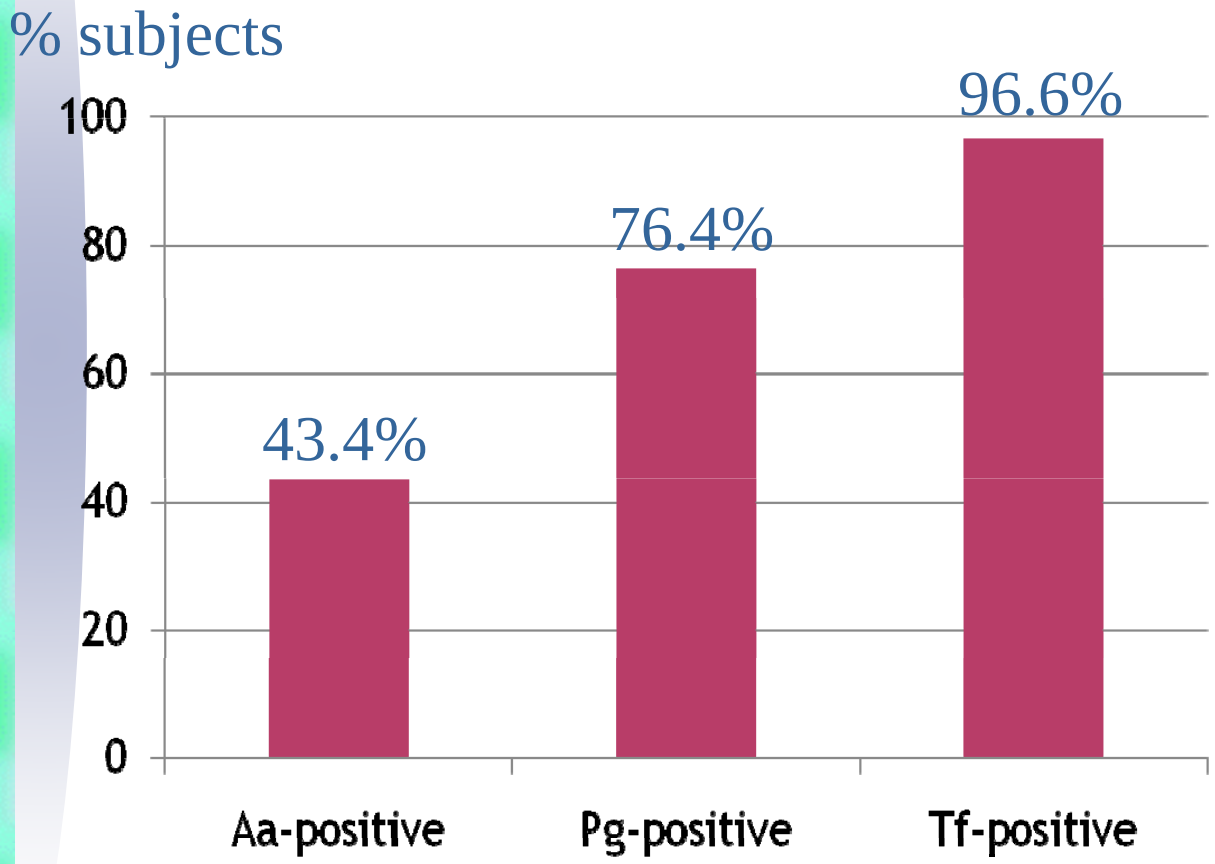
EGAT

Bacterial identification

Realtime-PCR

Funded by "Vor-chor"

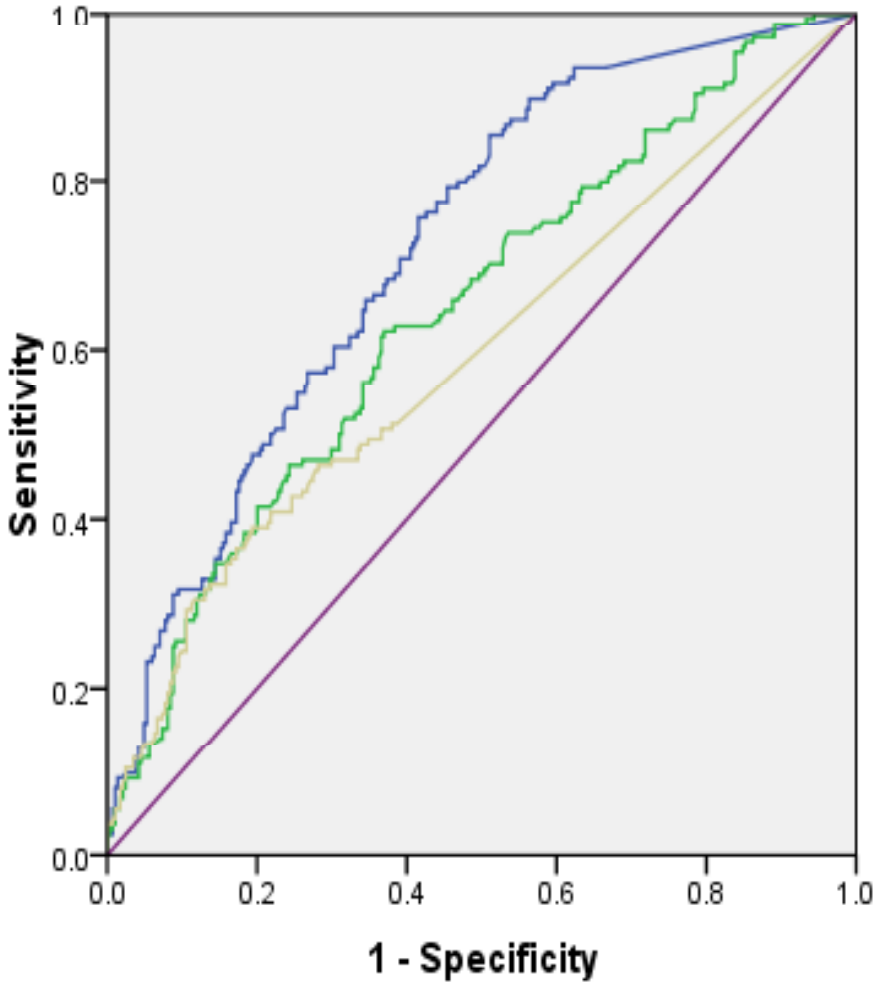
ผลการศึกษาปีที่ 1



Bacterial quantity

Periodontal bacteria	Quantity (DNA copies)				
	min	max	mean	interquartile range	median
A. actinomyce	0	1.5×10^6	2.2×10^4	0-120	0
P. gingivalis	0	4.8×10^7	3.0×10^6	$10^3 – 3.2 \times 10^6$	7.1×10^5
T. forsythia	0	5.2×10^6	3.9×10^5	$5.8 \times 10^4 – 4.7 \times 10^5$	2.1×10^5

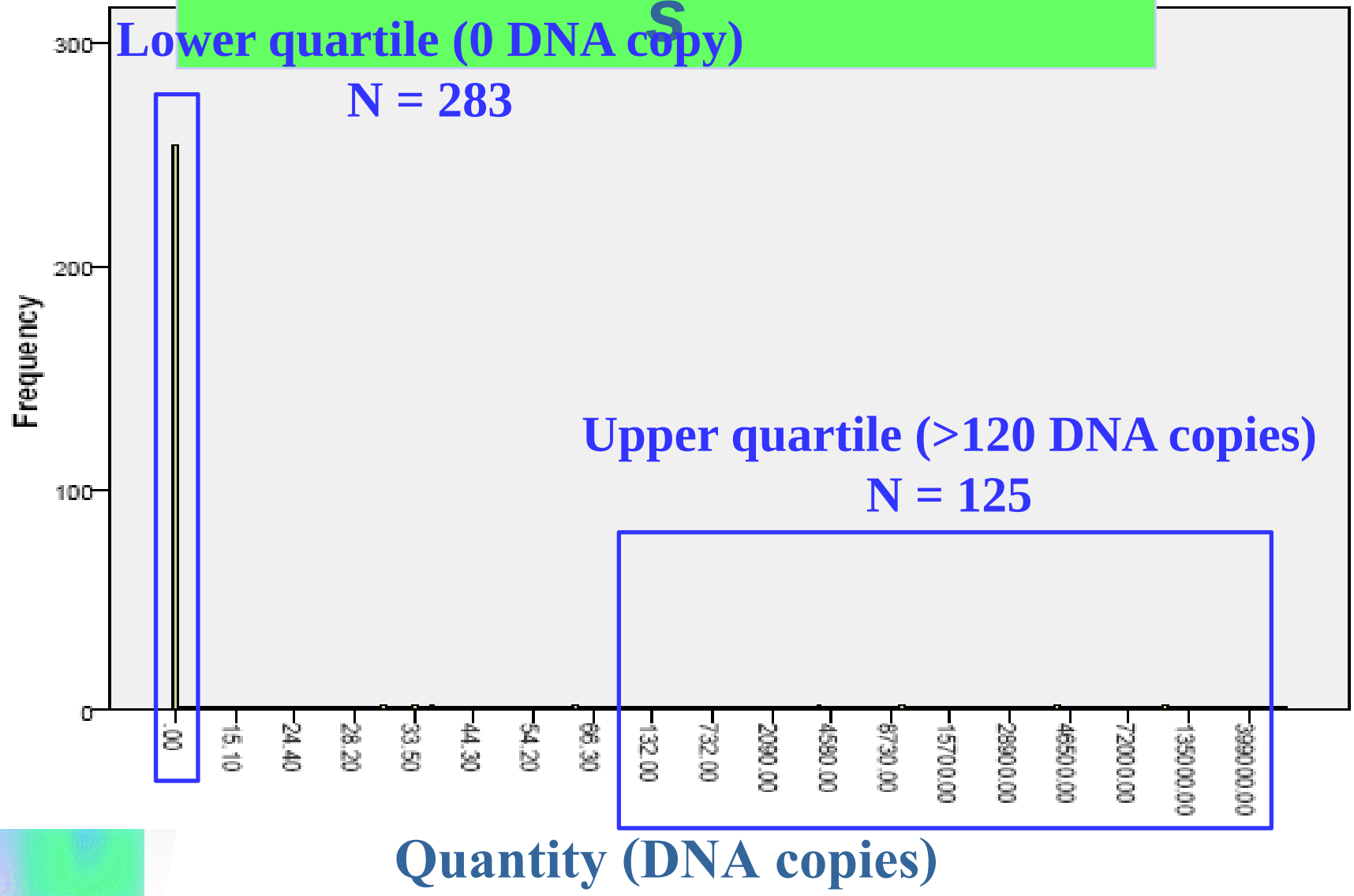
ROC curve analysis



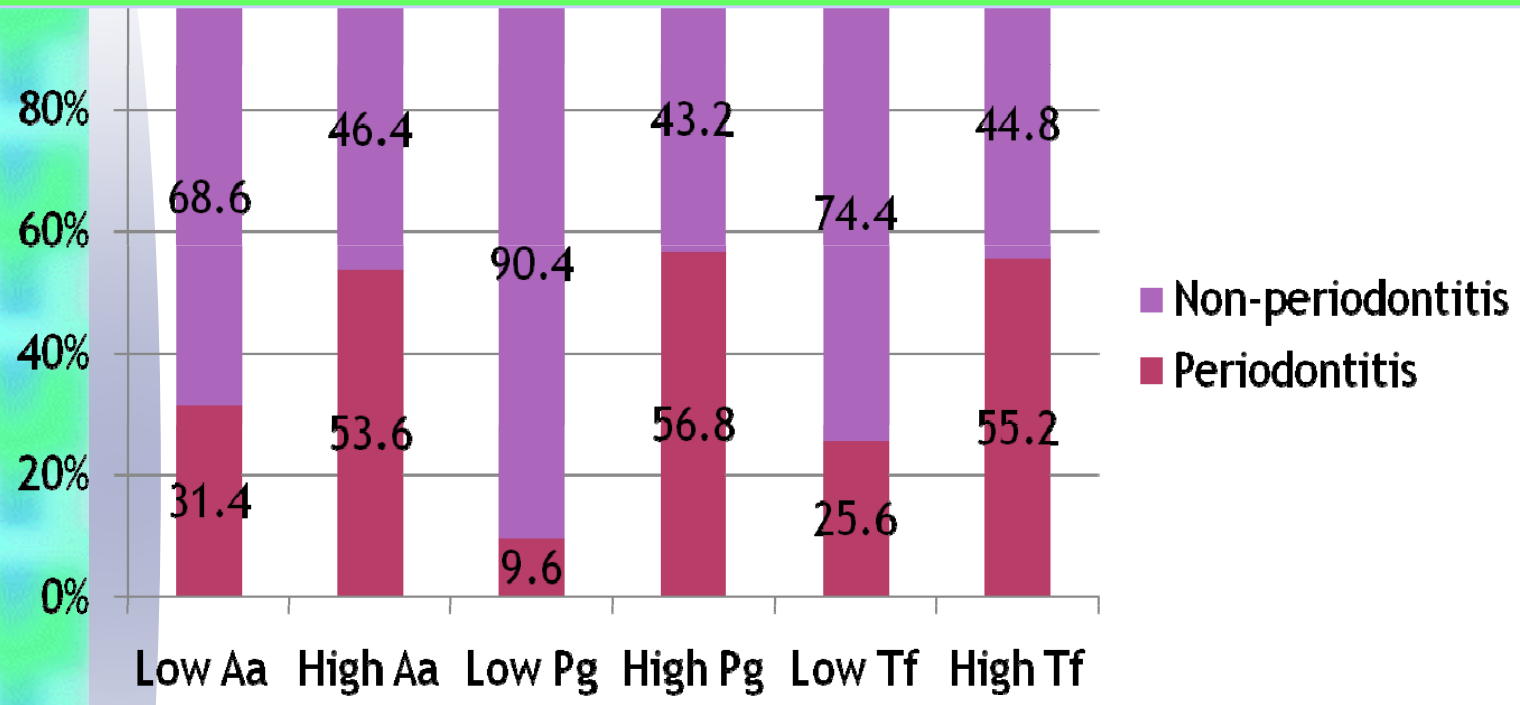
Area Under the Curve

Test Result Variable(s)	Area	Std. Error[a]	Asymptotic Sig.[b]
PG_CONC	.722	.024	.000
TF_CONC	.645	.027	.000
AA_CONC	.595	.029	.001

A. actinomycetemcomitans



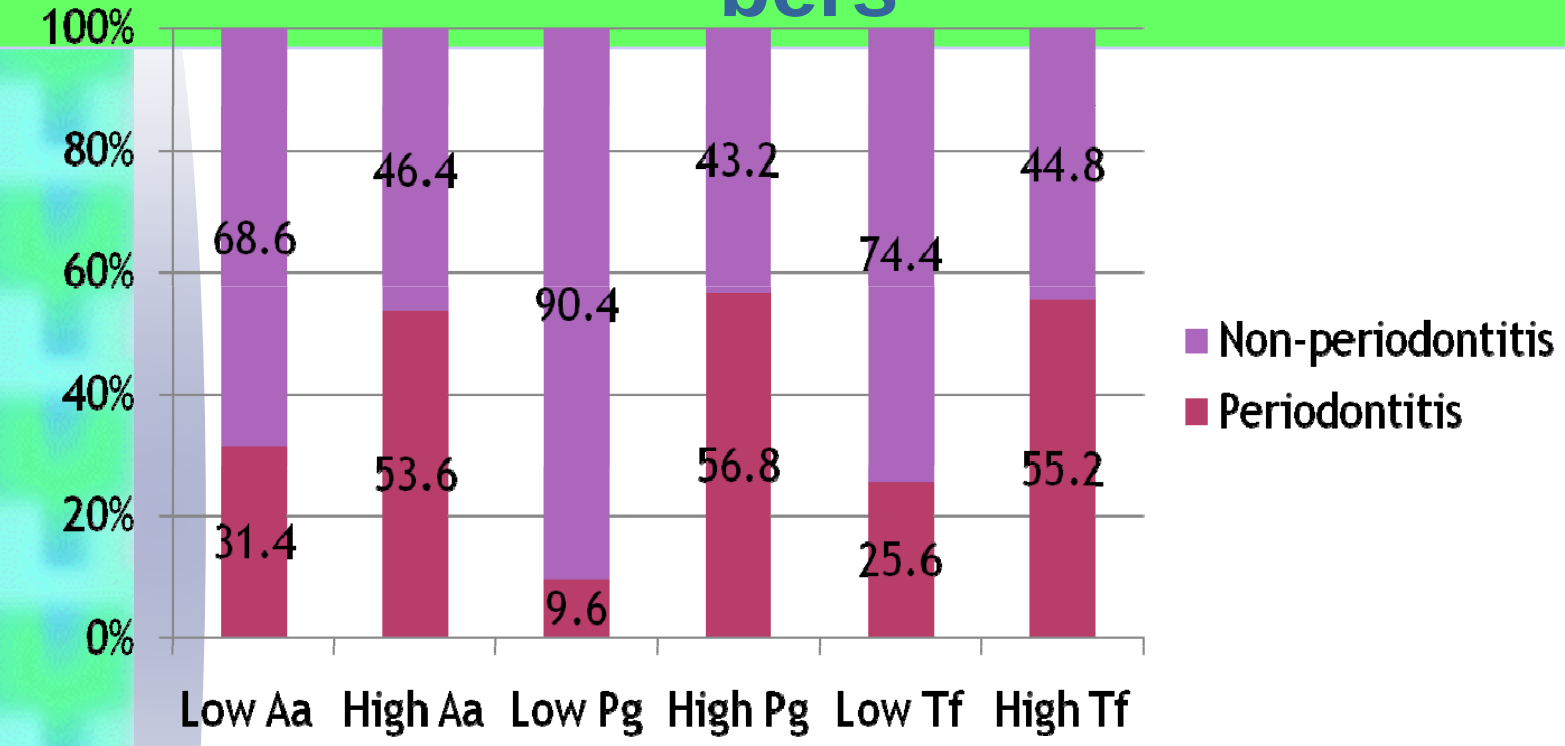
Subjects with low vs high bacterial numbers



1. Subjects with high bacterial numbers had higher prevalence of periodontitis than subjects with low bacterial numbers

2. The largest differences was observed for Pg

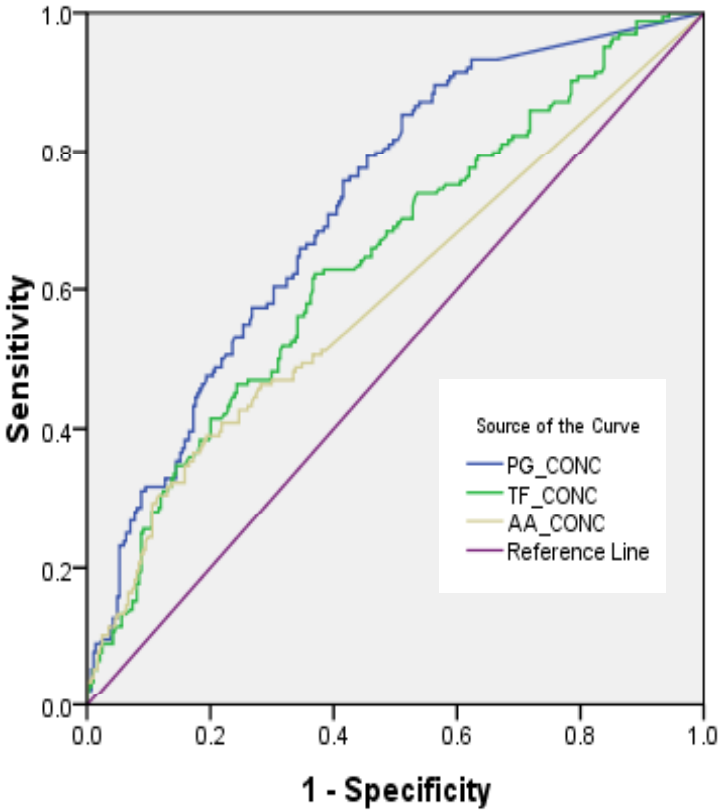
Subjects with low vs high bacterial numbers

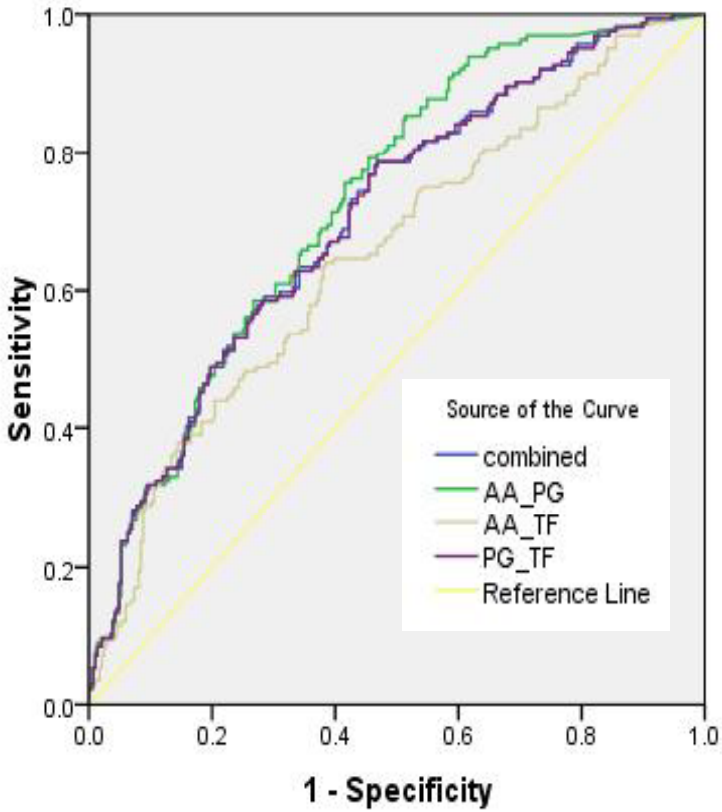


3. Low bacterial numbers were a good predictor for non-periodontitis, especially for Pg.

4. High bacterial numbers were a fair predictor for periodontitis

ROC curve analysis



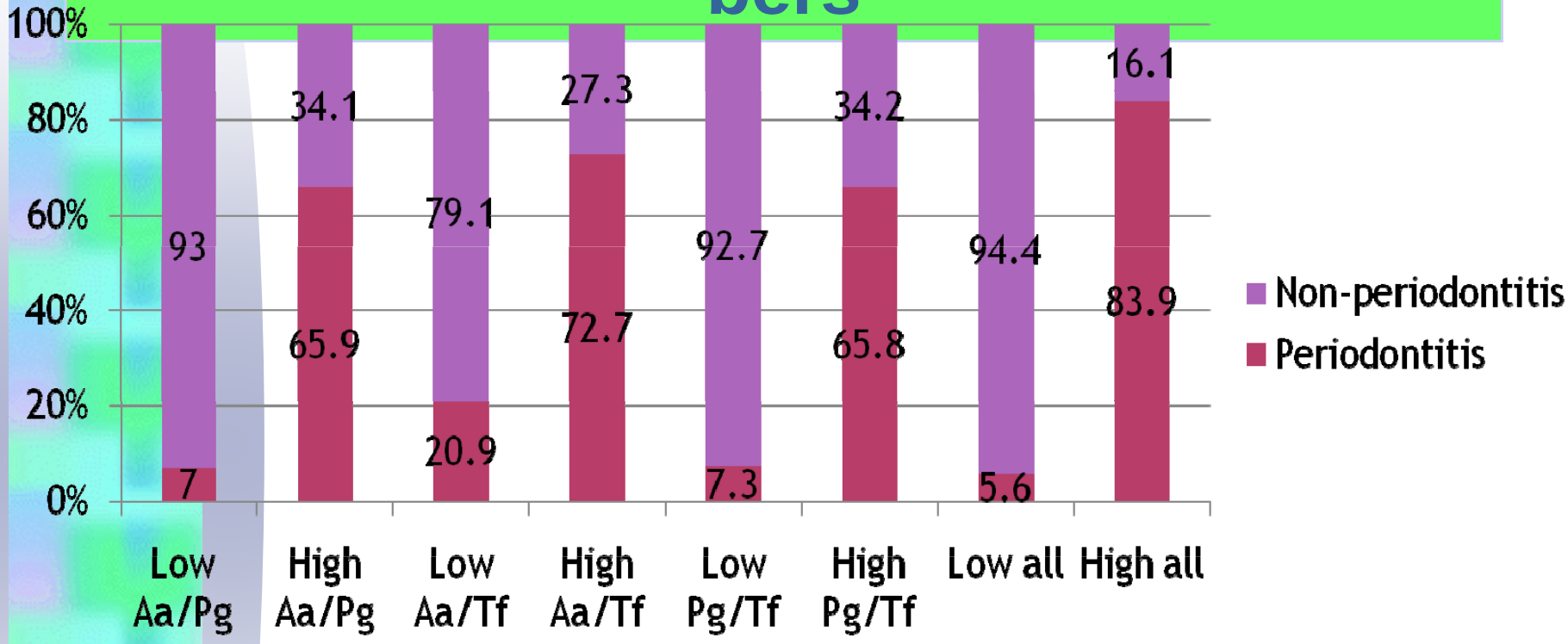


Area Under the Curve

Test Result Variable(s)	Area	Std. Error[a]	Asymptotic Sig.[b]
PG_CONC	.722	.024	.000
TF_CONC	.645	.027	.000
AA_CONC	.595	.029	.001

Test Result Variable(s)	Area	Std. Error[a]	Asymptotic Sig.[b]
combined	.705	.025	.000
AA_PG	.728	.024	.000
AA_TF	.652	.027	.000
PG_TF	.704	.025	.000

Subjects with low vs high bacterial num bers



1. **Two bacterial species combined were a better predictor for periodontitis**
2. **All 3 species combined were the best predictor for periodontitis**

Logistic regression analysis

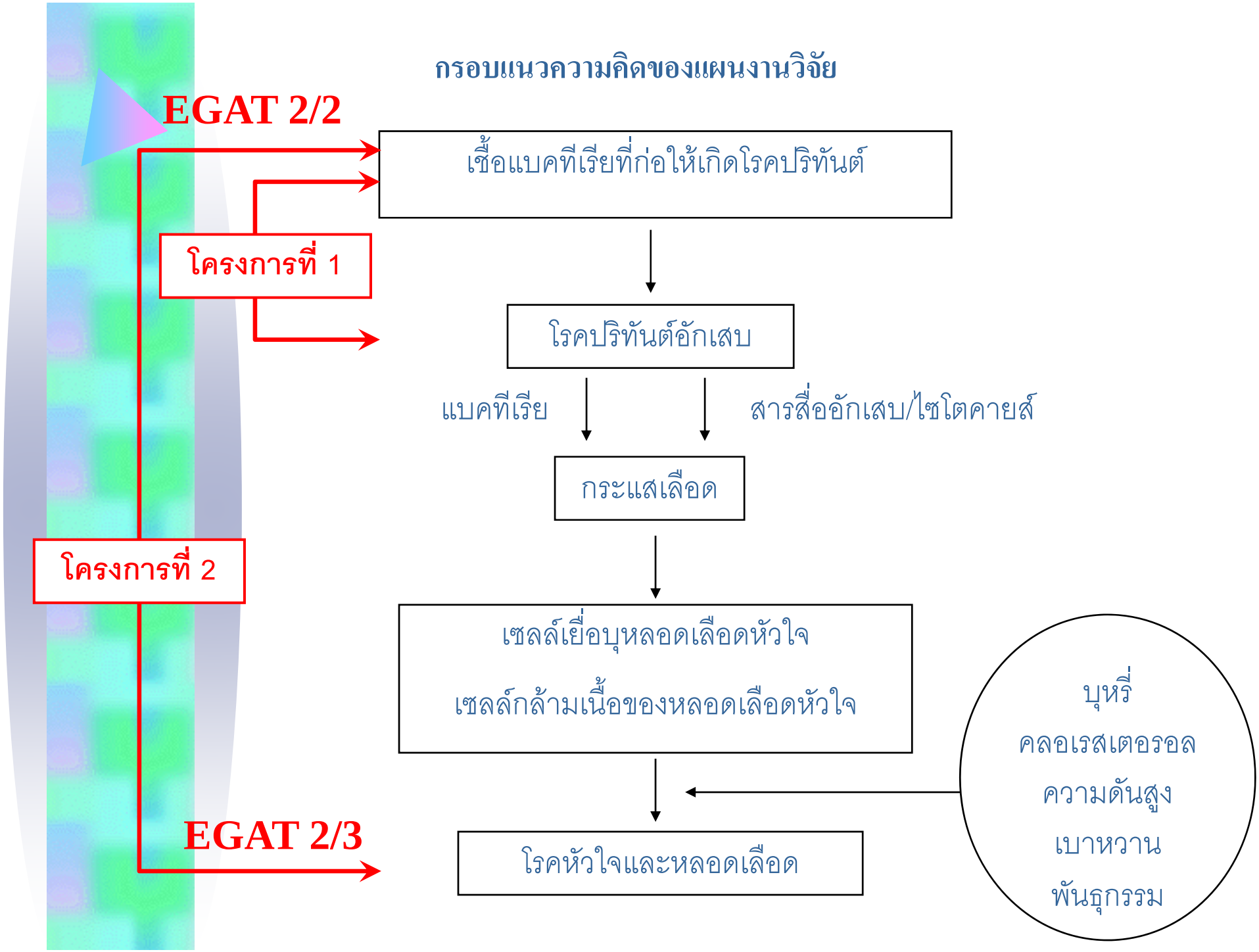
Periodontal pathogens	P value	Adjusted Odds Ratio	95% CI
A. actinomycetemcomitans *	0.001	2.237	1.374 – 3.643
*P. gingivalis***	<0.001	6.738	2.982 – 15.226
*T. forsythia****	0.263	1.518	0.730 – 3.156

*Adjusted for age, gender, smoking status, and the quantity of *P. gingivalis* and *T. forsythia*
**Adjusted for age, gender, smoking status, and the quantity of *A. actinomycetemcomitans* and *T. forsythic*
***Adjusted for age, gender, smoking status, and the quantity of *A. actinomycetemcomitans* and *P. gingiva*

Logistic regression analysis

Periodontal pathogens	P value	Adjusted Odds Ratio	95% CI
*Aa + Pg**	<0.001	14.835	4.091 – 53.791
*Aa + Tf***	0.122	2.790	0.761 – 10.222
*Pg + Tf****	<0.001	19.074	5.694 – 63.893
All combined*****	<0.001	74.0	11.8-462.9

*Adjusted for age, gender, smoking status, and the quantity of *T. forsythia*
**Adjusted for age, gender, smoking status, and the quantity of *P. gingivalis*
***Adjusted for age, gender, smoking status, and the quantity of *A. actinomycetemcomitans*
**** Adjusted for age, gender, smoking status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เบาหวาน
พันธุกรรม
EGAT 2/3
โรคหัวใจและหลอดเลือด

Acknowledgements

- Immunology laboratory and staffs
- Faculty of Medicine, Ramathibodi Hospital, Mahidol University.
- EGAT staffs
- Faculty of Dentistry, Chula University