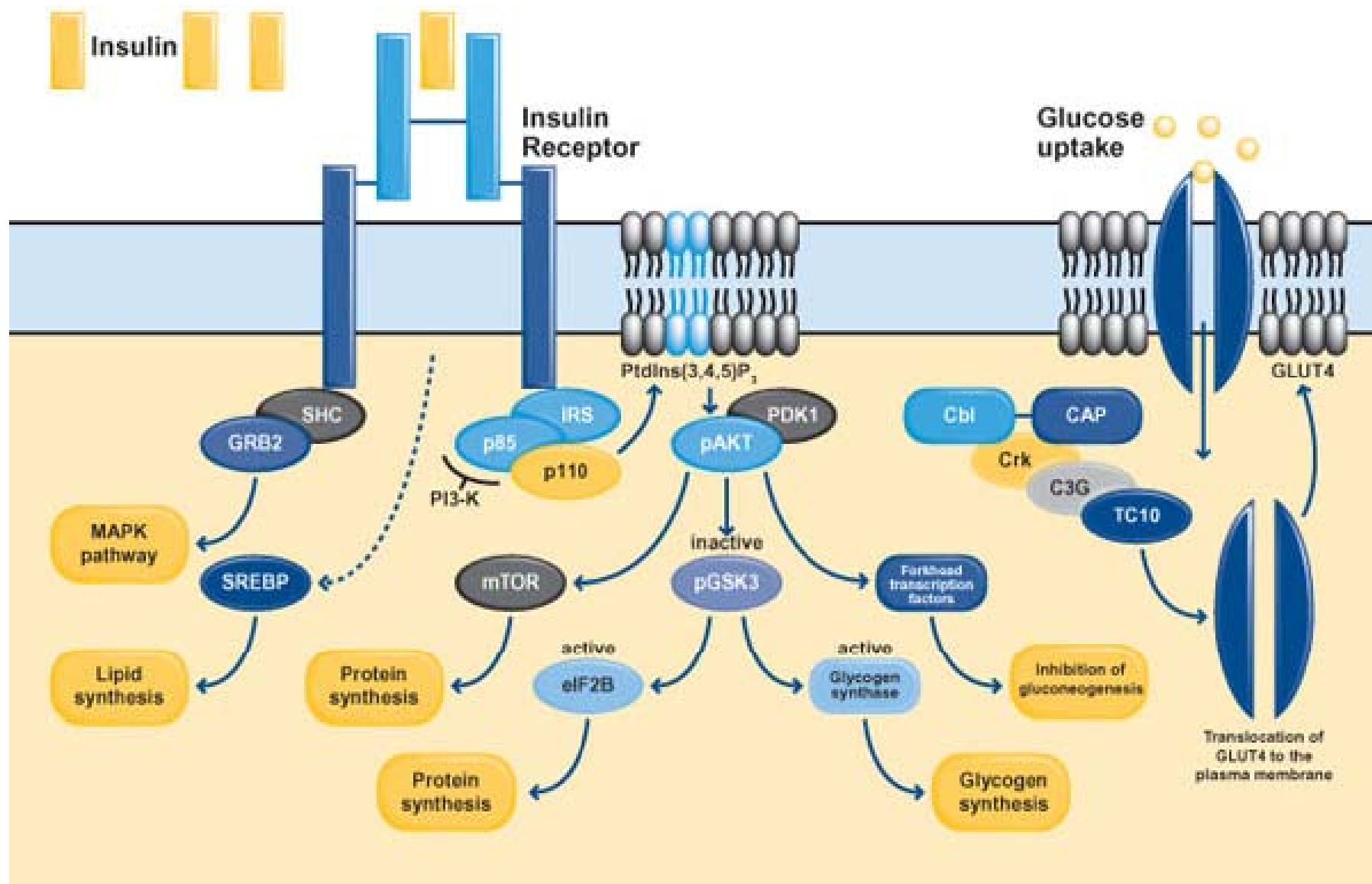


Omentin-1 and prediction of 10-year incidence of diabetes in Thai: EGAT study, 1998-2008



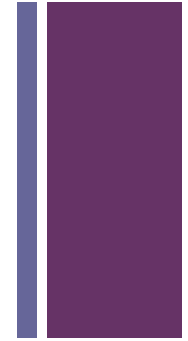
Introduction

- Obesity has reached pandemic proportions and is associated with many cardiometabolic disturbances including insulin resistance, hypertension, dyslipidemia and CVD.
- Omentin is a novel adipokine preferentially produced by visceral adipose tissue with insulin-sensitizing effects, where the circulating levels are decreased in insulin-resistant state
- Recombinant omentin in vitro enhanced insulin-stimulated glucose uptake in both subcutaneous and omental human adipocytes.
- Omentin increased Akt phosphorylation in absence and presence of insulin





Objective



- To investigate whether baseline omentin-1 concentrations were associated with 10-year incidence of diabetes in Thais



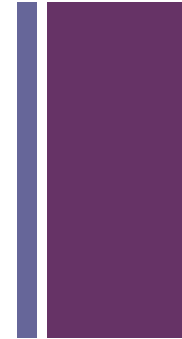
Study design



- Nested case-cohort study was conducted in a population-based cohort: the EGAT study. The first survey of EGAT2 was done in 1998 and newly diagnosed diabetes subjects were evaluated at 2008 and then 1:1 aged-, sex-match control was randomly selected.
- Demographic, anthropometric data were collected.
- Omentin-1 concentrations were determined using commercially available ELISA assay (BioVendor, Czech Republic). The intra-assay coefficient of omentin-1 was 3.7%; the inter-assay coefficient was 4.6 %
- The protocol was approved by the Institutional Review Boards at the Faculty of Medicine, Ramathibodi Hospital, Mahidol University. Written informed consent was obtained from all subjects.



Statistic analysis



- Data were presented as mean \pm SD or percent
- The general linear model was applied to examine the different of interested outcomes between group.
- The logistic regression analysis was employed to determined the hazard ratio for developing diabetes by tertile of serum omentin-1.
- Smoking, drinking, education, income, family history of diabetes, and BMI were included in the multivariate adjusted model.
- All reported probability tests were 2- sided and statistically significant was considered at $P < 0.05$.

	No diabetes (n=168)	New diabetes (n=168)	p
Age, y	42.9 \pm 4.6	42.9 \pm 4.6	
Male, n (%)	132 (78.6)	132 (78.6)	
Current smoker, n (%)	38 (22.6)	55 (32.9)	0.111
Current drinker, n (%)	72 (42.9)	88 (52.7)	0.132
Education status, n (%)			0.04
มัธยมหรือต่ำกว่า	47 (28.1)	58 (35.2)	
อนุปริญญา	62 (37.1)	65 (39.4)	
ปริญญาตรี	49 (29.3)	41 (24.8)	
ปริญญาโท	9 (5.4)	1 (0.6)	
Income, n (%)			0.012
<10,000 baht	0	2 (1.2)	
10,000-19,999 baht	26 (15.5)	39 (23.2)	
20,000-49,999 baht	91 (54.2)	97 (57.7)	
50,000-99,999 baht	46 (27.4)	29 (17.3)	
\geq 100,000 baht	5 (3)	0	

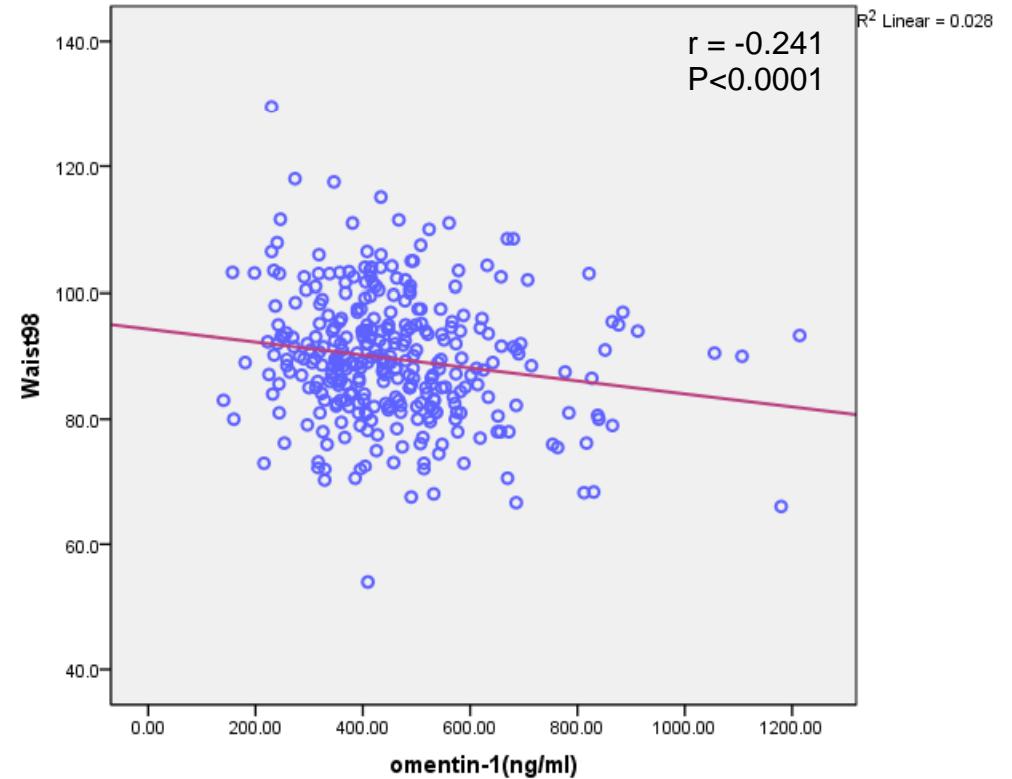
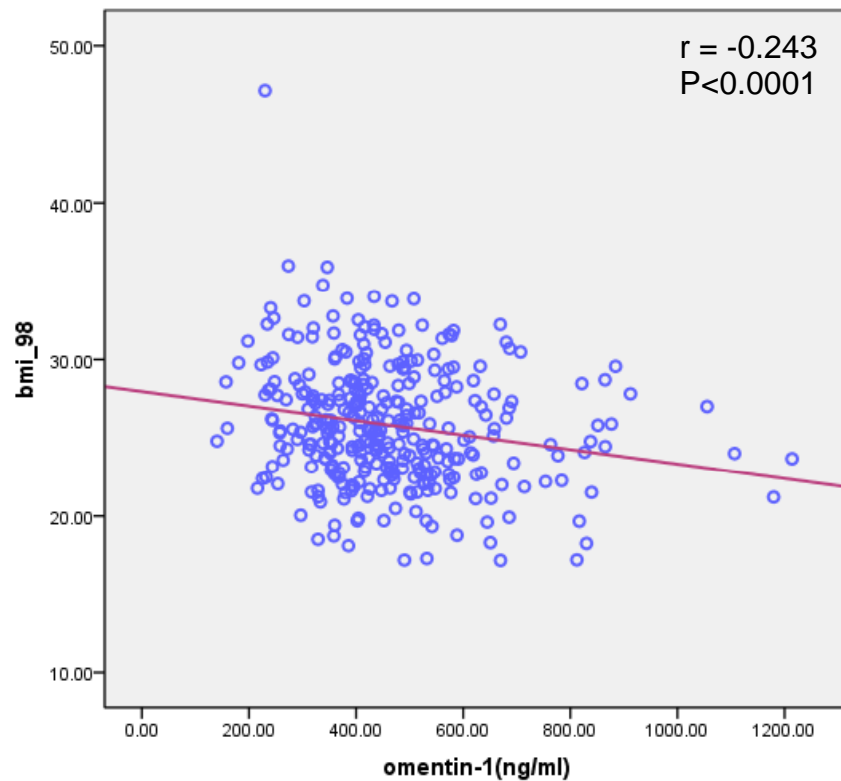
Metabolic profiles at year 1998

	No diabetes (n=168)	New diabetes (n=168)	p
BMI, kg/m ²	25.2 \pm 3.4	26.5 \pm 4.2	0.002
Waist, cm	87.6 \pm 9.3	91.6 \pm 10.4	<0.0001
SBP, mmHg	124 \pm 17	134 \pm 20	<0.0001
DBP, mmHg	77 \pm 11	84 \pm 14	<0.0001
FPG, mg/dL	89 \pm 9	99 \pm 11	<0.0001
Triglycerides, mg/dL	163 \pm 83	208 \pm 179	0.003
LDL-c, mg/dL	55 \pm 15	54 \pm 14	0.737
HDL-c, mg/dL	153 \pm 45	144 \pm 61	0.115
Obesity, n (%)	77 (45.8)	104 (62.3)	0.002
Metabolic syndrome, n (%)	39 (23.4)	86 (51.8)	<0.0001

Prevalence of obesity and metabolic syndrome in the present study in 1998 was 54% and 37.5%, respectively

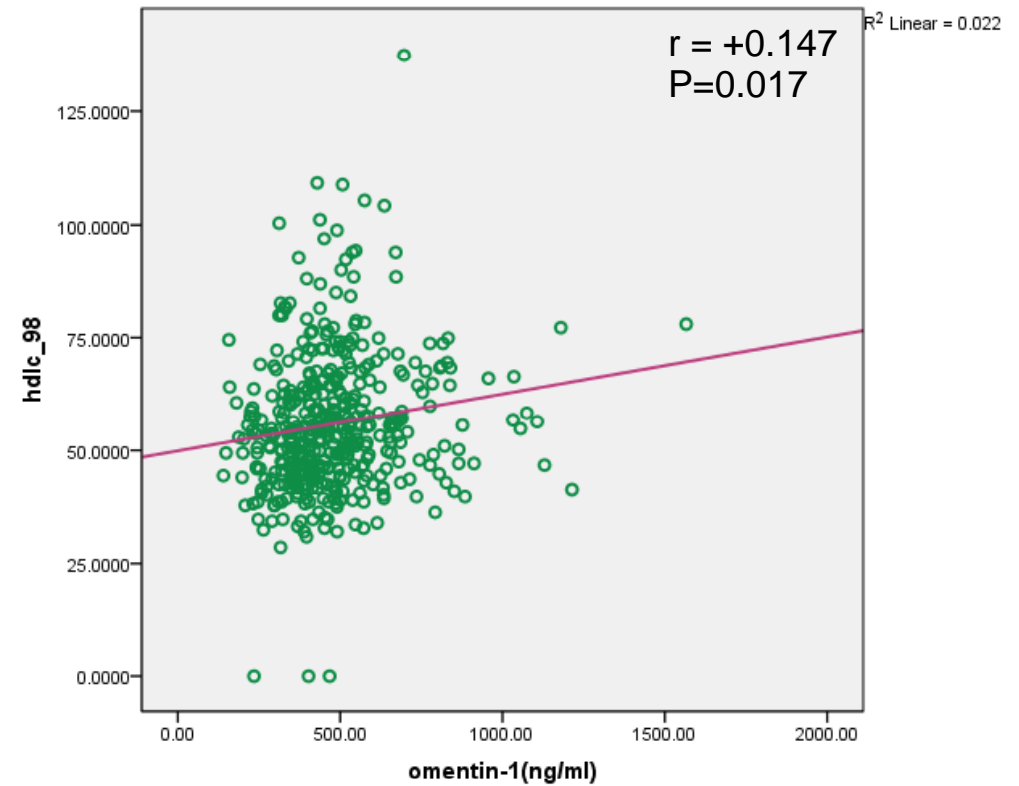
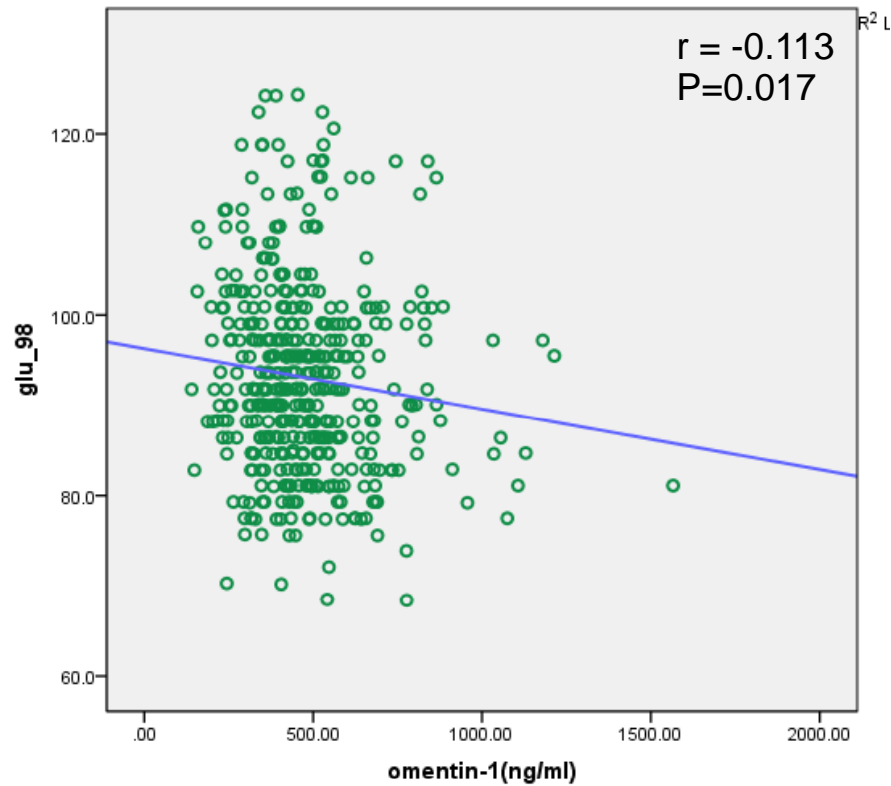
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Omentin-1 was significantly associated with baseline waist and BMI



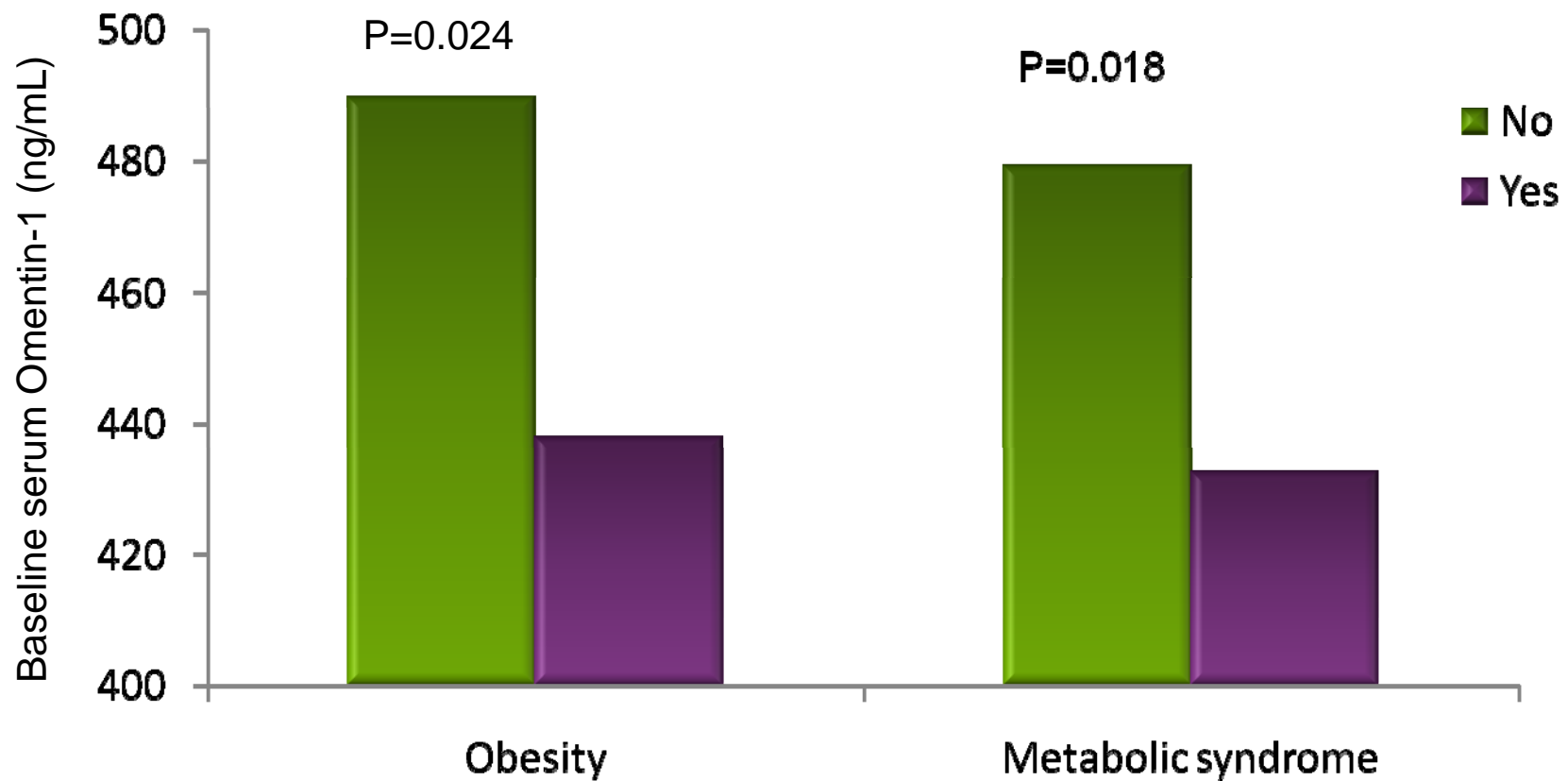
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Omentin-1 was significantly associated with baseline fasting plasma glucose and HDL-c

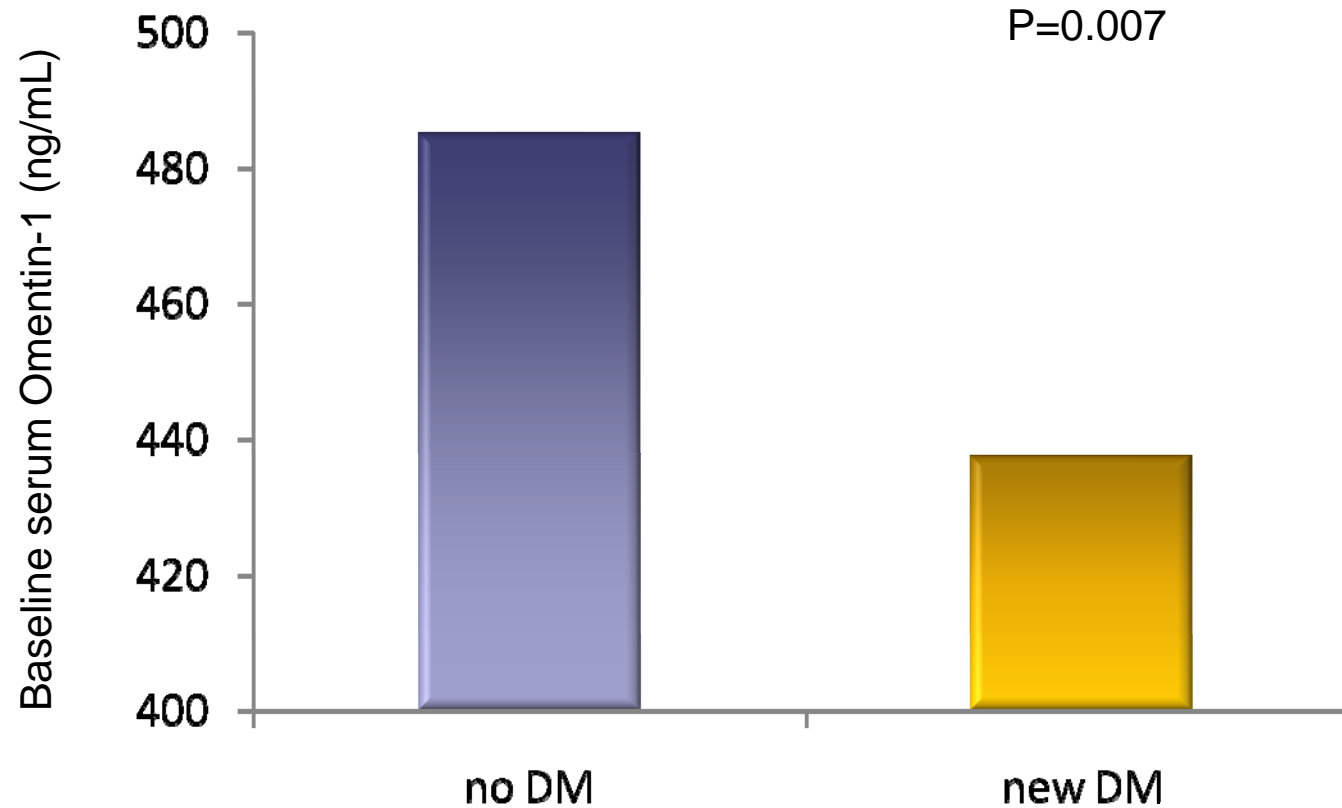


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Omentin-1 levels was significantly lower in the presence of obesity or metabolic syndrome



Age, sex, educational background, income, smoking and drinking were included in the multivariate adjusted model



Newly diagnosed diabetes subjects had significantly lower baseline omentin-1 concentrations compared with age-, sex-matched control even further adjusted for smoking, drinking, family history of diabetes, education, income, and BMI (p=0.006).

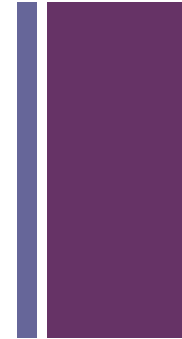
+ Hazard ratio (95% CI) for developing diabetes by tertile of serum omentin-1:
EGAT study, 1998-2008

Tertiles of omentin-1 concentration (ng/dL)			
	Lowest < 395.92	Middle	Highest > 509
Unadjusted model	1 (reference)	0.624 (0.372-1.047)	0.506 (0.297-0.863)
Multivariate adjusted model*	1 (reference)	0.674 (0.390-1.163)	0.528 (0.298-0.935)

* Additionally adjusted for smoking, drinking, family history of diabetes, educational background, income, and BMI



Conclusion



- In the current study, high baseline concentrations of omentin-1 were found to be associated with a substantially reduced risk for incident diabetes over 10 year follow-up in a cohort of initially healthy middle-aged Thais and the observed association was independent of waist and BMI