Lipoprotein-associated phospholipase A2 (Lp-PLA2) also known as platelet-activating factor acetylhydrolase (PAF-AH) is a phospholipase A2 enzyme in humans. Lp-PLA2 is a 45 kDa protein of 441 amino acids encoded by the PLA2G7 gene.

Some recent studies have shown that Lp-PLA2 is an independent risk marker for cardiovascular disease (CVD), including coronary heart disease (CHD), and ischemic stroke. In these studies, increased concentrations of Lp-PLA2 were seen in many people who were diagnosed with CHD and ischemic stroke, regardless of other risk factors. These findings make relatively the new test potentially useful among the growing number of cardiac risk markers used to determine a person's risk of developing CVD.

Lp-PLA2 is specific for vascular inflammation and is a circulating measure of the progression of rupture-prone plaque. Following production by inflammatory cells, this enzyme cleaves oxidized phospholipids, generating pro-inflammatory molecules and oxidized fatty acids. Elevated Lp-PLA2 levels can predict the development of coronary artery disease in apparently healthy individuals and the risk of future adverse cardiac and cerebrovascular events. The Lp-PLA2 tests are meaningful for assessing risk of coronary artery disease and stroke.

Anti-Human Lp-PLA2 Polyclonal Antibodies

Anti-human Lp-PLA2 polyclonal antibody was recently developed by CUSAg, which makes possible the development of latex enhanced turbidimetric Immunoassay. Our in-house assays were evaluated in medium-scale clinical trials with blood samples from normal and patients with atherosclerosis or cerebral infarction.

PROPERTIES	SPECIFICATION
Target species	Human
Host animal	Rabbit
Immunogen	Human Lp-PLA2
Purification method	Protein G affinity chromatography
Purity	>90% (SDS-PAGE)
Presentation	Polyclonal antibody solution in PBS(pH 7.4)
Application	LETIA
Catalog Number	CSB-DA113BRN

1 Calibration Curve

Lp-PLA2 antigens specifically react with anti-human Lp-PLA2 polyclonal antibodies which were precoated on latex beads, the degree of the turbidity caused by the aggregate can be determined turbidimetrically at 570 nm and is proportional to the amount of Lp-PLA2 in the sample. The calibration curve was fitted according to the relationship between absorbance values and Lp-PLA2 concentrations.

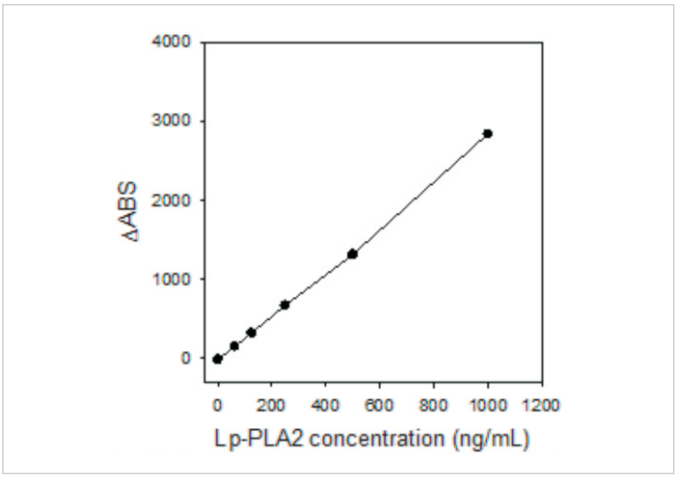

Fig.1 Calibration curve for Lp-PLA2 latex enhanced turbidimetric Immunoassay.

2 Clinical Comparison

31 clinical samples from apparently healthy donors and apparently patients with atherosclerosis or cerebral infarction were detected with the CUSAg LETIA Lp-PLA2 assays using polyclonal antibody, and compared to commercially available diagnostic kits. As shown in Fig.2, these results reveal our polyclonal antibody can be applied on immunoassays.

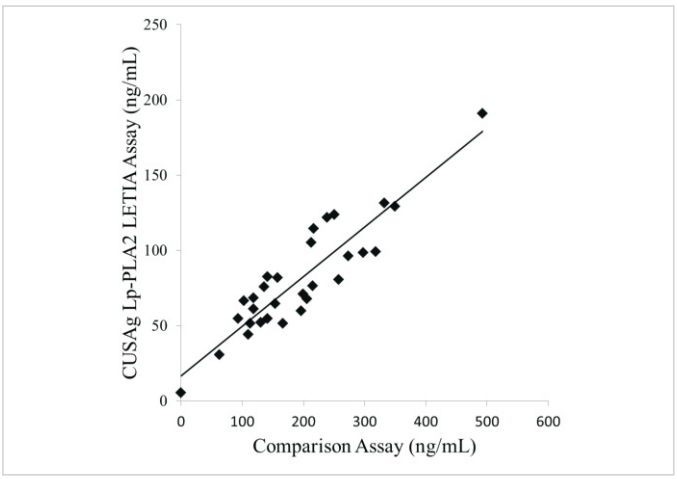

Fig.2 Determination of clinical samples on CUSAg LETIA platform

3 Thermal Stability

Anti-human Lp-PLA2 polyclonal antibodies presented in PBS buffer without any preservative were stored at 37°C and -20°C for 6 days, respectively. And then the antibodies were prepared into latex reagents and used to detect Lp-PLA2 antigens. Table 1 revealed the detection performance of polyclonal antibodies exposed at 37°C had no significant change compared to that at -20°C. These results showed that the antibody was thermostable.

Table 1. Comparison of detection performances of anti-human Lp-PLA2 polyclonal antibodies at 37°C and-20°C for 6 days

Lp-PLA2 Concentration (ng/mL)	ΔABS (antibodies stored at -20°C for 6 days)	ΔABS (antibodies treated at 37°C for 6 days)	Relative bias (%)
125	344	326	5.2%
250	667	660	1.0%
500	1402	1303	7.1%
1000	2876	2783	3.2%

Lp-PLA2 Protein

A certain amount of excellent Lp-PLA2 protein (Cat: CSB-DP113B) is also offered by CUSAg. It could be used as calibrator in varied immunoassays.

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