Neutrophil gelatinase-associated lipocalin (NGAL) is a novel early marker of acute kidney injury (AKI) for which it has been shown that it can also be released from the injured myocardium. It is a small protein expressed in neutrophils and in low levels in the kidney, prostate, and epithelia of the respiratory and alimentary tracts.

Under normal conditions NGAL levels are low in urine and plasma but rise sharply within 2 hours from basal levels in response to kidney injury to reach diagnostic levels within a very short time - as much as 24 hours or more before any significant rise in serum creatinine.

Because NGAL is protease resistant and small, the protein is easily excreted and detected in the urine. NGAL levels in patients with AKI have been associated with the severity of their prognosis and can be used as a biomarker for AKI. NGAL can also be used as an early diagnosis for procedures such aschronic kidney disease, contrast induced nephropathy, and kidney transplant.

Anti-Human NGAL Polyclonal Antibody

Anti-human NGAL polyclonal antibody has been developed by CUSAg for more than 5 years, and it was characterized in detail during this time. The antibodies are widely used in commercial NGAL immunoassay. In addition, the antibodies are used in research applications such as Western blotting, immunohistochemistry and many others.

Properties	Specifications
Target species	Human
Host animal	Rabbit
Immunogen	Human NGAL
Purification method	Antigen affinity chromatography
Presentation	PBS (pH 7.4)
Application	Immunoassay, WB, Immunohistochemistry and others
Catalog Number	CSB-DA001ARN

1 Calibration Curve

NGAL antigens specifically react with anti-human NGAL polyclonal antibodies which were precoated on latex beads, resulting in agglutination and increase in turbidity. The calibration curve was fitted according to the relationship between absorbance values and NGAL concentrations (Fig.1).

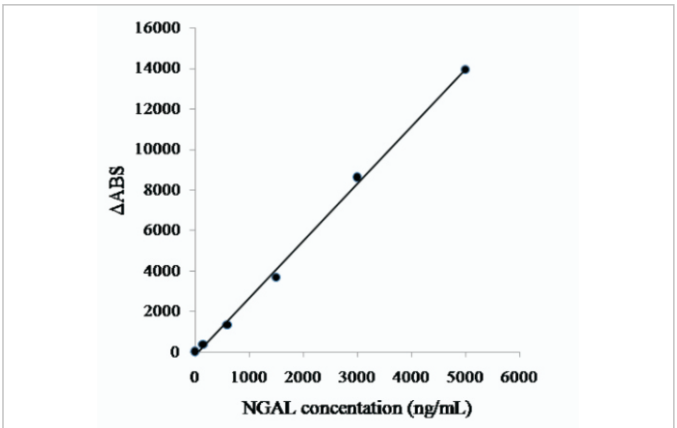

Fig.1 Calibration curve in particle-enhanced turbidimetric immunoassay

2 Clinical Comparison

Anti-Human NGAL polyclonal antibody was evaluated in medium-scale clinical tries with random blood samples from donate (n=50). Fig.2 showed that the correlation coefficient(r) is 0.98 between in-house latex reagents using CUSAg NGAL polyclonal antibodies and commercial NGAL immunoassay. These results show good agreement between the two systems.

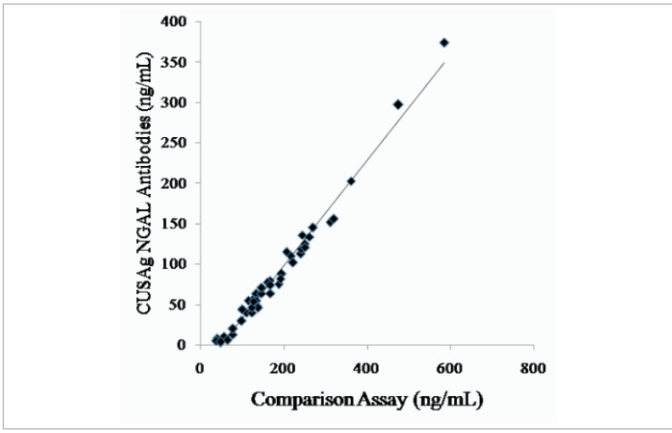

Fig.2 Clinical comparison between in-house latex reagents and commercial NGAL immunoassay.

3 Stability of Polyclonal Antibody

Anti-human NGAL polyclonal antibodies presented in PBS buffer without any preservative were stored at 37°C and 4°C for 7 days, respectively. And then the antibodies were prepared into latex reagents and used to detect NGAL antigens. Table 1 revealed the detection performance of polyclonal antibodies exposed at 37°C had no significant change compared to that at 4°C. These results showed that the antibody was thermostable.

Table 1 Comparison of detection performances of anti-human NGAL polyclonal antibodies at 37°C and 4°C for 7 days

NGAL Concentration (ng/mL)	ΔABS (antibodies stored at 4°C for 7 days)	ΔABS (antibodies treated at 37°C for 7 days)	Relative bias (%)
82	386	399	3.4%
415	1301	1403	7.8%
1150	3593	3897	8.5%
2550	8737	9526	9.0%
4900	13387	13412	0.2%

NGAL Protein

A certain amount of excellent NGAL protein (Cat: CSB-DP001A) is also offered by CUSAg. It could be used as calibrator in immunoassay and applied on Western Blotting.

Reference

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