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Heart-type Fatty Acid-Binding Protein (H-FABP) is a small cytoplasmic protein (15 kDa) released from cardiac myocytes following an ischemic episode. Like the nine other distinct FABPs that have been identified, H-FABP is involved in active fatty acid metabolism where it transports fatty acids from the cell membrane to mitochondria for oxidation.

H-FABP is a sensitive biomarker for myocardial infarction and can be detected in the blood within one to three hours of the pain. H-FABP is 20 times more specific to cardiac muscle than myoglobin, it is found at 10-fold lower levels in skeletal muscle than heart muscle and the amounts in the kidney, liver and small intestine are even lower again. H-FABP is recommended to be measured with troponin to identify myocardial infarction and acute coronary syndrome in patients presenting with chest pain. H-FABP measured with troponin shows increased sensitivity of 20.6% over troponin at 3–6 hours following the onset of chest pain.

In addition to its diagnostic potential, H-FABP also has prognostic value. Alongside D-dimer, NT-proBNP and peak troponin T, it was the only cardiac biomarker that proved to be a statistically significant predictor of death or MI at one year. This prognostic information was independent of troponin T, ECG and clinical examination. The risk associated with raised H-FABP is dependent upon its concentration.

Anti-Human H-FABP Monoclonal Antibodies

Two excellent anti-H-FABP monoclonal antibodies, which were recently produced by CUSAg, make possible the development of highly sensitive sandwich immunoassays. Detection range and sample measurement were characterized with CUSAg in-house H-FABP assay utilizing antibody pair CSB-DA006AmN② and CSB-DA006AmN①.

Properties	Specification
Target species	Human
Host animal	Mice Balb/c
Cell line used for fusion	Sp2/0
Immunogen	Human H-FABP
Purification method	Protein G affinity chromatography
Presentation	MAb solution in NaCl with 15 mM NaN3 (pH 7.2)
Application	CLIA, LETIA, LFIA etc.
Catalog Number	CSB-DA006AmN① CSB-DA006AmN②

1 Calibration Curve

CSB-DA006AmN② was coated onto 96-well microplate, and CSB-DA006AmN① was labeled with HRP, 0-250 ng/mL H-FABP were tested on our CLIA platform, as shown in Fig.1, the calibration curve was fitted with four parameters logistic regression.

MAb pair A: CSB-DA006AmN②- CSB-DA006AmN①

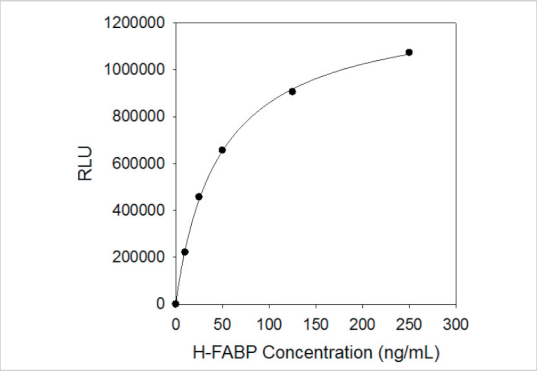

Fig.1 Calibration curves for H-FABP in sandwich chemiluminescence immunoassay (CLIA)

2 Precision

A two member buffered protein based panel was assayed, using a single lot of reagents, in replicates of ten at two separate times on CUSAg CLIA platform. As shown in table 2, the system showed excellent precision with CV<5%.

Panel	n	Mean Con.(ng/L)	SD	%CV
Control 1	10	3.96	0.14	3.4
Control 2	10	108.23	5.16	4.8

3 Recovery

Known concentrations of H-FABP were added to five aliquots of human serum. The concentration of H-FABP was determined using CUSAg CLIA platform and the resulting percent recovery was calculated. The percent recovery of the CUSAg CLIA H-FABP assay using MAb pair A ranged from 100.6% to 103.6% with an average of 102.1%.

4 Clinical Comparison

23 clinical blood samples were separately tested using CUSAg H-FABP antibody pair on the CLIA platform. Data from this study were compared to that of commercial diagnostic kit, the results reveal good agreement between CUSAg immunoassays and comparison assay.

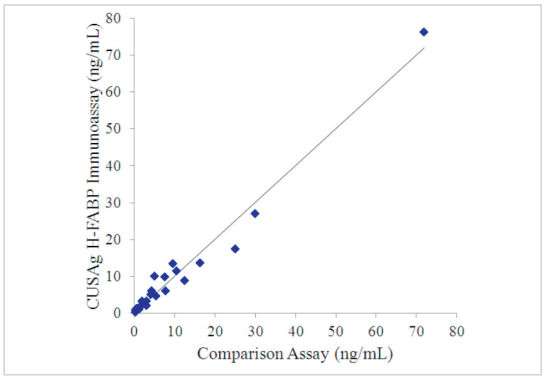

Fig.2 Clinical comparison of CUSAg H-FABP immunoassays and commercial diagnostic kit

Reference

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