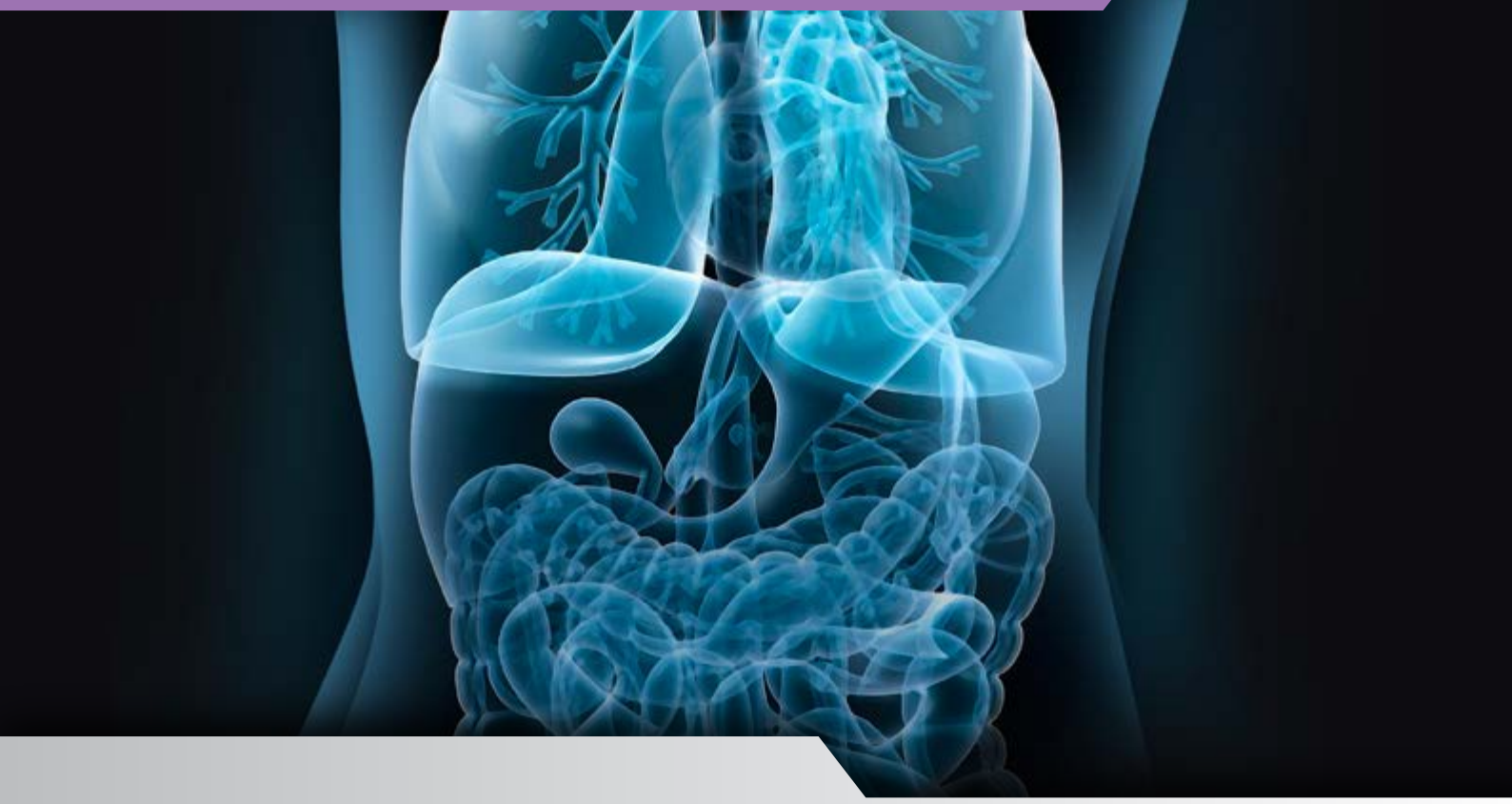
QUANTITATIVE DETERMINATION OF HUMAN HEART FATTY ACID BINDING PROTEIN / FATTY ACID BINDING PROTEIN 3

IVD CE

Human Heart FABP (FABP3) ELISA

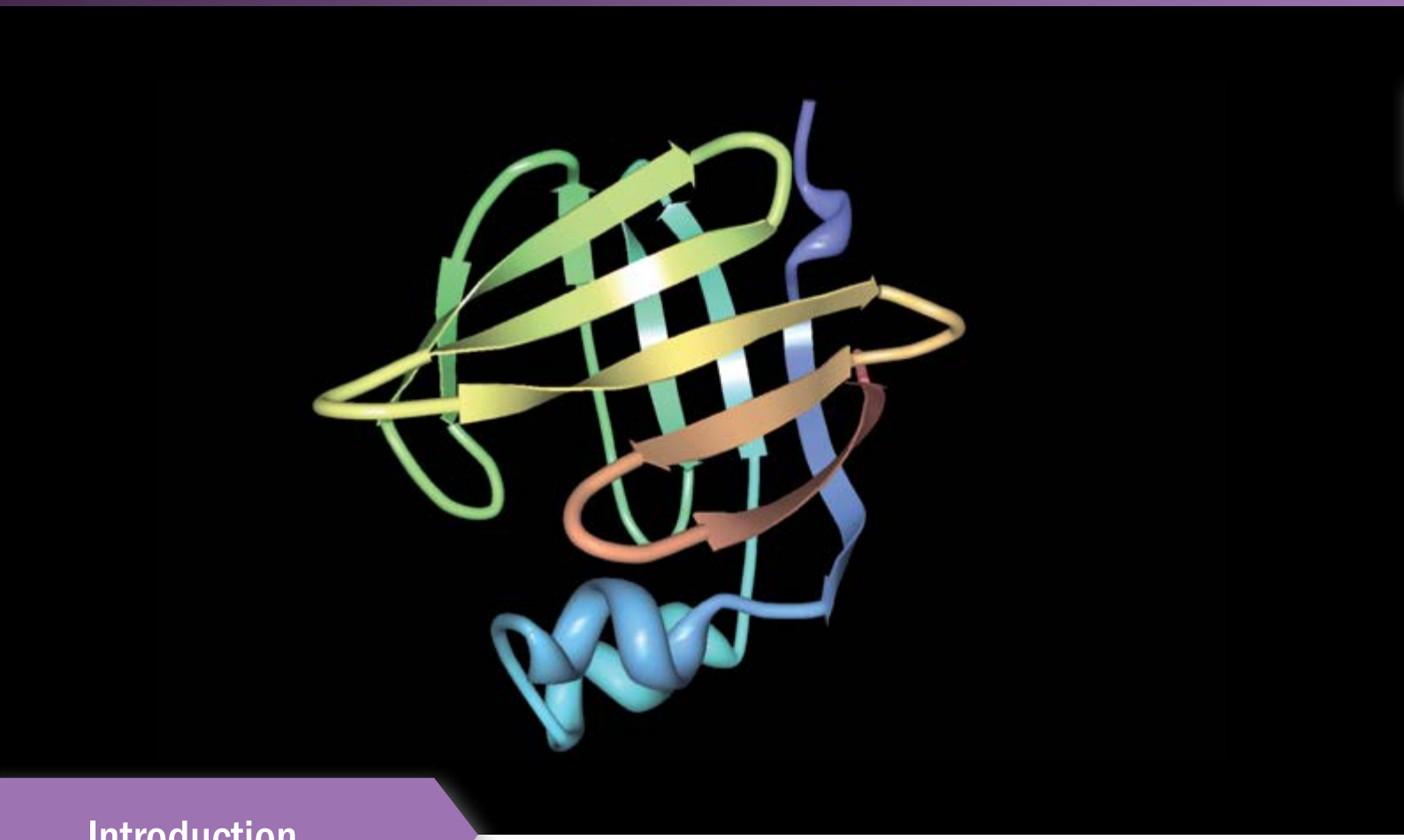
- High sensitivity (5.6 pg/ml)
- Excellent analytical characteristics
- Validated for human serum, plasma (EDTA, citrate, heparin), urine, cerebrospinal fluid (CSF), bronchoalveolar lavage fluid (BALF) and amniotic fluid



BRAIN INJURY
HEART DISEASE
RENAL DISEASE
SKELETAL MUSCLE INJURY

BioVendor
Research
and Diagnostic Products

HUMAN HEART FABP (FABP3) ELISA



Introduction

Heart fatty acid binding protein (H-FABP) or FABP3, belongs to the fatty acid binding proteins (FABP) family being characterized by relative tissue specificity. H-FABP is one of the most abundant proteins in the cardio myocytes comprising 5-15% of the total cytosolic protein pool. Except its basic role to transport fatty acids towards the mitochondria for β-oxidation, H-FABP protects against free radical accumulation during myocardial ischemia and influences signal transduction pathways for gene expression via peroxisome proliferator-activated receptor. H-FABP is not totally heart specific and also has been found in skeletal muscle in concentration 10-fold lower than that in heart muscle and in low concentrations in kidney, liver, small intestine, brain, lactating mammary glands, placenta, adipose tissue, adrenal glands and stomach. Under normal conditions H-FABP is presented in plasma at very low concentration. During ischemia, H-FABP leaks out of myocardial tissue and the concentration increases in the blood within 2 hours and is reported to peak at about 4-6 hours and return to normal baseline value in 20 hours. H-FABP is a valuable marker of acute coronary syndromes, heart failure, pulmonary embolism, renal, brain and skeletal muscle injury and its utility increases when is evaluated in combination with other biochemical markers. Thanks to its small size, H-FABP can quickly pass through the kidney to urine, which also gives an opportunity to measure it noninvasively in urine.

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BioVendor Human Heart FABP (FABP3) ELISA (RD192247200R)

Intended use

The RD192247200R Human Heart FABP (FABP3) ELISA is a sandwich enzyme immunoassay for the quantitative measurement of human heart FABP (H-FABP).

- The total assay time is less than 3.5 hours
- The kit measures H-FABP in human serum, plasma (EDTA, citrate, heparin), urine, cerebrospinal fluid (CSF), bronchoalveolar lavage fluid (BALF) and amniotic fluid
- Assay format is 96 wells
- Standard is recombinant protein based
- Components of the kit are provided ready to use, concentrated or lyophilized

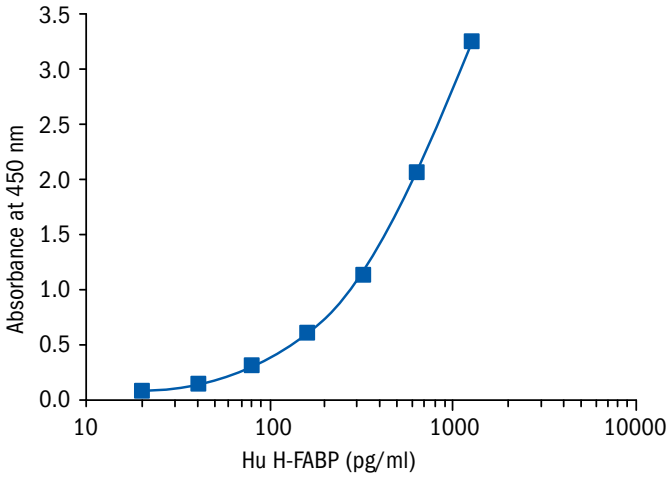
Clinical application

- Brain injury
- Heart disease
- Renal disease
- Skeletal muscle injury

Test principle

In the BioVendor Human Heart FABP (FABP3) ELISA, standards and samples are incubated in microplate wells pre-coated with polyclonal anti-human H-FABP antibody. After 60 minutes incubation and washing, biotin labelled monoclonal anti-human H-FABP antibody is added and incubated for 60 minutes with captured H-FABP. After another washing, streptavidin-HRP conjugate is added. After 30 minutes incubation and the last washing step, the remaining conjugate is allowed to react with the substrate solution (TMB). The reaction is stopped by addition of acidic solution and absorbance of the resulting yellow product is measured. The absorbance is proportional to the concentration of H-FABP. A standard curve is constructed by plotting absorbance values against concentrations of standards, and concentrations of unknown samples are determined using this standard curve.

HUMAN HEART FABP (FABP3) ELISA CAT. NO.: RD192247200R	
Assay format	Sandwich ELISA, Biotin-labelled antibody, 96 wells/kit
Samples	Serum, plasma, urine, cerebrospinal fluid, bronchoalveolar lavage fluid, amniotic fluid
Standards	20 to 1280 pg/ml
Limit of detection	5.6 pg/ml



Precision

Intra-assay (Within-Run) (n=8)

Sample	Mean (pg/ml)	SD (pg/ml)	CV (%)
1	596	25	4.3
2	888	26	2.9

Inter-assay (Run-to-Run) (n=6)

Sample	Mean (pg/ml)	SD (pg/ml)	CV (%)
1	302	13	4.4
2	969	61	6.3

Spiking recovery

Samples were spiked with different amounts of human H-FABP and assayed.

Sample	Observed (pg/ml)	Expected (pg/ml)	Recovery O/E (%)
Serum 1	336	-	-
	549	576	95.4
	758	816	92.9
	1145	1296	88.4
Serum 2	532	-	-
	791	772	102.4
	983	1012	97.1
	1409	1492	94.4

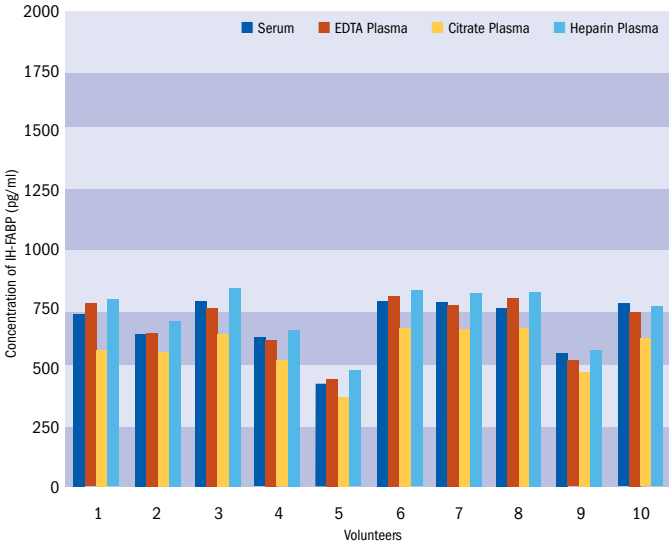
Linearity

Samples were serially diluted with Dilution Buffer and assayed.

Sample	Dilution	Observed (pg/ml)	Expected (pg/ml)	Recovery O/E (%)
Serum 1	-	984	-	-
	2x	521	492	105.8
	4x	247	246	100.4
	8x	120	123	97.8
Serum 2	-	1288	-	-
	2x	652	644	101.2
	4x	314	322	97.4
	8x	151	161	93.6

Effect of sample matrix

EDTA, citrate and heparin plasma samples were compared to respective serum samples from the same 10 individuals. Results are shown below:



Summary of protocol

- Reconstitute Master Standard and prepare set of Standards
- Dilute samples
- Add 100 µl Standards and samples
- Incubate at RT for 1 hours with shaking 300 rpm
- Wash plate 3 times
- Prepare Biotin Labelled Antibody Solution
- Add 100 µl Biotin Labelled Antibody
- Incubate at RT for 1 hour with shaking 300 rpm
- Wash plate 3 times
- Add 100 µl Streptavidin-HRP Conjugate
- Incubate at RT for 30 min with shaking 300 rpm
- Wash plate 3 times
- Add 100 µl Substrate Solution
- Incubate at RT for 10 min
- Add 100 µl stop solution
- Read absorbance and calculate results

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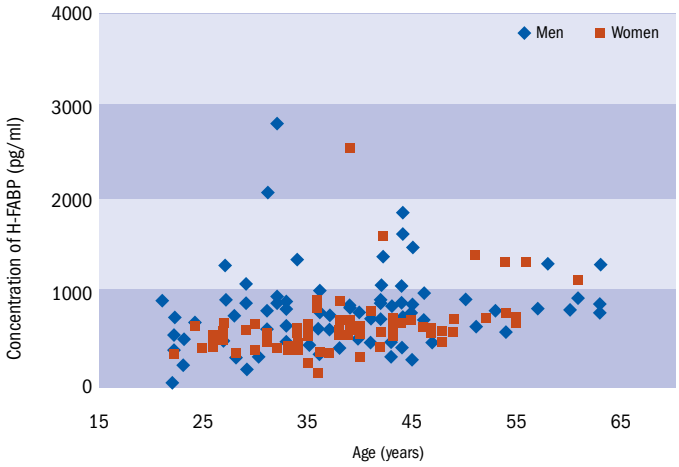
Preliminary Population Data

The following results were obtained when serum samples from 155 unselected donors (89 men + 66 women) 21-65 years old were assayed with the BioVendor Human Heart FABP (FABP3) ELISA in our laboratory.

Age and Sex Dependent Distribution of Human FABP ELISA

Sex	Age (years)	n	Mean H-FABP (pg/ml)	Median H-FABP (pg/ml)	SD H-FABP (pg/ml)	Min. H-FABP (pg/ml)	Max. H-FABP (pg/ml)
Men	21-29	18	605	532	325	20	1303
	30-39	26	831	768	535	294	2829
	40-49	31	809	725	367	286	1861
	50-65	14	878	827	196	577	1303
Women	22-29	12	504	534	106	356	657
	30-39	26	622	557	430	144	2561
	40-49	20	644	595	246	302	1609
	50-61	8	1015	954	344	675	1421



Related products

· RD172473100 Proprotein Convertase Subtilisin/Kexin Type 9 Human HEK293

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Contact Information

BioVendor – Laboratorni medicina a.s.
Karasek 1767/1, 621 00 Brno, Czech Republic
Phone: +420 549 124 185, Fax: +420 549 211 460
E-mail: info@biovendor.com

BioVendor GmbH
Otto-Hahn-Straße 16, 34123 Kassel, Germany
Phone: +49 6221 4339 100, Fax: +49 6221 4339 111
E-mail: infoEU@biovendor.com

BioVendor GesmbH
Gaudenzdorfer Gürtel 43-45, 1120 Vienna, Austria
Phone: +43 1 890 9025, Fax: +43 1 890 5163
E-mail: infoAustria@biovendor.com

BioVendor, LLC
128 Bingham Rd., Suite 1300, Asheville, NC 28806, USA
Phone: +1-800-404-7807, Phone: +1-828-575-9250
Fax: +1-828-575-9251, E-mail: infoUSA@biovendor.com

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