Insulin-like growth factor-binding protein-4 is a member of the insulin-like growth factor binding protein (IGFBP) family and encodes a protein with an IGFBP domain and a thyroglobulin type-I domain. The cDNA for human IGFBP-4 encodes a 258-residue protein that is processed, by removal of the signal sequence, to a mature protein of 237 residues (25.6 kDa) with a single asparagine-linked glycosylation site. Although various cell types when in culture secrete both glycosylated (28-29 kDa) and nonglycosylated (24-25 kDa) forms of IGFBP-4, the nonglycosylated is typically the most abundant in normal human blood.

Specific proteolysis is a major regulatory mechanism of IGFBP-4 functions. An IGF-dependent IGFBP-4-specific protease was first reported in the media conditioned by both human and sheep dermal fibroblasts. This protease was later identified as pregnancy-associated plasma protein-A (PAPP-A). It was shown that recombinant PAPP-A is an active protease able to cleave IGFBP-4 at a single site, between M135/K136. IGFBP-4 cleavage by PAPP-A is possible only in case when IGFBP is complexed with IGF. PAPP-A also cleaves IGFBP-5 between S143/K144, but in this case the presence of IGF is not required.

Several studies have shown that concentration of PAPP-A in blood of patients with acute coronary syndrome (ACS) is higher than in blood of patients with stable coronary artery disease or control subjects. PAPP-A has been suggested as a marker of cardiovascular diseases associated with coronary artery blood clotting, such as unstable angina and myocardial infarction (MI). The ratio of Total to Intact IGFBP-4 concentration measured in individual subjects over time will help normalize the IGFBP-4 variability between subjects and also increase the detection rate of increased PAPP-A activity in myocardial infarction subjects.

**Ansh Labs Advantage**

**Simple Procedure**
Three-step sandwich assay with no sample preparation

**Total 2.5 hour incubation time at room temperature**

**Analytical Measurable Range of 1.5—96.16 ng/mL**

**Sensitive to 0.669 ng/mL**

**Excellent Precision**
Inter- and Intra-assay CVs are less than 5%

**Accurate**

IGFBP-4 was incubated with active PAPP-A for up to six hours. Reaction mixture were collected and measured in Intact and Total IGFBP-4. ELISA assay at six different time points are shown. No significant changes were observed in the Total IGFBP-4 concentration.

**Specific**

The monoclonal antibody pair used in the assay detects Intact IGFBP-4. The capture antibody binds to the N terminal whereas detection antibody binds to C terminal of the IGFBP-4 molecule. The assay does not cross-react to IGF-I, rat IGF-I, IGFBP-3, IGFBP-3/IGF-1 complex and IGFBP-2 at 1000 ng/ml concentration. The assay also detects bovine and equine IGFBP-4 when tested in serum samples.

**Reliable**

Reproducibility of the Total IGFBP-4 assay was determined in a study using two serum pools. The study included a total of 8 assays, two replicates of control (n=16) and two replicates of sample (n=16) per assay. Representative data were calculated based on NCCLS EP5-A guidelines and are presented in the following table.
IGFBP-4 is a useful research tool in Endocrinology studies related to:
- Acute Coronary Syndrome
- Cancer studies
- Hypertension
- Diabetes
- Cardiomyopathy
- Osteoarthritis
- Aging and Longevity studies
- Growth Hormone Deficiency

**Intact IGFBP-4**

<table>
<thead>
<tr>
<th>Method</th>
<th>Quantitative three-step sandwich type immunoassay</th>
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<tbody>
<tr>
<td>Incubation Time</td>
<td>Total 2.5 hour incubation at room temperature</td>
</tr>
<tr>
<td>Approximate Dynamic Range</td>
<td>6 points, 1.5 - 96.16 ng/mL</td>
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<tr>
<td>Limit of Detection</td>
<td>0.669 ng/mL</td>
</tr>
<tr>
<td>Sample Size / Type</td>
<td>25 μL / Serum, Plasma</td>
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<tr>
<td>Shelf-life</td>
<td>24 months</td>
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</table>

**Ordering Information**

<table>
<thead>
<tr>
<th>Intact IGFBP-4</th>
<th>96-Well ELISA AL-128*</th>
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</thead>
<tbody>
<tr>
<td>Total IGFBP-4</td>
<td>96-Well ELISA AL-126*</td>
</tr>
</tbody>
</table>

Additionally, we have proteins and many monoclonal antibodies to IGF-I and other hormones in the GH-IGF-IGFBP Axis.

Call us today or visit AnshLabs.com to see what’s new in our lab.

Ansh Labs is ISO 13485 and ISO 9001 certified for design, development, manufacturing, services and distribution of reagents/immunoassay kits for research and in vitro diagnostic applications.

*Unless otherwise stated in our catalog or other product documentation, these kits are intended for research use only and not for in vitro diagnostic purposes or therapeutic uses.