

## Product datasheet for **AP22918PU-N**

### EIF4EBP1 (101-118) Rabbit Polyclonal Antibody

#### Product data:

|                       |   |
|-----------------------|---|
| Product Type:         | Primary Antibodies  |
| Applications:         | EMSA, IHC, WB   |
| Recommended Dilution: | <b>GS.</b><br><b>Immunohistochemistry on Paraffin Sections:</b> 5 - 10 µg/ml.<br><b>Western Blot:</b> 4 µg/ml.  |
| Reactivity:           | Human, Hamster, Mouse, Rabbit, Rat  |
| Host:                 | Rabbit  |
| Clonality:            | Polyclonal  |
| Immunogen:            | 18 residue synthetic peptide based on the human PHAS-I (residues 101-118) and the peptide coupled to KLH  |
| Specificity:          | This antibody reacts to 4E-binding Protein 1 (EIF4EBP1) at 101-118.   |
| Formulation:          | BBS, pH 8.4 (25 mM sodium borate, 100 mM boric acid, 75 mM sodium chloride, 5 mM EDTA)<br>State: Aff - Purified<br>State: Liquid purified Ig fraction |
| Concentration:        | lot specific  |
| Purification:         | Immunoaffinity Chromatography   |
| Conjugation:          | Unconjugated  |
| Storage:              | Store the antibody undiluted at 2-8°C for one month or (in aliquots) at -20°C for longer.<br>Avoid repeated freezing and thawing.                     |
| Stability:            | Shelf life: one year from despatch.   |
| Gene Name:            | eukaryotic translation initiation factor 4E binding protein 1   |
| Database Link:        | <u><a href="#">Entrez Gene 13685 Mouse</a></u> <u><a href="#">Entrez Gene 116636 Rat</a></u> <u><a href="#">Entrez Gene 1978 Human Q13541</a></u>     |



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**Background:**

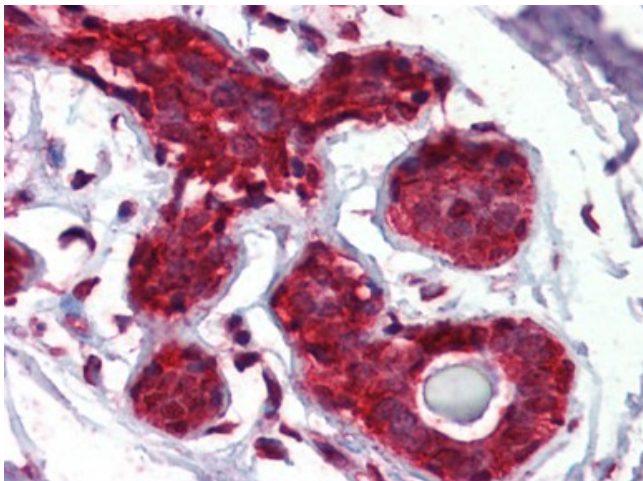
PHAS-I, also known as eIF4E-BP1 and PHAS-II, -III (eIF4E-BP2, 3), are members of a family of proteins that regulate eukaryotic translation initiation which is mediated by the cap structure (m<sup>7</sup>GpppN, where N=any nucleotide) present at the 5' end of all cellular mRNAs, except organellar. The m<sup>7</sup> cap is essential for the translation of most mRNA because it directs the translation machinery of the 5' end of the mRNA via its interaction with the cap binding protein, the translation initiation factor 4E (eIF4E). eIF4E plays a principal role in determining global translation rates because its interaction with the cap facilitates the binding of the ribosome to the mRNA. Consistent with this role, eIF4E is required for cell cycle progression, exhibits anti-apoptotic activity and when overexpressed transforms cells. Interaction with PHAS proteins prevents incorporation of eIF4E into an active translation initiation complex and inhibits cap-dependent translation. However, this inhibitory effect is alleviated following phosphorylation of the PHAS proteins by a P13K-dependent pathway, involving signaling by the antiapoptotic kinase Akt/PKB, as well as FRAP/mTOR. Rat PHAS-I has 117 amino acids with a apparent molecular weight of 22 kDa and is 93% identical to eIF-4E-BP1 cloned from human placenta. PHAS-I and -II were found to have overlapping but different patterns of expression in tissues. PHAS-I is expressed in a wide variety of cell types with the highest being in two of the most insulin-responsive tissues, adipocytes and skeletal muscle. Both PHAS proteins are phosphorylated in response to insulin or growth factors such as EGF, PDGF and IGF-1. Increasing cAMP in cells promotes dephosphorylation of both PHAS-I and PHAS-II but that regulation of the two protein differ because PHAS-II, unlike PHAS-I is readily phosphorylated by PKA. The PHAS-I initiation factor has 2-8 phosphorylation sites and is multiply phosphorylated by insulin stimulated protein kinase(s) resulting in 8-10 phosphorylated isoforms in exponentially growing cells. Changes occur in the expression of these isoforms in response to stresses such as heat shock, and this may contribute to translation repression.

**Synonyms:**

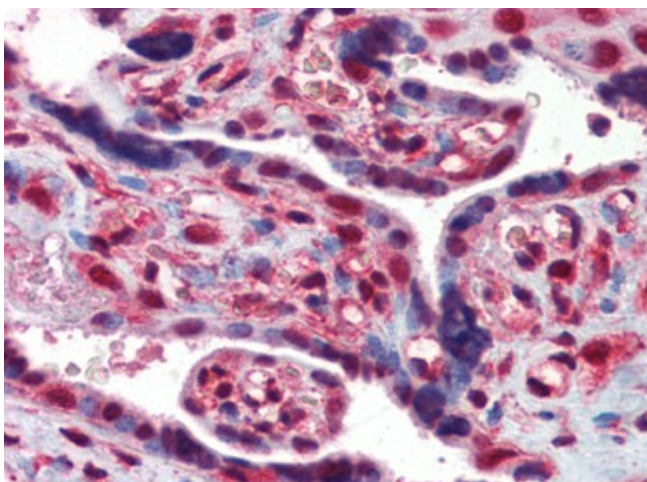
PHAS-I, PHAS-1, PHAS1

**Protein Pathways:**

Acute myeloid leukemia, ErbB signaling pathway, Insulin signaling pathway, mTOR signaling pathway

**Product images:**

Breast, Human: Formalin-Fixed, Paraffin-Embedded (FFPE)



Placenta, Human: Formalin-Fixed, Paraffin-Embedded (FFPE)