

P4HB Protein, Human (His)

Cat. No.:	HY-P71917
Synonyms:	Cellular thyroid hormone binding protein; Cellular thyroid hormone-binding protein; Collagen prolyl 4 hydroxylase beta; Disulphide Isomerase; DSI; EC 5.3.4.1; ER protein 59; ERBA2L; ERp59; GIT; P4HB; P4Hbeta; p55; PDI; PDIA1; PDIA1_HUMAN; PDIR; PHDB; PO4DB; PO4HB; PROHB; Protocollagen hydroxylase; Thbp;
Species:	Human
Source:	E. coli
Accession:	P07237 (A19-L508)
Gene ID:	5034
Molecular Weight:	Approximately 56 kDa

PROPERTIES

AA Sequence	<pre> A P E E E D H V L V L R K S N F A E A L A A H K Y L L V E F Y A P W C G H C K A L A P E Y A K A A G K L K A E G S E I R L A K V D A T E E S D L A Q Q Y G V R G Y P T I K F F R N G D T A S P K E Y T A G R E A D D I V N W L K K R T G P A A T T L P D G A A A E S L V E S S E V A V I G F F K D V E S D S A K Q F L Q A A E A I D D I P F G I T S N S D V F S K Y Q L D K D G V V L F K K F D E G R N N F E G E V T K E N L L D F I K H N Q L P L V I E F T E Q T A P K I F G G E I K T H I L L F L P K S V S D Y D G K L S N F K T A A E S F K G K I L F I F I D S D H T D N Q R I L E F F G L K K E E C P A V R L I T L E E E M T K Y K P E S E E L T A E R I T E F C H R F L E G K I K P H L M S Q E L P E D W D K Q P V K V L V G K N F E D V A F D E K K N V F V E F Y A P W C G H C K Q L A P I W D K L G E T Y K D H E N I V I A K M D S T A N E V E A V K V H S F P T L K F F P A S A D R T V I D Y N G E R T L D G F K K F L E S G G Q D G A G D D D D L E D L E E A E E P D M E E D D D Q K A V K D E L </pre>
Biological Activity	<p>1. Thiol Protein Reductase Activity is 0.001 /650nm/ min⁻², determined by measuring the turbidity increase at 650 nm due to insulin reduction. The activity is expressed as the ratio of the slope of a linear part of the turbidity curve to the lag time.</p> <p>2. Measured by its ability to promote aggregation of insulin in the presence of DTT. The specific activity is 9.375 A650/cm/min/mg.</p>
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm solution of 50 mM Tris-HCL, 300 mM NaCl, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.

Shipping

Room temperature in continental US; may vary elsewhere.

DESCRIPTION**Background**

The P4HB protein, a multifunctional entity, catalyzes the intricate processes of forming, breaking, and rearranging disulfide bonds. Positioned at the cell surface, it acts as a reductase, cleaving disulfide bonds of proteins linked to the cell and potentially causing structural modifications of exofacial proteins. Intracellularly, P4HB is involved in forming and rearranging disulfide bonds of nascent proteins. At elevated concentrations, and under the phosphorylation influence of FAM20C, it functions as a chaperone, preventing the aggregation of misfolded proteins. Conversely, at lower concentrations, it exhibits anti-chaperone activity by facilitating aggregation. P4HB's versatility extends to its participation as a structural subunit in various enzymes such as prolyl 4-hydroxylase and microsomal triacylglycerol transfer protein MTTP. Furthermore, it serves as a receptor for LGALS9, with this interaction influencing disulfide reductase activity at the cell surface of Th2 T helper cells, altering the plasma membrane's redox state, and enhancing cell migration. This diverse range of functions underscores the pivotal role of P4HB in cellular processes, including protein folding, redox regulation, and cell migration.

Caution: Product has not been fully validated for medical applications. For research use only.

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