BioVendor - Laboratorní medicína a.s.
Karásek 1767/1
621 00 Brno-Řečkovice a Mokrá Hora

Date of issue: 20.09.2018

PRODUCT DATASHEET

Pigment Epithelium-Derived Factor Human HEK293

Cat. No.: RD172114100-HEK
Type: Recombinant protein
Size: 0.1 mg
Source: HEK293
Species: Human

Description

Total 410 AA. Mw: 45.6 kDa (calculated). C-terminal Flag-tag 11AA (highlighted). Protein identity confirmed by LC-MS/MS.

Other names

Pigment Epithelium-Derived Factor, Serpin F1, EPC-1, Cell proliferation-inducing gene 35 protein, PIG35

Introduction to the molecule

PEDF is syntetized and released by human fetal retinal pigment epithelial cells (RPE) into the interphotoreceptor matrix and is localized to human chromosome 17p. It is a 50 kDa multifunctional glycoprotein belonging to the serpin protease inhibitor supergene (serpin) family, acting like substrates rather than inhibitors of serine proteases, being also described as serine peptidase inhibitor, clade F (alfa-2 antiplasmin, pigment epithelium derived factor), member 1. This gene encodes a 418 amino-acid protein with an asparagine glycosylation site at position 285–287 (Asn-Leu-Thr) and N-terminal signal peptide associated with secreted proteins. PEDF has an asymmetrical charge distribution, with a high density of basic residues concentrated on one side (positive) of the molecule and of acidic residues on the opposite side. Interactions of PEDF with three different types of molecules have been discovered: glycosaminoglycans of extracellular matrixes, collagens and receptors on the surface of neuronal cells. Negatively charged, acidic PEDF binds to collagen, lacks neurotrophic activity, and may confer antiangiogenic properties. PEDF has gliastatic, neuronotrophic, neuroprotective and antitumorigenic properties. PEDF acts in neuronal differentiation and survival in cells derived from retina and the central nervous system (CNS).Two functional epitopes have been identified on PEDF, a 34-mer peptide (residues 24–57) and a 44-mer peptide (residues 58–101). 44-mer peptide interacts with a a putative 80 kDa receptor (PEDFRN), identified on Y-79 cells (retinoblastoma cells), cerebellar and motor neurons, and in neural retina and replicates the neurotrophic function and the ability to block vascular leackage. The 34-mer peptide, possibly via a distinct receptor (PEDF-RA) identified on endothelial cells, induces apoptosis, blocks endothelial cell migration and corneal angiogenesis, but fails to induce Y-79 differentiation. Recently, PEDF was shown also to have potent anti-angiogenic activity as it specifically inhibited the migration of endothelial cells, an essential step in angiogenesis. Its activity equals or supersedes that of other anti-angiogenic factors, including angiostatin, endostatin and thrombospondin-1. In cell culture and in animal models, PEDF inhibited endothelial cell (EC) growth and migration and suppressed ischemia-induced neovascularization, whereas in porcine liver, the expression of PEDF has been associated with body muscularity and obesity. Analyses revealed that Human PEDF is correlated with BMI, CRP, diastolic blood pressure, insulin, Quicki. Individuals with metabolic syndrome (NCEP criterion) have significantly higher PEDF values than healthy subjects , suggesting that PEDF is and independent marker of MS with sufficient diagnostic efficacy.

Research topic

Energy metabolism and body weight regulation, Others

Amino Acid sequence

QNPASPPEEG SPDPDSTGAL VEEEDPFFKV PVNKLAAAVS NFGYDLYRVR SSTSPTTNVL LSPLSVATAL SALSLGAEQR TESIIHRALY
YDLISSPDIH GTYKELLDTV TAPQKNLKSA SRIVFEKKLR IKSSFVAPLE KSYGTRPRVL TGNPRLDLQE INNWVQAQMK GKLARSTKEI
PDEISILLLG VAHFKGQWVT KFDSRKTSLE DFYLDEERTV RVPMMSDPKA VLRYGLDSDL SCKIAQLPLT GSMSIIFFLP LKVTQNLTLI
EESLTSEFIH DIDRELKTVQ AVLTVPKLKL SYEGEVTKSL QEMKLQSLFD SPDFSKITGK PIKLTQVEHR AGFEWNEDGA GTTPSPGLQP
AHLTFPLDYH LNQPFIFVLR DTDTGALLFI GKILDPRGPA AADYKDDDDK

Purity

Purity as determined by densitometric image analysis: >95%

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Endotoxin
< 0.1 EU/µg

Formulation:

Filtered (0.4 µm) and lyophilized in 0.5 mg/mL in 20mM TRIS, 50mM NaCl, pH 7.5

Reconstituion:
Add deionized water to prepare a working stock solution of approximately 0.5 mg/mL and let the lyophilized pellet dissolve completely. Product is not sterile! Please filter the product by an appropriate sterile filter before using it in the cell culture.

Shipping
At ambient temperature. Upon receipt, store the product at the temperature recommended below.

Storage, Stability/Shelf Life
Store the lyophilized protein at –80 °C. Lyophilized protein remains stable until the expiry date when stored at –80 °C. Aliquot reconstituted protein to avoid repeated freezing/thawing cycles and store at –80 °C for long term storage. Reconstituted protein can be stored at 4 °C for a week.

Quality control
BCA to determine quantity of the protein.

SDS PAGE to determine purity of the protein.

LAL to determine quantity of endotoxin.

Applications
Cell culture and/or animal studies, ELISA, Western blotting

Note
This product is intended for research use only.

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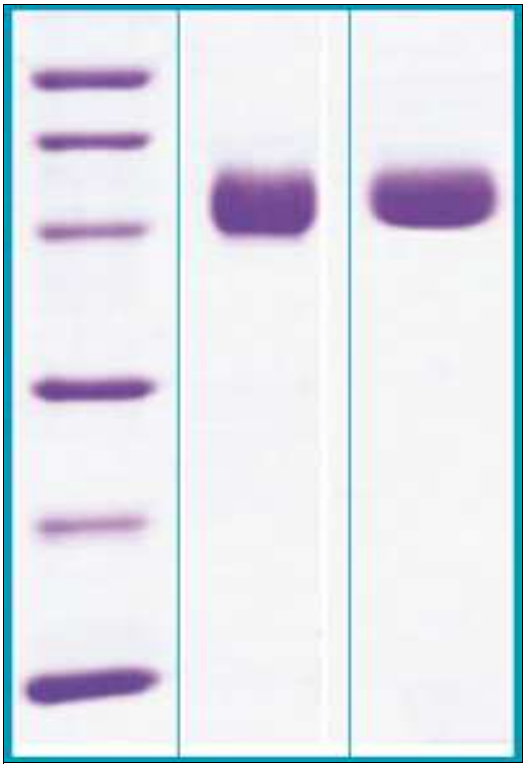

12% SDS-PAGE separation of Human PEDF
1. M.W. marker – 14, 21, 31, 45, 66, 97 kDa
2. reduced and heated sample, 7µg/lane
3. non-reduced and non-heated sample, 7µg/lane

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