Pigment Epithelium-Derived Factor Human HEK293

Product Data Sheet

Type: Recombinant
Source: HEK293
Species: Human
Other names: PEDF, Serpin F1, EPC-1, Cell proliferation-inducing gene 35 protein, PIG35

Cat. No.:

RD172114100-HEK	(0.1 mg)

Description

Total 410 AA. Mw: 45.6 kDa (calculated). C-terminal Flag-tag 11AA (highlighted).

Introduction to the Molecule

PEDF is syntetized and released by human fetal retinal pigment epithelial cells (RPE) into the interphotoreceptor matrix. It is localized to the human chromosome 17p. It is a 50 kDa multifunctional glycoprotein belonging to the serpin protease inhibitor supergene (serpin) family. It behaves like a substrate rather than inhibitors of serine proteases. PEDF is a 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. PEDF Interacts with three different types of molecules: glycosaminoglycans of extracellular matrixes, collagens and receptors on the surface of neuronal cells. Acidic PEDF binds to collagen when it is negatively charged. In this scenario it lacks neurotrophic activity and may confer antiangiogenic properties. PEDF has gliastatic, neuronotrophic, neuroprotective and antitumorigenic properties. It 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), which is found on Y-79 cells, cerebellar and motor neurons and in neural retina. This peptide also 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

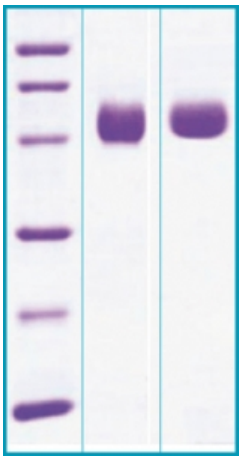
Source

HEK293

Purity

Purity as determined by densitometric image analysis: >95%

SDS-PAGE gel



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

Endotoxin

<1.0 EU/µg

Formulation

Filtered (0,4 µm) and lyophilized in 0.5 mg/mL in 20mM TRIS, 20mM NaCl, pH 7.5

Reconstitution

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 lyophilized protein at -20°C. Lyophilized protein remains stable until the expiry date when stored at -20°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 limited period of time; it does not show any change after one week at 4°C.

Quality Control Test

BCA to determine quantity of the protein.
SDS PAGE to determine purity of the protein.
LAL TEST to determine quantity of endotoxin.

Applications

ELISA, Western blotting

Note

This product is intended for research use only.

References to this Product

- Andreu-Agullo C, Morante-Redolat JM, Delgado AC, Farinas I. *Vascular niche factor PEDF modulates Notch-dependent stemness in the adult subependymal zone.* Nat Neurosci. 2009 Dec;12 (12):1514-23

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