PRODUCT INFORMATION

PEDF (human, recombinant)

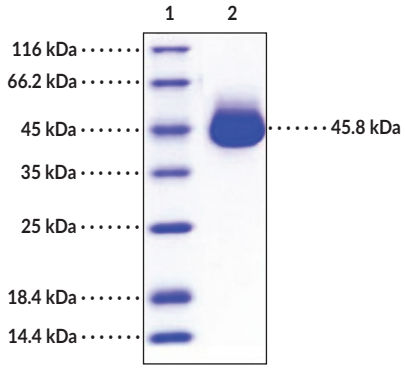
Item No. 32062

Overview and Properties

Synonyms:	Cell Proliferation-Inducing Gene 35 Protein, Early Population Doubling Level cDNA-1, EPC-1, Pigment Epithelium-Derived Factor, Serpin F1
Source:	Recombinant human C-terminal His-tagged PEDF expressed in HEK293 cells
Amino Acids:	20-418
Uniprot No.:	P36955
Molecular Weight:	45.8 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥98% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: PEDF

SDS-PAGE Analysis of PEDF. This protein has a calculated molecular weight of 45.8 kDa.

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Description

Pigment epithelium-derived factor (PEDF) is a secreted glycoprotein encoded by the *SERPINF1* gene.[1] It is a non-inhibitory member of the serine-protease inhibitor (SERPIN) superfamily that has anti-angiogenic and neurotrophic activities. PEDF is a 418-amino acid protein comprised of an N-terminal region important for its neurotrophic activity, three β-sheets and ten α-helices that make up an α/β core serpin domain, and a C-terminal region containing a glycosylation site.[1,2] It has an asymmetrical charge distribution with the basic region involved in glycosaminoglycan binding and the acidic region binding to collagen I.[2] PEDF is ubiquitously expressed and localized to the extracellular matrix but can also be found in the cytoplasm and nucleus of retinal pigment epithelial cells and certain cancer cell lines.[1,3] It contains biologically active peptides, including a 34-amino acid peptide (amino acids 44-77), which contains a laminin receptor binding site and has anti-angiogenic, bone mineralization, and apoptotic activities, and a 44-amino acid peptide (amino acids 78-121), which contains a PNPLA2 binding site and promotes neuronal differentiation and inhibits vascular permeability.[1,4,5] PEDF also interacts with collagen I for its anti-angiogenic activity, as well as with sulfated (heparin) and non-sulfated (hyaluronan) glycosaminoglycans, which are important for PNPLA2 receptor binding and activation of caspases, respectively.[1,2] Its expression is reduced in a variety of cancer cell lines and solid tumors, and the reduction is associated with metastasis and poor prognosis.[2] Mutations in *SERPINF1* are responsible for the hereditary bone dysplasia disorder osteogenesis imperfecta type VI, which is characterized by bone fragility, deformity, and growth deficiency.[6] Cayman's PEDF (human, recombinant) protein consists of 410 amino acids, has a calculated molecular weight of 45.8 kDa, and a predicted N-terminus of Gln20 after signal peptide cleavage.

References

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2. Filleur, S., Nelius, T., de Riese, W., *et al.* Characterization of PEDF: A multi-functional serpin family protein. *J. Cell. Biochem.* **106(5)**, 769-775 (2009).
3. Tombran-Tink, J., Aparicio, S., Xu, X., *et al.* PEDF and the serpins: Phylogeny, sequence conservation, and functional domains. *J. Struct. Biol.* **151(2)**, 130-150 (2005).
4. Belinsky, G.S., Sreekumar, B., Andrejecsk, J.W., *et al.* Pigment epithelium–derived factor restoration increases bone mass and improves bone plasticity in a model of osteogenesis imperfecta type VI *via* Wnt3a blockade. *FASEB J.* **30(8)**, 2837-2848 (2016).
5. Bernard, A., Gao-Li, J., Franco, C.-A., *et al.* Laminin receptor involvement in the anti-angiogenic activity of pigment epithelium-derived factor. *J. Biol. Chem.* **284(16)**, 10480-10490 (2009).
6. Marini, J.C. and Blissett, A.R. New genes in bone development: What's new in osteogenesis imperfecta. *J. Clin. Endocrinol. Metab.* **98(8)**, 3095-3103 (2013).

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