

OPN3 Protein, Human (Cell-Free, His)

Cat. No.:	HY-P702400
Synonyms:	Opsin-3; Encephalopsin; Panopsin
Species:	Human
Source:	E. coli Cell-free
Accession:	Q9H1Y3 (M1-L402)
Gene ID:	23596
Molecular Weight:	47.7 kDa

PROPERTIES

AA Sequence	<pre> M Y S G N R S G G H G Y W D G G G A A G A E G P A P A G T L S P A P L F S P G T Y E R L A L L L G S I G L L G V G N N L L V L V L Y Y K F Q R L R T P T H L L L V N I S L S D L L V S L F G V T F T F V S C L R N G W V W D T V G C V W D G F S G S L F G I V S I A T L T V L A Y E R Y I R V V H A R V I N F S W A W R A I T Y I W L Y S L A W A G A P L L G W N R Y I L D V H G L G C T V D W K S K D A N D S S F V L F L F L G C L V V P L G V I A H C Y G H I L Y S I R M L R C V E D L Q T I Q V I K I L K Y E K K L A K M C F L M I F T F L V C W M P Y I V I C F L V V N G H G H L V T P T I S I V S Y L F A K S N T V Y N P V I Y V F M I R K F R R S L L Q L L C L R L L R C Q R P A K D L P A A G S E M Q I R P I V M S Q K D G D R P K K K V T F N S S S I I F I I T S D E S L S V D D S D K T N G S K V D V I Q V R P L </pre>
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 µm filtered solution of Tris/PBS-based buffer, 6% Trehalose, pH 8.0.
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 5-50% of glycerol (final concentration). Our default final concentration of glycerol is 50%. Customers could use it as reference.
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 OPN3 Protein, a G-protein coupled receptor, selectively activates G proteins via ultraviolet A (UVA) light-mediated activation in the skin. It binds both 11-cis retinal and all-trans retinal, regulating melanogenesis in melanocytes by inhibiting alpha-MSH-induced MC1R-mediated cAMP signaling and modulating calcium flux. OPN3 plays a crucial role in melanocyte survival through the regulation of intracellular calcium levels and subsequent BCL2/RAF1 signaling, while also influencing apoptosis via cytochrome c release and activation of the caspase cascade. In addition to being required for TYR and DCT blue light-induced complex formation in melanocytes, OPN3 is involved in keratinocyte differentiation and the UVA-mediated induction of calcium and mitogen-activated protein kinase signaling in dermal fibroblasts. It plays a role in light-mediated glucose uptake, mitochondrial respiration, and fatty acid metabolism in brown adipocyte tissues. Furthermore, OPN3 may contribute to the photorelaxation of airway smooth muscle cells through blue-light dependent GPCR signaling pathways. Its interaction with MC1R results in a decrease in MC1R-mediated cAMP signaling, ultimately reducing melanin production in melanocytes.

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

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