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PTH

Catalog # PVGS1011

Product Information

Primary Accession	P01270
Species	Human
Sequence	Ser32-Gln115
Purity	> 95% as analyzed by SDS-PAGE
Endotoxin Level	
Expression System	E. coli
Theoretical Molecular Weight	~9.4 kDa
Formulation	Lyophilized from a 0.2 □m filtered solution of 10mM HAc-NaAc, 150mM NaCl, 5% Mannitol, pH 4.0.
Reconstitution	It is recommended that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute the lyophilized powder in distilled water up to 100 □g/ml.
Storage & Stability	Upon receiving, this product remains stable for up to 6 months at -70°C or -20°C. Upon reconstitution, the product should be stable for up to 1 week at 4°C or up to 3 months at -20°C. Avoid repeated freeze-thaw cycles.

Additional Information

Gene ID	5741
Other Names	Parathyroid hormone, PTH, Parathormone, Parathyrin, PTH
Target Background	Parathyroid Hormone (PTH) is the most important endocrine regulator of calcium and phosphorus con- centration in extracellular fluid. Parathyroid Hormone (PTH) is secreted from cells of the parathyroid glands and finds Parathyroid Hormone's major target cells in bone and kidney. Like most other protein hormones, Parathyroid Hormone (PTH) is synthesized as a preprohormone. After intracellular processing, the mature hormone is packaged within the Golgi into secretory vesicles, the secreted into blood by exocytosis. Parathyroid Hormone (PTH) is secreted as a linear protein of 84 amino acids. Recombinant Human Parathyroid Hormone (PTH) produced in E. coli is a single, non-glycosylated, polypeptide chain containing 84 amino acids.

Protein Information

Name	PTH {ECO:0000303|PubMed:35932760, ECO:0000312|HGNC:HGNC:9606}

Function	Peptide hormone secreted by parathyroid chief cells that acts as a primary endocrine regulator of extracellular calcium and phosphate homeostasis, acting primarily on bone and kidney to maintain serum calcium levels within a narrow range (PubMed:11604398, PubMed:35932760). Acts by binding and activating the G protein-coupled receptor PTH1R, engaging the receptor to activate G(s)-mediated cAMP/PKA signaling and G(q)-mediated PLC/PKC signaling (PubMed:18375760, PubMed:35932760). In bone, acts indirectly on osteoclasts by binding PTH1R on cells of the osteoblast/osteocyte lineage, where it increases expression of TNFSF11/RANKL and decreases expression of TNFRSF11B/OPG, thereby raising the RANKL/OPG ratio and stimulating osteoclast differentiation and bone resorption (PubMed:9797718, PubMed:11454517). Stimulates also [1-14C]-2-deoxy-D- glucose (2DG) transport and glycogen synthesis in osteoblastic cells (PubMed:21076856). In distal renal tubule cells, stimulates active Ca(2+) reabsorption via the adenylyl cyclase-cAMP-protein kinase A (PKA) pathway leading to the phosphorylation and activation of the calcium selective cation channel TRPV5 (PubMed:19423690). Acting on PTH1R in proximal renal tubule cells, decreases reabsorption of filtered phosphate by reducing apical abundance of SLC34A1, through a mechanism involving PTH1R-activated PKC-mediated phosphorylation of the scaffold NHERF1, causing dissociation of the NHERF1-SLC34A1 complex and subsequent clathrin-mediated endocytosis and lysosomal degradation of the cotransporter (By similarity). Activates also transcription of CYP27B1 (25-hydroxyvitamin D3 1-alpha-hydroxylase) through a cAMP/PKA/SIK2-SIK3/CRTC2 axis, thereby increasing renal synthesis of the active vitamin D metabolite 1,25-dihydroxyvitamin D(3) (By similarity).
Cellular Location	Secreted

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.