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Proguanylin Human

Proguanylin Human Recombinant
HRM0091

Product Overview

Name	Proguanylin Human
Description	
Proguanylin Human Recombinant	
Accession (Primary)	Q02747
Synonyms	
Guanylin Precursor, Guanylate cyclase activator 2A, Guanylate cyclase-activating protein 1, Gap-IGUCA2, STARA, GUANYLIN.	
Introduction	

Heat-stable enterotoxins (STa) are small, cysteine-rich peptides secreted by Escherichia coli that are able to induce diarrhea through the stimulation of an intestine-specific receptor-guanylyl cyclase known as STaR. Binding of STa to STaR induces a dramatic increase in the cGMP content of the cell; the increase, in turn, inhibits salt absorption and stimulates chloride secretion. This imbalance of ions is accompanied by a massive accumulation of water in the gut that gives rise to the diarrhea and dehydration characteristic of enterotoxin activity. The identification of a receptor for STa on intestinal brush border membranes suggested the existence of an endogenous activator, described guanylin, a 15-amino acid peptide purified from rat small intestine, as a potential ligand for the STaR. This peptide shares sequence similarity with STa; see also uroguanylin. The molecular cloning of the human and mouse cDNAs encoding guanylin was reported. The sequences demonstrated that guanylin is present at the C-terminal end of a larger precursor protein. Expression in mammalian cells indicated that the 94- amino acid proguanylin is inactive. The biologically active guanylin can be released by either chemical or enzymatic treatment of proguanylin. By Northern blot analysis and in situ hybridization, showed that expression of guanylin mRNA is restricted to cells of the intestinal epithelium, specifically the Paneth cells at the base of the small intestinal crypts. These results demonstrate that guanylin is an endogenous activator of STaR isolated a cDNA encoding an apparent precursor of guanylin from a human intestinal cDNA library. The mRNA was expressed at high levels in human ileum and colon. In the mouse, interspecific backcross analysis used to map the Guca2 gene to the distal half of mouse chromosome 4 in a region of homology with human chromosome 1p. By fluorescence in situ hybridization mapped the GUCA2 gene to human 1p35-p34 Guanylin is thought to modulate intestinal water/electrolyte transport in a paracrine mode reported the nucleotide sequence of the gene, the characteristics of its circulating molecular form, and its localization in enterochromaffin cells of the gut. The gene, approximately 2.6 kb in size, consists of 3 exons interrupted by 2 introns.

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The hormonal form of guanylin is a 94-amino acid peptide with a molecular mass of 10.3 kDa. Guanylin is synthesized by gut enterochromaffin cells as a prohormone of 115 amino acids and is processed to the molecular form of 94 amino acids circulating in the blood.

Source

Escherichia Coli.

Physical Appearance

Sterile Filtered White lyophilized (freeze-dried) powder.

Formulation

Proguanylin filtered (0.4 µm) and lyophilized in 0.5mg/ml in deionized H 2 0.

Stability

Store lyophilized protein at -20°C. Aliquot the product after reconstitution to avoid repeated freezing/thawing cycles. 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.

Purity

Greater than 90.0% as determined by SDS-PAGE.

Amino acid sequence

MKHHHHHHAS VTVQDGNFSF SLESVKKLKD LQEPQEPRVG KLRNFAPIPG EPVVPILCSN PNFPEELKPL CKEPNAQEIL QRLEEIAEDP GTCEICAYAA CTGC.

Solubility

It is recommended to add deionized water to prepare a working stock solution of approximately 0.5mg/ml and let the lyophilized pellet dissolve completely. Proguanylin is not sterile! Please filter the product by an appropriate sterile filter before using it in the cell culture.

Precautions

Proguanylin Human is for research use only and not for use in diagnostic or therapeutic procedures.

Target Information: (Q02747)