Data Sheet (Cat.No.TMPY-03554)

TargetMol

GCAP1 Protein, Human, Recombinant

General Information

Synonyms:	GCAP;dJ139D8.6;GUCA;GCAP1;COD3;C6orf131;GUCA1;CORD14;guanylate cyclase activator 1A (retina)
Protein Construction:	A DNA sequence encoding the human GUCA1A (P43080)(Met1-Gly201) was expressed and purified with two additional amino acids (Gly & Pro) at the N-terminus. Predicted N terminal: Gly
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	P43080
Molecular Weight:	23.1 kDa (predicted); 20 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 85 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing 20 mM Tris, 500 mM NaCl, 10% glycerol, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

GCAP 1 gene plays a role in the recovery of retinal photoreceptors from photobleaching. In the recovery phase, the phototransduction messenger cGMP is replenished by retinal guanylyl cyclase-1 (GC1). GC1 is activated by decreasing Ca(2+) concentrations following photobleaching. The protein encoded by this gene, guanylyl cyclase-

activating protein 1 (GCAP 1), mediates the sensitivity of GC1 to Ca(2+) concentrations. GCAP 1 promotes the activity of GC1 at low Ca(2+) concentrations and inhibits GC1 activity at high Ca(2+) concentrations. Mutations in GCAP 1 gene cause autosomal dominant cone dystrophy (COD3); a disease characterized by reduced visual acuity associated with progressive loss of color vision. GCAP 1 stimulates guanylyl cyclase 1 (GC1) when free calcium ions concentration is low and inhibits GC1 when free calcium ions concentration is elevated. This Ca(2+)-sensitive regulation of GC is a key event in the recovery of the dark state of rod photoreceptors following light exposure.

Reference

Surguchov A,et al.(1997) The human GCAP1 and GCAP2 genes are arranged in a tail-to-tail array on the short arm of chromosome 6 (p21.1). Genomics. 39(3):312-22.

Subbaraya I,et al.(1995) Molecular characterization of human and mouse photoreceptor guanylate cyclase-activating protein (GCAP) and chromosomal localization of the human gene. J Biol Chem. 269(49):31080-9.

Payne AM,et al.(1998) A mutation in guanylate cyclase activator 1A (GCAP 1) in an autosomal dominant cone dystrophy pedigree mapping to a new locus on chromosome 6p21.1. Hum Mol Genet. 7(2):273-7.

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