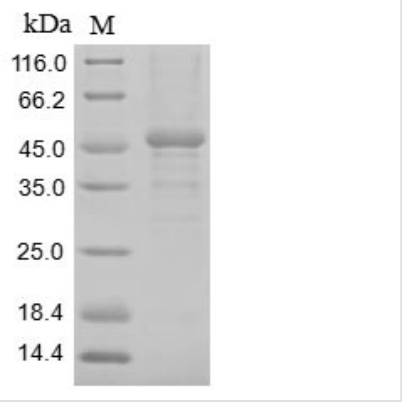
Recombinant Rat Heat-stable enterotoxin receptor (Gucy2c), partial

Product Code	CSB-BP010053RA
Relevance	Receptor for the E.coli heat-stable enterotoxin (E.coli enterotoxin markedly stimulates the accumulation of cGMP in mammalian cells expressing GC-C). Also activated by the endogenous peptide guanylin.
Abbreviation	Recombinant Rat Gucy2c protein, partial
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P23897
Product Type	Recombinant Protein
Immunogen Species	Rattus norvegicus (Rat)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	SQVRQKCHNGTYEISVLMMDNSAYKEPLQNLRDAVEEGLDIVRKRLREAELNV TVNATFIYSDGLIHKSGDCRSSTCEGLDLLREITRDRKMGCVLMGPSCTYSTF QMYLDTELNYPMISAGSFGLSCDYKETLTRILPPARKLMYFLVDFWKVNNAPF KTFSWNSSYVYKNGSEPEDCFWYLNALEAGVSYFSEVLSFKDVLRRSEQFQE ILMGRNRKSNVIVMCGTPETFYNVKGDLKVADDTVVILVDLFSNHYFEDDTRAP EYMDNVLVLTLPPEKFIANASVSGRFPSERSDFSLAYLEGTLLFGHMLQTFLEN GESVTTPKFARAFRNLTFQGLEGPVTLDDSGDIDNIMCLLYVSLDTRKYKVLMA YDTHKNQTIPVATSPNFIWKNHRLPNDVPGLGPQ
Research Area	Microbiology
Source	Baculovirus
Target Names	Gucy2c
Protein Names	Guanylyl cyclase C (GC-C) (Intestinal guanylate cyclase) (Guc2c)
Expression Region	23-429aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-tagged and C-terminal Myc-tagged
Mol. Weight	50.4 kDa
Protein Length	Extracellular Domain
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Rat Heat-stable enterotoxin receptor (Gucy2c) is produced through a baculovirus expression system. The construct covers the extracellular domain spanning amino acids 23 to 429. For easier handling, the protein carries both an N-terminal 10xHis-tag and a C-terminal Myc-tag, which help with purification and detection steps. SDS-PAGE analysis shows the protein reaches greater than 85% purity, which appears sufficient for most biochemical assays and research work.

The Heat-stable enterotoxin receptor, Gucy2c, functions as a membrane-bound guanylate cyclase. This receptor seems to play an important role in how the intestinal epithelium manages fluid and electrolyte balance. Its involvement in maintaining intestinal homeostasis suggests it may be a central player in the cyclic GMP pathway. Researchers studying gastrointestinal function and related disorders have shown considerable interest in this protein.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Protein-Protein Interaction Studies Using Pull-Down Assays

The dual-tagged recombinant Gucy2c extracellular domain can be anchored to Ni-NTA or anti-His beads through its N-terminal 10xHis tag. This setup allows researchers to fish out potential binding partners from rat tissue lysates or cell extracts. Meanwhile, the C-terminal Myc tag helps confirm that the bait protein is actually present during pull-down experiments. This strategy could reveal new extracellular proteins or ligands that might interact with the Gucy2c receptor domain. Using the rat-specific sequence likely maintains more natural, species-appropriate interactions during screening.

2. Antibody Development and Characterization

The purified recombinant protein works well as an immunogen for creating polyclonal or monoclonal antibodies targeting the rat Gucy2c extracellular

domain. With purity levels above 85%, contamination during immunization protocols should be minimal. Both His and Myc tags prove useful in later antibody validation work - think ELISA-based screening and Western blot confirmation. The well-defined amino acid region (23-429aa) gives researchers a consistent antigen, which may help standardize antibody production between different labs.

3. Enzyme-Linked Immunosorbent Assay (ELISA) Development

This dual-tagged protein can help establish sandwich or competitive ELISA formats for measuring Gucy2c levels in rat biological samples. The His tag makes direct coating onto Ni-NTA plates straightforward. The Myc tag offers a built-in detection system using anti-Myc antibodies as controls. Researchers can use this recombinant protein as both a standard curve reference and a positive control when developing assays. Since it represents the extracellular domain, it's likely suitable for detecting the receptor in samples where this region remains accessible.

4. Structural and Biochemical Characterization Studies

The recombinant extracellular domain appears ready for various biophysical analyses. These might include circular dichroism spectroscopy, dynamic light scattering, and analytical ultracentrifugation to figure out its folding state and whether it forms oligomers. The baculovirus expression system generally provides proper eukaryotic post-translational modifications, which could make this protein more suitable for structural studies. Both affinity tags should help optimize purification steps and make protein concentration measurements more straightforward during biochemical work. The clearly defined domain boundaries (23-429aa) may allow for systematic studies examining how structure relates to function in this particular receptor region.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.