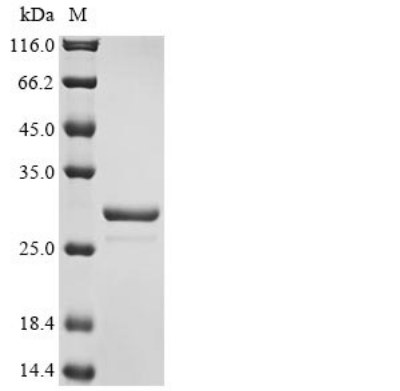
Recombinant Arabidopsis thaliana Root meristem growth factor 1 (RGF1)

Product Code	CSB-EP660355DOA
Abbreviation	Recombinant Mouse-ear cress RGF1 protein
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.	Q3E880
Form	Liquid or Lyophilized powder
Storage Buffer	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
Product Type	Recombinant Protein
Immunogen Species	Arabidopsis thaliana (Mouse-ear cress)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	DYSNPGHHPPRHN
Research Area	Signal Transduction
Source	E.coli
Target Names	RGF1
Expression Region	104-116aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal GST-tagged
Mol. Weight	28.2 kDa
Protein Length	Full Length of Mature Protein
Image	 (Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Arabidopsis thaliana Root meristem growth factor 1 (RGF1) is produced in E. coli and includes an N-terminal GST tag that makes purification and detection more straightforward. The protein spans the complete mature protein sequence, covering amino acids 104 to 116. It comes with greater than 85% purity, confirmed through SDS-PAGE analysis, which appears suitable for various plant research experiments.

Root meristem growth factor 1 (RGF1) seems to be a crucial protein in regulating how plant roots develop. It likely plays an important role in keeping the stem cell niche functioning within the root meristem, affecting both root patterning and growth. RGF1 appears to be a key player in signaling pathways that maintain proper root structure. This makes it particularly interesting for researchers studying plant development and growth control.

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. In Vitro Root Development Assays

This recombinant RGF1 peptide may prove useful for studying how root meristems maintain themselves and regulate stem cell niches under controlled lab conditions. The GST tag makes purification and handling easier for dose-response experiments that examine how RGF1 affects root growth patterns. Researchers might apply this protein to Arabidopsis root explants or seedlings to look at concentration-dependent changes in root elongation and meristem cell division. The 13-amino acid mature peptide likely represents the biologically active form needed for RGF1 signaling studies.

2. Plant Hormone Interaction Studies

The recombinant RGF1 could serve as a research tool for investigating how RGF1 signaling interacts with other plant hormones like auxin, cytokinin, and gibberellins during root development. Scientists can combine this protein with different hormone treatments to map out signaling network connections. The GST tag allows for controlled protein delivery and measurement in experimental setups. These studies might help clarify how RGF1 fits into the broader hormonal control of plant growth.

3. Antibody Development and Validation

The GST-tagged RGF1 protein appears well-suited as an antigen for creating specific antibodies against the RGF1 peptide. Researchers can use the recombinant protein to immunize animals for polyclonal antibody production or to screen monoclonal antibody clones. This protein may also help validate antibody specificity through Western blotting, ELISA, and immunoprecipitation

experiments. The high purity level should provide reliable results in antibody testing.

4. Protein-Protein Interaction Screening

The GST tag makes pull-down assays possible for identifying potential RGF1 binding partners or receptors in plant protein extracts. Scientists can attach the GST-RGF1 fusion protein to glutathione beads and screen for interacting proteins from Arabidopsis root tissue lysates. This method might help identify other components in the RGF1 signaling pathway and reveal molecular mechanisms behind root meristem regulation. The defined peptide sequence allows for specific interaction studies without interference from other protein regions.

5. Biochemical Characterization Studies

This recombinant protein enables detailed biochemical analysis of RGF1 properties, including stability, solubility, and structural features under different conditions. Researchers can perform peptide sequencing, mass spectrometry analysis, and stability tests to understand how RGF1 behaves biochemically. The GST tag makes protein handling and purification easier for these analytical studies. Such characterization work provides basic knowledge about RGF1 that may support wider research applications.

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.