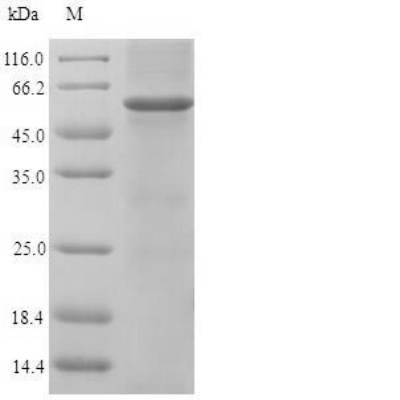
Recombinant Chicken Homeobox protein engrailed-1 (EN1)

Product Code	CSB-EP007659CH
Abbreviation	Recombinant Chicken EN1 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.	Q05916
Alias	Short name:Gg-En-1 Short name:Homeobox protein en-1
Product Type	Recombinant Protein
Immunogen Species	Gallus gallus (Chicken)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MEEPPEGHGHHRDAAPPGPANGGGGGGGGSDGDSAPVSPSPAPASPAAPC PLPLPRRRPPPPPPPRTTNFFIDNILRPDFGCKKEPPAATGAATGAGGGGGGG GREQRDGAQSAGRENVNPLLARPPHAPSSALLCPDSNCAPDGSAPAGTAAK ANPGTAAGAAGAAGAAKAQGDGGETPAAKYGEHGSPAILLMGSNNGGAVLK PDSQQPLVWPAWVYCTRYSDRPSSPRTRKLKKKKTEKEDKRPRTAFTAEQLQ RLKAEFQANRYITEQRRQSLAQELSLNESRVKIWFQNKRAKIKKATGIKNGLAL HLMAQGLYNHSTTTVQDKEESE
Research Area	Neuroscience
Source	E.coli
Target Names	EN1
Protein Names	Recommended name: Homeobox protein engrailed-1 Short name= Gg-En-1 Short name= Homeobox protein en-1
Expression Region	1-333aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-B2M-tagged
Mol. Weight	48.5kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Chicken Homeobox protein engrailed-1 (EN1) is produced using an E.coli expression system and contains the full-length protein sequence from 1-333 amino acids. The protein carries an N-terminal 6xHis-B2M tag for purification and detection. SDS-PAGE analysis confirms greater than 90% purity, which makes it suitable for various research applications.

Homeobox protein engrailed-1 (EN1) appears to play a vital role in developmental processes and pattern formation. Research suggests it regulates gene expression during embryonic development, with particular effects on neural and skeletal structures. Given its critical function in these pathways, EN1 has become a significant focus of research in developmental biology and related fields.

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

This full-length recombinant chicken EN1 protein works well in pull-down assays to identify and characterize protein partners that interact with the engrailed-1 homeobox protein. The N-terminal 6xHis-B2M tag allows for immobilization on nickel-affinity resins, capturing interacting proteins from chicken embryonic tissue lysates or cell extracts. Such studies may help reveal the molecular mechanisms underlying EN1 function in developmental processes. The high purity (>90%) likely ensures reliable results with minimal background interference from contaminating proteins.

2. DNA-Protein Binding Assays

The recombinant EN1 protein serves as a useful tool for electrophoretic mobility shift assays (EMSA) or surface plasmon resonance studies to investigate its DNA-binding specificity and affinity. Researchers can test various DNA sequences containing potential engrailed binding sites to map the protein's

recognition elements and binding kinetics. This application appears particularly valuable for studying transcriptional regulation mechanisms in avian development. The full-length construct (1-333aa) preserves the complete DNA-binding domain structure necessary for authentic binding activity.

3. Antibody Development and Validation

This purified recombinant protein can work as an immunogen for generating specific antibodies against chicken EN1 or as a positive control for validating existing anti-EN1 antibodies. The high purity level makes it suitable for immunization protocols in laboratory animals to produce polyclonal or monoclonal antibodies. The protein can also serve as a standard in Western blot, ELISA, or immunofluorescence experiments to confirm antibody specificity and determine optimal working concentrations. The His-B2M tag enables tag-specific detection methods for experimental validation as well.

4. Structural and Biophysical Characterization

Researchers can apply the recombinant EN1 protein in biophysical studies such as circular dichroism spectroscopy, dynamic light scattering, or analytical ultracentrifugation to characterize its folding state, secondary structure content, and oligomerization behavior. These analyses may provide insights into the protein's structural properties and stability under various buffer conditions. The E. coli expression system and high purity make it suitable for large-scale preparation needed for structural studies. Such characterization data would likely prove valuable for understanding structure-function relationships of this homeobox transcription factor.

5. In Vitro Transcription Assays

This full-length EN1 protein can be incorporated into cell-free transcription systems to study its role as a transcriptional regulator using chicken-specific promoter sequences. Researchers can examine how EN1 affects transcription initiation or elongation by adding the purified protein to reconstituted transcription reactions containing RNA polymerase II and associated factors. The complete amino acid sequence (1-333aa) ensures that both DNA-binding and transcriptional regulatory domains are present for functional studies. These assays may help define the mechanistic role of EN1 in gene expression control during avian development.

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.