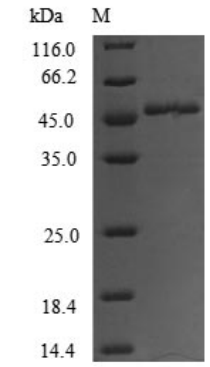
Recombinant Human Forkhead box protein O3 (FOXO3), partial

Product Code	CSB-EP008836HU1
Relevance	Transcriptional activator which triggers apoptosis in the absence of survival factors, including neuronal cell death upon oxidative stress. Recognizes and binds to the DNA sequence 5'-[AG]TAAA[TC]A-3'. Participates in post-transcriptional regulation of MYC: following phosphorylation by MAPKAPK5, promotes induction of miR-34b and miR-34c expression, 2 post-transcriptional regulators of MYC that bind to the 3'UTR of MYC transcript and prevent its translation.
Abbreviation	Recombinant Human FOXO3 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.	O43524
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 85% as determined by SDS-PAGE.
Sequence	MAGTMNLNDGLTENLMDDLLDNITLPPSQPSPTGGLMQRSSSFPYTTKGSGL GSPTSSFNSTVFGPSSLNSLRQSPMQTIQENKPATFSSMSHYGNQTLQDLLTS DSLSHSDVMMTQSDPLMSQASTAVSAQNSRRNVMLRNDPMMSFAAQPNQG SLVNQNLLHHQHQTQGALGGSRALSNSVSNMGLSESSSLGSAKHQQQSPVS QSMQTLSDSLSGSSLYSTSANLPVMGHEKFPSDLDLDMFNGSLECDMESIIRS ELMDADGLDFNFDSLISTQNVVGLNVGNFTGAKQASSQSWVPG
Research Area	Epigenetics and Nuclear Signaling
Source	E.coli
Target Names	FOXO3
Protein Names	AF6q21 protein Forkhead in rhabdomyosarcoma-like 1 FKHRL1 FOXO3A
Expression Region	372-673aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged
Mol. Weight	48.1 kDa
Protein Length	Partial
Image	



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

Description

Recombinant Human Forkhead box protein O3 (FOXO3) is produced in an E.coli expression system, featuring an N-terminal 6xHis-SUMO tag. This partial protein comprises amino acids 372-673 and achieves a purity level greater than 85% as verified by SDS-PAGE. It is intended for research use only and offers a reliable tool for studying protein interactions and signaling pathways.

FOXO3 appears to be a critical transcription factor involved in the regulation of genes linked to cell cycle control, apoptosis, and oxidative stress response. It likely plays a significant role in various cellular processes and is a key component in signaling pathways related to longevity and stress resistance. Many researchers investigate FOXO3 to understand its impact on cellular homeostasis and its potential implications in age-related studies.

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 N-terminal 6xHis-SUMO tag makes possible nickel affinity-based pull-down experiments to identify and characterize proteins that interact with the FOXO3 C-terminal region (372-673aa). This partial protein fragment contains domains that may be critical for protein interactions. It seems well-suited for studying binding partners in cell lysates or with purified candidate proteins. The SUMO tag provides additional specificity and can help maintain proper protein folding during the interaction studies. The 85% purity level appears sufficient for these binding assays where the tagged FOXO3 fragment serves as bait protein.

2. Antibody Development and Validation

This recombinant FOXO3 fragment can work as an immunogen or screening antigen for developing antibodies specific to the C-terminal region of human FOXO3. The 85% purity and E. coli expression system make it cost-effective for immunization protocols and subsequent antibody characterization assays. The

His-SUMO tag allows for easy purification and immobilization on various surfaces for ELISA-based antibody screening and validation. Scientists can use this fragment to generate region-specific antibodies that distinguish this domain from other FOXO family members.

3. Biochemical Characterization and Domain Function Analysis

The partial FOXO3 protein spanning amino acids 372-673 allows for focused biochemical analysis of this specific C-terminal region's properties. Scientists can perform stability studies, thermal shift assays, and limited proteolysis experiments to understand the structural characteristics of this domain. The His-SUMO tag makes protein purification straightforward for concentration-dependent studies and creates controlled experimental conditions. This fragment may be suitable for investigating the isolated function of this C-terminal region without interference from other FOXO3 domains.

4. In Vitro Binding Assays with DNA or Small Molecules

The recombinant FOXO3 fragment can be used in electrophoretic mobility shift assays (EMSA) or surface plasmon resonance studies to investigate potential DNA-binding capabilities or small molecule interactions specific to this C-terminal region. The His tag makes possible easy immobilization for biosensor-based binding studies, while the 85% purity provides sufficient quality for quantitative binding measurements. These assays can help determine if this particular domain contributes to FOXO3's overall binding specificity or if it modulates interactions with regulatory molecules.

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.