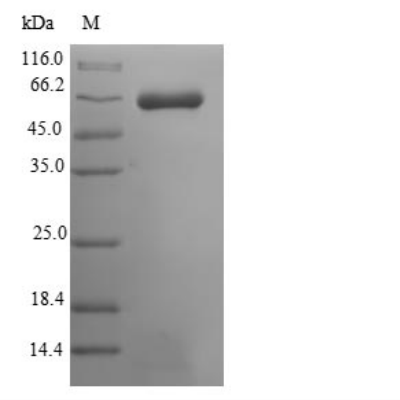
Recombinant Mouse Muscle, skeletal receptor tyrosine-protein kinase (Musk),Partial

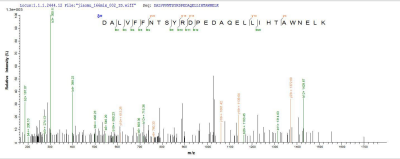
Product Code	CSB-EP730715MO
Relevance	Receptor tyrosine kinase which plays a central role in the formation and the maintenance of the neuromuscular junction (NMJ), the synapse between the motor neuron and the skeletal muscle. Recruitment of AGRIN by LRP4 to the MUSK signaling complex induces phosphorylation and activation of MUSK, the kinase of the complex. The activation of MUSK in myotubes regulates the formation of NMJs through the regulation of different processes including the specific expression of genes in subsynaptic nuclei, the reorganization of the actin cytoskeleton and the clustering of the acetylcholine receptors (AChR) in the postsynaptic membrane. May regulate AChR phosphorylation and clustering through activation of ABL1 and Src family kinases which in turn regulate MUSK. DVL1 and PAK1 that form a ternary complex with MUSK are also important for MUSK-dependent regulation of AChR clustering. May positively regulate Rho family GTPases through FNTA. Mediates the phosphorylation of FNTA which promotes prenylation, recruitment to membranes and activation of RAC1 a regulator of the actin cytoskeleton and of gene expression. Other effectors of the MUSK signaling include DNAJA3 which functions downstream of MUSK. May also play a role within the central nervous system by mediating cholinergic responses, synaptic plasticity and memory formation.
Abbreviation	Recombinant Mouse Musk 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.	Q61006
Product Type	Recombinant Proteins
Immunogen Species	Mus musculus (Mouse)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	EKLPKAPVITTPLETVDALVEEVATFMCAVESYPQPEISWTRNKILIKLFDTRYSI RENGQLLTILSVEDSDDGIYCCIANNGVGGAVESCGALQVKMKPKITRPPINVKI IEGLKAVLPCTTMGNPKPSVSWIKGDNALRENSRIAVLESGSLRIHNVQKEDAG QYRCVAKNSLGTAYSKLVKLEVEVFARILRAPESHNVTFGSFVTLRCTAIGIPVP TISWIENGNAVSSGSIQESVKDRVIDSRLQLFITKPGLYTCIATNKHGEKFSTAK AAATVSIAEWSKSQKDSQGYCAQYRGEVCDAVLAKDALVFFNTSYRDPEDAQ ELLIHTAWNELKAVSPLCRPAAEALLCNHLFQECSPGVVPTPMPICREYCLAVK ELFCAKEWQAMEGKAHRGLYRSGMHLLPVPECSKLPSMHRDPTACTRLPYL DYKKENITTFPSITSSRPSADIPNLPASTSSFAVSPAYSMT
Research Area	Signal Transduction
Source	E.coli

Target Names	Musk
Expression Region	22-494aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 10xHis-SUMO-tagged and C-terminal Myc-tagged
Mol. Weight	69.3kDa
Protein Length	Extracellular Domain

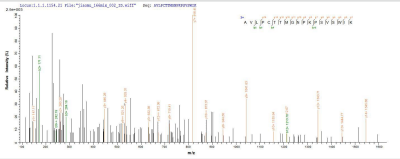
Image



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



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP730715MO could indicate that this peptide derived from E.coli-expressed Mus musculus (Mouse) Musk.



Based on the SEQUEST from database of E.coli host and target protein, the LC-MS/MS Analysis result of CSB-EP730715MO could indicate that this peptide derived from E.coli-expressed Mus musculus (Mouse) Musk.

Description

To produce recombinant mouse Muscle, skeletal receptor tyrosine-protein kinase (Musk) in E. coli, the gene encoding the extracellular domain of the mouse Musk protein (22-494aa) is co-cloned into an expression vector with an N-terminal 10xHis-SUMO-tag and C-terminal Myc-tag gene and transformed into E. coli cells. The bacteria are cultured under conditions that induce protein expression. Once adequate growth is achieved, the cells are lysed to release the recombinant Musk protein. The recombinant Musk protein is subjected to affinity chromatography purification. Its purity is confirmed using SDS-PAGE, greater than 90%.

MuSK is a receptor tyrosine kinase expressed in skeletal muscle [1][2][3]. MuSK is involved in the neuromuscular junction (NMJ) formation and maintenance [4][5]. Agrin, a ligand derived from motor neurons, interacts with MuSK to stimulate its phosphorylation, a process critical for synapse formation [6][7]. MuSK is involved in acetylcholine receptor clustering at the neuromuscular

junction, a process necessary for proper synaptic function [8][9].

Studies have shown that MuSK is expressed early in synaptogenesis and is vital for the development and maintenance of the NMJ [2][10]. MuSK has been linked to cholinergic responses, synaptic plasticity, and memory formation in the brain [11]. The interaction of MuSK with other proteins like Src-class kinases and 14-3-3γ further highlights its role in regulating synaptic gene transcription and acetylcholine receptor phosphorylation [5][12].

References:

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Shelf Life

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