Recombinant Cynomolgus Monkey MuSK His-tag

Catalog Number: 11153-MK

DESCRIPTION

Source	Chinese Hamster Ovary cell line, CHO-derived cynomolgus monkey MuSK protein Leu24-Thr495, with a C-terminal 6-His tag Accession # XP_005581150.1
N-terminal Sequence Analysis	Leu24
Predicted Molecular Mass	53 kDa

SPECIFICATIONS

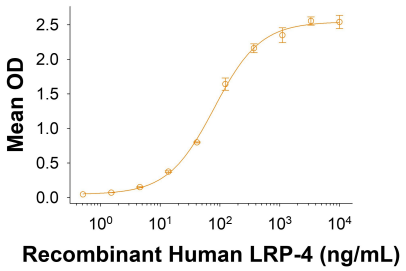
SDS-PAGE	60-70 kDa, under reducing conditions.
Activity	Measured by its binding ability in a functional ELISA. In the presence of Recombinant Human Agrin (Catalog # 6624-AG), immobilized Recombinant Cynomolgus Monkey MuSK His-tag (Catalog # 11153-MK) at 2 µg/mL (100 µL/well), Recombinant Human LRP-4 (Catalog # 5948-LR) binds with an ED_{50} of 25.0-200 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 500 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

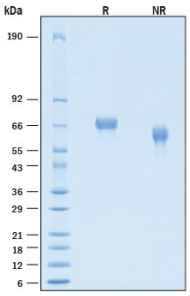
DATA

Binding Activity



Recombinant Cynomolgus Monkey MuSK His-tag Protein Binding Activity. In the presence of Recombinant Human Agrin (Catalog # 6624-AG), immobilized Recombinant Cynomolgus Monkey MuSK His-tag Protein (Catalog # 11153-MK) at 2 µg/mL (100 µL/well), Recombinant Human LRP-4 (Catalog # 5948-LR) binds with an ED_{50} of 25.0-200 ng/mL.

SDS-PAGE



Recombinant Cynomolgus Monkey MuSK His-tag Protein SDS-PAGE. 2 µg/lane of Recombinant Cynomolgus Monkey MuSK His-tag Protein (Catalog # 11153-MK) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 60-70 kDa.

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BACKGROUND

Muscle-specific kinase (MuSK), also known as muscle skeletal receptor tyrosine-protein kinase, is a single-pass transmembrane protein belonging to the protein kinase superfamily (1). Cynomolgus MuSK consists of an extracellular domain (ECD) with 3 immunoglobulin-like domains and a cysteine-rich domain (CRD), a transmembrane domain, and a cytoplasmic domain with a tyrosine kinase domain (2). Within the mature ECD, cynomolgus MuSK shares 99% and 91% amino acid sequence identity with human and mouse MuSK, respectively. Alternative splicing of MuSK results in multiple isoforms which could result in altered properties and functions (3,4). MuSK is expressed by skeletal muscle cells and excitatory neurons in the central nervous system (CNS) (1, 2). MuSK is essential for neuromuscular synapse formation and activation of the MuSK signaling cascade is critical for proper signaling between motor neurons and skeletal muscle (1-4). Once activated, MuSK stimulates the pathways that facilitate transcription of genes which encode synaptic proteins in muscle, activate retrograde signaling which promotes presynaptic differentiation, and cluster and anchor acetylcholine receptors (AChRs) (1, 5). Low-density lipoprotein receptor-related protein-4 (Lrp4), is the ligand for MuSK, and its binding affinity is potentiated by agrin (3). Mutant mice lacking agrin, MuSK, and Lrp4 fail to form neuromuscular junctions (NMJ) and subsequently died at birth due to respiratory failure (2, 3). In the presence of mutations which impair MuSK kinase activity or downstream signaling from MuSK, synapses become both structurally and functionally defective, leading to congenital myasthenia (6). The autoimmune disease myasthenia gravis is another neuromuscular disease caused by autoantibodies to AChRs, MuSK or Lrp4 (6).

References:

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2. Hubbard, S.R. and Gnanasambandan, K. (2013) Biochem Biophys. Acta. **1834**:2166.
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5. Camurdanoglu, B.Z. *et al.* (2016) Sci. Rep. **6**:33583.
6. Herbst, R. (2020) Neurosci. Lett. (2020) **716**:134676.

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