

## MUSK Protein, Human (P.pastoris, His)

<b>Cat. No.:</b>	HY-P72273
<b>Synonyms:</b>	Muscle, skeletal receptor tyrosine-protein kinase; CMS9; FADS; MDK4; Muscle; MuSK;
<b>Species:</b>	Human
<b>Source:</b>	P. pastoris
<b>Accession:</b>	O15146-2 (L24-I495)
<b>Gene ID:</b>	4593
<b>Molecular Weight:</b>	Approximately 66 kDa

### PROPERTIES

#### AA Sequence

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L P K A P V I T T P   L E T V D A L V E E   V A T F M C A V E S   Y P Q P E I S W T R
N K I L I K L F D T   R Y S I R E N G Q L   L T I L S V E D S D   D G I Y C C T A N N
G V G G A V E S C G   A L Q V K M K P K I   T R P P I N V K I I   E G L K A V L P C T
T M G N P K P S V S   W I K G D S P L R E   N S R I A V L E S G   S L R I H N V Q K E
D A G Q Y R C V A K   N S L G T A Y S K V   V K L E V E E E S E   P E Q D T K V F A R
I L R A P E S H N V   T F G S F V T L H C   T A T G I P V P T I   T W I E N G N A V S
S G S I Q E S V K D   R V I D S R L Q L F   I T K P G L Y T C I   A T N K H G E K F S
T A K A A A T I S I   A E W R E Y C L A V   K E L F C A K E W L   V M E E K T H R G L
Y R S E M H L L S V   P E C S K L P S M H   W D P T A C A R L P   H L A F P P M T S S
K P S V D I P N L P   S S S S S S F S V S   P T Y S M T V I I S   I M S S F A I F V L
L T I T T L Y C C R   R R K Q W K N K K R   E S A A V T L T T L   P S E L L L D R L H
P N P M Y Q R M P L   L L N P K L L S L E   Y P R N N I E Y V R   D I
  
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**Biological Activity** The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.

**Appearance** Lyophilized powder.

**Formulation** Lyophilized from 0.2 µm filtered solution in 20 mM Tris-HCl, 0.5 M NaCl, 3% Trehalose, pH 8.0.

**Endotoxin Level** <1.0 EU/µg, determined by LAL method.

**Reconstitution** It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH<sub>2</sub>O.

**Storage & Stability** Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.

**Shipping** Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

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## Background

The MUSK protein, a receptor tyrosine kinase, holds a pivotal role in the formation and maintenance of the neuromuscular junction (NMJ), the synapse connecting motor neurons to skeletal muscles. Upon AGRIN recruitment by LRP4 to the MUSK signaling complex, MUSK undergoes phosphorylation and activation, regulating NMJ formation by influencing gene expression in subsynaptic nuclei, orchestrating actin cytoskeleton reorganization, and clustering acetylcholine receptors (AChR) in the postsynaptic membrane. ABL1 and Src family kinases, activated by MUSK, may further regulate AChR phosphorylation and clustering. The ternary complex formed by MUSK, DVL1, and PAK1 is crucial for AChR clustering regulation. Additionally, MUSK positively regulates Rho family GTPases through FNTA, mediating the phosphorylation of FNTA and promoting the activation of RAC1, a key regulator of the actin cytoskeleton and gene expression. DNAJA3, acting downstream of MUSK, is another effector in the MUSK signaling pathway. Beyond the neuromuscular junction, MUSK may also contribute to cholinergic responses, synaptic plasticity, and memory formation within the central nervous system.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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