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MUSK Antibody
Purified Mouse Monoclonal Antibody
Catalog # AO1287a

Specification

MUSK Antibody - Product Information

Application	**IHC, ICC, E**
Primary Accession	O15146
Reactivity	**Human**
Host	**Mouse**
Clonality	**Monoclonal**
Isotype	**IgG1**
Calculated MW	**97kDa KDa**

Description
MuSK (for Muscle Specific Kinase) is a receptor tyrosine kinase required for the formation of the neuromuscular junction (NMJ). It induces cellular signaling by causing the addition of phosphate molecules to particular tyrosines on itself, and on proteins which bind the cytoplasmic domain of the receptor. It is activated by a nerve-derived proteoglycan called agrin. During development, the growing end of motor neuron axons secrete a protein called agrin.This protein binds to several receptors on the surface of skeletal muscle. The receptor which seems to be required for formation of the neuromuscular junction (NMJ), which comprises the nerve-muscle synapse is called MuSK. MUSK mutations lead to decreased agrin-dependent AchR aggregation, a critical step in the formation of the neuromuscular junction.

Immunogen
Purified recombinant extracellular fragment of human MUSK (aa24-209) fused with hIgGFc tag expressed in HEK293 cell line.

Formulation
Ascitic fluid containing 0.03% sodium azide.

MUSK Antibody - Additional Information

Gene ID 4593

Other Names
Muscle, skeletal receptor tyrosine-protein kinase, 2.7.10.1, Muscle-specific tyrosine-protein kinase receptor, MuSK, Muscle-specific kinase receptor, MUSK

Dilution
IHC~~1/200 - 1/1000
ICC~~N/A
E~~N/A

Storage
Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.

Precautions

MUSK Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

MUSK Antibody - Protein Information

Name MUSK

Function
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 (PubMed:25537362). 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 (By similarity).

Cellular Location
Postsynaptic cell membrane; Single-pass type I membrane protein. Note=Colocalizes with acetylcholine receptors (AChR) to the postsynaptic cell membrane of the neuromuscular junction

MUSK Antibody - Protocols

Provided below are standard protocols that you may find useful for product applications.

- Western Blot
- Blocking Peptides
- Dot Blot
- Immunohistochemistry
- Immunofluorescence
- Immunoprecipitation
- Flow Cytomety
- Cell Culture

MUSK Antibody - Images

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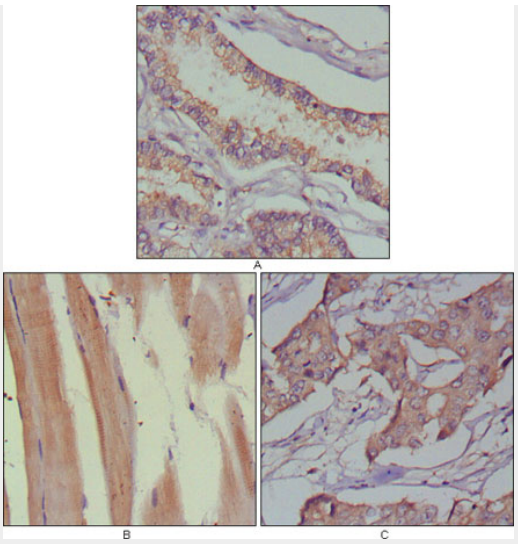

Figure 1: Immunohistochemical analysis of paraffin-embedded human lung cancer (A), muscles (B) and breast cancer (C) using MUSK mouse mAb with DAB staining.

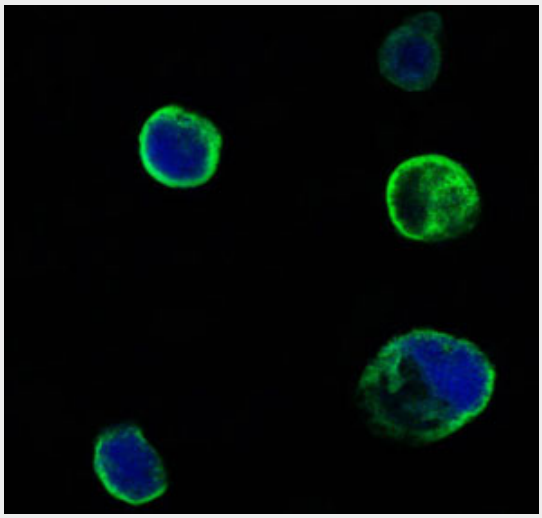

Figure 2: Confocal immunofluorescence analysis of HEK293 cells trasfected with extracellular MUSK (aa24-209)-hIgGFc using MUSK mouse mAb (green). Blue: DRAQ5 fluorescent DNA dye.

MUSK Antibody - References

1. J Neuroimmunol. 2006 Aug;177(1-2):119-31. 2. Ann N Y Acad Sci. 2008;1132:76-83.