

SYNPO2 Antibody

Catalog # ASC11235

Product Information

Application	WB, IF, E, IHC-P
Primary Accession	Q9UMS6
Other Accession	NP_597734 , 193083183
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	117514
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	SYNPO2 antibody can be used for detection of SYNPO2 by Western blot at 1 μ g/mL. Antibody can also be used for immunohistochemistry starting at 5 μ g/mL. For immunofluorescence start at 20 μ g/mL.

Additional Information

Gene ID	171024
Other Names	Synaptopodin-2, Genethonin-2, Myopodin, SYNPO2
Target/Specificity	SYNPO2;
Reconstitution & Storage	SYNPO2 antibody can be stored at 4°C for three months and -20°C, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	SYNPO2 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	SYNPO2
Function	Has an actin-binding and actin-bundling activity. Can induce the formation of F-actin networks in an isoform-specific manner (PubMed: 23225103 , PubMed: 24005909). At the sarcomeric Z lines is proposed to act as adapter protein that links nascent myofibers to the sarcolemma via ZYX and may play a role in early assembly and stabilization of the Z lines. Involved in autophagosome formation. May play a role in chaperone-assisted selective autophagy (CASA) involved in Z lines maintenance in striated muscle under mechanical tension; may link the client-processing CASA chaperone machinery to a membrane- tethering and fusion complex providing autophagosome membranes (By similarity). Involved in regulation of cell

migration (PubMed:[22915763](#), PubMed:[25883213](#)). May be a tumor suppressor (PubMed:[16885336](#)).

Cellular Location

Nucleus {ECO:0000250|UniProtKB:Q91YE8}. Cytoplasm {ECO:0000250|UniProtKB:Q91YE8}. Cytoplasm, cytoskeleton. Cytoplasm, myofibril, sarcomere, Z line. Cell junction, focal adhesion. Note=Shuttles between the nucleus and the cytoplasm in a differentiation-dependent and stress-induced fashion. In undifferentiated myoblasts strongly expressed in the nucleus, after induction of myotube differentiation is located to both nucleus and cytoplasm along actin filaments, and in differentiated myotubes is located at the Z lines. Upon stress redistributes from cytoplasm of myoblasts and myotubes to the nucleus. Nuclear import is KPNA2-dependent and promoted by phosphorylation by PKA and/or CaMK2, and inhibition of calcineurin. The nuclear export is XPO1-dependent (By similarity). Localized in a fiber-like pattern, partly overlapping with filamentous actin (PubMed:18371299). {ECO:0000250|UniProtKB:Q91YE8, ECO:0000269|PubMed:18371299} [Isoform 2]: Cytoplasm, cytoskeleton. Note=Localizes to induced actin bundles with punctuate staining. [Isoform 4]: Cytoplasm, cytoskeleton. Note=Localizes to induced actin bundles with punctuate staining.

Tissue Location

Expressed in heart muscle. Isoform 5 is specifically expressed in skeletal muscle

Background

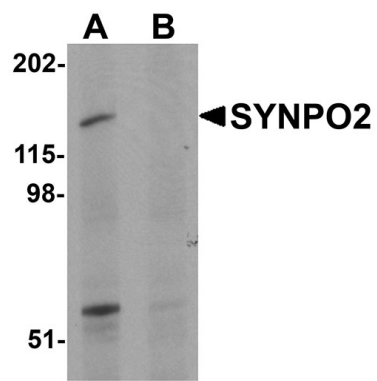
SYNPO2 Antibody: SYNPO2 was initially identified as myopodin, a member of the synaptopodin family that contains one PPXY motif and multiple PXXP motifs. It colocalizes with alpha-actinin and is found at the Z-disc and during stress conditions will translocate to the nucleus, suggesting that it is part of signaling pathways in addition to its function as a structural protein. SYNPO2 has been shown to bind to calmodulin, alpha-actinin, and smooth muscle myosin and will stimulate actin polymerization in a calmodulin dependent manner, consistent with its proposed role in organizing the cytoskeleton. While deletion of SYNPO2 has been reported to be highly correlated with the invasiveness of prostate cancers, other reports suggest that down-regulation of SYNPO2 reduces the invasiveness and motility of prostate cancer cells.

References

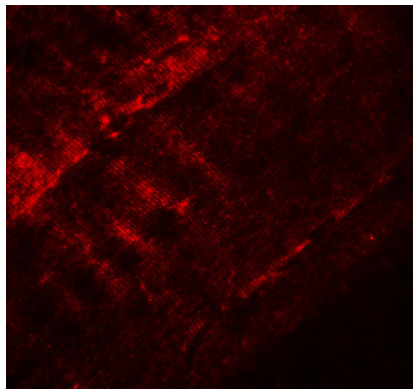
- Weins A, Schwarz K, Faul C, et al. Differentiation- and stress-dependent nuclear cytoplasmic redistribution of myopodin, a novel actin-bundling protein. *J. Cell Biol.*2001; 155:393-404.
- Shroeter MM, Beall B, Heid HW, et al. In vitro characterization of native mammalian smooth-muscle protein synaptopodin. *Biosci. Rep.*2008; 195-203.
- Lin F, Yu YP, Woods J, et al. Myopodin, a synaptopodin homologue, is frequently deleted in invasive prostate cancers. *Am. J. Path.*2001; 5:1603-12.
- De Ganck A, De Corte V, Bruyneel E, et al. Down-regulation of myopodin expression reduces invasion and motility of PC-3 prostate cancer cells. *Int. J. Oncol.*2009; 34:1403-9.

Images

Western blot analysis of SYNPO2 in human skeletal muscle tissue lysate with SYNPO2 antibody at 1 µg/mL in (A) the absence and (B) the presence of blocking peptide.



Immunohistochemistry of SYNPO2 in mouse skeletal muscle tissue with SYNPO2 antibody at 5 µg/mL.



Immunofluorescence of SYNPO2 in mouse skeletal muscle tissue with SYNPO2 antibody at 20 µg/mL.

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