

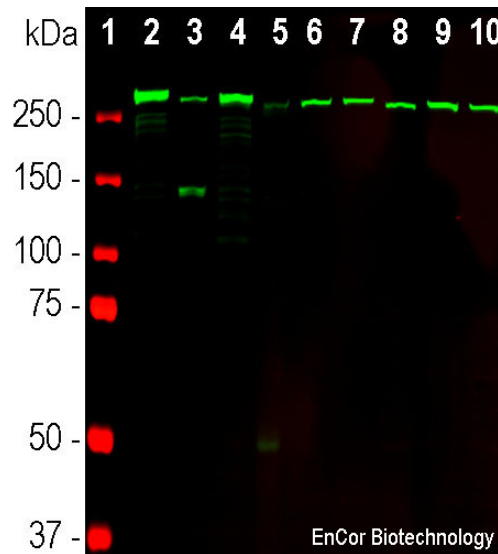
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HGNC Name: SPTAN1
UniProt: Q13813
RRID: AB_2572381
Immunogen: Recombinant C-terminal region of human α II spectrin expressed in and purified from *E. coli*
Format: Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaH₂PO₄
Storage: Store at 4°C for short term, for longer term store at -20°C.
Recommended dilutions:
 WB: 1:3,000. IF/ICC: 1:500.

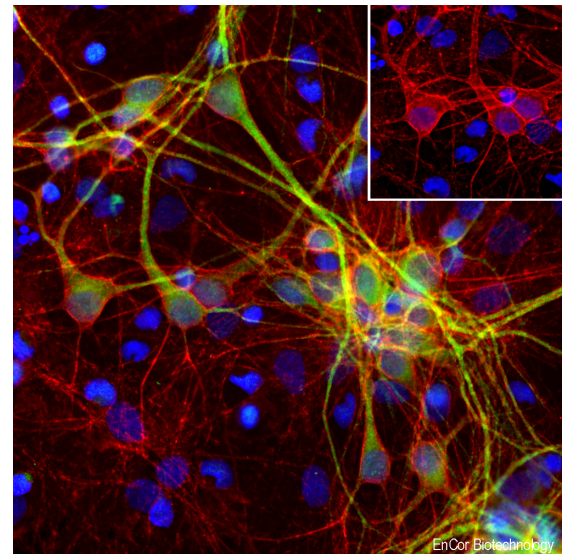
References:

1. Marchesi VT, Steers E. Selective solubilization of a protein component of the red cell membrane. *Science* 159:203-4 (1968).
2. Levine J, Willard M. Fodrin: axonally transported polypeptides associated with the internal periphery of many cells. *J. Cell Biol.* 90:631-42 (1981).
3. Bennett V, Baines AJ. Spectrin and ankyrin-based pathways: metazoan inventions for integrating cells into tissues. *Physiol. Rev.* 81:1353-92 (2001).
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Applications	Host	Isotype	Molecular Wt.	Species Cross-Reactivity
WB, IF/ICC, IHC	Mouse	IgG1	~240kDa	Hu, Rt, Ms



Western blot analysis of different tissue and cell lysates using mouse mAb to α II-spectrin, MCA-3D7, dilution 1:2,000 in green: [1] protein standard (in red), [2] rat brain, [3] rat spinal cord, [4] mouse brain, [5] mouse spinal cord, [6] NIH-3T3, [7] HEK293, [8] HeLa, [9] SH-SY5Y, and [10] C6 cells. The prominent band above 250kDa represents the intact α II-spectrin.



Immunofluorescent analysis of cortical neuron-glia cell culture from E20 rat embryos stained with mouse mAb to α II-Spectrin, MCA-3D7, dilution 1:500 in red, and copstained with chicken pAb to Microtubule Associated Protein2 (MAP2), CPCA-MAP2, dilution 1:10,000 in green. The blue is Hoechst staining of nuclear DNA. The spectrin antibody stains membranes of neuronal cell body, axons and their dendrites, while MAP2 antibody labels dendrites and perikarya of mature neurons only.

Background:

Spectrin family molecules are important high molecular weight components of the submembranous cytoskeleton of eukaryotic cells. These proteins were isolated originally from lysed red blood cell membrane preparations which were named "ghosts", which gave rise to the name spectrin (1). Spectrin family molecules are mostly composed of spectrin repeats, compact ~110 amino acid modules made of three closely packed α -helices, though they may also include SH3 domains, PH domains, EF hands and other important binding sites. They function as major components of the membraneous cytoskeleton, mediating interactions between integral membrane proteins, actin and many other cellular components. The MCA-3D7 antibody binds specifically to α II-spectrin, also known as non-erythroid spectrin or fodrin (2-4). In the CNS this protein is expressed only in neurons and so the antibody can be used to reveal the submembranous neuronal cytoskeleton in IF, ICC and IHC. Defects in spectrin genes present as a variety of diseases (5,6). The molecule is subject to proteolysis by calpain producing a 150kDa and 145kDa C-terminal fragments and by caspase producing a slightly different 150kDa C-terminal fragment and a 120kDa C-terminal fragment. Since caspase activation is characteristic of apoptosis and calpain activation of necrosis, it may be possible to use selective monitoring of each type of cell death by monitoring the content of these protein fragments (7).

The MCA-3D7 antibody was made against a recombinant human protein construct derived from the C-terminus of α II-spectrin comprising the C-terminal 2 spectrin repeats, specifically amino acids 2086-2447 from [AAB41498.1](#) expressed in and purified from *E. coli*. This antibody can be used to study α II-spectrin on western blots and to visualize the neuronal plasma membrane cytoskeleton in cells in culture and sectioned material.

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Abbreviation Key:

mAb—Monoclonal Antibody pAb—Polyclonal Antibody WB—Western Blot IF—Immunofluorescence ICC—Immunocytochemistry
 IHC—Immunohistochemistry E—ELISA Hu—Human Mo—Monkey Do—Dog Rt—Rat Ms—Mouse Co—Cow Pi—Pig Ho—Horse Ch—Chicken
 Dr—D. rerio Dm—D. melanogaster Sm—S. mutans Ce—C. elegans Sc—S. cerevisiae Sa—S. aureus Ec—E. coli.