

BM5086P**Monoclonal Antibody to Synaptopodin / SYNPO - Aff - Purified****Alternate names:**

KIAA1029

Quantity:

50 µg

Background:

Synaptopodin, a prolin-rich actin-binding protein with 2 binding sites for actin, represents a new class of actin-binding proteins which has first been localized in podocytes and a subset of telencephalic postsynaptic densities. In human tissue synaptopodin has a molecular weight of 73.7 kD and pI of 9.38 (calculated from sequence data); in mouse the corresponding data are 74 kD, pI 9.27. In SDS-PAGE the antigen appears as 100 kD polypeptide in brain and 110 kD polypeptide in kidney (the difference might be attributed to posttranslational modifications).

Uniprot ID:[Q8N3V7](#)**NCBI:**[9606](#)**GeneID:**[11346](#)**Host / Isotype:**

Mouse / IgG1

Clone:

G1D4

Immunogen:

Isolated Rat kidney glomeruli.

Format:**State:** Lyophilized purified Ig fraction**Purification:** Affinity Chromatography on Protein A**Buffer System:** Final Solution contains PBS, pH 7.4 with 0.09% Sodium Azide as preservative and 0.5% BSA as stabilizer**Reconstitution:** Restore with 1 ml distilled water**Applications:****Immunofluorescence.****Immunohistochemistry on Frozen Sections.****Immunohistochemistry on Paraffin Sections** (After microwave treatment).**Working Dilutions:** 1/5-1/10 for 1h at RT.**Western blot:** 0.1-0.5 µg/ml.

The antibody also reacts with a 44 kD degradation fragment of Synaptopodin.

Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity:

The antibody reacts specifically with Synaptopodin. It recognizes differentiated podocytes (glomerular visceral epithelial cells) *in vivo* and *in vitro* (weaker additional reaction with arterial endothelial cells), co-localization with alpha-Actinin. Does **not** react with parietal cells.

Reacts with a subset of exclusively telencephalic synapses. Differentiation dependent expression during postnatal maturation of Rat brain. Differentiation dependent expression in cultured hippocampal neurons.

Negative Species: Rabbit, Frog and Chicken.**Species Reactivity:****Tested:** Human, Bovine, Rat, Mouse, Guinea Pig and Gerbil.

Storage:

Prior to reconstitution store at 2-8°C.
Following reconstitution store undiluted at 2-8°C for one month
or (in aliquots) at -20°C for longer.
Avoid repeated freezing and thawing.
Shelf life: one year from despatch.

Product Citations:
Purchased from Acris:

1. Lechler P, Wu X, Bernhardt W, Campean V, Gastiger S, Hackenbeck T, et al. The tumor gene survivin is highly expressed in adult renal tubular cells: implications for a pathophysiological role in the kidney. *Am J Pathol.* 2007 Nov;171(5):1483-98. PubMed PMID: 17982126.
2. Câmpcean V, Karpe B, Haas C, Atalla A, Peters H, Rupprecht H, et al. Angiopoietin 1 and 2 gene and protein expression is differentially regulated in acute anti-Thy1.1 glomerulonephritis. *Am J Physiol Renal Physiol.* 2008 May;294(5):F1174-84. doi: 10.1152/ajprenal.00320.2007. Epub 2008 Feb 13. PubMed PMID: 18272601.
3. Yates LL, Papakrivopoulou J, Long DA, Goggolidou P, Connolly JO, Woolf AS, et al. The planar cell polarity gene Vangl2 is required for mammalian kidney-branching morphogenesis and glomerular maturation. *Hum Mol Genet.* 2010 Dec 1;19(23):4663-76. doi: 10.1093/hmg/ddq397. Epub 2010 Sep 14. PubMed PMID: 20843830.
4. Xu J, Chen J, Dong Z, Meyuhas O, Chen JK. Phosphorylation of ribosomal protein S6 mediates compensatory renal hypertrophy. *Kidney Int.* 2014 Sep 17. doi: 10.1038/ki.2014.302. PubMed PMID: 25229342.
5. Yi, M;Zhang, L;Liu, Y;Livingston, MJ;Chen, JK;Nahman, NS;Liu, F;Dong, Z. Autophagy is activated to protect against podocyte injury in adriamycin-induced nephropathy. *Am. J. Physiol. Renal Physiol.* 2017, ajprenal.00114.2017. PubMed PMID: 28404589.
6. Schlüter, A;Del Turco, D;Deller, T;Gutzmann, A;Schultz, C;Engelhardt, M. Structural Plasticity of Synaptopodin in the Axon Initial Segment during Visual Cortex Development. *Cereb. Cortex* 2017, 4662-4675, 27, 9. PubMed PMID: 28922860.

Originator or purchased from resellers:

1. Mundel P, Heid HW, Mundel TM, Krüger M, Reiser J, Kriz W. Synaptopodin: an actin-associated protein in telencephalic dendrites and renal podocytes. *J Cell Biol.* 1997 Oct 6;139(1):193-204. PubMed PMID: 9314539.

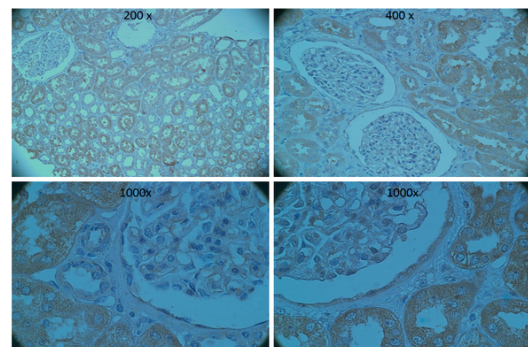
General Readings:

1. Mundel P, Gilbert P, Kriz W. Podocytes in glomerulus of rat kidney express a characteristic 44 KD protein. *J Histochem Cytochem.* 1991 Aug;39(8):1047-56. PubMed PMID: 1856454.
2. Mundel P, Kriz W. Structure and function of podocytes: an update. *Anat Embryol (Berl).* 1995 Nov;192(5):385-97. PubMed PMID: 8546330.
3. Mundel P, Reiser J, Kriz W. Phenotypic conversion and differentiation of human and rat podocytes in vitro. *J. Am. Soc. Nephrol.* 1997 8:8978-705.
4. Mundel P, Reiser J, Zúñiga Mejía Borja A, Pavenstädt H, Davidson GR, Kriz W, et al. Rearrangements of the cytoskeleton and cell contacts induce process formation during differentiation of conditionally immortalized mouse podocyte cell lines. *Exp Cell Res.* 1997 Oct 10;236(1):248-58. PubMed PMID: 9344605.
5. Kobayashi N, Reiser J, Kriz W, Kuriyama R, Mundel P. Nonuniform microtubular polarity established by CHO1/MKLP1 motor protein is necessary for process formation of podocytes. *J Cell Biol.* 1998 Dec 28;143(7):1961-70. PubMed PMID: 9864367.

6. Barisoni L, Kriz W, Mundel P, D'Agati V. The dysregulated podocyte phenotype: a novel concept in the pathogenesis of collapsing idiopathic focal segmental glomerulosclerosis and HIV-associated nephropathy. *J Am Soc Nephrol.* 1999 Jan;10(1):51-61. PubMed PMID: 9890309.
7. Kihara I, Yaoita E, Kawasaki K, Yamamoto T, Hara M, Yanagihara T. Origin of hyperplastic epithelial cells in idiopathic collapsing glomerulopathy. *Histopathology.* 1999 Jun;34(6):537-47. PubMed PMID: 10383699.
8. Asanuma K, Kim K, Oh J, Giardino L, Chabanis S, Faul C, et al. Synaptopodin regulates the actin-bundling activity of alpha-actinin in an isoform-specific manner. *J Clin Invest.* 2005 May;115(5):1188-98. Epub 2005 Apr 1. PubMed PMID: 15841212.

Pictures:

Staining for Synaptopodin on formalin fixed paraffin embedded kidney tissue sections using Acris Cat.-No BM5086P anti-SYNPO monoclonal antibody following antigen retrieval. Indirect immunoperoxidase staining. DAB substrate, hematoxyline counterstain.



Western blotting for Synaptopodin on Human kidney lysate using Acris Cat.-No BM5086P anti-SYNPO monoclonal antibody.

The antibody reacts with a band of approximate size 44kDa that is thought to result from the breakdown of the full length protein.

