

Homer (D-3): sc-17842

BACKGROUND

Homer family proteins, also designated Ves1 (for VASP/Ena-related gene up-regulated during seizure) and LTP, are immediate early gene products that bind to group 1 metabotropic glutamate receptors (mGluRs), proteins involved in triggering intracellular calcium release. Unlike Homer-1a, the prototype member of the Homer family, other Homer family members (Homer-1b and -1c, Homer-2a, -2b and -2c and Homer-3) are constitutively expressed and contain a coiled-coil (CC) domain that mediates self-multimerization. Homer-1a is enriched at excitatory synapses, does not multimerize and appears to block the association of mGluRs to CC-Homer proteins. Homer proteins have also been shown to link mGluRs with the inositol triphosphate receptors (IP3R).

REFERENCES

1. Brakeman, P.R., et al. 1997. Homer: a protein that selectively binds metabotropic glutamate receptors. *Nature* 386: 284-288.
2. Kato, A., et al. 1997. Ves1, a gene encoding VASP/Ena family related protein, is upregulated during seizure, long-term potentiation and synaptogenesis. *FEBS Lett.* 412: 183-189.

SOURCE

Homer (D-3) is a mouse monoclonal antibody raised against amino acids 1-354 of Homer of human origin; requires amino acids 13-181 for recognition.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Homer (D-3) is available conjugated to agarose (sc-17842 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-17842 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-17842 PE), fluorescein (sc-17842 FITC), Alexa Fluor® 488 (sc-17842 AF488), Alexa Fluor® 546 (sc-17842 AF546), Alexa Fluor® 594 (sc-17842 AF594) or Alexa Fluor® 647 (sc-17842 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-17842 AF680) or Alexa Fluor® 790 (sc-17842 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Homer (D-3) is recommended for detection of Homer of mouse, rat and human origin by Western Blotting (starting dilution 1:500, dilution range 1:500-1:1,000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Homer: 45 kDa.

Positive Controls: IMR-32 cell lysate: sc-2409, A-431 whole cell lysate: sc-2201 or MIA PaCa-2 cell lysate: sc-2285.

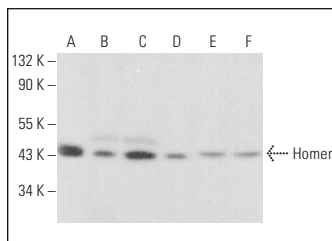
STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

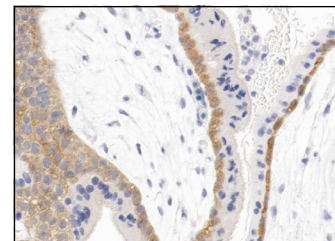
RESEARCH USE

For research use only, not for use in diagnostic procedures.

DATA



Homer (D-3): sc-17842. Western blot analysis of Homer expression in IMR-32 (A), A-431 (B), MIA PaCa-2 (C), AN3 CA (D), NIH/3T3 (E) and C2C12 (F) whole cell lysates.



Homer (D-3): sc-17842. Immunoperoxidase staining of formalin fixed, paraffin-embedded human placenta tissue showing membrane and cytoplasmic staining of trophoblastic and decidual cells. Kindly provided by The Swedish Human Protein Atlas (HPA) program.

SELECT PRODUCT CITATIONS

1. Govek, E.E., et al. 2004. The X-linked mental retardation protein oligophrenin-1 is required for dendritic spine morphogenesis. *Nat. Neurosci.* 7: 364-372.
2. Schreiner, D., et al. 2006. The intracellular domain of the human protocadherin hFat1 interacts with Homer signalling scaffolding proteins. *FEBS Lett.* 580: 5295-5300.
3. Hu, J.H., et al. 2012. Preso1 dynamically regulates group I metabotropic glutamate receptors. *Nat. Neurosci.* 15: 836-844.
4. Cui, Z., et al. 2015. The role of Homer1b/c in neuronal apoptosis following LPS-induced neuroinflammation. *Neurochem. Res.* 40: 204-215.
5. Ade, K.K., et al. 2016. Increased metabotropic glutamate receptor 5 signaling underlies obsessive-compulsive disorder-like behavioral and striatal circuit abnormalities in mice. *Biol. Psychiatry* 80: 522-533.
6. Jia, S., et al. 2017. Homer binds to Orai1 and TRPC channels in the neointima and regulates vascular smooth muscle cell migration and proliferation. *Sci. Rep.* 7: 5075.
7. Nardecchia, F., et al. 2018. Targeting mGlu5 metabotropic glutamate receptors in the treatment of cognitive dysfunction in a mouse model of phenylketonuria. *Front. Neurosci.* 12: 154.
8. Lautz, J.D., et al. 2018. Synaptic activity induces input-specific rearrangements in a targeted synaptic protein interaction network. *J. Neurochem.* 146: 540-559.
9. Luo, L., et al. 2020. Disabling phosphorylation at the homer ligand of the metabotropic glutamate receptor 5 alleviates complete Freund's adjuvant-induced inflammatory pain. *Neuropharmacology* 170: 108046.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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