



GRB2 (156-199): sc-4036

BACKGROUND

The superfamily of GTP binding proteins, of which Ras proteins are prototypes, has been implicated in a broad range of biological activities. A family of guanine nucleotide releasing factors (GRFs) activate Ras in mammalian cells and growth factor receptor-bound protein 2 (GRB2), an adaptor protein (also referred to as Sem 5) that appears to mediate the interaction of GRFs with activated receptor molecules. GRB2 forms a complex with activated EGFR (epidermal growth factor receptor) and the Ras-specific guanine nucleotide exchange factor SOS1, and, together, they regulate the growth factor-induced activation of Ras. GRB2 exhibits both structural and functional homology to the *C. elegans* protein sem-5. GRB2 is necessary during embryogenesis for the differentiation of endodermal cells and formation of the epiblast.

REFERENCES

1. Lowenstein, E.J., et al. 1992. The SH2 and SH3 domain-containing protein GRB2 links receptor tyrosine kinases to Ras signaling. *Cell* 70: 431-442.
2. Chardin, P., et al. 1993. Human Sos 1: a guanine nucleotide exchange factor for Ras that binds to GRB2. *Science* 260: 1338-1343.
3. Skolnik, E.Y., et al. 1993. The function of GRB2 in linking the Insulin receptor to Ras signaling pathways. *Science* 260: 1953-1955.
4. Simon, M.A., et al. 1993. An SH3-SH2-SH3 protein is required for p21 Ras 1 activation and binds to sevenless and Sos proteins *in vitro*. *Cell* 73: 169-177.
5. Buday, L. and Downward, J. 1993. Epidermal growth factor regulates p21 Ras through the formation of a complex of receptor, GRB2 adaptor protein, and Sos nucleotide exchange factor. *Cell* 73: 611-620.
6. Egan, S.E., et al. 1993. Association of Sos Ras exchange protein with GRB2 is implicated in tyrosine kinase signal transduction and transformation. *Nature* 363: 45-51.
7. Zhang, X., et al. 1993. Normal and oncogenic p21Ras proteins bind to the amino-terminal regulatory domain of c-RAF-1. *Nature* 364: 308-313.

CHROMOSOMAL LOCATION

Genetic locus: GRB2 (human) mapping to 17q25.1; Grb2 (mouse) mapping to 11 E2.

SOURCE

GRB2 (156-199) is expressed in *E. coli* as a 33 kDa tagged fusion protein corresponding to amino acids 156-199 of GRB2 of mouse origin containing the carboxy-terminal SH3 domain.

STORAGE

Store GRB2 (156-199): sc-4036 at -20° C and GRB2 (156-199) AC: sc-4036 AC at 4° C; stable for one year from the date of shipment.

PROTOCOLS

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

PRODUCT

GRB2 (156-199) is purified from bacterial lysates (> 98%) by glutathione agarose chromatography and supplied as 50 µg purified protein in PBS with 5 mM DTT and 50% glycerol.

Also available in agarose conjugate format; 100 µg purified GRB2 (156-199) protein conjugated to 0.1 ml agarose in PBS containing 0.1% azide, 0.1% BSA and 10% glycerol (50% slurry of agarose beads by volume): GRB2 (156-199) AC: sc-4036 AC.

APPLICATIONS

GRB2 (156-199) in its soluble, non-conjugated form (sc-4036) is recommended for purification of target proteins containing appropriate proline-rich sequences when used in combination with glutathione agarose (sc-2009).

Alternatively, the agarose conjugated form of this product (sc-4036 AC) can be used directly for target protein binding.

Molecular Weight of GRB2: 25-31 kDa.

SELECT PRODUCT CITATIONS

1. Saleem, A., et al. 1995. Monocyte colony-stimulating factor stimulates binding of phosphatidylinositol 3-kinase to Grb2.Sos complexes in human monocytes. *J. Biol. Chem.* 270: 10380-10383.
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4. Martinu, L., et al. 2002. Endocytosis of epidermal growth factor receptor regulated by Grb2-mediated recruitment of the Rab 5 GTPase-activating protein RN-tre. *J. Biol. Chem.* 277: 50996-51002.
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6. Zhou, D., et al. 2004. A novel crosstalk mechanism between nuclear receptor-mediated and growth factor/Ras-mediated pathways through PNRC-Grb2 interaction. *Oncogene* 23: 5394-5404.

RESEARCH USE

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