# SANTA CRUZ BIOTECHNOLOGY, INC.

# Dynactin 2 (G-4): sc-393389



# BACKGROUND

Dynactin is a multisubunit complex that functions as a binding partner for the Dynein microtubule motor. Dynactin-Dynein binding may be required for most, if not all, cytoplasmic Dynein-driven activities and is thought to contribute to the functional diversity of Dynein. Dynactin 2, also known as DCTN2, Dynamitin or DCTN50, is a peripheral membrane protein that is one of many subunits in the Dynactin complex. Like other Dynactin subunits, Dynactin 2 mediates Dynein-organelle binding and helps to regulate chromosome alignment during prometaphase and spindle organization during mitosis. Overexpression of Dynactin 2 disrupts the Dynactin-Dynein complex, thus inhibiting retrograde axonal transport and causing motor neuron degeneration. Additionally, overexpression of Dynactin 2 may disrupt the cell cycle and lead to osteosarcoma, suggesting a possible role for Dynactin 2 in carcinogenesis.

# REFERENCES

- 1. Echeverri, C.J., et al. 1996. Molecular characterization of the 50-kD subunit of Dynactin reveals function for the complex in chromosome alignment and spindle organization during mitosis. J. Cell Biol. 132: 617-633.
- 2. Berrueta, L., et al. 1999. The APC-associated protein EB1 associates with components of the Dynactin complex and cytoplasmic Dynein intermediate chain. Curr. Biol. 9: 425-428.
- Merdes, A., et al. 2000. Formation of spindle poles by Dynein/Dynactindependent transport of NuMA. J. Cell Biol. 149: 851-862.
- 4. Karki, S., et al. 2000. A Dynactin subunit with a highly conserved cysteinerich motif interacts directly with Arp1. J. Biol. Chem. 275: 4834-4839.
- Hoogenraad, C.C., et al. 2001. Mammalian Golgi-associated Bicaudal-D2 functions in the Dynein-Dynactin pathway by interacting with these complexes. EMBO J. 20: 4041-4054.

#### CHROMOSOMAL LOCATION

Genetic locus: DCTN2 (human) mapping to 12q13.3; Dctn2 (mouse) mapping to 10 D3.

# SOURCE

Dynactin 2 (G-4) is a mouse monoclonal antibody raised against amino acids 102-401 mapping at the C-terminus of Dynactin 2 of human origin.

#### PRODUCT

Each vial contains 200  $\mu g \; lgG_1$  kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Dynactin 2 (G-4) is available conjugated to agarose (sc-393389 AC), 500  $\mu$ g/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-393389 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393389 PE), fluorescein (sc-393389 FITC), Alexa Fluor<sup>®</sup> 488 (sc-393389 AF548), Alexa Fluor<sup>®</sup> 546 (sc-393389 AF546), Alexa Fluor<sup>®</sup> 594 (sc-393389 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-393389 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-393389 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-393389 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

### APPLICATIONS

Dynactin 2 (G-4) is recommended for detection of Dynactin 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Dynactin 2 siRNA (h): sc-95708, Dynactin 2 siRNA (m): sc-143202, Dynactin 2 shRNA Plasmid (h): sc-95708-SH, Dynactin 2 shRNA Plasmid (m): sc-143202-SH, Dynactin 2 shRNA (h) Lentiviral Particles: sc-95708-V and Dynactin 2 shRNA (m) Lentiviral Particles: sc-143202-V.

Molecular Weight of Dynactin 2: 50 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, K-562 whole cell lysate: sc-2203 or EOC 20 whole cell lysate: sc-364187.

# **RECOMMENDED SUPPORT REAGENTS**

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-lgG K BP-HRP: sc-516102 or m-lgG K BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-lgG K BP-FITC: sc-516140 or m-lgG K BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

#### DATA





Dynactin 2 (G-4): sc-393389. Western blot analysis of Dynactin 2 expression in MCF7 (**A**), HeLa (**B**), K-562 (**C**) and EOC 20 (**D**) whole cell lysates. Dynactin 2 (G-4): sc-393389. Western blot analysis of Dynactin 2 expression in MCF7 (A) and MCP-5 (B) whole cell lysates.

#### SELECT PRODUCT CITATIONS

 Tavares, S., et al. 2022. FER regulates endosomal recycling and is a predictor for adjuvant taxane benefit in breast cancer. Cell Rep. 39: 110584.

# **STORAGE**

Store at 4° C, \*\*D0 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.