SANTA CRUZ BIOTECHNOLOGY, INC.

β3 Tubulin (2G10): sc-80005

BACKGROUND

Tubulin is a major cytoskeleton component that has five distinct forms, designated α, β, γ, δ and ε Tubulin. α and β Tubulins form heterodimers which multimerize to form a microtubule filament. Multiple β Tubulin isoforms (β1, β2, β3, β4, β5, β6 and β8) have been characterized and are expressed in mammalian tissues. β1 and β4 are present throughout the cytosol, β2 is present in the nuclei and nucleoplasm, and β3 is a neuron-specific cytoskeletal protein. γ Tubulin forms the gammasome, which is required for nucleating microtubule filaments at the centrosome. Both δ Tubulin and ε Tubulin are associated with the centrosome. δ Tubulin is a homolog of the *Chlamydomonas* δ Tubulin Uni3 and is found in association with the centrioles, whereas ε Tubulin localizes to the pericentriolar material. ε Tubulin exhibits a cell-cycle-specific pattern of localization; first associating with only the older of the centrosomes in a newly duplicated pair, and later associating with both centrosomes.

CHROMOSOMAL LOCATION

Genetic locus: TUBB3 (human) mapping to 16q24.3; Tubb3 (mouse) mapping to 8 E1.

SOURCE

β3 Tubulin (2G10) s a mouse monoclonal antibody raised against amino acids 436-450 of β3 Tubulin of rat origin.

PRODUCT

Each vial contains 200 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

β3 Tubulin (2G10) is available conjugated to agarose (sc-80005 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-80005 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-80005 PE), fluorescein (sc-80005 FITC), Alexa Fluor® 488 (sc-80005 AF488), Alexa Fluor® 546 (sc-80005 AF546), Alexa Fluor® 594 (sc-80005 AF594) or Alexa Fluor® 647 (sc-80005 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-80005 AF680) or Alexa Fluor® 790 (sc-80005 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

β3 Tubulin (2G10) is recommended for detection of neuronal specific β3 Tubulin of mouse, rat, human and bovine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

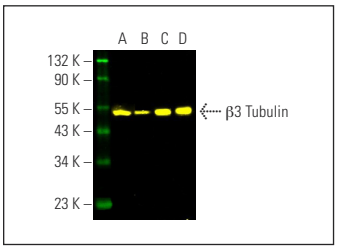
Suitable for use as control antibody for β3 Tubulin siRNA (h): sc-105009, β3 Tubulin siRNA (m): sc-108023, β3 Tubulin shRNA Plasmid (h): sc-105009-SH, β3 Tubulin shRNA Plasmid (m): sc-108023-SH, β3 Tubulin shRNA (h) Lentiviral Particles: sc-105009-V and β3 Tubulin shRNA (m) Lentiviral Particles: sc-108023-V.

Molecular Weight of β3 Tubulin: 55 kDa.

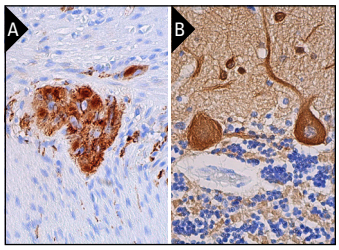
STORAGE

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

DATA



β3 Tubulin (2G10) Alexa Fluor® 488: sc-80005 AF488. Direct fluorescent western blot analysis of β3 Tubulin expression in Neuro-2A (**A**), BJAB (**B**) and SH-SY5Y (**C**) whole cell lysates and mouse brain tissue extract (**D**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor® 680: sc-516730.



β3 Tubulin (2G10): sc-80005. Immunoperoxidase staining of formalin fixed, paraffin-embedded human colon tissue showing cytoplasmic staining of peripheral nerves and ganglion (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human cerebellum tissue showing cytoplasmic staining of purkinje cells and nuclear staining of cells in molecular layer (**B**).

SELECT PRODUCT CITATIONS

1. Song, M.Y., et al. 2010. Contribution of the delayed-rectifier potassium channel Kv2.1 to acute spinal cord injury in rats. BMB Rep. 43: 756-760.
2. Ying, C., et al. 2012. Neural differentiation of rat adipose-derived stem cells *in vitro*. Cell. Mol. Neurobiol. 32: 1255-1263.
3. Vega-Naredo, I., et al. 2014. Mitochondrial metabolism directs stemness and differentiation in P19 embryonal carcinoma stem cells. Cell Death Differ. 21: 1560-1574.
4. Jha, M.K., et al. 2015. Metabolic connection of inflammatory pain: pivotal role of a pyruvate dehydrogenase kinase-pyruvate dehydrogenase-lactic acid axis. J. Neurosci. 35: 14353-14369.
5. Sharif, T., et al. 2016. Autophagic homeostasis is required for the pluripotency of cancer stem cells. Autophagy 13: 264-284.
6. Pashkovskaia, N., et al. 2018. Mitochondrial ROS direct the differentiation of murine pluripotent P19 cells. Stem Cell Res. 30: 180-191.
7. Sharif, T., et al. 2018. Phosphoglycerate dehydrogenase inhibition induces p-mTOR-independent autophagy and promotes multilineage differentiation in embryonal carcinoma stem-like cells. Cell Death Dis. 9: 990.
8. Magalhães-Novais, S., et al. 2019. Cell quality control mechanisms maintain stemness and differentiation potential of p19 embryonic carcinoma cells. Autophagy 16: 313-333.
9. Yang, Z., et al. 2019. Platycodigenin as potential drug candidate for Alzheimer's disease via modulating microglial polarization and neurite regeneration. Molecules 24: 3207.

RESEARCH USE

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