SANTA CRUZ BIOTECHNOLOGY, INC.

TIA-1 (G-3): sc-166247

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

FAS, also referred to as CD95 or APO-1, is a type I transmembrane protein that plays a central role mediating viral immunity. TIA-1 and TIAR are two closely related proteins that possess three RRMs (RNA recognition motifs), designated RRM 1, 2 and 3, respectively. Although both TIA-1 and TIAR are thought to function as mediators of apoptotic cell death, their specific roles in such pathways are unknown. Unlike TIA-1, which is found in the granules of cytotoxic lymphocytes, TIAR expression is limited to the nucleus and found in a much broader range of cells including, but not limited to, cells of hematopoietic origin. TIAR is translocated to the cytoplasm shortly after FAS ligation and this event immediately proceeds the onset of DNA fragmentation. A novel serine/threonine kinase that is activated as a result of FAS ligation, designated FAST (FAS-activated serine/threonine), shows kinase specificity towards both TIA-1 and TIAR. In unstimulated Jurkat cells, FAST resides in the cytoplasm as a highly phosphorylated protein and is quickly dephosphorylated and activated in response to stimulated FAS.

CHROMOSOMAL LOCATION

Genetic locus: TIA1 (human) mapping to 2p13.3; Tia1 (mouse) mapping to 6 D1.

SOURCE

TIA-1 (G-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 37-65 near the N-terminus of TIA-1 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TIA-1 (G-3) is available conjugated to agarose (sc-166247 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-166247 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-166247 PE), fluorescein (sc-166247 FITC), Alexa Fluor® 488 (sc-166247 AF488), Alexa Fluor® 546 (sc-166247 AF546), Alexa Fluor® 594 (sc-166247 AF594) or Alexa Fluor® 647 (sc-166247 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-166247 AF680) or Alexa Fluor® 790 (sc-166247 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-166247 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

PROTOCOLS

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

APPLICATIONS

TIA-1 (G-3) is recommended for detection of TIA-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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), 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).

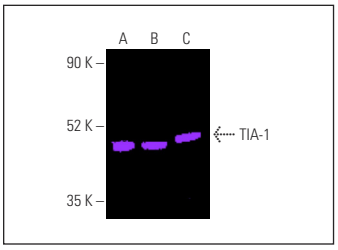
Suitable for use as control antibody for TIA-1 siRNA (h): sc-29504, TIA-1 siRNA (m): sc-36668, TIA-1 shRNA Plasmid (h): sc-29504-SH, TIA-1 shRNA Plasmid (m): sc-36668-SH, TIA-1 shRNA (h) Lentiviral Particles: sc-29504-V and TIA-1 shRNA (m) Lentiviral Particles: sc-36668-V.

Molecular Weight of TIA-1: 40 kDa.

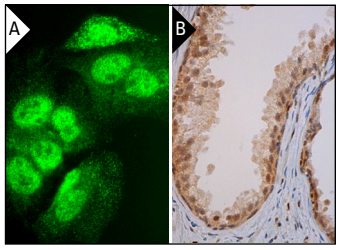
Molecular Weight of TIA-1 granule-associated isoform: 15 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, BJAB whole cell lysate: sc-2207 or rat testis extract: sc-2400.

DATA



TIA-1 (G-3): sc-166247. Fluorescent western blot analysis of TIA-1 expression in BJAB (**A**) and Jurkat (**B**) whole cell lysates and rat testis tissue extract (**C**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgGκ BP-CFL 555: sc-516177.



TIA-1 (G-3): sc-166247. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear and cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human prostate tissue showing nuclear and cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Hackman, P., et al. 2013. Welander distal myopathy is caused by a mutation in the RNA-binding protein TIA-1. Ann. Neurol. 73: 500-509.
2. Vaccaro, A., et al. 2020. Sleep loss can cause death through accumulation of reactive oxygen species in the gut. Cell 181: 1307-1328.e15.
3. Gao, B., et al. 2021. Inhibition of anti-viral stress granule formation by coronavirus endoribonuclease nsp15 ensures efficient virus replication. PLoS Pathog. 17: e1008690.
4. Iida, K., et al. 2022. Development of a novel light-up probe for detection of G-quadruplexes in stress granules. Sci. Rep. 12: 12892.
5. Zhang, K., et al. 2023. DIAPH3 condensates formed by liquid-liquid phase separation act as a regulatory hub for stress-induced Actin cytoskeleton remodeling. Cell Rep. 42: 111986.

RESEARCH USE

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