

FUS/TLS (4H11): sc-47711



The Power to Question

BACKGROUND

EWS and FUS/TLS are nuclear RNA-binding proteins. As a result of chromosome translocation, the EWS gene is fused to a variety of transcription factors, including ATF-1, in human neoplasias. In the Ewing family of tumors, the N-terminal domain of EWS is fused to the DNA-binding domain of various Ets transcription factors, including Fli-1, ETV1 and FEV. The EWS/Fli-1 chimeric protein acts as a more potent transcriptional activator than Fli-1 and can promote cell transformation. In human myxoid liposarcomas and myeloid leukemias, chromosomal translocation results in the fusion of the N-terminal region of FUS/TLS with the open reading frame of CHOP. In normal cells, FUS/TLS binds to the DNA-binding domains of nuclear steroid receptors and is also present in subpopulations of TFIIID complexes, indicating a potential role for FUS/TLS in the processing of primary transcripts that are generated in response to hormone-induced transcription.

CHROMOSOMAL LOCATION

Genetic locus: FUS (human) mapping to 16p11.2; Fus (mouse) mapping to 7 F3.

SOURCE

FUS/TLS (4H11) is a mouse monoclonal antibody raised against a fusion protein corresponding to the C-terminus of human TLS.

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.

FUS/TLS (4H11) is available conjugated to agarose (sc-47711 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-47711 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-47711 PE), fluorescein (sc-47711 FITC), Alexa Fluor® 488 (sc-47711 AF488), Alexa Fluor® 546 (sc-47711 AF546), Alexa Fluor® 594 (sc-47711 AF594) or Alexa Fluor® 647 (sc-47711 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-47711 AF680) or Alexa Fluor® 790 (sc-47711 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

FUS/TLS (4H11) is recommended for detection of FUS/TLS of mouse, rat and human 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 FUS/TLS siRNA (h): sc-40563, FUS/TLS siRNA (m): sc-40564, FUS/TLS shRNA Plasmid (h): sc-40563-SH, FUS/TLS shRNA Plasmid (m): sc-40564-SH, FUS/TLS shRNA (h) Lentiviral Particles: sc-40563-V and FUS/TLS shRNA (m) Lentiviral Particles: sc-40564-V.

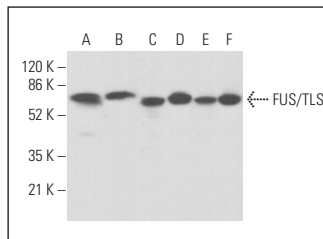
Molecular Weight of FUS/TLS: 75 kDa.

Positive Controls: THP-1 cell lysate: sc-2238, SJRH30 cell lysate: sc-2287 or NIH/3T3 nuclear extract: sc-2138.

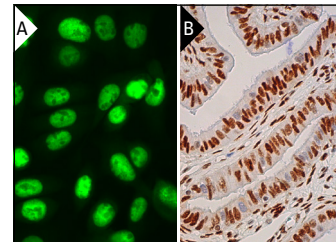
STORAGE

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

DATA



FUS/TLS (4H11): sc-47711. Western blot analysis of FUS/TLS expression in THP-1 (A) and SJRH30 (B) whole cell lysates and SH-SY5Y (C), HEL 92.1.7 (D), NIH/3T3 (E) and WEHI-231 (F) nuclear extracts.



FUS/TLS (4H11) Alexa Fluor® 488: sc-47711 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear localization. Blocked with UltraCruz® Blocking Reagent: sc-516214 (A). FUS/TLS (4H11): sc-47711. Immunoperoxidase staining of formalin fixed, paraffin-embedded human fallopian tube tissue showing nuclear staining of glandular cells (B).

SELECT PRODUCT CITATIONS

1. Neumann, M., et al. 2009. Abundant FUS-immunoreactive pathology in neuronal intermediate filament inclusion disease. *Acta Neuropathol.* 118: 605-616.
2. Ansseau, E., et al. 2016. Homologous transcription factors DUX4 and DUX4c associate with cytoplasmic proteins during muscle differentiation. *PLoS ONE* 11: e0146893.
3. Errichelli, L., et al. 2017. FUS affects circular RNA expression in murine embryonic stem cell-derived motor neurons. *Nat. Commun.* 8: 14741.
4. Yamazaki, T., et al. 2018. Functional domains of NEAT1 architectural lncRNA induce paraspeckle assembly through phase separation. *Mol. Cell* 70: 1038-1053.e7.
5. Tischbein, M., et al. 2019. The RNA-binding protein FUS/TLS undergoes calcium-mediated nuclear egress during excitotoxic stress and is required for GRIA2 mRNA processing. *J. Biol. Chem.* 294: 10194-10210.
6. Harley, J., et al. 2020. Stress-specific spatiotemporal responses of RNA-binding proteins in human stem-cell-derived motor neurons. *Int. J. Mol. Sci.* 21: 8346.
7. Arenas, A., et al. 2021. FUS regulates autophagy by mediating the transcription of genes critical to the autophagosome formation. *J. Neurochem.* 157: 752-763.
8. Zou, H., et al. 2022. The function of FUS in neurodevelopment revealed by the brain and spinal cord organoids. *Mol. Cell. Neurosci.* 123: 103771.
9. Gawade, K., et al. 2023. FUS regulates a subset of snoRNA expression and modulates the level of rRNA modifications. *Sci. Rep.* 13: 2974.

RESEARCH USE

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