SANTA CRUZ BIOTECHNOLOGY, INC.

GILT (G-11): sc-393507

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Proteins internalized into the endocytic pathway are usually degraded. Efficient proteolysis requires denaturation, induced by acidic conditions within lysosomes, and reduction of inter- and intrachain disulfide bonds. Cytosolic reduction is mediated enzymatically by thioredoxin. In the endocytic pathway, reduction of protein disulfide bonds is important for the generation of MHC class II-peptide complexes. This process is catalyzed by a γ-interferon-inducible thiol reductase (GILT). GILT is synthesized as a precursor, and following delivery to MHC class II-containing compartments (MIICs), is processed to the mature form via cleavage of amino- and carboxy-terminal propeptides. A lysosomal thiol reductase, GILT, is optimally active at low pH and capable of catalyzing disulfide bond reduction both *in vivo* and *in vitro*. GILT is expressed constitutively in antigen-presenting cells and is induced by γ-interferon in other cell types, suggesting a potentially important role in antigen processing. Additionally, T cell recognition of select exogenous and endogenous epitopes is dependent on tumor cell expression of GILT. The absence of GILT in melanomas alters antigen processing and the hierarchy of immunodominant epitope presentation.

REFERENCES

1. Cresswell, P., et al. 1999. Thiol oxidation and reduction in MHC-restricted antigen processing and presentation. Immunol. Res. 19: 191-200.
2. Phan, U.T., et al. 2000. γ-interferon-inducible lysosomal thiol reductase (GILT). Maturation, activity, and mechanism of action. J. Biol. Chem. 275: 25907-25914.

CHROMOSOMAL LOCATION

Genetic locus: IFI30 (human) mapping to 19p13.11; Ifi30 (mouse) mapping to 8 B3.3.

SOURCE

GILT (G-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 146-171 within an internal region of GILT 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.

GILT (G-11) is available conjugated to agarose (sc-393507 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393507 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393507 PE), fluorescein (sc-393507 FITC), Alexa Fluor® 488 (sc-393507 AF488), Alexa Fluor® 546 (sc-393507 AF546), Alexa Fluor® 594 (sc-393507 AF594) or Alexa Fluor® 647 (sc-393507 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393507 AF680) or Alexa Fluor® 790 (sc-393507 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-393507 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

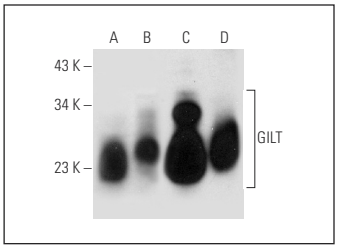
GILT (G-11) is recommended for detection of GILT precursor and mature chains of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for GILT siRNA (h): sc-39522, GILT siRNA (m): sc-39523, GILT shRNA Plasmid (h): sc-39522-SH, GILT shRNA Plasmid (m): sc-39523-SH, GILT shRNA (h) Lentiviral Particles: sc-39522-V and GILT shRNA (m) Lentiviral Particles: sc-39523-V.

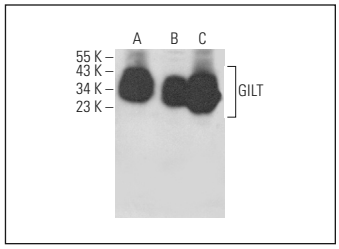
Molecular Weight of GILT: 30 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa whole cell lysate: sc-2200 or Raji whole cell lysate: sc-364236.

DATA



GILT (G-11): sc-393507. Western blot analysis of GILT expression in Hep G2 (**A**), HeLa (**B**) and Raji (**C**) whole cell lysates and human spleen tissue extract (**D**).



GILT (G-11): sc-393507. Western blot analysis of GILT expression in Daudi (**A**), HL-60 (**B**) and Ramos (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Chen, D., et al. 2019. GILT restricts the cellular entry mediated by the envelope glycoproteins of SARS-CoV, Ebola virus and Lassa fever virus. Emerg. Microbes Infect. 8: 1511-1523.
2. Niu, L.T., et al. 2021. Targeting IFN-γ-inducible lysosomal thiol reductase overcomes chemoresistance in AML through regulating the ROS-mediated mitochondrial damage. Transl. Oncol. 14: 101159.
3. Giusti, L., et al. 2022. The protective action of metformin against pro-inflammatory cytokine-induced human islet cell damage and the mechanisms involved. Cells 11: 2465.

STORAGE

Store at 4° C, **DO 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.

PROTOCOLS

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