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SANTA CRUZ BIOTECHNOLOGY, INC.

GILT (m): 293T Lysate: sc-120484

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 gamma-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., Arunachalam, B., Bangia, N., Dick, T., Diedrich, G., Hughes, E. and Maric, M. 1999. Thiol oxidation and reduction in MHC-restricted antigen processing and presentation. Immunol. Res. 19: 191-200.
2. Phan, U.T., Arunachalam, B. and Cresswell, P. 2000. γ-interferon-inducible lysosomal thiol reductase (GILT). Maturation, activity, and mechanism of action. J. Biol. Chem. 275: 25907-25914.
3. Arunachalam, B., Phan, U.T., Geuze, H.J. and Cresswell, P. 2000. Enzymatic reduction of disulfide bonds in lysosomes: characterization of a γ-interferon-inducible lysosomal thiol reductase (GILT). Proc. Natl. Acad. Sci. USA 97: 745-750.
4. Haque, M.A., Li, P., Jackson, S.K., Zarour, H.M., Hawes, J.W., Phan, U.T., Maric, M., Cresswell, P. and Blum, J.S. 2002. Absence of γ-interferon-inducible lysosomal thiol reductase in melanomas disrupts T cell recognition of select immunodominant epitopes. J. Exp. Med. 195: 1267-1277.
5. LocusLink Report (LocusID: 604664). http://www.ncbi.nlm.nih.gov/LocusLink/

CHROMOSOMAL LOCATION

Genetic locus: Ifi30 (mouse) mapping to 8 B3.3.

PRODUCT

GILT (m): 293T Lysate represents a lysate of mouse GILT transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

APPLICATIONS

GILT (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive GILT antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PROTOCOLS

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