

Thyroperoxidase (m): 293 Lysate: sc-179600

BACKGROUND

The synthesis of thyroid hormones is an oxidative process that produces reactive oxygen species and requires Thyroperoxidase (TPO), a hemoprotein that is one of the major autoantigens involved in autoimmune thyroid diseases. Thyroperoxidase is a 933 amino acid, type I transmembrane glycoprotein that plays a key role in thyroid hormone synthesis and autoimmunity. TPO catalyzes the iodination of proteins, therefore causing iodide retention within thyroid cells. The ecto-domain of Thyroperoxidase includes a large N-terminal myeloperoxidase-like domain, followed by a complement control protein domain and an epidermal growth factor-like domain. Thyroperoxidase also mediates the organification and intracellular retention of radioiodide, which may lead to rapid tumor cell death. Mutations of the Thyroperoxidase gene commonly lead to goitrous congenital hypothyroidism, the most severe and frequent abnormality in thyroid iodide organification defect (IOD), in which iodide in the thyroid gland cannot be oxidized and/or bound to the protein.

REFERENCES

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2. Fayadat, L., et al. 2000. Degradation of human Thyroperoxidase in the endoplasmic reticulum involves two different pathways depending on the folding state of the protein. *J. Biol. Chem.* 275: 15948-15954.
3. Huang, M., et al. 2001. Ectopic expression of the Thyroperoxidase gene augments radioiodide uptake and retention mediated by the sodium iodide symporter in non-small cell lung cancer. *Cancer Gene Ther.* 8: 612-618.
4. Blanchin, S., et al. 2003. Complement activation by direct C4 binding to Thyroperoxidase in Hashimoto's thyroiditis. *Endocrinology* 144: 5422-5429.
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6. Guo, J., et al. 2005. Relationship between thyroid peroxidase T cell epitope restriction and antibody recognition of the autoantibody immunodominant region in human leukocyte antigen DR3 transgenic mice. *Endocrinology* 146: 4961-4967.
7. Fernandez Romero, D.S. and Malbran, A. 2005. Chronic urticaria with alterations of the thyroid function and thyroid peroxidase antibodies. *Medicina* 65: 231-234.
8. Kuliawat, R., et al. 2005. Intracellular trafficking of thyroid peroxidase to the cell surface. *J. Biol. Chem.* 280: 27713-27718.
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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.

CHROMOSOMAL LOCATION

Genetic locus: Tpo (mouse) mapping to 12 A2.

PRODUCT

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

APPLICATIONS

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

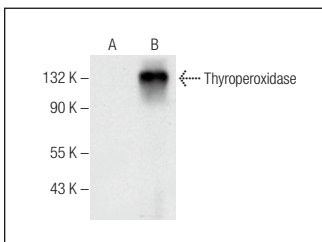
Control 293 Lysate: sc-110760 is available as a Western Blotting negative control lysate derived from non-transfected 293 cells.

Thyroperoxidase (A-5): sc-376876 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse Thyroperoxidase expression in Thyroperoxidase transfected 293 cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



Thyroperoxidase (A-5): sc-376876. Western blot analysis of Thyroperoxidase expression in non-transfected: sc-110760 (A) and mouse Thyroperoxidase transfected: sc-179600 (B) 293 whole cell lysates.

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.