SANTA CRUZ BIOTECHNOLOGY, INC.

Thyroperoxidase (MoAb47): sc-58432

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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. Thyroperoxidase 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.

CHROMOSOMAL LOCATION

Genetic locus: TPO (human) mapping to 2p25.3; Tpo (mouse) mapping to 12 A2.

SOURCE

Thyroperoxidase (MoAb47) is a mouse monoclonal antibody raised against Thyroperoxidase purified from thyroid microsomes 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.

Thyroperoxidase (MoAb47) is available conjugated to agarose (sc-58432 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-58432 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-58432 PE), fluorescein (sc-58432 FITC), Alexa Fluor® 488 (sc-58432 AF488), Alexa Fluor® 546 (sc-58432 AF546), Alexa Fluor® 594 (sc-58432 AF594) or Alexa Fluor® 647 (sc-58432 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-58432 AF680) or Alexa Fluor® 790 (sc-58432 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Thyroperoxidase (MoAb47) is recommended for detection of Thyroperoxidase 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 Thyroperoxidase siRNA (h): sc-61684, Thyroperoxidase siRNA (m): sc-61685, Thyroperoxidase shRNA Plasmid (h): sc-61684-SH, Thyroperoxidase shRNA Plasmid (m): sc-61685-SH, Thyroperoxidase shRNA (h) Lentiviral Particles: sc-61684-V and Thyroperoxidase shRNA (m) Lentiviral Particles: sc-61685-V.

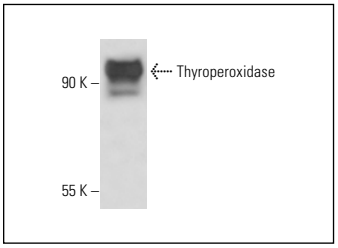
Molecular Weight of Thyroperoxidase: 100 kDa.

Positive Controls: human thyroid extract: sc-363782.

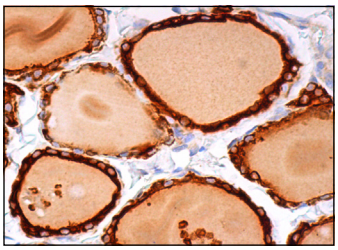
STORAGE

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

DATA



Thyroperoxidase (MoAb47): sc-58432. Western blot analysis of Thyroperoxidase expression in human thyroid tissue extract.



Thyroperoxidase (MoAb47): sc-58432. Immunoperoxidase staining of formalin fixed, paraffin-embedded human thyroid gland tissue showing membrane and cytoplasmic staining of glandular cells.

SELECT PRODUCT CITATIONS

1. Lof, C., et al. 2012. Communication between the calcium and cAMP pathways regulate the expression of the TSH receptor: TRPC2 in the center of action. Mol. Endocrinol. 26: 2046-2057.
2. Bravo, S.B., et al. 2013. Humanized medium (h7H) allows long-term primary follicular thyroid cultures from human normal thyroid, benign neoplasm and cancer. J. Clin. Endocrinol. Metab. 98: 2431-2441.
3. Sosic-Jurjevic, B., et al. 2014. Soy isoflavones interfere with thyroid hormone homeostasis in orchidectomized middle-aged rats. Toxicol. Appl. Pharmacol. 278: 124-134.
4. Nicola, J.P., et al. 2015. S-nitrosylation of NFκB p65 inhibits TSH-induced Na^+/I^- symporter expression. Endocrinology 156: 4741-4754.
5. Rossich, L.E., et al. 2016. Effects of 2-iodohexadecanal in the physiology of thyroid cells. Mol. Cell. Endocrinol. 437: 292-301.
6. Serrano-Nascimento, C., et al. 2017. Iodine excess exposure during pregnancy and lactation impairs maternal thyroid function in rats. Endocr. Connect. 6: 510-521.
7. Xia, Y., et al. 2018. Iodoacetic acid disrupting the thyroid endocrine system *in vitro* and *in vivo*. Environ. Sci. Technol. 52: 7545-7552.
8. Serrano-Nascimento, C., et al. 2020. Impaired gene expression due to iodine excess in the development and differentiation of endoderm and thyroid is associated with epigenetic changes. Thyroid 30: 609-620.
9. Fujimoto, N., et al. 2020. Morphological and functional changes in neonatally X-irradiated thyroid gland in rats. Endocr. J. 67: 231-240.
10. Miranda, R.A., et al. 2020. Thyroid redox imbalance in adult Wistar rats that were exposed to nicotine during breastfeeding. Sci. Rep. 10: 15646.

RESEARCH USE

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