PRODUCT INFORMATION

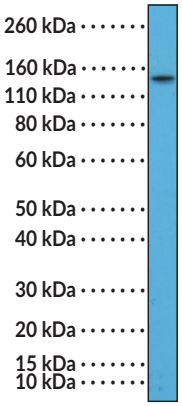
TPO (C-Term) Rabbit Monoclonal Antibody (Clone RM368)

Item No. 32293

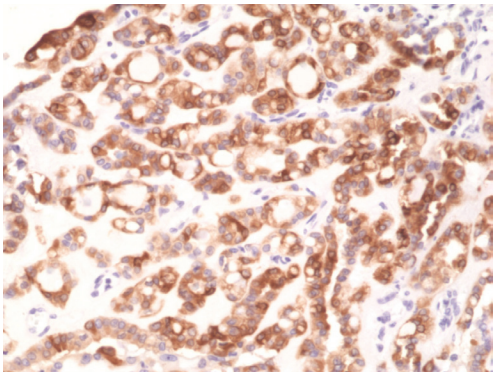
Overview and Properties

Contents:	This vial contains 100 µl of protein A-affinity purified monoclonal antibody.
Synonyms:	Iodide Peroxidase, Thyroid Peroxidase, Thyroperoxidase
Immunogen:	Peptide from the C-terminal region of human TPO
Cross Reactivity:	(+) TPO
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
Clone:	RM368
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:500-1:1,000 for IHC and 1:200-1:1,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



WB of TT cell lysate using TPO (C-Term) Rabbit Monoclonal Antibody (Clone RM368) at a dilution of 1:200.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human thyroid tissue using TPO (C-Term) Rabbit Monoclonal Antibody (Clone RM368) at a dilution of 1:1,000.

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Description

Thyroid peroxidase (TPO) is a heme-containing enzyme that is essential for the biosynthesis of thyroid hormones.[1,2] It exists as a homodimer where each monomer is composed of an extracellular N-terminal signal peptide and propeptide, an ectodomain containing MPO-, CCP-, and EGF-like domains, a transmembrane domain, and an intracellular C-terminal domain.[2] TPO is regulated primarily at the transcriptional level by thyroid-stimulating hormone (TSH), which upregulates *TPO* expression. TPO is expressed by thyroid follicular cells and localizes to the apical plasma membrane in its active state.[1,2] It catalyzes the oxidation of iodine, resulting in the formation of monoiodotyrosine (MIT) and diiodotyrosine (DIT) residues on thyroglobulin, a protein that functions as a scaffold for thyroid hormone biosynthesis.[3] TPO subsequently catalyzes the oxidative coupling between MIT and DIT residues on thyroglobulin to produce the thyroid hormones triiodothyronine (T_3) and thyroxine (T_4).[3] Serum TPO autoantibodies are a hallmark of autoimmune thyroid diseases, including Hashimoto's disease and Graves' disease, and have been found in patients with breast cancer.[2,4] Cayman's TPO (C-Term) Rabbit Monoclonal Antibody (Clone RM368) can be used for immunohistochemistry (IHC) and Western blot (WB) applications.

References

1. Ruf, J. and Carayon, P. Structural and functional aspects of thyroid peroxidase. *Arch. Biochem. Biophys.* **445(2)**, 269-277 (2006).
2. Godlewska, M. and Banga, P.J. Thyroid peroxidase as a dual active site enzyme: Focus on biosynthesis, hormonogenesis and thyroid disorders of autoimmunity and cancer. *Biochimie* **160**, 34-45 (2019).
3. Citterio, C.E., Targovnik, H.M., and Arvan, P. The role of thyroglobulin in thyroid hormonogenesis. *Nat. Rev. Endocrinol.* **15(6)**, 323-338 (2019).
4. Fröhlich, E. and Wahl, R. Thyroid autoimmunity: Role of anti-thyroid antibodies in thyroid and extra-thyroidal diseases. *Front. Immunol.* **8**, 521 (2017).

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