PRODUCT INFORMATION

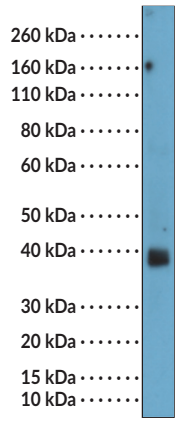
Podoplanin Rabbit Monoclonal Antibody (Clone RM449)

Item No. 35810

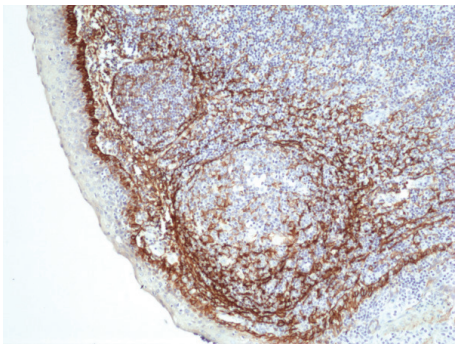
Overview and Properties

Contents:	This vial contains 100 µl protein A-affinity purified monoclonal antibody.
Synonyms:	Aggrus, gp38, T1A
Immunogen:	Recombinant human podoplanin protein
Cross Reactivity:	(+) Podoplanin
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:	RM449
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:100-1:200 for IHC and 1:100-1:500 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



WB of human prostate tissue lysates using Podoplanin Rabbit Monoclonal Antibody (Clone RM449) at a dilution of 1:100.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human tonsil tissue using Podoplanin Rabbit Monoclonal Antibody (Clone RM449) at a dilution of 1:100.

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Description

Podoplanin is a transmembrane glycoprotein that has roles in development, immunology, and cancer.[1,2] It is composed of a glycosylated extracellular domain, which is critical for podoplanin-induced platelet activation, a single transmembrane region that associates with CD9 and CD44, and a short cytoplasmic tail that interacts with the ezrin-radixin-moesin (ERM) family of proteins to promote rearrangement of the actin cytoskeleton, as well as the epithelial-to-mesenchymal transition (EMT) during embryonic development.[2] Podoplanin is expressed in various tissues during murine embryonic development but is predominantly restricted to stromal, lymphatic endothelial, and immune cells, lymphoid organs, and the heart and choroid plexus in the adult mouse.[1,2] Its expression is upregulated by various pro-inflammatory cytokines, including IL-22, IL-6, IFN-γ, and TGF-β, and is increased in T cells, fibroblasts, and macrophages during inflammation. It localizes to the cell surface within lipid rafts where it interacts with numerous proteins to modulate cell adhesion and motility.[1] Podoplanin binds to C-type lectin receptor 2 (CLEC-2), which is expressed on platelets, to induce platelet aggregation and activation, an effect that is inhibited by the interaction of podoplanin with CD9. Mice implanted with MCF-7 cells overexpressing podoplanin exhibit reduced primary tumor growth but enhanced tumor lymphangiogenesis and lymph node metastasis.[3] Tumor podoplanin expression is associated with reduced overall survival in patients with oral squamous cell carcinoma (OSCC).[4] Cayman's Podoplanin Rabbit Monoclonal Antibody (Clone RM449) can be used for immunohistochemistry (IHC) and Western blot (WB) applications.

References

1. Astarita, J.L., Acton, S.E., and Turley, S.J. Podoplanin: Emerging functions in development, the immune system, and cancer. *Front. Immunol.* **3**, 283 (2012).
2. Quintanilla, M., Montero-Montero, L., Renart, J., *et al.* Podoplanin in inflammation and cancer. *Int. J. Mol. Sci.* **20(3)**, 707 (2019).
3. Cueni, L.N., Hegyi, I., Shin, J.W., *et al.* Tumor lymphangiogenesis and metastasis to lymph nodes induced by cancer cell expression of podoplanin. *Am. J. Pathol.* **177(2)**, 1004-1016 (2010).
4. Kreppel, M., Scheer, M., Drebber, U., *et al.* Impact of podoplanin expression in oral squamous cell carcinoma: Clinical and histopathologic correlations. *Virchows Arch.* **456(5)**, 473-482 (2010).

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