Anti-FAM38A / PIEZO1 Antibody [2-10-R-A] HA601100

Product Type:	Recombinant Mouse monoclonal IgG2a, primary antibodies
Species reactivity:	Human, Mouse, Rat
Applications:	WB, IHC-P, IF-Cell
Molecular Wt:	Predicted band size: 287 kDa
Clone number:	2-10-R-A

Description: Piezo1 is a mechanosensitive ion channel protein that in humans is encoded by the gene PIEZO1. Piezo1 and its close homolog Piezo2 were cloned in 2010, using an siRNA-based screen for mechanosensitive ion channels. PIEZO1 (this gene) and PIEZO2 share 47% identity with each other and they have no similarity to any other protein and contain no known protein domains. They are predicted to have 24-36 transmembrane domains, depending on the prediction algorithm used. Piezo1 is expressed in the lungs, bladder and skin, where mechanosensation has important biological roles. Unlike Piezo2 which is highly expressed in sensory dorsal root ganglia, piezo1 is not expressed in sensory neurons. Piezo1 is also found in red blood cells, and gain of function mutations in the channels are associated with hereditary xerocytosis or stomatocytosis. Piezo1 channels are pivotal integrators in vascular biology. An allele of Piezo1, E756del, results in a gain-of-function mutation, resulting in dehydrated RBCs and conveying resistance to Plasmodium. This allele has been demonstrated in vitro to prevent cerebral malaria infection. Piezo1 has been implicated in extrusion of epidermal cells when a layer becomes too confluent to preserve normal skin homeostasis. This acts to prevent excess proliferation of skin tissue, and has been implicated in cancer biology as a contributing factor to metastases by assisting living cells in escaping from a monolayer.

Immunogen:	Recombinant protein within Human PIEZO1 aa 1275-1540 / 2521.
Positive control:	Recombinant protein lysates, rat brain tissue, mouse hippocampus tissue, mouse brain tissue.
Subcellular location:	Endoplasmic reticulum membrane. Cell membrane.
Database links:	SwissProt: Q92508 Human | E2JF22 Mouse | Q0KL00 Rat
Recommended Dilutions:	
WB	1:500
IHC-P	1:200-1:1,000
IF-Cell	1:200
Storage Buffer:	PBS (pH7.4), 0.1% BSA, 40% Glycerol. Preservative: 0.05% Sodium Azide.
Storage Instruction:	Shipped at 4℃. Store at +4℃ short term (1-2 weeks). It is recommended to aliquot into single-use upon delivery. Store at -20℃ long term.
Purity:	Protein A affinity purified.

Images

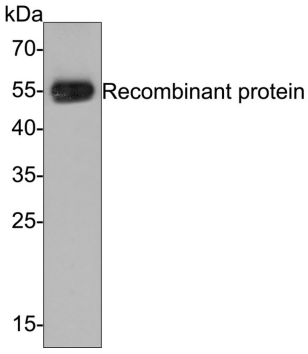

Fig1: Western blot analysis of FAM38A / PIEZO1 on recombinant protein lysates with Mouse anti-FAM38A / PIEZO1 antibody (HA601100) at 1/500 dilution.

Lysates/proteins at 50 ng/Lane.

Exposure time: 2 minutes;

12% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (HA601100) at 1/500 dilution was used in 5% NFDM/TBST at room temperature for 2 hours. Goat Anti-Mouse IgG - HRP Secondary Antibody (HA1006) at 1:150,000 dilution was used for 1 hour at room temperature.

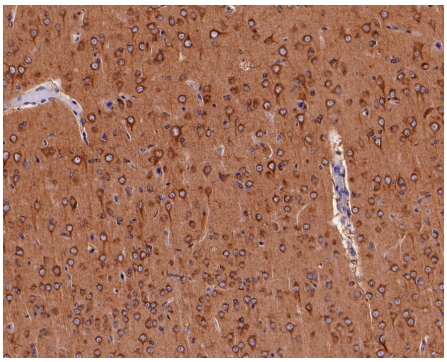

Fig2: Immunohistochemical analysis of paraffin-embedded rat brain tissue with Mouse anti-FAM38A / PIEZO1 antibody (HA601100) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601100) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

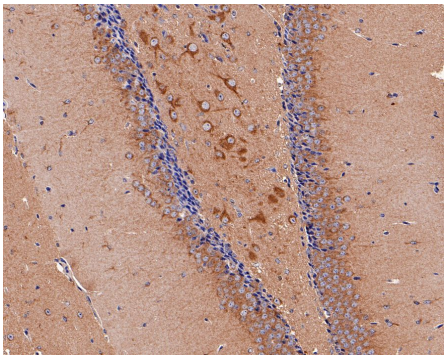

Fig3: Immunohistochemical analysis of paraffin-embedded mouse hippocampus tissue with Mouse anti-FAM38A / PIEZO1 antibody (HA601100) at 1/200 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601100) at 1/200 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

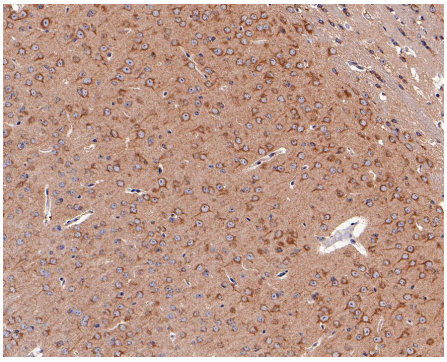

Fig4: Immunohistochemical analysis of paraffin-embedded mouse brain tissue with Mouse anti-FAM38A / PIEZO1 antibody (HA601100) at 1/200 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with ddH_2O and PBS, and then probed with the primary antibody (HA601100) at 1/200 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

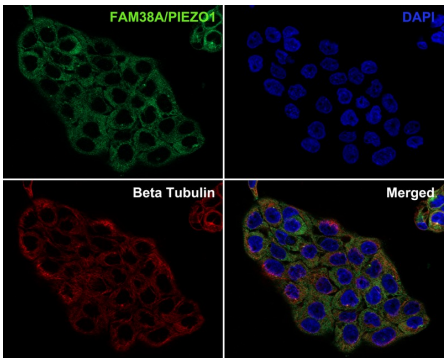

Fig5: Immunocytochemistry analysis of A431 cells labeling FAM38A / PIEZO1 with Mouse anti-FAM38A / PIEZO1 antibody (HA601100) at 1/200 dilution.

Cells were fixed in 4% paraformaldehyde for 30 minutes, permeabilized with 0.05% Triton X-100 in PBS for 20 minutes, and then blocked with 2% negative goat serum for 30 minutes at room temperature. Cells were then incubated with Mouse anti-FAM38A / PIEZO1 antibody (HA601100) at 1/200 dilution in 2% negative goat serum overnight at 4 ℃. Goat Anti-Mouse IgG H&L (iFluor™ 488, HA1125) was used as the secondary antibody at 1/1,000 dilution. Nuclear DNA was labelled in blue with DAPI.

Beta tubulin (ET1602-4, Red) was stained at 1/100 dilution overnight at +4℃. Goat Anti-Rabbit IgG H&L (iFluor™ 594, HA1122) were used as the secondary antibody at 1/1,000 dilution.

Background References

1. Coste B, Mathur J, Schmidt M, Earley TJ, Ranade S, Petrus MJ, et al. (October 2010). "Piezo1 and Piezo2 are essential components of distinct mechanically activated cation channels". Science. 330 (6000): 55–60.
2. Eisenhoffer GT, Loftus PD, Yoshigi M, Otsuna H, Chien CB, Morcos PA, Rosenblatt J (April 2012). "Crowding induces live cell extrusion to maintain homeostatic cell numbers in epithelia". Nature. 484 (7395): 546–9.