

Product datasheet for **TA328755**

Tpcn1 Rabbit Polyclonal Antibody

Product data:

Product Type:	Primary Antibodies
Applications:	IHC, WB
Recommended Dilution:	WB: 1:200-1:2000; IHC: 1:100-1:3000
Reactivity:	Rat
Host:	Rabbit
Clonality:	Polyclonal
Immunogen:	Peptide (C)RNLRQIFQSLPPFMD, corresponding to amino acid residues 221-235 of rat Two Pore Calcium Channel Protein 1. 2nd extracellular loop for Two pore calcium channel protein 1 expressed on the plasma membrane. Luminal for Two pore calcium channel prote
Formulation:	Lyophilized. Concentration before lyophilization ~0.8mg/ml (lot dependent, please refer to CoA along with shipment for actual concentration). Buffer before lyophilization: Phosphate buffered saline (PBS), pH 7.4, 1% BSA, 0.05% NaN ₃ .
Reconstitution Method:	Add 50 ul double distilled water (DDW) to the lyophilized powder.
Purification:	Affinity purified on immobilized antigen.
Conjugation:	Unconjugated
Storage:	Store at -20°C as received.
Stability:	Stable for 12 months from date of receipt.
Gene Name:	two pore segment channel 1
Database Link:	NP_647548 Entrez Gene 246215 Rat Q9WTN5



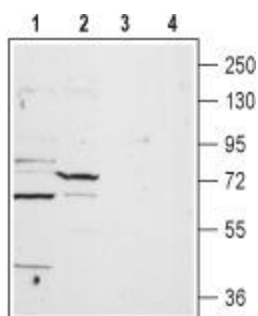
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Background:

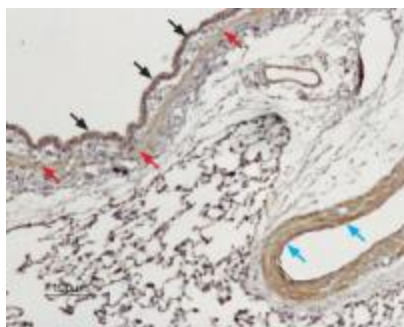
Among various vertebrate species, three genes are known to encode two-pore segment channels (TPCs) termed TPC1-3. Interestingly TPC3 seems to be absent from the genomes of primates and rodents. The primary sequence of these channels indicates the presence of two putative pore-forming repeats. Each repeat contains six transmembrane domains and a pore loop, a structure strikingly reminiscent of many voltage-gated Na⁺ (Nav) and Ca²⁺ (Cav) channels. These twelve transmembrane structures are further thought to form functional dimers. Both TPC1 and TPC2 show ubiquitous expression, while that of TPC1 is exceptionally high in spleen, lung, liver, and kidney. Ca²⁺-mobilizing messengers such as inositol triphosphate, cyclic ADP ribose and nicotinic acid adenosine dinucleotide phosphate (NAADP) are responsible for the intracellular changes in Ca²⁺ ion concentration. In contrast to the other Ca²⁺-mobilizing agents, NAADP, the most potent of these Ca²⁺ releasing molecules increases the cytosolic Ca²⁺ concentration via Ca²⁺ channels located on acidic vesicles (endolysosomes). Only quite recently, after almost a decade of being cloned, TPC1 and TPC2 were both found to be responsible for the NAADP-induced release of Ca²⁺. Evidence that these two channels are indeed responsible for the release of Ca²⁺ is quite compelling since overexpression of TPC1 and its knockdown or point mutation of a critical residue increase and exacerbate Ca²⁺ release respectively. In addition, b-cells from TPC2 knockout mice exhibited no Ca²⁺ release from endolysosomes upon NAADP stimulation. Finally, in a study using immunopurified channels, it was demonstrated that TPC1 and TPC2 both respond to very low concentrations of NAADP and are unequivocally responsible for the release of Ca²⁺, whereas TPC3 may negatively regulate the release of Ca²⁺. As these channels have only recently been discovered, very little is known about their physiology and gating mechanisms. Their probable involvement in a number of diseases such as lysosomal storage disease (LSDs), caused by the dysfunction of lysosomal associated proteins, has yet to be deciphered.

Synonyms:

FLJ20612; KIAA1169; TPC1

Product images:

Western blot analysis of rat heart lysate (lanes 1 and 3) and rat liver membrane (lanes 2 and 4): 1, 2. Anti-Two Pore Calcium Channel Protein 1 (extracellular) antibody, (1:200). 3, 4. Anti-Two Pore Calcium Channel Protein 1 (extracellular) antibody, preincubated with the control peptide antigen.



Expression of TPC1 in rat lung.
Immunohistochemical staining of paraffin embedded rat lung sections using Anti-Two Pore Calcium Channel Protein 1 (extracellular) antibody, (1:100). TPC1 is expressed in the respiratory epithelium of the bronchioli (black arrows), and in the smooth muscle of both bronchioli (red arrows) and blood vessels (blue arrows). Hematoxylin is used as the counterstain.