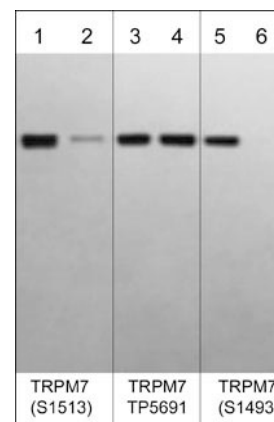


Background

The transient receptor potential melastatin (TRPM) subfamily of cation-permeable TRP channels is ubiquitously expressed in mammalian tissues. This family includes TRPM1-8. In addition to acting as a calcium-permeant channel, TRPM6 and TRPM7 possess an inherent serine/threonine kinase activity. TRPM7 specifically is involved with cellular magnesium homeostasis and neurotransmitter release. Due to the magnesium inhibition, TRPM7's ion channel activity is very low. TRPM7 has been implicated in cell proliferation and migration during cancer progression, and its expression levels correlate with prognosis in breast cancer. TRPM7 kinase activation leads to massive autophosphorylation of the C-terminal region, including phosphorylation of Ser-1493, Ser-1513, and Ser-1569. Both Ser-1513 and Ser-1569 phosphorylation is required for kinase activity, and phosphorylation of Ser-1513 may inhibit Caspase-mediated cleavage of the C-terminal tail. Thus, TRPM7 is a multifunctional transmembrane protein with roles in cell signaling, proliferation, migration, and death.

Background References

Masayuki, M. et al. (2005) J of Bio Chem 280(21): 20793
 Clark, K. et al. (2008) PLoS ONE 3(3): e1876
 Desai, BN. et al. (2012) Dev. Cell. 22(6): 1149



Western blot image of human autophosphorylated TRPM7 C-terminal kinase domain (lanes 1-6). The blot was treated with lambda phosphatase to dephosphorylate TRPM7 phosphosites (lanes 2, 4, & 6). The blot was probed with rabbit polyclonals anti-TRPM7 (Ser-1513), phospho-specific (lanes 1 & 2), anti-TRPM7 (a.a.1484-1497), TP5691 antibody (lanes 3 & 4), or anti-TRPM7 (Ser-1493), phospho-specific (lanes 5 & 6).

Applications

WB 1:500
 ELISA 1:2000

Species Reactivity

Hu, Rt, Ms

Specificity

The antibody was cross-adsorbed to unphosphorylated TRPM7 (Ser-1513) peptide then affinity purified using phospho-TRPM7 (Ser-1513) peptide. This antibody detects a 220 kDa* protein on SDS-PAGE immunoblots of human MDA-MB-231 and rat PC12 cells stimulated with calyculin A, as well as detects a 70 kDa autophosphorylated recombinant kinase domain of human TRPM7. These reactivities are not observed after lambda phosphatase treatment to dephosphorylate TRPM7.

*All molecular weights (MW) are confirmed by comparison to Bio-Rad Rainbow Markers and to western blot mobilities of known proteins with similar MW.

End user should determine optimal dilution for their particular applications and experiments.
 Western blot membranes were incubated with diluted antibody in 5% non-fat milk, PBS, 0.04% Tween20 for 1 hour at room temperature.

Immunogen

Uniprot ID: Q96QT4

Phospho-TRPM7 (Ser-1513) synthetic peptide (coupled to carrier) corresponding to amino acids surrounding Ser-1513 in human TRPM7. This site is well conserved in rat and mouse TRPM7, but has low homology to other TRPM family members.

Buffer and Storage

Rabbit polyclonal, affinity-purified antibody is supplied in 100µl phosphate-buffered saline, 50% glycerol, 1 mg/ml BSA, and 0.05% sodium azide. Store at -20°C. Stable for 1 year.

Related Products

TP5651 TRPM7 (Extracellular region) Rabbit Polyclonal
 TP5691 TRPM7 (a.a. 1484-1497) Rabbit Polyclonal
 TP5661 TRPM7 (Ser-1493), phospho-specific Rabbit Polyclonal
 TP5681 TRPM7 (Ser-1569), phospho-specific Rabbit Polyclonal
 TP5701 TRPM8 (Extracellular region) Rabbit Polyclonal

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