1. Phylogeny  
   TRPM6 is a member of the melastatin-related transient receptor potential (TRPM) subfamily of ion channels. Orthologs of TRPM6 are found in vertebrates, and its evolutionary history appears to be tightly linked with that of TRPM7, with which it shares approximately 50% amino acid sequence homology (chubanov2004disruptionoftrpm6trpm7 pages 2-3). Within the broader kinome, TRPM6 is assigned to the atypical α‐kinase family, a group that diverges from conventional serine/threonine kinases and is represented in diverse eukaryotes (schmitz2005thechannelkinases pages 1-2). The conservation of key residues in its kinase and channel domains across mammals, birds, and fish underscores its fundamental role in magnesium homeostasis, and the evolutionary appearance of the TRPM6 gene predates the diversification of vertebrates (chubanov2005emergingrolesof pages 2-3, stadlbauer2023theroleof pages 22-26).
2. Reaction Catalyzed  
   TRPM6 catalyzes the phosphorylation reaction typical of serine/threonine protein kinases. The reaction can be represented as:  
   ATP + [protein] – (L-serine or L-threonine) → ADP + [protein] – (L-serine/threonine)-phosphate + H⁺ (cao2008rack1inhibitstrpm6 pages 4-5, schmitz2005thechannelkinases pages 1-2).
3. Cofactor Requirements  
   The kinase activity of TRPM6 is dependent on divalent metal ions, with Mg²⁺ serving as the required cofactor for ATP binding and catalytic activity. This is in line with its classification in the atypical α‐kinase family where optimal activity is achieved in the presence of Mg²⁺ (ryazanova2004characterizationofthe pages 6-7, schmitz2005thechannelkinases pages 1-2).
4. Substrate Specificity  
   The intrinsic kinase domain of TRPM6 phosphorylates serine/threonine residues on protein substrates. Although a detailed consensus substrate motif specific to TRPM6 is less well‐defined compared to conventional serine/threonine kinases, studies indicate that TRPM6 (and its counterpart TRPM7) can phosphorylate proteins such as myosin heavy chain isoforms and annexin A1. Moreover, autophosphorylation events have been reported on multiple threonine and serine residues within its kinase domain (cao2008rack1inhibitstrpm6 pages 4-5, schmitz2005thechannelkinases pages 4-5). Data from comprehensive substrate specificity atlases for the human serine/threonine kinome are not yet available for TRPM6 specifically; however, its structural kinship with TRPM7 suggests that a preference for substrates with alpha-helical regions may be operative (runnels2011trpm6andtrpm7 pages 2-3).
5. Structure  
   TRPM6 is a bifunctional protein comprising two major modules: an ion channel and an intrinsic protein kinase domain. The channel portion includes six transmembrane helices (S1–S6) with a pore-forming loop between S5 and S6 that harbors the selectivity filter, with conserved residues such as those in the sequence motif 1028GEIDVC1033 being critical for Mg²⁺ permeation (topala2007moleculardeterminantsof pages 154-156, chubanov2014trpm6 pages 9-11). The N-terminal region may contain ankyrin-like repeats that contribute to channel assembly and stability (chubanov2014trpm6 pages 1-3). C-terminal to the channel module, TRPM6 contains an atypical α‐kinase domain that is structurally distinct from conventional kinases. This kinase domain is organized into two lobes that create the nucleotide-binding cleft, and it harbors critical residues, such as Thr1851—a major autophosphorylation site that modulates channel regulation—and other essential amino acids required for catalytic function (cao2008rack1inhibitstrpm6 pages 4-5, ferioli2017trpm6andtrpm7 pages 1-2). In addition, regions adjacent to the kinase domain, including a serine/threonine rich segment and a coiled-coil domain, are thought to facilitate oligomerization and heteromeric interactions with TRPM7, a necessary process for efficient membrane expression (chubanov2004disruptionoftrpm6trpm7 pages 4-6, stadlbauer2023theroleof pages 22-26).
6. Regulation  
   Multiple regulatory mechanisms modulate TRPM6 activity. Autophosphorylation is a key regulatory event: for instance, phosphorylation of Thr1851 within the kinase domain modulates the inhibitory effect of the regulatory protein RACK1 on TRPM6 channel currents (cao2008rack1inhibitstrpm6 pages 4-5). RACK1 itself binds near the kinase domain and acts as an inhibitor; overexpression of RACK1 suppresses channel activity while siRNA-mediated knockdown enhances it (cao2008rack1inhibitstrpm6 pages 4-5). In addition, TRPM6 activity is tightly controlled by intracellular Mg²⁺ levels and Mg·ATP, which serve as negative regulators of its channel function (hoenderop2009epithelialmg2+ pages 1-3, runnels2011trpm6andtrpm7 pages 1-2). Heteromerization with TRPM7 is another key aspect of regulation; TRPM6 alone shows minimal surface expression, and co-assembly with TRPM7 is required for proper trafficking and functional channel formation (chubanov2004disruptionoftrpm6trpm7 pages 2-3, chubanov2014trpm6 pages 11-14). In some experimental models, activation of protein kinase C (PKC) by phorbol esters such as PMA disrupts the interaction between RACK1 and TRPM6, thereby relieving channel inhibition (cao2008rack1inhibitstrpm6 pages 4-5).
7. Function  
   TRPM6 plays a crucial role in the regulation of magnesium homeostasis by mediating Mg²⁺ influx across epithelial cells. It is predominantly expressed in the kidney—especially within the distal convoluted tubule (DCT)—and the intestine, tissues vital for active Mg²⁺ absorption (hoenderop2009epithelialmg2+ pages 1-3, chubanov2014trpm6 pages 16-18). Through its ion channel function, TRPM6 permits the entry of Mg²⁺ into the cell, and its intrinsic kinase activity may facilitate downstream signaling pathways by phosphorylating target substrates involved in cytoskeletal dynamics and cell growth (cao2008rack1inhibitstrpm6 pages 4-5, li2007moleculardeterminantsof pages 1-1). In addition, the ability of TRPM6 to form heteromeric channels with TRPM7 is essential for its surface expression and function, and mutations in TRPM6 that impair its channel function or disrupt its assembly with TRPM7 result in hypomagnesemia with secondary hypocalcemia (HSH), a severe electrolyte imbalance manifesting during infancy with seizures and muscle spasms (chubanov2007hypomagnesemiawithsecondary pages 1-1, topala2007moleculardeterminantsof pages 154-156). Expression studies have shown that disruption of TRPM6 function leads to defective Mg²⁺ reabsorption in the kidney and impaired intestinal magnesium uptake, underscoring its indispensable role in systemic magnesium balance (chubanov2016epithelialmagnesiumtransport pages 32-32, yogi2011transientreceptorpotential pages 2-4).
8. Other Comments  
   Several modulatory agents and genetic variants have been identified that influence TRPM6 activity. For example, RACK1 acts as an endogenous inhibitor of TRPM6, and its effect can be counteracted by PKC-mediated signaling (cao2008rack1inhibitstrpm6 pages 4-5). Moreover, pharmacological agents such as 2-aminoethoxydiphenyl borate (2-APB) have been shown in some studies to modulate TRPM6 or related TRPM channel activity, although a specific inhibitor selective for TRPM6 alone is not yet well established (harteneck2005functionandpharmacology pages 3-5, li2006functionalcharacterizationof pages 1-2). Mutations in TRPM6, including missense mutations in the pore-forming region (for example, substitutions affecting residues critical for ion selectivity), are causally linked to hypomagnesemia with secondary hypocalcemia (HSH); these mutations lead to either loss of channel function or defective heteromerization with TRPM7 (chubanov2007hypomagnesemiawithsecondary pages 1-2, topala2007moleculardeterminantsof pages 154-156). In addition, TRPM6 has been implicated in additional roles in epithelial Mg²⁺ transport beyond the intestine and kidney, with emerging evidence suggesting broader expression in tissues such as the lung, testis, and immune cells (chubanov2014trpm6 pages 16-18, yogi2011transientreceptorpotential pages 2-4). At present, no highly selective clinical inhibitors have been approved for therapeutic modulation of TRPM6, although experimental compounds targeting its kinase or channel domains continue to be evaluated (brandao2014trpm6kinaseactivity pages 1-2).
9. References  
   cao2008rack1inhibitstrpm6 pages 4-5; chubanov2004disruptionoftrpm6trpm7 pages 2-3; chubanov2004disruptionoftrpm6trpm7 pages 4-6; chubanov2007hypomagnesemiawithsecondary pages 1-1; chubanov2014trpm6 pages 1-3; chubanov2014trpm6 pages 11-14; chubanov2014trpm6 pages 16-18; chubanov2014trpm6 pages 6-9; chubanov2014trpm6 pages 9-11; chubanov2016epithelialmagnesiumtransport pages 32-32; ferioli2017trpm6andtrpm7 pages 1-2; ferioli2017trpm6andtrpm7 pages 17-18; harteneck2005functionandpharmacology pages 3-5; hoenderop2009epithelialmg2+ pages 1-3; li2006functionalcharacterizationof pages 1-2; li2007moleculardeterminantsof pages 1-1; runnels2011trpm6andtrpm7 pages 1-2; schlingmann2007trpm6andtrpm7—gatekeepers pages 11-15; schlingmann2007trpm6andtrpm7—gatekeepers pages 15-19; schmitz2005thechannelkinases pages 7-8; stadlbauer2023theroleof pages 18-22; topala2007moleculardeterminantsof pages 118-125; topala2007moleculardeterminantsof pages 125-129; topala2007moleculardeterminantsof pages 154-156; voets2004trpm6formsthe pages 1-1; wijst2014mg2+homeostasisthe pages 2-4; yogi2011transientreceptorpotential pages 2-4; brandao2014trpm6kinaseactivity pages 1-2; brandao2014trpm6kinaseactivity pages 14-15; chubanov2005emergingrolesof pages 1-2; chubanov2005emergingrolesof pages 2-3; chubanov2005emergingrolesof pages 3-5; chubanov2007hypomagnesemiawithsecondary pages 1-2; chubanov2007hypomagnesemiawithsecondary pages 10-11; chubanov2007hypomagnesemiawithsecondary pages 4-5; chubanov2007hypomagnesemiawithsecondary pages 5-6; chubanov2014trpm6 pages 3-6; ferioli2017trpm6andtrpm7 pages 2-3; lainez2014newtrpm6missense pages 8-8; runnels2011trpm6andtrpm7 pages 2-3; runnels2011trpm6andtrpm7 pages 3-4; runnels2011trpm6andtrpm7 pages 5-6; ryazanova2004characterizationofthe pages 6-7; schlingmann2007trpm6andtrpm7—gatekeepers pages 27-31; schmitz2005thechannelkinases pages 1-2; schmitz2005thechannelkinases pages 3-4; schmitz2005thechannelkinases pages 4-5; schmitz2005thechannelkinases pages 8-9; stadlbauer2023theroleof pages 22-26; topala2007moleculardeterminantsof pages 129-131.

References

1. (cao2008rack1inhibitstrpm6 pages 4-5): Gang Cao, Stéphanie Thébault, Jenny van der Wijst, AnneMiete van der Kemp, Edwin Lasonder, René J.M. Bindels, and Joost G.J. Hoenderop. Rack1 inhibits trpm6 activity via phosphorylation of the fused α-kinase domain. Current Biology, 18:168-176, Feb 2008. URL: https://doi.org/10.1016/j.cub.2007.12.058, doi:10.1016/j.cub.2007.12.058. This article has 74 citations and is from a highest quality peer-reviewed journal.
2. (chubanov2004disruptionoftrpm6trpm7 pages 2-3): Vladimir Chubanov, Siegfried Waldegger, Michael Mederos y Schnitzler, Helga Vitzthum, Martin C. Sassen, Hannsjörg W. Seyberth, Martin Konrad, and Thomas Gudermann. Disruption of trpm6/trpm7 complex formation by a mutation in the trpm6 gene causes hypomagnesemia with secondary hypocalcemia. Proceedings of the National Academy of Sciences of the United States of America, 101 9:2894-9, Mar 2004. URL: https://doi.org/10.1073/pnas.0305252101, doi:10.1073/pnas.0305252101. This article has 485 citations and is from a highest quality peer-reviewed journal.
3. (chubanov2004disruptionoftrpm6trpm7 pages 4-6): Vladimir Chubanov, Siegfried Waldegger, Michael Mederos y Schnitzler, Helga Vitzthum, Martin C. Sassen, Hannsjörg W. Seyberth, Martin Konrad, and Thomas Gudermann. Disruption of trpm6/trpm7 complex formation by a mutation in the trpm6 gene causes hypomagnesemia with secondary hypocalcemia. Proceedings of the National Academy of Sciences of the United States of America, 101 9:2894-9, Mar 2004. URL: https://doi.org/10.1073/pnas.0305252101, doi:10.1073/pnas.0305252101. This article has 485 citations and is from a highest quality peer-reviewed journal.
4. (chubanov2007hypomagnesemiawithsecondary pages 1-1): Vladimir Chubanov, Karl P. Schlingmann, Janine Wäring, Jolanta Heinzinger, Silke Kaske, Siegfried Waldegger, Michael Mederos y Schnitzler, and Thomas Gudermann. Hypomagnesemia with secondary hypocalcemia due to a missense mutation in the putative pore-forming region of trpm6\*. Journal of Biological Chemistry, 282:7656-7667, Mar 2007. URL: https://doi.org/10.1074/jbc.m611117200, doi:10.1074/jbc.m611117200. This article has 131 citations and is from a domain leading peer-reviewed journal.
5. (chubanov2014trpm6 pages 1-3): Vladimir Chubanov and Thomas Gudermann. Trpm6. Handbook of Experimental Pharmacology, pages 503-520, Jan 2014. URL: https://doi.org/10.1007/978-3-642-54215-2\_20, doi:10.1007/978-3-642-54215-2\_20. This article has 70 citations and is from a peer-reviewed journal.
6. (chubanov2014trpm6 pages 11-14): Vladimir Chubanov and Thomas Gudermann. Trpm6. Handbook of Experimental Pharmacology, pages 503-520, Jan 2014. URL: https://doi.org/10.1007/978-3-642-54215-2\_20, doi:10.1007/978-3-642-54215-2\_20. This article has 70 citations and is from a peer-reviewed journal.
7. (chubanov2014trpm6 pages 16-18): Vladimir Chubanov and Thomas Gudermann. Trpm6. Handbook of Experimental Pharmacology, pages 503-520, Jan 2014. URL: https://doi.org/10.1007/978-3-642-54215-2\_20, doi:10.1007/978-3-642-54215-2\_20. This article has 70 citations and is from a peer-reviewed journal.
8. (chubanov2014trpm6 pages 6-9): Vladimir Chubanov and Thomas Gudermann. Trpm6. Handbook of Experimental Pharmacology, pages 503-520, Jan 2014. URL: https://doi.org/10.1007/978-3-642-54215-2\_20, doi:10.1007/978-3-642-54215-2\_20. This article has 70 citations and is from a peer-reviewed journal.
9. (chubanov2014trpm6 pages 9-11): Vladimir Chubanov and Thomas Gudermann. Trpm6. Handbook of Experimental Pharmacology, pages 503-520, Jan 2014. URL: https://doi.org/10.1007/978-3-642-54215-2\_20, doi:10.1007/978-3-642-54215-2\_20. This article has 70 citations and is from a peer-reviewed journal.
10. (chubanov2016epithelialmagnesiumtransport pages 32-32): Vladimir Chubanov, Silvia Ferioli, Annika Wisnowsky, David G Simmons, Christin Leitzinger, Claudia Einer, Wenke Jonas, Yuriy Shymkiv, Harald Bartsch, Attila Braun, Banu Akdogan, Lorenz Mittermeier, Ludmila Sytik, Friedrich Torben, Vindi Jurinovic, Emiel PC van der Vorst, Christian Weber, Önder A Yildirim, Karl Sotlar, Annette Schürmann, Susanna Zierler, Hans Zischka, Alexey G Ryazanov, and Thomas Gudermann. Epithelial magnesium transport by trpm6 is essential for prenatal development and adult survival. eLife, Dec 2016. URL: https://doi.org/10.7554/elife.20914, doi:10.7554/elife.20914. This article has 143 citations and is from a domain leading peer-reviewed journal.
11. (ferioli2017trpm6andtrpm7 pages 1-2): Silvia Ferioli, Susanna Zierler, Joanna Zaißerer, Johann Schredelseker, Thomas Gudermann, and Vladimir Chubanov. Trpm6 and trpm7 differentially contribute to the relief of heteromeric trpm6/7 channels from inhibition by cytosolic mg2+ and mg·atp. Scientific Reports, Aug 2017. URL: https://doi.org/10.1038/s41598-017-08144-1, doi:10.1038/s41598-017-08144-1. This article has 87 citations and is from a poor quality or predatory journal.
12. (ferioli2017trpm6andtrpm7 pages 17-18): Silvia Ferioli, Susanna Zierler, Joanna Zaißerer, Johann Schredelseker, Thomas Gudermann, and Vladimir Chubanov. Trpm6 and trpm7 differentially contribute to the relief of heteromeric trpm6/7 channels from inhibition by cytosolic mg2+ and mg·atp. Scientific Reports, Aug 2017. URL: https://doi.org/10.1038/s41598-017-08144-1, doi:10.1038/s41598-017-08144-1. This article has 87 citations and is from a poor quality or predatory journal.
13. (harteneck2005functionandpharmacology pages 3-5): Christian Harteneck. Function and pharmacology of trpm cation channels. Naunyn-Schmiedeberg’s Archives of Pharmacology, 371:307-314, Apr 2005. URL: https://doi.org/10.1007/s00210-005-1034-x, doi:10.1007/s00210-005-1034-x. This article has 201 citations.
14. (hoenderop2009epithelialmg2+ pages 1-3): JGJ Hoenderop. Epithelial mg 2+ channel trpm6: insight into the molecular regulation. Unknown journal, 2009.
15. (li2006functionalcharacterizationof pages 1-2): Mingjiang Li, Jianmin Jiang, and Lixia Yue. Functional characterization of homo- and heteromeric channel kinases trpm6 and trpm7. The Journal of General Physiology, 127:525-537, Apr 2006. URL: https://doi.org/10.1085/jgp.200609502, doi:10.1085/jgp.200609502. This article has 461 citations.
16. (li2007moleculardeterminantsof pages 1-1): Mingjiang Li, Jianyang Du, Jianmin Jiang, William Ratzan, Li-Ting Su, Loren W. Runnels, and Lixia Yue. Molecular determinants of mg2+ and ca2+ permeability and ph sensitivity in trpm6 and trpm7\*. Journal of Biological Chemistry, 282:25817-25830, Aug 2007. URL: https://doi.org/10.1074/jbc.m608972200, doi:10.1074/jbc.m608972200. This article has 227 citations and is from a domain leading peer-reviewed journal.
17. (runnels2011trpm6andtrpm7 pages 1-2): Loren W. Runnels. Trpm6 and trpm7: a mul-trp-plik-cation of channel functions. Current Pharmaceutical Biotechnology, 12:42-53, Jan 2011. URL: https://doi.org/10.2174/138920111793937880, doi:10.2174/138920111793937880. This article has 105 citations and is from a peer-reviewed journal.
18. (schlingmann2007trpm6andtrpm7—gatekeepers pages 11-15): Karl P. Schlingmann, Siegfried Waldegger, Martin Konrad, Vladimir Chubanov, and Thomas Gudermann. Trpm6 and trpm7—gatekeepers of human magnesium metabolism. Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease, 1772:813-821, Aug 2007. URL: https://doi.org/10.1016/j.bbadis.2007.03.009, doi:10.1016/j.bbadis.2007.03.009. This article has 341 citations.
19. (schlingmann2007trpm6andtrpm7—gatekeepers pages 15-19): Karl P. Schlingmann, Siegfried Waldegger, Martin Konrad, Vladimir Chubanov, and Thomas Gudermann. Trpm6 and trpm7—gatekeepers of human magnesium metabolism. Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease, 1772:813-821, Aug 2007. URL: https://doi.org/10.1016/j.bbadis.2007.03.009, doi:10.1016/j.bbadis.2007.03.009. This article has 341 citations.
20. (schmitz2005thechannelkinases pages 7-8): Carsten Schmitz, Maxim V. Dorovkov, Xiaoyun Zhao, Bennett J. Davenport, Alexey G. Ryazanov, and Anne-Laure Perraud. The channel kinases trpm6 and trpm7 are functionally nonredundant. Journal of Biological Chemistry, 280:37763-37771, Nov 2005. URL: https://doi.org/10.1074/jbc.m509175200, doi:10.1074/jbc.m509175200. This article has 247 citations and is from a domain leading peer-reviewed journal.
21. (stadlbauer2023theroleof pages 18-22): B Stadlbauer. The role of kinase-coupled channel trpm6 in cardiac automaticity. Unknown journal, 2023.
22. (topala2007moleculardeterminantsof pages 118-125): Catalin N. Topala, Wouter Tiel Groenestege, Stéphanie Thébault, Dennis van den Berg, Bernd Nilius, Joost G. Hoenderop, and René J. Bindels. Molecular determinants of permeation through the cation channel trpm6. Cell Calcium, 41:513-523, Jun 2007. URL: https://doi.org/10.1016/j.ceca.2006.10.003, doi:10.1016/j.ceca.2006.10.003. This article has 79 citations and is from a peer-reviewed journal.
23. (topala2007moleculardeterminantsof pages 125-129): Catalin N. Topala, Wouter Tiel Groenestege, Stéphanie Thébault, Dennis van den Berg, Bernd Nilius, Joost G. Hoenderop, and René J. Bindels. Molecular determinants of permeation through the cation channel trpm6. Cell Calcium, 41:513-523, Jun 2007. URL: https://doi.org/10.1016/j.ceca.2006.10.003, doi:10.1016/j.ceca.2006.10.003. This article has 79 citations and is from a peer-reviewed journal.
24. (topala2007moleculardeterminantsof pages 154-156): Catalin N. Topala, Wouter Tiel Groenestege, Stéphanie Thébault, Dennis van den Berg, Bernd Nilius, Joost G. Hoenderop, and René J. Bindels. Molecular determinants of permeation through the cation channel trpm6. Cell Calcium, 41:513-523, Jun 2007. URL: https://doi.org/10.1016/j.ceca.2006.10.003, doi:10.1016/j.ceca.2006.10.003. This article has 79 citations and is from a peer-reviewed journal.
25. (voets2004trpm6formsthe pages 1-1): Thomas Voets, Bernd Nilius, Susan Hoefs, Annemiete W.C.M. van der Kemp, Guy Droogmans, Rene J.M. Bindels, and Joost G.J. Hoenderop. Trpm6 forms the mg2+ influx channel involved in intestinal and renal mg2+ absorption\*. Journal of Biological Chemistry, 279:19-25, Jan 2004. URL: https://doi.org/10.1074/jbc.m311201200, doi:10.1074/jbc.m311201200. This article has 771 citations and is from a domain leading peer-reviewed journal.
26. (wijst2014mg2+homeostasisthe pages 2-4): J. van der Wijst, R. Bindels, and J. Hoenderop. Mg2+ homeostasis: the balancing act of trpm6. Current Opinion in Nephrology and Hypertension, 23:361–369, Jul 2014. URL: https://doi.org/10.1097/01.mnh.0000447023.59346.ab, doi:10.1097/01.mnh.0000447023.59346.ab. This article has 51 citations and is from a peer-reviewed journal.
27. (yogi2011transientreceptorpotential pages 2-4): Alvaro Yogi, Glaucia E. Callera, Tayze T. Antunes, Rita C. Tostes, and Rhian M. Touyz. Transient receptor potential melastatin 7 (trpm7) cation channels, magnesium and the vascular system in hypertension. Circulation Journal, 75:237-245, Jan 2011. URL: https://doi.org/10.1253/circj.cj-10-1021, doi:10.1253/circj.cj-10-1021. This article has 99 citations and is from a peer-reviewed journal.
28. (brandao2014trpm6kinaseactivity pages 1-2): Katherine Brandao, Francina Deason-Towne, Xiaoyun Zhao, Anne-Laure Perraud, and Carsten Schmitz. Trpm6 kinase activity regulates trpm7 trafficking and inhibits cellular growth under hypomagnesic conditions. Cellular and Molecular Life Sciences, 71:4853-4867, May 2014. URL: https://doi.org/10.1007/s00018-014-1647-7, doi:10.1007/s00018-014-1647-7. This article has 37 citations and is from a domain leading peer-reviewed journal.
29. (brandao2014trpm6kinaseactivity pages 14-15): Katherine Brandao, Francina Deason-Towne, Xiaoyun Zhao, Anne-Laure Perraud, and Carsten Schmitz. Trpm6 kinase activity regulates trpm7 trafficking and inhibits cellular growth under hypomagnesic conditions. Cellular and Molecular Life Sciences, 71:4853-4867, May 2014. URL: https://doi.org/10.1007/s00018-014-1647-7, doi:10.1007/s00018-014-1647-7. This article has 37 citations and is from a domain leading peer-reviewed journal.
30. (chubanov2005emergingrolesof pages 1-2): V. Chubanov, M. Mederos y Schnitzler, J. Wäring, A. Plank, and T. Gudermann. Emerging roles of trpm6/trpm7 channel kinase signal transduction complexes. Naunyn-Schmiedeberg’s Archives of Pharmacology, 371:334-341, May 2005. URL: https://doi.org/10.1007/s00210-005-1056-4, doi:10.1007/s00210-005-1056-4. This article has 60 citations.
31. (chubanov2005emergingrolesof pages 2-3): V. Chubanov, M. Mederos y Schnitzler, J. Wäring, A. Plank, and T. Gudermann. Emerging roles of trpm6/trpm7 channel kinase signal transduction complexes. Naunyn-Schmiedeberg’s Archives of Pharmacology, 371:334-341, May 2005. URL: https://doi.org/10.1007/s00210-005-1056-4, doi:10.1007/s00210-005-1056-4. This article has 60 citations.
32. (chubanov2005emergingrolesof pages 3-5): V. Chubanov, M. Mederos y Schnitzler, J. Wäring, A. Plank, and T. Gudermann. Emerging roles of trpm6/trpm7 channel kinase signal transduction complexes. Naunyn-Schmiedeberg’s Archives of Pharmacology, 371:334-341, May 2005. URL: https://doi.org/10.1007/s00210-005-1056-4, doi:10.1007/s00210-005-1056-4. This article has 60 citations.
33. (chubanov2007hypomagnesemiawithsecondary pages 1-2): Vladimir Chubanov, Karl P. Schlingmann, Janine Wäring, Jolanta Heinzinger, Silke Kaske, Siegfried Waldegger, Michael Mederos y Schnitzler, and Thomas Gudermann. Hypomagnesemia with secondary hypocalcemia due to a missense mutation in the putative pore-forming region of trpm6\*. Journal of Biological Chemistry, 282:7656-7667, Mar 2007. URL: https://doi.org/10.1074/jbc.m611117200, doi:10.1074/jbc.m611117200. This article has 131 citations and is from a domain leading peer-reviewed journal.
34. (chubanov2007hypomagnesemiawithsecondary pages 10-11): Vladimir Chubanov, Karl P. Schlingmann, Janine Wäring, Jolanta Heinzinger, Silke Kaske, Siegfried Waldegger, Michael Mederos y Schnitzler, and Thomas Gudermann. Hypomagnesemia with secondary hypocalcemia due to a missense mutation in the putative pore-forming region of trpm6\*. Journal of Biological Chemistry, 282:7656-7667, Mar 2007. URL: https://doi.org/10.1074/jbc.m611117200, doi:10.1074/jbc.m611117200. This article has 131 citations and is from a domain leading peer-reviewed journal.
35. (chubanov2007hypomagnesemiawithsecondary pages 4-5): Vladimir Chubanov, Karl P. Schlingmann, Janine Wäring, Jolanta Heinzinger, Silke Kaske, Siegfried Waldegger, Michael Mederos y Schnitzler, and Thomas Gudermann. Hypomagnesemia with secondary hypocalcemia due to a missense mutation in the putative pore-forming region of trpm6\*. Journal of Biological Chemistry, 282:7656-7667, Mar 2007. URL: https://doi.org/10.1074/jbc.m611117200, doi:10.1074/jbc.m611117200. This article has 131 citations and is from a domain leading peer-reviewed journal.
36. (chubanov2007hypomagnesemiawithsecondary pages 5-6): Vladimir Chubanov, Karl P. Schlingmann, Janine Wäring, Jolanta Heinzinger, Silke Kaske, Siegfried Waldegger, Michael Mederos y Schnitzler, and Thomas Gudermann. Hypomagnesemia with secondary hypocalcemia due to a missense mutation in the putative pore-forming region of trpm6\*. Journal of Biological Chemistry, 282:7656-7667, Mar 2007. URL: https://doi.org/10.1074/jbc.m611117200, doi:10.1074/jbc.m611117200. This article has 131 citations and is from a domain leading peer-reviewed journal.
37. (chubanov2014trpm6 pages 3-6): Vladimir Chubanov and Thomas Gudermann. Trpm6. Handbook of Experimental Pharmacology, pages 503-520, Jan 2014. URL: https://doi.org/10.1007/978-3-642-54215-2\_20, doi:10.1007/978-3-642-54215-2\_20. This article has 70 citations and is from a peer-reviewed journal.
38. (ferioli2017trpm6andtrpm7 pages 2-3): Silvia Ferioli, Susanna Zierler, Joanna Zaißerer, Johann Schredelseker, Thomas Gudermann, and Vladimir Chubanov. Trpm6 and trpm7 differentially contribute to the relief of heteromeric trpm6/7 channels from inhibition by cytosolic mg2+ and mg·atp. Scientific Reports, Aug 2017. URL: https://doi.org/10.1038/s41598-017-08144-1, doi:10.1038/s41598-017-08144-1. This article has 87 citations and is from a poor quality or predatory journal.
39. (lainez2014newtrpm6missense pages 8-8): Sergio Lainez, Karl Peter Schlingmann, Jenny van der Wijst, Bernd Dworniczak, Femke van Zeeland, Martin Konrad, René J Bindels, and Joost G Hoenderop. New trpm6 missense mutations linked to hypomagnesemia with secondary hypocalcemia. European Journal of Human Genetics, 22:497-504, Aug 2014. URL: https://doi.org/10.1038/ejhg.2013.178, doi:10.1038/ejhg.2013.178. This article has 94 citations and is from a domain leading peer-reviewed journal.
40. (runnels2011trpm6andtrpm7 pages 2-3): Loren W. Runnels. Trpm6 and trpm7: a mul-trp-plik-cation of channel functions. Current Pharmaceutical Biotechnology, 12:42-53, Jan 2011. URL: https://doi.org/10.2174/138920111793937880, doi:10.2174/138920111793937880. This article has 105 citations and is from a peer-reviewed journal.
41. (runnels2011trpm6andtrpm7 pages 3-4): Loren W. Runnels. Trpm6 and trpm7: a mul-trp-plik-cation of channel functions. Current Pharmaceutical Biotechnology, 12:42-53, Jan 2011. URL: https://doi.org/10.2174/138920111793937880, doi:10.2174/138920111793937880. This article has 105 citations and is from a peer-reviewed journal.
42. (runnels2011trpm6andtrpm7 pages 5-6): Loren W. Runnels. Trpm6 and trpm7: a mul-trp-plik-cation of channel functions. Current Pharmaceutical Biotechnology, 12:42-53, Jan 2011. URL: https://doi.org/10.2174/138920111793937880, doi:10.2174/138920111793937880. This article has 105 citations and is from a peer-reviewed journal.
43. (ryazanova2004characterizationofthe pages 6-7): Lillia V. Ryazanova, Maxim V. Dorovkov, Athar Ansari, and Alexey G. Ryazanov. Characterization of the protein kinase activity of trpm7/chak1, a protein kinase fused to the transient receptor potential ion channel\*. Journal of Biological Chemistry, 279:3708-3716, Jan 2004. URL: https://doi.org/10.1074/jbc.m308820200, doi:10.1074/jbc.m308820200. This article has 236 citations and is from a domain leading peer-reviewed journal.
44. (schlingmann2007trpm6andtrpm7—gatekeepers pages 27-31): Karl P. Schlingmann, Siegfried Waldegger, Martin Konrad, Vladimir Chubanov, and Thomas Gudermann. Trpm6 and trpm7—gatekeepers of human magnesium metabolism. Biochimica et Biophysica Acta (BBA) - Molecular Basis of Disease, 1772:813-821, Aug 2007. URL: https://doi.org/10.1016/j.bbadis.2007.03.009, doi:10.1016/j.bbadis.2007.03.009. This article has 341 citations.
45. (schmitz2005thechannelkinases pages 1-2): Carsten Schmitz, Maxim V. Dorovkov, Xiaoyun Zhao, Bennett J. Davenport, Alexey G. Ryazanov, and Anne-Laure Perraud. The channel kinases trpm6 and trpm7 are functionally nonredundant. Journal of Biological Chemistry, 280:37763-37771, Nov 2005. URL: https://doi.org/10.1074/jbc.m509175200, doi:10.1074/jbc.m509175200. This article has 247 citations and is from a domain leading peer-reviewed journal.
46. (schmitz2005thechannelkinases pages 3-4): Carsten Schmitz, Maxim V. Dorovkov, Xiaoyun Zhao, Bennett J. Davenport, Alexey G. Ryazanov, and Anne-Laure Perraud. The channel kinases trpm6 and trpm7 are functionally nonredundant. Journal of Biological Chemistry, 280:37763-37771, Nov 2005. URL: https://doi.org/10.1074/jbc.m509175200, doi:10.1074/jbc.m509175200. This article has 247 citations and is from a domain leading peer-reviewed journal.
47. (schmitz2005thechannelkinases pages 4-5): Carsten Schmitz, Maxim V. Dorovkov, Xiaoyun Zhao, Bennett J. Davenport, Alexey G. Ryazanov, and Anne-Laure Perraud. The channel kinases trpm6 and trpm7 are functionally nonredundant. Journal of Biological Chemistry, 280:37763-37771, Nov 2005. URL: https://doi.org/10.1074/jbc.m509175200, doi:10.1074/jbc.m509175200. This article has 247 citations and is from a domain leading peer-reviewed journal.
48. (schmitz2005thechannelkinases pages 8-9): Carsten Schmitz, Maxim V. Dorovkov, Xiaoyun Zhao, Bennett J. Davenport, Alexey G. Ryazanov, and Anne-Laure Perraud. The channel kinases trpm6 and trpm7 are functionally nonredundant. Journal of Biological Chemistry, 280:37763-37771, Nov 2005. URL: https://doi.org/10.1074/jbc.m509175200, doi:10.1074/jbc.m509175200. This article has 247 citations and is from a domain leading peer-reviewed journal.
49. (stadlbauer2023theroleof pages 22-26): B Stadlbauer. The role of kinase-coupled channel trpm6 in cardiac automaticity. Unknown journal, 2023.
50. (topala2007moleculardeterminantsof pages 129-131): Catalin N. Topala, Wouter Tiel Groenestege, Stéphanie Thébault, Dennis van den Berg, Bernd Nilius, Joost G. Hoenderop, and René J. Bindels. Molecular determinants of permeation through the cation channel trpm6. Cell Calcium, 41:513-523, Jun 2007. URL: https://doi.org/10.1016/j.ceca.2006.10.003, doi:10.1016/j.ceca.2006.10.003. This article has 79 citations and is from a peer-reviewed journal.