

9. Yamada T, Ugawa S, Ueda T, et al. Differential localizations of the transient receptor potential channels TRPV4 and TRPV1 in the mouse urinary bladder. *J Histochem Cytochem* 2009;57:277-87.
10. Kullmann FA, Shah MA, Birder LA, et al. Functional TRP and ASIC-like channels in cultured urothelial cells from the rat. *Am J Physiol Renal Physiol* 2009;296:F892-901.
11. Avelino A, Cruz F. TRPV1 (vanilloid receptor) in the urinary tract: Expression, function and clinical applications. *Naunyn Schmiedeberg's Arch Pharmacol* 2006;373:287-99.
12. Liedtke W, Choe Y, Marti-Renom MA, et al. Vanilloid receptor-related osmotically activated channel (VR-OAC), a candidate vertebrate osmoreceptor. *Cell* 2000;103:525-35.
13. Strotmann R, Schultz G, Plant TD. Ca²⁺-dependent potentiation of the non-selective cation channel TRPV4 is mediated by a C-terminal calmodulin binding site. *J Biol Chem* 2003;278:26541-9.
14. Rosenbaum T, Gordon-Shaag A, Munari M, et al. Ca²⁺/calmodulin modulates TRPV1 activation by capsaicin. *J Gen Physiol* 2004;123:53-62.
15. Lishko PV, Procko E, Jin X, et al. The ankyrin repeats of TRPV1 bind multiple ligands and modulate channel sensitivity. *Neuron* 2007;54:905-18.
16. Jin M, Wu Z, Chen L, et al. Determinants of TRPV4 activity following selective activation by small molecule agonist GSK1016790A. *PLoS ONE* 2011;6:e16713.
17. Everaerts W, Zhen X, Ghosh D, et al. Inhibition of the cation channel TRPV4 improves bladder function in mice and rats with cyclophosphamide-induced cystitis. *Proc Natl Acad Sci USA* 2010;107:19084-9.
18. Mochizuki T, Sokabe T, Araki I, et al. The TRPV4 cation channel mediates stretch-evoked Ca²⁺ influx and ATP release in primary urothelial cell cultures. *J Biol Chem* 2009;284:21257-64.
19. Everaerts W, Vriens J, Owsianik G, et al. Functional characterization of transient receptor potential channels in mouse urothelial cells. *Am J Physiol Renal Physiol* 2010;298:F692-701.
20. Aizawa N, Igawa Y, Andersson KE, et al. Effects of intravesical instillation of ATP on rat bladder primary afferent activity and its relationship with capsaicin-sensitivity. *NeuroUrol Urodyn* 2011;30:163-8.
21. Thorneloe KS, Sulpizio AC, Lin Z, et al. *N*-(1*S*)-1-[[4-((2*S*)-2-[[[(2,4-dichlorophenyl)sulfonyl]amino]-3-hydroxypropa noyl]-1-piperazinyl]carbonyl]-3-methylbutyl]-1-benzothiophene-2-carboxamide (GSK1016790A), a novel and potent transient receptor potential vanilloid 4 channel agonist induces urinary bladder contraction and hyperactivity: Part I. *J Pharmacol Exp Ther* 2008;326:432-42.
22. Aizawa N, Igawa Y, Nishizawa O, et al. Effects of nitric oxide on the primary bladder afferent activities of the rat with and without intravesical acrolein treatment. *Eur Urol* 2011;59:264-71.
23. Aizawa N, Igawa Y, Nishizawa O, et al. Effects of CL316,243, a beta 3-adrenoceptor agonist, and intravesical prostaglandin E2 on the primary bladder afferent activity of the rat. *NeuroUrol Urodyn* 2010;29:771-6.
24. Sengupta JN, Gebhart GF. Mechanosensitive properties of pelvic nerve afferent fibers innervating the urinary bladder of the rat. *J Neurophysiol* 1994;72:2420-30.
25. Willette RN, Bao W, Nerurkar S, et al. Systemic activation of the transient receptor potential vanilloid subtype 4 channel causes endothelial failure and circulatory collapse: Part 2. *J Pharmacol Exp Ther* 2008;326:443-52.
26. Vincent F, Acevedo A, Nguyen MT, et al. Identification and characterization of novel TRPV4 modulators. *Biochem Biophys Res Commun* 2009;389:490-4.
27. Lewis CJ, Surprenant A, Evans RJ. 2',3'-O-(2,4,6-trinitrophenyl) adenosine 5'-triphosphate (TNP-ATP)—A nanomolar affinity antagonist at rat mesenteric artery P2X receptor ion channels. *Br J Pharmacol* 1998;124:1463-6.
28. Thomas S, Virginio C, North RA, et al. The antagonist trinitrophenyl-ATP reveals co-existence of distinct P2X receptor channels in rat nodose neurones. *J Physiol* 1998;509:411-7.
29. Virginio C, Robertson G, Surprenant A, et al. Trinitrophenyl-substituted nucleotides are potent antagonists selective for P2X1, P2X3, and heteromeric P2X2/3 receptors. *Mol Pharmacol* 1998;53:969-73.
30. Ralevic V, Burnstock G. Receptors for purines and pyrimidines. *Pharmacol Rev* 1998;50:413-92.
31. Lavelle J, Meyers S, Rarnage R, et al. Bladder permeability barrier: Recovery from selective injury of surface epithelial cells. *Am J Physiol Renal Physiol* 2002;283:F242-53.
32. Matsuura S, Downie JW. Effect of anesthetics on reflex micturition in the chronic cannula-implanted rat. *NeuroUrol Urodyn* 2000;19:87-99.

9. Yamada T, Ugawa S, Ueda T, et al. Differential localizations of the transient receptor potential channels TRPV4 and TRPV1 in the mouse urinary bladder. *J Histochem Cytochem* 2009;57:277–87.
10. Kullmann FA, Shah MA, Birder LA, et al. Functional TRP and ASIC-like channels in cultured urothelial cells from the rat. *Am J Physiol Renal Physiol* 2009;296:F892–901.
11. Avelino A, Cruz F. TRPV1 (vanilloid receptor) in the urinary tract: Expression, function and clinical applications. *Naunyn Schmiedeberg's Arch Pharmacol* 2006;373:287–99.
12. Liedtke W, Choe Y, Marti-Renom MA, et al. Vanilloid receptor-related osmotically activated channel (VR-OAC), a candidate vertebrate osmoreceptor. *Cell* 2000;103:525–35.
13. Strotmann R, Schultz G, Plant TD. Ca²⁺-dependent potentiation of the non-selective cation channel TRPV4 is mediated by a C-terminal calmodulin binding site. *J Biol Chem* 2003;278:26541–9.
14. Rosenbaum T, Gordon-Shaag A, Munari M, et al. Ca²⁺/calmodulin modulates TRPV1 activation by capsaicin. *J Gen Physiol* 2004;123:53–62.
15. Lishko PV, Procko E, Jin X, et al. The ankyrin repeats of TRPV1 bind multiple ligands and modulate channel sensitivity. *Neuron* 2007;54:905–18.
16. Jin M, Wu Z, Chen L, et al. Determinants of TRPV4 activity following selective activation by small molecule agonist GSK1016790A. *PLoS ONE* 2011;6:e16713.
17. Everaerts W, Zhen X, Ghosh D, et al. Inhibition of the cation channel TRPV4 improves bladder function in mice and rats with cyclophosphamide-induced cystitis. *Proc Natl Acad Sci USA* 2010;107:19084–9.
18. Mochizuki T, Sokabe T, Araki I, et al. The TRPV4 cation channel mediates stretch-evoked Ca²⁺ influx and ATP release in primary urothelial cell cultures. *J Biol Chem* 2009;284:21257–64.
19. Everaerts W, Vriens J, Owsianik G, et al. Functional characterization of transient receptor potential channels in mouse urothelial cells. *Am J Physiol Renal Physiol* 2010;298:F692–701.
20. Aizawa N, Igawa Y, Andersson KE, et al. Effects of intravesical instillation of ATP on rat bladder primary afferent activity and its relationship with capsaicin-sensitivity. *Neurourol Urodyn* 2011;30:163–8.
21. Thomeloe KS, Sulpizio AC, Lin Z, et al. *N*-((1*S*)-1-((4-((2*S*)-2-((2,4-dichlorophenyl)sulfonyl)amino)-3-hydroxypropyl)-1-piperazinyl)carbonyl)-3-methylbutyl)-1-benzothiophene-2-carboxamide (GSK1016790A), a novel and potent transient receptor potential vanilloid 4 channel agonist induces urinary bladder contraction and hyperactivity: Part I. *J Pharmacol Exp Ther* 2008;326:432–42.
22. Aizawa N, Igawa Y, Nishizawa O, et al. Effects of nitric oxide on the primary bladder afferent activities of the rat with and without intravesical acrolein treatment. *Eur Urol* 2011;59:264–71.
23. Aizawa N, Igawa Y, Nishizawa O, et al. Effects of CL316,243, a beta 3-adrenoceptor agonist, and intravesical prostaglandin E2 on the primary bladder afferent activity of the rat. *Neurourol Urodyn* 2010;29:771–6.
24. Sengupta JN, Gebhart GF. Mechanosensitive properties of pelvic nerve afferent fibers innervating the urinary bladder of the rat. *J Neurophysiol* 1994;72:2420–30.
25. Willette RN, Bao W, Nerurkar S, et al. Systemic activation of the transient receptor potential vanilloid subtype 4 channel causes endothelial failure and circulatory collapse: Part 2. *J Pharmacol Exp Ther* 2008;326:443–52.
26. Vincent F, Acevedo A, Nguyen MT, et al. Identification and characterization of novel TRPV4 modulators. *Biochem Biophys Res Commun* 2009;389:490–4.
27. Lewis CJ, Surprenant A, Evans RJ. 2',3'-O-(2,4,6-trinitrophenyl) adenosine 5'-triphosphate (TNP-ATP)—A nanomolar affinity antagonist at rat mesenteric artery P2X receptor ion channels. *Br J Pharmacol* 1998;124:1463–6.
28. Thomas S, Virginio C, North RA, et al. The antagonist trinitrophenyl-ATP reveals co-existence of distinct P2X receptor channels in rat nodose neurons. *J Physiol* 1998;509:411–7.
29. Virginio C, Robertson G, Surprenant A, et al. Trinitrophenyl-substituted nucleotides are potent antagonists selective for P2X1, P2X3, and heteromeric P2X2/3 receptors. *Mol Pharmacol* 1998;53:969–73.
30. Ralevic V, Burnstock G. Receptors for purines and pyrimidines. *Pharmacol Rev* 1998;50:413–92.
31. Lavelle J, Meyers S, Ramage R, et al. Bladder permeability barrier: Recovery from selective injury of surface epithelial cells. *Am J Physiol Renal Physiol* 2002;283:F242–53.
32. Matsuura S, Downie JW. Effect of anesthetics on reflex micturition in the chronic cannula-implanted rat. *Neurourol Urodyn* 2000;19:87–99.

