Table S1. Reagents used in the screen

Compound	Concentration	Target and function	Reference
Amiloride	2.5 mM	Inhibitor of Na^+/H^+ antiporter	(Harris and Fliegel, 1999)
4-Aminopiridine	2.6 mM	Blocker of Kv channels	(Abraham et al., 2003)
9-anthracene-carboxylic acid	2.5 μM	Inhibitor of Cl^- channels	(Yarar et al., 2001)
Benzamil	10 μM	Inhibitor of epithelial sodium channels	(Taguchi et al., 2005)
Diazoxide	10 μM	Opener of K^+_{ATP} channels	(D'Hahan et al., 1999)
EIPA	50 μM	Inhibitor of Na^+/H^+ antiporter	(Pizzonia et al., 1996)
EM12	0.7 mM	Inducer of gap-junctional communication	(Onat et al., 2001)
Gadolinium chloride	10 μM	Blocker of mechano-sensitive channels	(Krasznai et al., 2003)
Glibenclamide	1.44 mM	Inhibitor of K^+_{ATP} channels	(Quayle et al., 1997)
18-β-Glycyrrhetinic acid	26.5 μM	Blocker of gap-junctional communication	(Davidson and Baumgarten, 1988)
Heptanol	Dilution of 1×10^{-5}	Blocker of gap-junctional communication	(Deleze and Herve, 1983; Takens-Kwak et al., 1992)
Lanthanum chloride	10 μM	Blocker of Ca^{2+} channels	(Nathan et al., 1988)
Loperamide	0.2 mM	Ca^{2+} channel blocker	(Harper et al., 1997)
Ouabain	16 μM	Inhibitor of Na^+/K^+-ATPase	(Liu, 2005)
PPADS	50 μM	PX27 channels blocker	(Ziganshin et al., 1993)
Quinidine	50 μM	Blocker of slow delayed K^+ rectifier	(Yao et al., 1996)
SCH28080	0.12 mM	Inhibitor of H^+/K^+-ATPase	(Vagin et al., 2002)
Suramin	100 μM	Blocker of Cl^-, Ca^{2+} channels	(Bachmann et al., 1999; Emmick et al., 1994)
Tetraethylammonium	1 mM	Blocker of Ca^{2+}-activated K^+ channels	(Shen et al., 1994)
THB	7.3 mM	Inhibitor of voltage-gated K^+ channels	(Wu and Jin, 1996)
Concanamycin	150 nM	Inhibitor of V-ATPase	(Drose et al., 1993; Woo et al., 1996)

References

Abraham, H., Losonczy, A., Czeh, G. and Lazar, G. Y. (2003). Potassium channel blockers tetraethylammonium and 4-aminopyridine fail to prevent microglial activation induced by elevated potassium concentration. *Acta Biol. Hung.* **54**, 63-78.

Bachmann, A., Russ, U. and Quast, U. (1999). Potent inhibition of the CFTR chloride channel by suramin. *Naunyn Schmiedebergs Arch. Pharmacol.* **360**, 473-476.

D'Hahan, N., Moreau, C., Prost, A. L., Jacquet, H., Alekseev, A. E., Terzic, A. and Vivaudou, M. (1999). Pharmacological plasticity of cardiac ATP-sensitive potassium channels toward diazoxide revealed by ADP. *Proc. Natl. Acad. Sci. USA* **96**, 12162-12167.

Davidson, J. and Baumgarten, I. (1988). Glycyrrhetinic acid derivatives: a novel class of inhibitors of gap-junctional intercellular communication. Structure-activity relationships. *J. Pharmacol. Exp. Ther.* **246**, 1104-1107.

Deleze, J. and Herve, J. C. (1983). Effect of several uncouplers of cell-to-cell communication on gap junction morphology in mammalian heart. *J. Membr. Biol.* **74**, 203-215.

Drose, S., Bindseil, K. U., Bowman, E. J., Siebers, A., Zeeck, A. and Altendorf, K. (1993). Inhibitory effect of modified bafilomycins and concanamycins on P- and V-type adenosinetriphosphatases. *Biochemistry* **32**, 3902-3906.

Emmick, J. T., Kwon, S., Bidasee, K. R., Besch, K. T. and Besch, H. R., Jr (1994). Dual effect of suramin on calcium fluxes across sarcoplasmic reticulum vesicle membranes. *J. Pharmacol. Exp. Ther.* **269**, 717-724.

Harper, J. L., Shin, Y. and Daly, J. W. (1997). Loperamide: a positive modulator for store-operated calcium channels? *Proc. Natl. Acad. Sci. USA* **94**, 14912-14917.

Harris, C. and Fliegel, L. (1999). Amiloride and the Na(+)/H(+) exchanger protein: mechanism and significance of inhibition of the Na(+)/H(+) exchanger. *Int. J. Mol. Med.* **3**, 315-321.

Krasznai, Z., Morisawa, M., Krasznai, Z. T., Morisawa, S., Inaba, K., Bazsane, Z. K., Rubovszky, B., Bodnar, B., Borsos, A. and Marian, T. (2003). Gadolinium, a mechano-sensitive channel blocker, inhibits osmosis-initiated motility of sea- and freshwater fish sperm, but does not affect human or ascidian sperm motility. *Cell Motil. Cytoskeleton* **55**, 232-243.

Liu, J. (2005). Ouabain-induced endocytosis and signal transduction of the Na/K-ATPase. *Front. Biosci.* **10**, 2056-2063.

Nathan, R. D., Kanai, K., Clark, R. B. and Giles, W. (1988). Selective block of calcium current by lanthanum in single bullfrog atrial cells. *J. Gen. Physiol.* **91**, 549-572.

Onat, D., Stahl, W. and Sies, H. (2001). Stimulation of gap junctional intercellular communication by thalidomide and thalidomide analogs in human fetal skin fibroblasts (HFFF2) and in rat liver epithelial cells (WB-F344). *Biochem. Pharmacol.* **62**, 1081-1086.

Pizzonia, J. H., Ransom, B. R. and Pappas, C. A. (1996). Characterization of Na+/H+ exchange activity in cultured rat hippocampal astrocytes. *J. Neurosci. Res.* **44**, 191-198.

Quayle, J. M., Nelson, M. T. and Standen, N. B. (1997). ATP-sensitive and inwardly rectifying potassium channels in smooth muscle. *Physiol. Rev.* **77**, 1165-1232.

Shen, K. Z., Lagrutta, A., Davies, N. W., Standen, N. B., Adelman, J. P. and North, R. A. (1994). Tetraethylammonium block of Slowpoke calcium-activated potassium channels expressed in Xenopus oocytes: evidence for tetrameric channel formation. *Pflugers Arch.* **426**, 440-445.

Taguchi, N., Niisato, N., Sawabe, Y., Miyazaki, H., Hirai, Y. and Marunaka, Y. (2005). Benzamil, a blocker of epithelial Na(+) channel-induced upregulation of artery oxygen pressure level in acute lung injury rabbit ventilated with high frequency oscillation. *Biochem. Biophys. Res. Commun.* **327**, 915-919.

Takens-Kwak, B., Jongsma, H., Rook, M. and VanGinneken, A. (1992). Mechanism of heptanol-induced uncoupling of cardiac gap junctions: a perforated patch-clamp study. *Am. J. Physiol.* **262**, C1531-C1538.

Vagin, O., Denevich, S., Munson, K. and Sachs, G. (2002). SCH28080, a K+-competitive inhibitor of the gastric H,K-ATPase, binds near the M5-6 luminal loop, preventing K+ access to the ion binding domain. *Biochemistry* **41**, 12755-12762.

Woo, J., Ohba, Y., Tagami, K., Sumitani, K., Yamaguchi, K. and Tsuji, T. (1996). Concanamycin B, a vacuolar H(+)-ATPase specific inhibitor suppresses bone resorption in vitro. *Biol. Pharm. Bull.* **19**, 297-299.

Wu, J. and Jin, G. Z. (1996). Tetrahydroberberine suppresses dopamine-induced potassium current in acutely dissociated CA1 pyramidal neurons from rat hippocampus. *Neurosci. Lett.* **207**, 155-158.

Yao, J. A., Trybulski, E. J. and Tseng, G. N. (1996). Quinidine preferentially blocks the slow delayed rectifier potassium channel in the rested state. *J. Pharmacol. Exp. Ther.* **279**, 856-864.

Yarar, Y., Cetin, A. and Kaya, T. (2001). Chloride channel blockers 5-nitro-2-(3-phenylpropylamino) benzoic acid and anthracene-9-carboxylic acid inhibit contractions of pregnant rat myometrium in vitro. *J. Soc. Gynecol. Investig.* **8**, 206-209.

Ziganshin, A. U., Hoyle, C. H., Bo, X., Lambrecht, G., Mutschler, E., Baumert, H. G. and Burnstock, G. (1993). PPADS selectively antagonizes P2X-purinoceptor-mediated responses in the rabbit urinary bladder. *Br. J. Pharmacol.* **110**, 1491-1495.