
CURRICULUM VITAE

BIOGRAPHICAL

Name: Daniel C. Devor

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EDUCATION AND TRAINING

UNDERGRADUATE:

<i>Dates Attended</i>	<i>Name and Location of Institution</i>	<i>Degree Received and Year</i>	<i>Major Subject</i>
1981-1983	Southampton College of Long Island University Southampton, New York	B.S. - 1983	Summa Cum Laude Biology

GRADUATE:

<i>Dates Attended</i>	<i>Name and Location of Institution</i>	<i>Degree Received and Year</i>	<i>Major Subject</i>
1984-1990	SUNY at Buffalo Buffalo, New York	Ph.D. - 1990	Physiology

POST-GRADUATE:

<i>Dates Attended</i>	<i>Name and Location of Institution</i>	<i>Name of Program Director and Discipline</i>
1990-1991	SUNY at Buffalo Buffalo, New York	Michael E. Duffey Postdoctoral Research Associate

1991-1995	University of Alabama at Birmingham Birmingham, Alabama	Raymond A. Frizzell Postdoctoral Fellow
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APPOINTMENTS AND POSITIONS

ACADEMIC:

<i>Years Inclusive</i>	<i>Name and Location of Institution of Organization</i>	<i>Rank/title</i>
1995-1997	Department of Cell Biology and Physiology University of Pittsburgh School of Medicine Pittsburgh, PA 15261	Research Assistant Professor
1997-2003	Department of Cell Biology and Physiology University of Pittsburgh School of Medicine Pittsburgh, PA 15261	Assistant Professor
2003-2011	Department of Cell Biology and Physiology University of Pittsburgh School of Medicine Pittsburgh, PA 15261	Associate Professor
2011-Present	Department of Cell Biology University of Pittsburgh School of Medicine Pittsburgh, PA 15261	Professor

CERTIFICATION AND LICENSURE

SPECIALTY CERTIFICATION: *Not applicable*

MEDICAL or OTHER PROFESSIONAL LICENSURE: *Not applicable*

MEMBERSHIPS IN PROFESSIONAL AND SCIENTIFIC SOCIETIES

<i>Organization</i>	<i>Year</i>
American Physiological Society	1999-
Biophysical Society	2001-
Mount Desert Island Biological Laboratory	1994-

HONORS

<i>Title of Award</i>	<i>Year</i>
William Evans Visiting Fellow University of Otago, Dunedin, NZ (\$7,500 award from the University of Otago)	2009
Lazaro J. Mandel Young Investigator Award, American Physiological Society (\$12,000 award from the American Physiological Society)	2001
Seventh Annual Postdoctoral Research Award of the Gastrointestinal Section of the American Physiological Society	1992
Fourth Annual Student Research Award of the Gastrointestinal Section of the American Physiological Society	1989
Interdisciplinary Graduate Group in Experimental Nephrology Fellowship, State University of New York at Buffalo	1986-1988
Robert J. McIsaac Award in Pharmacology State University of New York at Buffalo	1986

PUBLICATIONS

1) Refereed articles (ISI: Times Cited: 2912; h-index: 29; Google Scholar: Times Cited: 3571; h-index: 31)

1. **Devor, D.C.**, S.M. Simasko, and M.E. Duffey. Carbachol induces oscillations of membrane potassium conductance in a human colonic cell line, T84. *Am. J. Physiol.* 258: C318-C326, 1990.
2. Duffey, M.E. and **D.C. Devor**. Intracellular pH and membrane potassium conductance in rabbit distal colon. *Am. J. Physiol.* 258: C336-C343, 1990.
3. Duffey, M.E., **D.C. Devor**, Z. Ahmed, and S.M. Simasko. Characterization of a membrane K⁺ conductance in intestinal secretory cells using whole-cell patch-clamp and Ca²⁺-sensitive dye techniques. *In: Methods in Enzymology*, Vol. 192: 309-324, 1990, S. Fleischer and B. Fleischer (eds.).
4. **Devor, D.C.**, Z. Ahmed, and M.E. Duffey. Cholinergic stimulation produces oscillations of cytosolic Ca²⁺ in a secretory cell line, T84. *Am. J. Physiol.* 260: C598-C608, 1991.
5. Kakar, S.S., J.C. Sellers, **D.C. Devor**, L.C. Musgrove, and J.D. Neill. Angiotensin II type-1 receptor subtype cDNAs: Differential tissue expression and hormonal regulation. *Biochem. Biophys. Res. Comm.* 183(3): 1090-1096, 1992.
6. **Devor, D.C.** and M.E. Duffey. Carbachol induces a K⁺, Cl⁻, and non-selective cation conductance in the T84 cell line: A perforated patch-clamp study. *Am. J. Physiol.* 263: C780-C787, 1992.

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7. Kakar, S.S., L.C. Musgrove, **D.C. Devor**, J.C. Sellers, and J.D. Neill. Cloning, sequencing, and expression of human gonadotropin releasing hormone (GnRH) receptor. *Biochem. Biophys. Res. Comm.* 189(1): 289-295, 1992.
 8. Strong, T.V., D.J. Wilkinson, M.K. Mansoura, **D.C. Devor**, K. Henze, Y. Yang, J.M. Wilson, J.A. Cohn, D.C. Dawson, R.A. Frizzell, and F.S. Collins. Expression of an abundant alternatively spliced form of the cystic fibrosis transmembrane conductance regulator (CFTR) gene is not associated with a cAMP-activated chloride conductance. *Human Mol. Gen.* 2(3): 225-230, 1993.
 9. Yang, Y., **D.C. Devor**, J.F. Engelhardt, S.A. Ernst, T.V. Strong, F.S. Collins, J.A. Cohn, R.A. Frizzell, and J.M. Wilson. Molecular basis of defective anion transport in L cells expressing recombinant forms of CFTR. *Human Mol. Gen.* 2(8): 1253-1261, 1993.
 10. **Devor, D.C.**, M.C. Sekar, R.A. Frizzell, and M.E. Duffey. Taurodeoxycholate activates K^+ and Cl^- conductances via an IP_3 -mediated release of Ca^{2+} from intracellular stores. *J. Clin. Invest.* 92: 2173-2181, 1993.
*** Highlighted in an editorial: Bile salt-induced diarrhea: The cellular mechanism. By Michael Field. J. Clin. Invest. 92: 2091, 1993.**
 11. **Devor, D.C.** and R.A. Frizzell. Calcium-mediated agonists activate an inwardly rectified K^+ channel in colonic secretory cells. *Am. J. Physiol.* 265: C1271-C1280, 1993.
 12. Kakar, S.S., K. Grantham, L.C. Musgrove, **D.C. Devor**, J.C. Sellers, and J.D. Neill. Molecular cloning and regulation of mRNA expression of the gonadotropin releasing hormone (GnRH) receptor in rats. *Molec. Cell. Endoc.* 101: 151-157, 1994.
 13. **Devor, D.C.**, W.K. Suggs, J.N. Forrest, and R.A. Frizzell. Characterization of cAMP-mediated Cl^- currents in primary cultures of spiny dogfish (*Squalus acanthias*) rectal gland. *Am. J. Physiol.* 268: C70-C79, 1995.
 14. Howard, M., M.D. DuVall, **D.C. Devor**, J-Y. Dong, K. Henze, and R.A. Frizzell. Epitope tagging permits cell surface detection of functional CFTR. *Am. J. Physiol.* 269: C1565-C1576, 1995.
 15. **Devor, D.C.**, A.K. Singh, R.A. Frizzell, and R.J. Bridges. Modulation of Cl^- secretion by benzimidazolones. I. Direct activation of a Ca^{2+} -dependent K^+ channel. *Am. J. Physiol.* 271: L775-L784, 1996.
 16. **Devor, D.C.**, A.K. Singh, R.J. Bridges, and R.A. Frizzell. Modulation of Cl^- secretion by benzimidazolones. II. Coordinate regulation of apical G_{Cl} and basolateral G_K . *Am. J. Physiol.* 271: L785-L795, 1996.
 17. **Devor, D.C.**, A.K. Singh, R.J. Bridges, and R.A. Frizzell. Psoralens: Novel modulators of Cl^- secretion. *Am. J. Physiol.* 272: C976-C988, 1997.
 18. **Devor, D.C.**, A.K. Singh, A.C. Gerlach, R.A. Frizzell and R.J. Bridges. Inhibition of intestinal Cl^- secretion by clotrimazole: Direct effect on basolateral membrane K^+ channels. *Am. J. Physiol.* 273: C531-C540, 1997.
 19. **Devor, D.C.** and R.A. Frizzell. Modulation of K^+ channels by arachidonic acid in T84 cells. I. Inhibition of the Ca^{2+} -dependent K^+ channel. *Am. J. Physiol.* 274: C138-C148, 1998.

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20. **Devor, D.C.** and R.A. Frizzell. Modulation of K⁺ channels by arachidonic acid in T84 cells. II. Activation of a Ca²⁺-independent K⁺ channel. *Am. J. Physiol.* 274: C149-C160, 1998.
 21. **Devor, D.C.** and B.D. Schultz. Inhibition of CFTR-mediated Cl⁻ secretion by NSAIDS. *J. Clin. Invest.* 102: 679-687, 1998.
 22. **Devor, D.C.**, A.K. Singh, L.C. Lambert, A. DeLuca, R.A. Frizzell, and R.J. Bridges. Bicarbonate and chloride secretion in Calu-3 human airway epithelial cells. *J. Gen. Physiol.* 113: 743-760, 1999.
* **This is the 21st most cited article in the J. Gen. Physiol.** (<http://jgp.rupress.org/reports/most-cited>)
 23. **Devor, D.C.** and J.M. Pilewski. UTP inhibits Na⁺ absorption in wild type and ΔF508 CFTR expressing human bronchial epithelia. *Am. J. Physiol.* 276: C827-837, 1999.
 24. Syme, C.A., A.C. Gerlach, A.K. Singh and **D.C. Devor**. Pharmacological activation of the cloned intermediate- and small-conductance Ca²⁺-activated K⁺ channels, hIK1 and rSK2. *Am. J. Physiol.* 278: C589-C600, 2000.
 25. Gerlach, A.C., N.N. Gangopadhyay and **D.C. Devor**. Kinase-dependent regulation of the intermediate conductance, calcium-dependent potassium channel, hIK1. *J. Biol. Chem.* 275: 585-598, 2000.
 26. **Devor, D.C.**, R.J. Bridges and J.M. Pilewski. Pharmacological modulation of ion transport across wild type and ΔF508 CFTR-expressing human bronchial epithelia. *Am. J. Physiol.* 279: C461-C479, 2000.
 27. Singh, A.K., **D.C. Devor**, A.C. Gerlach, M. Gondor, J.M. Pilewski, and R.J. Bridges. Stimulation of Cl⁻ secretion by chlorzoxazone, an activator of basolateral membrane K_{Ca} channels. *J. Pharm. Exp. Therap.* 292: 778-787, 2000.
 28. Singh, S., C.A. Syme, A.K. Singh, **D.C. Devor** and R.J. Bridges. Benzimidazolone activators of chloride secretion: Potential therapeutics for cystic fibrosis and chronic obstructive pulmonary disease. *J. Pharmacol. Exp. Therap.* 296: 600-611, 2001.
 29. Gerlach, A.C., C.A. Syme, L. Giltinan, J.P. Adelman and **D.C. Devor**. ATP-dependent regulation of the intermediate conductance, Ca²⁺-activated K⁺ channel, hIK1 is conferred by a C-terminal domain. *J. Biol. Chem.* 276: 10963-10970, 2001.
 30. Bridges, R.J., B.B. Newton, J.M. Pilewski, **D.C. Devor**, C.T. Poll and R.L. Hall. Na⁺ transport in normal and CF human bronchial epithelial cells is inhibited by BAY 39-9437. *Am. J. Physiol.* 281: L16-L23, 2001.
 31. Singh, A.K., S. Singh, **D.C. Devor**, R.A. Frizzell, W. van Driessche and R.J. Bridges. Transepithelial impedance analysis of chloride secretion. *Methods Mol. Med.* 70: 129-142, 2002.
 32. Izu, L., S.L. McCulle, M. Ferreri-Jacobia, **D.C. Devor** and M.E. Duffey. VIP activates K⁺ channels in T84 cells by cAMP-dependent phosphorylation. *J. Mem. Biol.* 186: 145-157, 2002.
 33. Syme, C.A., K.L. Hamilton, H.M. Jones, A.C. Gerlach, L.A. Giltinan, G.D. Papworth, S.C. Watkins, N.A. Bradbury and **D.C. Devor**. Trafficking of the Ca²⁺-Activated K⁺ Channel, hIK1 is dependent upon a C-Terminal Leucine Zipper. *J. Biol. Chem.* 278: 8476-8486, 2003.

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34. Hamilton, K.L., C.A. Syme and **D.C. Devor**. Molecular localization of the inhibitory arachidonic acid binding site to the pore of hIK1. *J. Biol. Chem.* 278: 16690-16697, 2003.
 35. Mandell, D.L., **D.C. Devor**, J.V. Madia, C.Y. Lo, H. Hake and P.A. Hebda. The effect of changes in ambient oxygen concentration on the bioelectric properties of middle ear mucosa. *Am. J. Physiol.* 285(3): C618-C622, 2003.
 36. Jones, H.M., K.L. Hamilton, G.D. Papworth, C.A. Syme, S.C. Watkins, N.A. Bradbury and **D.C. Devor**. Role of the NH₂-terminus in the assembly and trafficking of the intermediate conductance Ca²⁺-activated K⁺ channel, hIK1. *J. Biol. Chem.* 279(15): 15531-15540, 2004.
 37. Jones, H.M., K.L. Hamilton and **D.C. Devor**. Role of an S4-S5 linker lysine in the trafficking of the Ca²⁺-activated K⁺ channels, IK1 and SK3. *J. Biol. Chem.* 280 (44): 37257-37265, 2005.
 38. Nicolaou, S.A., L. Neumeier, Y. Peng, **D.C. Devor** and L. Conforti. The Ca²⁺-activated K channel KCa3.1 compartmentalizes in the immunological synapse of human T lymphocytes. *Am. J. Physiol.* 292(4): C1431-C1439, 2007.
 39. Jones, H.M., M.A. Bailey, C.J. Baty, G.G. MacGregor, C.A. Syme, K.L. Hamilton, and **D.C. Devor**. An NH₂-terminal multi-basic RKR motif is required for the ATP-dependent regulation of hIK1. *Channels.* 1(2): 80-91, 2007.
 40. Gao, Y., C.K. Chotoo, C.M. Balut, F. Sun, M.A. Bailey and **D.C. Devor**. Role of S3 and S4 transmembrane domain charged amino acids in channel biogenesis and gating of KCa2.3 and KCa3.1. *J. Biol. Chem.* 283(14): 9049-9059, 2008.
 41. Balut, C.M., Y. Gao, C. Luke and **D.C. Devor**. Immunofluorescence-based assay to identify modulators of the number of plasma membrane KCa3.1 channels. *Future Med. Chem.* 2(5): 707-713, 2010.
* **Highlighted in *Frontiers in Physiology: Hamilton, K.L. BLAP-tagged channel technology: A new direction trafficking toward epithelial physiology. Front. Physio. 1:162.doi: 10.3389/fphys.2010.00162***
 42. Gao, Y., C.M. Balut, M.A. Bailey, G. Patino-Lopez, S. Shaw and **D.C. Devor**. Recycling of the Ca²⁺-activated K⁺ channel, KCa2.3 is dependent upon RME-1, Rab35/EPI64C and an N-terminal domain. *J. Biol. Chem.* 285(23): 17938-17953, 2010.
 43. Bailey, M.A., M. Grabe and **D.C. Devor**. Characterization of the PCMBs-dependent modification of KCa3.1 Ca²⁺-dependent channel gating. *J. General Physiology.* 136(4): 367-387, 2010.
 44. Balut, C.M., Y. Gao, S.A. Murray, P.H. Thibodeau and **D.C. Devor**. ESCRT-dependent targeting of plasma membrane localized KCa3.1 to the lysosomes. *Am. J. Physiol.: Cell Physiology.* 299(5): C1015-1027, 2010.
 45. Millership, J.E., **D.C. Devor**, K.L. Hamilton, C.M. Balut, J.I.E. Bruce and I.M. Fearon. Calcium-activated K⁺ channels increase cell proliferation independent of K⁺ conductance. *Am. J. Physiol.: Cell Physiology.* 300(4): C792-802, 2011.
 46. Balut, C.M., C.M. Loch and **D.C. Devor**. Role of ubiquitylation and USP8-dependent deubiquitylation in the endocytosis and lysosomal targeting of plasma membrane KCa3.1. *FASEB J.* 25(11): 3938-3948, 2011.

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47. Gao, Y*, C.A. Bertuccio*, C.M. Balut, S.C. Watkins and **D.C. Devor**. Dynamin- and Rab5-dependent endocytosis of KCa2.3. PLoS ONE 7(8): e44150. doi: 10.1371/journal.pone.0044150, 2012.
* These authors contributed equally.
 48. Chotoo, C.K., G.A. Silverman, **D.C. Devor*** and C.J. Luke*. A small conductance calcium-activated K⁺ channel in *C. elegans*, KCNL-2, plays a role in the regulation of the rate of egg-laying. PLoS ONE 8(9): e75869. doi: 10.1371/journal.pone.0075869, 2013.
* Corresponding Authors.
 49. Bertuccio, C.A., S-L. Lee, G. Wu, M.B. Butterworth, K.L. Hamilton and **D.C. Devor**. Anterograde trafficking of KCa3.1 in polarized epithelia is Rab1- and Rab8-dependent and recycling endosome-independent. PLoS ONE 9(3): e92013. doi:10.1371/journal.pone.0092013, 2014.
 50. Bertuccio, C.A., T. Wang, S.B. Condliffe and **D.C. Devor**. Plasma membrane insertion of KCa2.3 (SK3) is dependent upon the SNARE proteins, Syntaxin 4 and SNAP23. (Manuscript in preparation).

2) Reviews, Invited Papers and Book Chapters:

1. Schultz, B.D., A.K. Singh, **D.C. Devor** and R.J. Bridges. Pharmacology of CFTR Chloride Channel Activity. Physiological Reviews. 79:S109-S144, 1999.
2. Hamilton, K.L. and **D.C. Devor**. Basolateral membrane K⁺ channels in renal epithelial cells. Am. J. Physiol. Renal Physiol. 302(9): F1069-F1081, 2012.
3. Balut, C.M., K.L. Hamilton and **D.C. Devor**. Trafficking of intermediate (KCa3.1) and small (KCa2.x) conductance, Ca²⁺-activated K⁺ channels: A novel target for medicinal chemistry efforts? ChemMedChem. 2012, Aug. 7 (DOI: 10.1002/cmdc.201200226).
4. Bertuccio, C.A. and **D.C. Devor**. Intermediate conductance, Ca²⁺-activated K⁺ channels: a novel target for chronic renal diseases. Front. Biol. 10(1): 52-60, 2015.
5. Hamilton, K.L., C.A. Bertuccio and **D.C. Devor**. Role of KCa3.1 in transepithelial transport. In: “Ion channels and transporters of epithelia in health and disease”. Physiology in Health and Disease series, Springer-Verlag for the American Physiological Society. K.L. Hamilton and **D.C. Devor**. (eds.), December 2015.
6. Schultz, B.D. and **D.C. Devor**. Fundamentals of epithelial Cl⁻ transport. In: “Ion channels and transporters of epithelia in health and disease”. Physiology in Health and Disease series, Springer-Verlag for the American Physiological Society. K.L. Hamilton and **D.C. Devor**. (eds.), December 2015.

3) Book Editor:

1. “Ion channels and transporters of epithelia in Health and Disease” Physiology in Health and Disease series, Springer-Verlag for the American Physiological Society. K.L. Hamilton and **D.C. Devor** (eds.), December 2015.

4) Published Abstracts:

1. Duffey, M.E. and **D.C. Devor**. Inhibition of chloride:bicarbonate exchange in rabbit distal colon increases intracellular pH and apical membrane potassium conductance. *Fed. Proc.* 46(4): 1275, 1987.
2. Horvath, P.J., **D.C. Devor**, M.M. Weiser, and M.E. Duffey. Effects of propionate on potassium transport by rabbit distal colon. *FASEB J.* 2(4): A751, 1988.
3. **Devor, D.C.**, S.M. Simasko, and M.E. Duffey. Carbachol induces oscillations of membrane potassium current in a human colonic secretory epithelium (T84). *FASEB J.* 3(4): A1149, 1989.
4. **Devor, D.C.**, Z. Ahmed, and M.E. Duffey. Oscillations of intracellular Ca^{2+} induced by cholinergic activation in a human secretory epithelium (T84). *J. Gen. Physiol.* 94: 9A, 1989.
5. **Devor, D.C.** and M.E. Duffey. Carbachol activates K^+ , Cl^- , and non-selective cation conductances in T84 cells. *FASEB J.* 5(6): A1763, 1991.
6. Li, M., **D.C. Devor**, S.K. Hong, and M.E. Duffey. Heptanol activates Cl^- and K^+ conductances in T84 cells. *FASEB J.* 5(6): A1763, 1991.
7. **Devor, D.C.**, R.A. Frizzell, and M.E. Duffey. Taurodeoxycholate (TDC) activates K^+ and Cl^- conductances via a release of Ca^{2+} from intracellular stores in T84 cells. *FASEB J.* 6(4): A1193, 1992.
8. **Devor, D.C.** and R.A. Frizzell. Calcium-mediated agonists activate an inwardly rectified K^+ channel in colonic secretory cells. *FASEB J.* 7(3): A350, 1993.
9. **Devor, D.C.**, W.K. Suggs, J.N. Forrest, and R.A. Frizzell. cAMP-mediated activation of Cl^- currents in primary cultures of spiny dogfish (*Squalus acanthias*) rectal gland. *Bull. Mt. Desert Isl. Biol. Lab.* 32: 45-47, 1993.
10. Howard, M., M.D. DuVall, **D.C. Devor**, and R.A. Frizzell. Localization and functional analysis of CFTR epitope tagged on an external loop. *Pediatric Pulmonology Suppl.* 9: 203, 1993.
11. Howard, M., M.D. DuVall, **D.C. Devor**, and R.A. Frizzell. Cell surface localization and functional analysis of CFTR epitope tagged on an external loop. *Molec. Biol. Cell Suppl.* 4: 426a, 1993.
12. **Devor, D.C.** and R.A. Frizzell. Arachidonic acid inhibits the calcium-dependent inwardly rectified K^+ channel in T84 colonic secretory cells. *FASEB J.* 8(4): A295, 1994.
13. **Devor, D.C.**, W.K. Suggs, J.N. Forrest, and R.A. Frizzell. Characterization of cAMP-mediated Cl^- current in primary rectal gland cultures of the spiny dogfish (*Squalus acanthias*). *Bull. Mt. Desert Isl. Biol. Lab.* 33: 43-46, 1994.
14. **Devor, D.C.**, A.K. Singh, R.A. Frizzell, and R.J. Bridges. Cl^- secretion is stimulated by a novel pharmacologic agent, 1-EBIO: Direct activation of basolateral membrane K^+ channels. *Pediatric Pulmonology Suppl.* 19(1): 81, 1995.

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15. **Devor, D.C.**, A.K. Singh, R.A. Frizzell, and R.J. Bridges. Stimulation of Cl⁻ secretion by a novel pharmacologic agent, 1-EBIO. *FASEB J.* 9(3): A3, 1995.
 16. **Devor, D.C.**, A.K. Singh, R.J. Bridges, and R.A. Frizzell. Modulation of transepithelial Cl⁻ secretion by inhibitors of cytochrome P-450. *Pediatric Pulmonology Suppl.* 12: 198, 1995.
 17. **Devor, D.C.**, A.K. Singh, R.J. Bridges, and R.A. Frizzell. Modulation of Cl⁻ secretion by P-450 inhibitors: Direct effects on ion channels. *Keystone Symposia "Ion channels as therapeutic targets"*. Tamarron, CO. February 4-10, 1996.
 18. **Devor, D.C.** and R.A. Frizzell. Activation of a large-conductance K⁺ channel by arachidonic acid and stretch in T84 cells. *FASEB J.* 10 (3): A76, 1996.
 19. **Devor, D.C.**, A.K. Singh, R.J. Bridges, and R.A. Frizzell. Alternative modulation of Cl⁻ secretion in normal and CF airway epithelia. *Pediatric Pulmonology Suppl.* 13: 233, 1996.
 20. Singh, A.K., **D.C. Devor**, B. Illek, B.D. Schultz, and R.J. Bridges. Does ORCC contribute to transepithelial Cl⁻ secretion? *Pediatric Pulmonology Suppl.* 13: 237, 1996.
 21. Singh, A.K., B.D. Schultz, **D.C. Devor**, N.A. Bradbury, R.A. Frizzell, and R.J. Bridges. Pharmacological stimulation of chloride secretion. *Pediatric Pulmonology Suppl.* 13: 87, 1996.
 22. Arcasoy, S.M., J.D. Latoche, **D.C. Devor**, and J.M. Pilewski. Polycations augment adenovirus-mediated gene transfer to epithelial and endothelial cells. *Am. J. Respir. Crit. Care Med.* 155: A459, 1997.
 23. **D.C. Devor** and B.D. Schultz. Ibuprofen inhibits CFTR-mediated Cl⁻ secretion. *Pediatric Pulmonology Suppl.* 14: 229, 1997.
 24. **D.C. Devor** and J.M. Pilewski. UTP inhibits Na⁺ absorption in normal and CF human airway epithelia. *Pediatric Pulmonology Suppl.* 14: 242, 1997.
 25. B.D. Schultz, A.K. Singh, **D.C. Devor**, and R.J. Bridges. Transepithelial blocker induced noise estimates of CFTR channel amplitude, density and open probability in T84 monolayers. *Pediatric Pulmonology Suppl.* 14: 235, 1997.
 26. A.K. Singh, **D.C. Devor**, A.C. Gerlach, J.M. Pilewski, R.A. Frizzell, and R.J. Bridges. Stimulation of Cl⁻ secretion by chlorzoxazone, an activator of basolateral membrane K_{Ca} channels. *Pediatric Pulmonology Suppl.* 14: 234, 1997.
 27. B.D. Schultz, C. Liu, **D.C. Devor**, H.L. Balombiny, R.A. Frizzell, and R.J. Bridges. Maximizing G551D CFTR Cl⁻ currents with IBMX, genistein and NS004. *Pediatric Pulmonology Suppl.* 14: 235, 1997.
 28. J.D. Latoche, S.M. Arcasoy, **D.C. Devor**, and J.M. Pilewski. Adenovirus-mediated CFTR gene transfer corrects oversulfation of secreted glycoconjugates in cystic fibrosis airway epithelial cells. *Pediatric Pulmonology Suppl.* 14: 283, 1997.
 29. Gerlach, A.C. and **D.C. Devor**. Modulation of the human intermediate conductance Ca²⁺ activated K⁺ channel (hIK1) by PKA-mediated phosphorylation. *Pediatric Pulmonology Suppl.* 17: 235, 1998.

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30. **Devor, D.C.** and J.M. Pilewski. Effect of 1-EBIO, NS004 and genistein on ion transport across human bronchial epithelium expressing wild type and $\Delta F508$ CFTR. *Pediatric Pulmonology Suppl.* 17: 219, 1998.
 31. **Devor, D.C.**, A.K. Singh, A.J. DeLuca, R.J. Bridges. Calu-3 Cells: A Model for Bicarbonate Secretion in the Human Airway. *Pediatric Pulmonology Suppl.* 17: 227, 1998.
 32. Syme, C.A., A.K. Singh, R.J. Bridges, **D.C. Devor**. Activation of Cloned Ca^{2+} -Activated K^+ Channels Expressed in *Xenopus* Oocytes by Chlorzoxazone. *Pediatric Pulmonology Suppl.* 17: 235, 1998.
 33. Bradbury, N.A., K. Weixel, T. Jackson, N. Gangopadhyay, **D.C. Devor**. Expression and Characterization of an Epithelial Ca^{2+} Activated K^+ Channel, hIK1. *Pediatric Pulmonology Suppl.* 17: 234, 1998.
 34. Gondor, M., P.A. Nixon, **D.C. Devor**, G.B. Winnie, B.D. Schultz, A.K. Singh, R.J. Bridges, S. Walczak, R.A. Frizzell, J.M. Pilewski. Genistein Stimulates Chloride Secretion in Normal Volunteers and CF Patients with a G551D Mutation. *Pediatric Pulmonology Suppl.* 17: 253, 1998.
 35. McCulle, S., M.T. Ferreri, L. Izu, **D.C. Devor** and M.E. Duffey. VIP activates K^+ channels in T84 cells by cAMP-dependent phosphorylation. *Pediatric Pulmonology Suppl.* 17: 235, 1998.
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 37. Gerlach, A.C., N.N. Gangopadhyay, and **D.C. Devor**. Kinase-dependent regulation of the intermediate conductance, calcium-dependent potassium channel, hIK1. *Physiologist.* 42: A8, 1999.
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 41. Singh, A.K., S. Singh, C.A. Syme, **D.C. Devor** and R.J. Bridges. Impedance analysis of epithelial chloride secretion modulators. *Pediatric Pulmonology Suppl.* 20: 206, 2000.
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 47. Syme, C.A., A.C. Gerlach, L. Giltinan, S.C. Watkins and **D.C. Devor**. Trafficking of the Ca²⁺-dependent K⁺ channel, hIK1 is dependent upon a C-terminal leucine zipper. *FASEB J.* 15: A836, 2001.
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 53. Hamilton, K.L., C.A. Syme and **D.C. Devor**. Molecular localization of the inhibitory arachidonic acid binding site to the pore of hIK1. *FASEB J.* 17(5): A916, 2003.
 54. Jones, H.M., K.L. Hamilton, G.D. Papworth, S.C. Watkins and **D.C. Devor**. NH₂-terminal leucines and their role in trafficking and expression of hIK1. *FASEB J.* 17(5): A916, 2003.
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 57. Jones, H.M., G.D. Papworth, S.C. Watkins, K.L. Hamilton and **D.C. Devor**. hIK1 trafficking and function is dependent on the S4-S5 linker region. *FASEB J.* 18(4): A1044, 2004.
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 63. MacGregor, G.G., H.M. Jones, M.A. Bailey and **D.C. Devor**. The role of the S4-S5 linker in the Ca²⁺-sensitivity of the K⁺ channel hIK1 (KCNN4). *FASEB J.* 20: A799, 2006.
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 65. Bailey, M.A. and **D.C. Devor**. Modification of a conserved cysteine residue within S6 alters the calcium activation of hIK1 and rSK3. *Biophysical J.*, Supplement 23a, 2007.
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 67. Gao, Y., C.K. Chotoo, C.M. Balut, M.A. Bailey and **D.C. Devor**. Role of S1-S4 salt bridges in maintaining protein stability of KCa2.3 and KCa3.1. *FASEB J.* 21: 772.7, 2007.
 68. Gao, Y., F. Sun and **D.C. Devor**. Role of Derlin-1 and p97 (Cdc48) in the degradation of KCa2.3 and KCa3.1. *Biophysical J.* 96(3): Supplement 24a, 2008.
 69. Gao, Y., C.M. Balut, M. Silvis and **D.C. Devor**. Endocytic recycling of KCa2.3 and KCa3.1 in HEK and endothelial cells. *Biophysical J.* 96(3): Supplement 24a, 2008.
 70. Balut, C.M., Y. Gao and **D.C. Devor**. Role of ESCRT proteins in controlling the lysosomal degradation of KCa3.1 in HEK and endothelial cells. *Biophysical J.* 96(3): Supplement 1: 472a, 2008
 71. Millership, J., J.I.E. Bruce, **D.C. Devor** and I.M. Fearon. Regulation of cell proliferation by IK_{Ca} channels is independent of K⁺ flux. *Acta Physiologica Sinica.* 60 Suppl: 231-232, 2008.
 72. Hamilton, K.L. and **D.C. Devor**. Trafficking of biotin ligase-tagged KCNE3 (MirP2) potassium channels. *Combio2009*, Dec. 4-8, 2009, Dunedin, NZ.
 73. Balut, C.M., C.M. Loch and **D.C. Devor**. Role of ubiquitination and UBPY-dependent deubiquitination in the endocytosis and lysosomal targeting of plasma membrane KCa3.1. *Ubiquitin Drug Discovery and Diagnostics Conference 2010*, Aug. 23-25, 2010, Philadelphia, PA.
 74. Winter, B., C.M. Balut, M.B. Butterworth, **D.C. Devor** and K.L. Hamilton. Trafficking of KCa3.1 in a polarized epithelium. *Physiological Society of New Zealand held with MedSciNZ meetings in Queenstown, New Zealand*, Nov. 30 – Dec. 3, 2010.
 75. Lee, S-L, **D.C. Devor** and K.L. Hamilton. Role of cytoskeletal elements in the trafficking of KCa3.1. *FASEB J.* 25: 860.14, 2011.

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76. Winter, B.J., C.M. Balut, M.B. Butterworth, Y. Gao, **D.C. Devor** and K.L. Hamilton. Basolateral trafficking of KCa3.1 in polarized epithelium. *FASEB J.* 25: 860.13, 2011.
 77. Balut, C.M., C.M. Loch and **D.C. Devor**. Role of ubiquitination and USP8-dependent deubiquitination in the endocytosis and lysosomal targeting of plasma membrane KCa3.1. *FASEB J.* 25: 833.2, 2011.
 78. Gao, Y. and **D.C. Devor**. Rab5-dependent endocytosis of KCa2.3. *FASEB J.* 25: 860.15, 2011.
 79. Hamilton, K.L. and **D.C. Devor**. Molecular determinants of KCa3.1 that affects cell proliferation? *FASEB J.* 26: 884.11, 2012.
 80. Balut, C.M. and **D.C. Devor**. Ubiquitylation of the plasma membrane KCa3.1 is not required for channel endocytosis but for its lysosomal targeting. *FASEB J.* 26: 1067.1, 2012.
 81. Hamilton, K.L., S-L. Lee, B. Winter, C.M. Balut and **D.C. Devor**. Membrane residence time and degradation of KCa3.1 in polarized Fisher rat epithelial (FRT) cells. *FASEB J.* 27: 913.21, 2013.
 82. Liu, X., C. Bertuccio, **D. Devor** and M. Butterworth. Rab22 is involved in regulation of the epithelial sodium channel (ENaC). *FASEB J.* 27: 1148.5, 2013.
 83. Bertuccio, C.A. and **D.C. Devor**. Characterization of the trafficking of a Ca²⁺-activated K⁺ channel (KCa3.1) in polarized epithelial cells. *FASEB J.* 27: 913.20, 2013.

5) NCBI: Deposited full-length sequences in GenBank:

1. Accession: JX455834.1: *Caenorhabditis elegans* KCNL-2 variant (F08A10.1) mRNA, complete cds, alternatively spliced. Authors: Chotoo, C.K., **Devor, D.C.** and Luke, C.J. Deposited August 2, 2012.
2. Accession: M87003: Rat angiotensin II type-1 receptor mRNA, complete cds. Authors: Kakar, S.S., Sellers, J.C., **Devor, D.C.**, Musgrove, L.C. and Neill, J.D. Deposited April 27, 1993.
3. Accession: L03380.1: Human gonadotropin-releasing hormone receptor mRNA, complete cds. Authors: Kakar, S.S., Sellers, J.C., **Devor, D.C.**, Musgrove, L.C. and Neill, J.D. Deposited April 27, 1993.

PROFESSIONAL ACTIVITIES

TEACHING:

a. Medical School Courses:

<i>Course (Course Director)</i>	<i>Lecture Hours</i>	<i>Tutorials or PBL Hour</i>	<i>Years Taught</i>
Intensive Laboratory Research Experience (Dr. Raymond Frizzell) This is a week-long research experience for medical students at Mount Desert Island Biological Lab in Bar Harbor Maine	~40 hrs of lecture and lab tutorial		2014, 2015
Evidence-Based Medicine – Applied (Dr. Rachel Givelber)		8 hrs	2016
Methods and Logic in Medicine (Scholarly Project Foundations) (Dr. Rachel Givelber)		8 hrs	2014- 2016
Cellular Communication and Signaling Medical Student Program (Dr. John P. Horn)		9	2001
Cell and Tissue Physiology (Dr. Neil A. Bradbury)		6	2004
Structure, Function, and Development of Specialized Tissue (Dr. Cynthia Lance-Jones)		3	1999-2002
Medical Physiology Physiology 501/502		12/year	1987-1991

b. Graduate Courses:

<i>Course (Course Director)</i>	<i>Lecture Hours</i>	<i>Tutorials or PBL Hours</i>	<i>Years Taught</i>
Cell Biology of Normal and Disease States MSCBMP 2880 (Dr. Daniel Devor, 2014-present)	8		2001-Present
Scientific Writing for Graduate Students INTBP 3240 (Dr. Daniel Devor)	4	12	2016

Foundations of Biomedical Science INTBP 2005 (Dr. Stephen Phillips)	4	2001-2013
Cell and Molecular Physiology CBP 2830 (Dr. Raymond Frizzell)	4	2000-2002
Scientific Ethics INTBP 2290 (Dr. Christine Milcarek)	2	2002
Cell and Molecular Physiology CBP 2830 (Dr. Franklin Fuchs)	8	1999
Principles of Mammalian Physiology CBP 2641 (Dr. Kathleen Ryan)	4	1996-1998

c. Undergraduate Courses:

<i>Course (Course Director)</i>	<i>Lecture Hours</i>	<i>Tutorials or PBL Hours</i>	<i>Years Taught</i>
Human Physiology (Physiology 300)		8	1987

d. Graduate Students:

Dissertation Advisor:

Aaron Gerlach (Advisor - 1995 - 2000), Doctoral Degree. Kinase-Dependent Regulation of hIK1. Current Position: Senior Principal Scientist, Neusentis (Pfizer), Research Triangle Park, NC.

Mark A. Bailey (Advisor – 2003 – 2010). Doctoral Degree. Role of S6 in the Ca²⁺-dependent gating of KCa3.1. Current Position: Law student: UC Davis.

Cavita K. Chotoo (Advisor – 2006 – 2013). Doctoral Degree. Utilizing *C. elegans* as a neurological model to characterize KCNL-2, an SK channel homologue. Postdoctoral Fellow: Rutgers University: Dr. Barth Grant, Advisor.

Dissertation Committee Chair:

Christopher Lewarchik (Committee Chair – 2002 – 2008), Doctoral Degree. The role of the R-Domain in regulated trafficking of the cystic fibrosis transmembrane conductance regulator. Current Position: Postdoctoral Fellow: University of Pittsburgh School of Medicine, Pittsburgh, PA.

Adedotun Adebamiro (Committee Chair – 2003 – 2006), Doctoral Degree. Serine protease regulation of the epithelial sodium channel. Current Position: Resident: Yale University of Medicine, New Haven, CT.

Mark Meidel (Committee Chair – 2006 – 2008), Doctoral Degree. The role of mucolipin-1 in pathogenesis of the lysosomal storage disease mucopolidosis type IV. Current Position: Postdoctoral Fellow: University of Pittsburgh School of Medicine, Pittsburgh, PA.

Mark Silvis (Committee Chair – 2005 – 2009), Doctoral Degree. Rab GTPase regulation of apical cystic fibrosis transmembrane conductance regulator recycling in polarized epithelial cells. Current Position: Postdoctoral Fellow: Fred Hutchinson Cancer Research Center, Seattle, WA.

Arvind Suresh (Committee Chair– 2011-2013), Doctoral Candidate. Endoplasmic Reticulum stress as a regulator of caspase-3 mediated uterine quiescence during pregnancy.

Dissertation Committee Member:

Juan Juan Qi (Committee Member 1998 – 2000), Doctoral Degree. Regulation of CFTR and ENAC Channel Densities.

Fei Sun (Committee Member – 2000), Doctoral Degree. Regulation of the Cystic Fibrosis Transmembrane Conductance Regulator by an A-Kinase Anchoring Protein. Current Position: Assistant Professor: Wayne St. University, Detroit, MI.

Paula Bernal (Committee Member – 2010), Doctoral Degree. Pulmonary endothelium and the role of zinc in hypoxia induced vasoconstriction.

Christine Klemens (Committee Member – 2013-). Doctoral Degree. Trafficking of the epithelial Na⁺ channel, ENaC, in polarized epithelia.

Comprehensive Exam Committee:

Christopher Lewarchik – 2002

Adedotun Adebamiro – 2003

Kathryn Covella – 2010

Katy Wack – 2012

Christine Klemens - 2013

e. Research Assistant/Postdoctoral Fellows/Visiting Scientists:

Colin A. Syme, Ph.D. (1998-2002). Regulation of hIK1. Department of Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA. Current Position: Faculty Member, Department of Biological Sciences, University of Pittsburgh, Pittsburgh, PA.

Kirk L. Hamilton, Ph.D. (2002, Sabbatical, University of Otago, Dunedin, New Zealand). Department of Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA.

Heather M. Jones, Ph.D. (2002-2005). Trafficking and regulation of hIK1 and rSK3. Department of Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA. Current Position: Associate Professor of Physiology, Lake Erie College of Osteopathic Medicine, Erie, PA.

Gordon Gregor MacGregor, Ph.D. (2005-2006). Gating of IK and SK channels. Department of Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA. Current Position: Visiting Assistant Professor, Department of Biological Sciences, University of Alabama, Huntsville.

Yajuan Gao, Ph.D. (2006-2011). Assembly and Trafficking of IK and SK channels. Department of Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA. Current Position: Research Associate, University of Pittsburgh.

Kirk L. Hamilton, Ph.D. (2008, Sabbatical, University of Otago, Dunedin, New Zealand). Department of Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA.

Corina Balut, Ph.D. (2006-2013). Gating, Assembly and Trafficking of IK and SK channels. Department of Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA. Current Position: Senior Scientist, AbbVie Pharmaceuticals (Abbott).

Claudia Bertuccio, Ph.D. (2011-2013). Basolateral sorting of IK and SK channels. Department of Cell Biology and Physiology, University of Pittsburgh, Pittsburgh, PA.

Postdoctoral Career Development Committee:

Aram Krauson, Ph.D. (Marcelo Carattino, Mentor): 2011-

Yanchao Ran, Ph.D. (Patrick Thibodeau, Mentor): 2011-2015

Emily Wickline, Ph.D. (Adam Kwiatkowski, Mentor): 2014

Christopher Lewarchik, Ph.D. (Bernhard Kuhn, Mentor): 2015-

RESEARCH

1. Active Research Support:

<u>Grant #</u>	<u>Grant Title</u>	<u>Role in Project/ Percentage of Effort</u>	<u>Years Inclusive</u>	<u>Source/ \$ Amount</u>
UL1 TR000005	Regulation and trafficking of SK3 in endothelia	PI	7-1-2015 6-30-2017	VMI \$25,000

Pending Research Support:

NIH:	Regulation and trafficking of SK3 in endothelia	PI (50%)	6-1-2017 5-30-2022	
AHA:	Trafficking of SK3 in endothelia	PI (10%)	1-1-2018 12-31-2019	

2. Seminars and Invited Lectureships at National or International Meetings:

Invited Departmental Seminar Speaker:

- a) April 1990 “pH-dependent regulation of colonic K⁺ channels” State University of New York at Buffalo. Department of Biophysics, Buffalo, NY
- b) August 1990 “Ca²⁺-dependent regulation of a basolateral membrane K⁺ channel in colonic T84 cells” Roswell Park Memorial Institute, Buffalo, NY
- c) September 1990 “Carbachol-induced oscillations of Ca²⁺ and K⁺ conductance in colonic epithelial cells, T84” University of Iowa College of Medicine. Department of Physiology and Biophysics, Iowa City, IA
- d) December 1990 “Mechanism of carbachol-induced Cl⁻ secretion across colonic epithelia” Yale University. Department of Cellular and Molecular Physiology, New Haven, CT
- e) July 1994 “Measuring Ca²⁺ oscillations with fura-2” SIBIA. LaJolla, CA
- f) November 1994 “Benzimidazolinones as novel modulators of epithelial K⁺ channel function” NeuroSearch A/S, Glostrup, Denmark
- g) December 1994 “Defining the single channel conductance underlying carbachol-mediated Cl⁻ secretion across colonic epithelia” East Tennessee State University. Department of Physiology, Johnson City, TN

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- h) February 1995 “An intermediate conductance, Ca^{2+} -activated K^+ channel is activated during carbachol-mediated Cl^- secretion in colonic epithelia” University of Connecticut. Department of Physiology and Neurobiology, Storrs, CT
- i) August 1995 “Regulation of the carbachol-induced, basolateral membrane K^+ channel in colonic crypts” Indiana University, Evansville Center for Medical Education. Department of Physiology, Evansville, IN
- j) December 1995 “ Ca^{2+} -mediated Cl^- secretion: It’s all in the driving force” State University of New York at Buffalo. Department of Physiology, Buffalo, NY
- k) January 1996 “Second-messenger-mediated regulation of an epithelial K^+ channel” University of Wisconsin at Madison. Department of Physiology, Madison, WI
- l) January 1996 “Physiology and pharmacology of a Ca^{2+} -dependent colonic K^+ channel” Georgia State University. Department of Biology, Atlanta, GA
- m) February 1996 “Physiology and pharmacology of a basolateral membrane K^+ channel” University of Arkansas. Department of Physiology and Biophysics, Little Rock, AR
- n) September 1996 “Ion transport across human bronchial epithelia” University of Pittsburgh. Pulmonary Research Conference. Pittsburgh, PA
- o) October 1996 “Regulation of transepithelial ion transport across colonic and airway epithelia” University of Pittsburgh. Department of Cell Biology and Physiology, Pittsburgh, PA
- p) March 1997 “Modulation of epithelial Cl^- secretion via basolateral membrane K^+ channels” Texas Tech University of the Health Sciences. School of Pharmacy, Amarillo, TX
- q) April 1997 “The role of basolateral membrane K^+ channels in mediating Ca^{2+} -dependent transepithelial Cl^- secretion” University of Minnesota-Duluth. Department of Pharmacology, Duluth, MN
- r) September 1999 “Structure-function studies on hIK1” University of Pittsburgh. Department of Cell Biology and Physiology, Pittsburgh, PA
- s) December 1999 “Regulation and trafficking of the Ca^{2+} -dependent K^+ channel, hIK1” Yale University, Department of Cell and Molecular Physiology, New Haven, CT
- t) November 2000 “Mapping the kinase-dependent domain of hIK1, a Ca^{2+} -dependent K^+ channel” SUNY at Buffalo, Department of Physiology and Biophysics, Buffalo, NY
- u) May 2001 “Assembly and trafficking of the Ca^{2+} -dependent K^+ channel, hIK1” University of Pittsburgh, Renal Division, Pittsburgh, PA
- v) June 2001 “hIK1 as a therapeutic target” ICAgen Inc. Raleigh-Durham, NC
- w) September 2001 “Molecular motifs involved in assembly and trafficking of hIK1” Kansas State University, Department of Anatomy and Physiology, Manhattan, KS
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- x) February 2002 “Pharmacology of KCNN gene family members: Possible therapeutic targets” Aurora Biosciences Corp., San Diego, CA
- y) April 2002 “Regulation and trafficking of the basolateral membrane K⁺ channel, hIK1” Case Western Reserve University, Department of Pediatrics, Cleveland, OH
- z) November 2004 “Understanding the Molecular Motifs involved in the Regulation and Trafficking of the Ca²⁺-dependent K⁺ channel, hIK1” Rosalind Franklin University, Department of Physiology, Chicago, IL
- aa) December 2004 “Understanding the Molecular Motifs involved in the Regulation and Trafficking of the Ca²⁺-dependent K⁺ channel, hIK1” University of Rochester, Division of Gastroenterology, Rochester, NY
- bb) November 2009 “Trafficking of KCa2.3 and KCa3.1 from the plasma membrane” University of Otago, Department of Physiology, Dunedin, New Zealand
- cc) November 2009 “Role of S6 in the Ca²⁺-dependent gating of KCa3.1” University of Otago, Department of Pharmacology, Dunedin, New Zealand
- dd) January 2011 “KCa2.3 and KCa3.1: Family members with unique endocytic itineraries” Western University of Health Sciences, Pomona, CA
- ee) February 2011 “KCa2.3 and KCa3.1: Family members with unique endocytic itineraries” Central Florida University, Burnett School of Biomedical Sciences, Orlando, FL
- ff) September 2011 “KCa2.3 and KCa3.1: Family members with unique trafficking itineraries” Georgia Health Sciences University, Department of Physiology, Augusta, GA
- gg) January 2012 “Endocytosis, Recycling and Ubiquitylation of KCa2.3 and KCa3.1: Family members with unique endocytic itineraries” Wayne St. University School of Medicine, Department of Physiology, Detroit, MI
- hh) March 2015 “Regulation of KCa3.1 and KCa2.3 trafficking in epithelia and endothelia” Cystic Fibrosis Research Center, University of Pittsburgh, Pittsburgh, PA
- ii) November 2015 “Trafficking of KCa2.3: What have we learned and where are we heading?” Midwestern University, Glendale, Department of Physiology, Glendale, AZ.

Invited Symposia (National/International meetings):

- a) “Calcium-mediated agonists activate an inwardly rectified K⁺ channel in colonic secretory cells” Experimental Biology '93, New Orleans, LA, March 28-April 1, 1993.
- b) “Arachidonic acid inhibits the calcium-dependent inwardly rectified K⁺ channel in T84 colonic secretory cells” Experimental Biology '94, Anaheim, CA, April 24-28, 1994.

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- c) “Stimulation of Cl⁻ secretion by a novel pharmacological agent, 1-EBIO” Experimental Biology '95, Atlanta, GA, April 9-13, 1995.
 - d) “Pharmacological modulation of Cl⁻ secretion by the novel Ca²⁺-dependent K⁺ channel modulator, 1-ethyl-2-benzimidazolinone” Cystic Fibrosis Foundation Williamsburg Conference 1995, Williamsburg, VA, June 2-4, 1995.
 - e) “Alternative modulation of Cl⁻ secretion in normal and CF airway epithelia” Tenth annual North American cystic fibrosis conference, October 24-27, 1996, Orlando, FL.
 - f) “Potassium channels in the human airway” Cystic Fibrosis Foundation Williamsburg Conference 1997, Williamsburg, VA, May 30-June 1, 1997.
 - g) “UTP inhibits transepithelial Na⁺ absorption across human airway” Cystic Fibrosis Foundation Williamsburg Conference '97, Williamsburg, VA, May 30-June 1, 1997.
 - h) “Pharmacology of HBEs” Cystic Fibrosis Foundation Williamsburg Conference 1998, Williamsburg, VA, May 31-June 4, 1998.
 - i) “Effect of 1-EBIO, NS004 and genistein on ion transport across human bronchial epithelia expressing wild type and ΔF508 CFTR” Twelfth annual North American cystic fibrosis conference, October 15, 1998, Montreal, Quebec, Canada.
 - j) “Purinoceptor Inhibition of Epithelial Na⁺ Transport” Cystic Fibrosis Foundation Williamsburg Conference 1999, Williamsburg, VA, June 4-June 9, 1999.
 - k) “Will K⁺ Channel Modulators be of benefit in Cystic Fibrosis?” Cystic Fibrosis Foundation Williamsburg Conference 2000, Williamsburg, VA, May 19-23, 2000.
 - l) “Kinase-dependent regulation of hIK1 is conferred by a C-terminal domain” Biophysical Society meeting, Boston, MA, February 17-21, 2001.
 - m) “Role of NH₂-terminal leucines in the assembly and function of hIK1” Experimental Biology Meeting, San Diego, CA, April 11-15, 2003.
 - n) “Regulation and trafficking of the basolateral membrane, Ca²⁺-dependent K⁺ channel, hIK1” 2003 FASEB Summer Research Conference: Gastrointestinal Tract X: Physiology and Pathophysiology of GI Epithelia. July 19-24, 2003, Tuscon, Arizona.
 - o) “Role of the S4-S5 linker in the regulation and trafficking of hIK1” Experimental Biology Meeting, Washington, D.C., April 17-21, 2004.
 - p) “NH₂-terminal leucines and their role in trafficking and expression of hIK1” Experimental Biology Meeting, 2003. Presented by Heather Jones, Postdoctoral Associate.

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- q) “An NH₂-terminal multi-basic RKR motif is crucial for the ATP-dependent regulation of hIK1” MedSciNZ, Rotorua, New Zealand, November 28-December 1, 2006. Presented by Kirk Hamilton, visiting Sabbatical Scientist.
 - r) “Role of S1-S4 salt bridges in maintaining protein stability of KCa2.3 and KCa3.1” Biophysical Society Meeting, Baltimore, MD, March 3-7, 2007.
 - s) “Trafficking of KCa2.3 and KCa3.1” Physiological Society Meeting, Cambridge, U.K. July 12-16, 2008.
 - t) “Expression of a KCa2.3 homologue in *C. elegans*” Renal Research Conference, Combio 2009, Meeting, Christchurch, New Zealand, December 6-10, 2009.
 - u) “KCa2.3 and KCa3.1 at the Plasma Membrane: Where do we go from here?” Combio2009 Meeting, Christchurch, New Zealand, December 6-10, 2009.
 - v) “Role of ubiquitination and UBPY-dependent deubiquitination in the endocytosis and lysosomal targeting of plasma membrane KCa3.1” Ubiquitin Drug Discovery and Diagnostics Conference 2010, Philadelphia, PA., August 23-25, 2010. Presented by Corina Balut, Postdoctoral Associate.
 - w) “DUB microarray as a tool for identifying DUBs involved in trafficking of KCa3.1” Ubiquitin Research and Discovery Conference, San Diego, CA, January 27-28, 2011. Presented by Corina Balut, Postdoctoral Associate.
 - x) “Using DUB Arrays and TUBEs to define the USP8-dependent lysosomal targeting of KCa3.1” Experimental Biology 2011, Washington, D.C., April 10-13, 2011.
 - y) “Role of ubiquitylation and deubiquitylation in the trafficking of a Ca²⁺-activated K⁺ channel, KCa3.1” 2nd Ubiquitin Research in Drug Discovery Conference, Las Vegas, NV, February 27-28, 2012.
 - z) “Ubiquitylation and Deubiquitylation of KCa3.1: Role in endocytosis and lysosomal degradation” Experimental Biology 2012, San Diego, Ca, April 21-25, 2012.
 - aa) “Basolateral trafficking of IK1 in polarized epithelia” Experimental Biology 2013, Boston, MA, April 20-24, 2013. Presented by Claudia Bertuccio, Postdoctoral Associate.
 - bb) “Trafficking of IK1 and SK3 in Endothelia” 10th Annual Ion Channel Symposium, May 23-24, 2013, Copenhagen, Denmark.

3. Other research related activities

- a) Chairman of symposium on “Strategies to Circumvent the CFTR Defect” at the Tenth Annual North American Cystic Fibrosis Conference, October 25, 1996, Orlando, FL.
- b) Chairman of symposium on “Epithelial Potassium Channels” at the Tenth Annual North American Cystic Fibrosis Conference, October 25, 1996, Orlando, FL.

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- c) Chairman of symposium on “Optimizing Epithelial Chloride Transport” at the Thirteenth Annual North American Cystic Fibrosis Conference, October 7, 1999, Seattle, WA.
 - d) Moderator: “Therapeutic Approaches to Modulate or Bypass CFTR” Fifteenth Annual North American Cystic Fibrosis Conference, October 27, 2001, Orlando, FL.
 - e) Invited Discussant: 2003 Transatlantic Airway Conference, January 15-17, 2003, Key Biscayne, FL.
 - f) Advisory Board: 2nd Annual Ubiquitin Research in Drug Discovery Conference. February 27-28, 2012, Las Vegas, NV
 - g) Moderator: “The UPS and Parkinson’s Disease” 2nd Annual Ubiquitin Research in Drug Discovery Conference. February 27, 2012, Las Vegas, NV.

4. Advisory Boards

AVM BioMed: Scientific Advisory Board: 2014-

AVM BioMed is a company that utilizes protein microarrays to identify protein-protein interacting partners (PPIs), capture post-translational modifications of proteins as well as biomarker discovery and target validation.

LIST OF CURRENT RESEARCH INTERESTS:

Intermediate (KCa3.1 or IK) and small (KCa2.3 or SK3) conductance, calcium-activated potassium channels play a critical role in a host of physiological processes. Thus, an understanding of the physiological and pharmacological regulation of these channels as well as their assembly, trafficking and gating is crucial to the development of novel therapies based on targeting these channels. The long-term goals of my lab are to obtain a detailed molecular understanding of these channels in order to unravel the mechanisms involved in their assembly, trafficking, regulation and gating. In light of these goals, we have several ongoing projects designed to further our understanding of these channels.

First, we are utilizing proteomics-based approaches to both define additional proteins that interact with, and therefore regulate, IK1 and SK3 channels as well as to define post-translational modifications of IK1 and SK3 at the amino acid level. This includes both the use of protein arrays as well as mass spectrometry. We recently demonstrated, in collaboration with Dr. Christian Loch at AVMBioMed, that, for the first time, we could define the interaction of a DUB (USP8) with a protein (IK1) from total cell lysate and also characterize the time-course of this association. We have expanded this approach by using the ProtoArray, which contains 10,000 proteins, to define additional critical modulators of IK1 and SK3 trafficking and function. With this approach, we have identified HDAC6 as a potent regulator of both IK1 and SK3 expression in primary cultures of endothelial cells. Indeed, we have demonstrated that HDAC inhibition increases plasma membrane expression of SK3 approximately 10-fold. These are the first pharmacological tools identified that are capable of regulating the number of plasma membrane SK3 channels. Given the clinical relevance of HDAC inhibitors in cardiovascular disease we are exploring the mechanisms by which channel expression is increased and how this alters cellular function. Thus, we are carrying out studies to determine whether HDAC inhibition alters vascular tone as these channels are known to play a role in the endothelial derived hyperpolarizing factor (EDHF) response that regulates vascular tone. In this regard, in collaboration with Dr. Adam Straub, at the University of Pittsburgh, we have demonstrated that HDAC inhibitors alter the vasoreactivity of *ex vivo* thoracodorsal arteries from mice in an IK1/SK3-dependent manner. We are also collaborating with Dr. Nathan Yates at the University of Pittsburgh to

define both the ubiquitylation and acetylation of IK1 and SK3 and how these post-translational modifications alter the trafficking of these channels to and from the plasma membrane. Given the crucial role these channels play in a host of physiological processes it is anticipated that the identification of these novel proteins involved in maintaining plasma membrane localization will provide unique targets for therapeutic intervention.

Second, we have also found that HDAC inhibitors decrease expression of connexin 43 (CX43) in human endothelial cells. As CX43 is critical for intercellular communication understanding how this gap junction is regulated will provide further insight in to how endothelial signals are communicated to the underlying vascular smooth muscle, resulting in alterations in vascular tone.

Finally, we developed novel biotin ligase acceptor peptide (BLAP)-tagged KCa2.3 and KCa3.1 constructs which allow us to evaluate, in real time, the anterograde and retrograde trafficking of these channels. Using these constructs, we have developed several on-going projects. In one project, our data demonstrates that KCa2.3 is rapidly endocytosed and enters the recycling pathway back to the plasma membrane in a caveolin-1, Rab5, dynamin and Rab35-dependent manner. In contrast, in a second project, we demonstrate that KCa3.1 is targeted to the lysosome via the ESCRT machinery. As both of these channels enter dynamic endosomal compartments, modulation of the rate-limiting steps in these events will allow for the regulation of the number of channels present at the plasma membrane such that the physiological response to agonists may be modified. Thus, we are exploring the SNARE complex involved in insertion of SK3 in to the plasma membrane as well as defining the mechanism by which KCa3.1 is targeted to the basolateral membrane in polarized epithelial cells.

SERVICE:

Departmental:

Faculty Recruiting Committee: 2010, 2011, 2012, 2013
Faculty Mentoring Program: Mentor for Michael Butterworth, Assistant Professor, 2010-Present
Tenure and Promotions Committee: 2004-Present
Space Committee: 2003-2010
Graduate Student Committee: 2003-2010
Departmental Seminar Series Organizer: 1997-98, 2005-06

Institutional:

Interdisciplinary Biomedical Graduate Program: Admissions Committee, 2016
Interdisciplinary Biomedical Graduate Program: Admissions Committee, Chair 2015
Interdisciplinary Biomedical Graduate Program: Admissions Committee, Vice-Chair 2014
Interdisciplinary Biomedical Graduate Program: Admissions Committee, 2013
Interdisciplinary Biomedical Graduate Program: Admissions Committee: Ad-hoc member, 2010

Interdisciplinary Biomedical Graduate Program: Recruiting Committee: Chair, 2010-2013
Interdisciplinary Biomedical Graduate Program: Recruiting Committee: Vice-Chair, 2009-2010
Interdisciplinary Biomedical Graduate Program: Recruiting Committee: 2007-2009

National:

External reviewer: Department of Pharmacology, Wayne St. University, March 3-5, 2014

Long-Range Planning Committee: American Physiological Society, 2002-2005

Editorial Board: American Journal of Physiology: Cell Physiology, 1999-2003

ad hoc reviewer for *PLoS One*

ad hoc reviewer for Journal of Biological Chemistry

ad hoc reviewer for Journal of Physiology

ad hoc reviewer for American Journal of Physiology: Cell Physiology

ad hoc reviewer for Journal of Membrane Biology

ad hoc reviewer for Journal of Cellular Physiology

ad hoc reviewer for Comparative Biochemistry and Physiology

ad hoc reviewer for Biochimica et Biophysica Acta

Abstract review committee: North American Cystic Fibrosis Conference – 1997, 1999

Organizer: Department of Cell Biology and Physiology Seminar Series – 1997-1998

Grant Reviews:

ad hoc reviewer for Cystic Fibrosis Foundation

ad hoc reviewer for Department of Veterans Affairs

ad hoc reviewer for Nanyang Technological University, Singapore

Dr. D. C. Devor: Grant Support List

Total Grant Dollars: \$6,668,348

TITLE	ROLE IN PROJECT	PROJECT PERIOD	TOTAL AWARD	AGENCY	Grant #
	% Effort				
NIH Training Grant		1991 – 1992		NIH	DK07545
Correlation of CFTR Function with Vesicle Trafficking	P.I.	07/01/92 – 06/30/94	\$52,500	Nation Research Service Award	DK08810
Pharmacologic Activation of CFTR and K ⁺ Channels	P.I.	05/01/95 – 04/30/97	\$68,000	New Investigator Award – CFF	#I986
Chloride Secretion by Epithelial Tissues	Co-P.I. 15%	09/30/95 – 08/31/99	\$634,503	NIH	DK31091-16R01 NS 18590
Pharmacological Modulation of Cl ⁻ Secretion in CF	P.I. 20%	01/01/97 – 12/31/99	\$375,000	CFF	DEVOR96PO
Human Airway Cell and Tissue Core (Pilewski)	Co-P.I. 10%	08/07/97 – 07/31/02	\$200,000	CF Research Dev. Program	FRIZZE97RO
PKA-Dependent Phosphorylation of hIK1 in Epithelia	P.I. 30%	07/01/98 – 06/30/99	\$24,972	CMRF	
Regulation of hIK1 in Secretory Diarrhea	P.I. 45%	03/01/99 – 01/31/02	\$578,785	NIH	1RO1DK54941
Basic and Clinical Studies in Otitis Media (Hebda)	Co-P.I. 5%	07/01/99 – 06/30/03	\$270,130	NIH, NIDCD	5P01DC01260
CFTR in Airway Cell Function (Pilot #1)	P.I. 10%	08/01/99 – 07/31/01	\$149,838	SCOR - NIDDK	1P50DK56490
Evaluation of the Ion Conductances & Capacitance Changes Involved in Airway Epithelial Cell Mucin Secretion (Bridges)	Co-PI 5%	06/19/02 – 06/18/04	\$309,030	Novartis	
Regulation of hIK1 in Secretory Diarrhea	P.I. 50%	09/01/02 – 08/31/06	\$1,230,000	NIH	2RO1DK54941
Training Grant (Kleyman)	Trainer	07/01/02 – 06/30/07	\$329,957	NIH – NIDDK	1P32DK61296
Oxidation and Pharmacologic Activation of IK/SK Channels	P.I. 40%	03/01/06 – 02/28/11	\$1,463,188	NIH - NHLBI	1ROHL083060
Assembly and trafficking of IK1 and SK3 in endothelia	P.I. 40%	07/17/09-05/31/13	\$1,489,612	NIH - NHLBI	1ROHL92157