CURRICULUM VITAE

Gerda E. Breitwieser, Ph.D. February 2013

PRESENT POSITION AND ADDRESS:

Senior Scientist
Weis Center for Research
Geisinger Clinic
100 N. Academy Avenue
Danville, PA 17822-2604
phone 570 271-6675
gebreitwieser@geisinger.edu

EDUCATION:

1972-1976	B.S.(Honors); Chemistry and Zoology University of Wisconsin-Milwaukee
1976-1982	Ph.D.; Biology (Molecular Biology) Washington University-St. Louis, Department of Physiology & Biophysics

PROFESSIONAL APPOINTMENTS:

1982 - 1983	Research Associate, Univ. of Texas Medical Branch, Dept. of Physiol. & Biophys.
1984 - 1987	Instructor, Univ. of Texas Medical Branch, Dept. of Physiology & Biophysics
1987 - 1993	Assistant Professor of Physiology, Johns Hopkins University School of Medicine
1993 - 2001	Associate Professor of Physiology, Johns Hopkins University School of Medicine
2001 - 2003	Associate Professor of Biology (and Chemistry), Syracuse University
2002 - 2005	Adjunct Associate Professor of Pharmacology, SUNY Upstate Medical University
2004 - 2005	Professor of Biology, Syracuse University
2005 - 2007	Staff Scientist, Weis Center for Research, Geisinger Clinic
2007-	Senior Scientist, Weis Center for Research, Geisinger Clinic

HONORS:

1972	National Honor Society
1973	Sigma Epsilon Sigma, University of Wisconsin-Milwaukee
1976	Phi Beta Kappa, University of Wisconsin-Milwaukee
1984	Notable Women of Texas
1989	Sigma Xi, Johns Hopkins University School of Medicine
1991-1995	Established Investigator, American Heart Association
1995	Career Development Award, National Science Foundation

PROFESSIONAL ACTIVITIES:

1990- 2000	Ad hoc reviewer, Physiology study section
1990, 1991	NSF external reviewer
1991-1993	Councilor, Society of General Physiologists
1992	Ad hoc reviewer, General Medicine B
1992-1999	Editorial Board, Journal of General Physiology
1993-1995	American Heart Association, National Review Council: CCPP
1994-1998	Executive Committee, AHA Basic Science Council
1994-1997	Treasurer, Society of General Physiologists
1996-present	Editorial Board, American Journal of Physiology (Cell)
1998	Ad hoc reviewer, Fullbright Awards, The Israel Science Foundation, and the Wellcome Trust
1998-2001	U.S. National Committee/IUPAB, liason for Soc. of Gen. Physiologists
1999-2006	Associate Editor, Circulation Research

2000-2004	American Heart Association, National Review Council: CCPP
2000	Ad hoc reviewer: NSF, Molecular and Cellular Biosciences; NIDDK, O'Brien Kidney Research Centers
2003-2004	Ad hoc reviewer, NIH, MDCN4
2004-2008	Member, NTRC (formerly MDCN4) study section, NIH
2006	Alzheimer's Foundation, Wellcome Trust, US-Israel Binational Foundation, ad hoc reviewer; NIH SEP Reviewer, Electrical Signaling, Ion Transport and Arrhythmias
2007-2009	Alzheimer's Foundation, US-Israel Binational Foundation, ad hoc reviewer
2010-2012	College of Reviewers-Center for Scientific Review, NIH

MEMBERSHIPS:

American Physiological Society; Biophysical Society; Society of General Physiologists; American Heart Association, Basic Science Council; American Society of Biochemistry and Molecular Biology; Cardiac Muscle Society; Society for Neuroscience; American Society of Cell Biology

INSTITUTIONAL ADMINISTRATIVE ACTIVITIES:

1990	JHU, Physiology Laboratory Review Committee, chairperson
1991-1992	JHU, BCMB Steering Committee
1992-1994	JHU, Medical School Council (elected office)
1993-1994	JHU, Organizer, BCMB Faculty Research Talks
1995-1996	JHU, Physiology Search Committee (7 hires)
2001	Howard Hughes Undergraduate Teaching Grant Committee
2001	SU, Biology Search Committee (2 hires)
2001	SUNY Upstate, Dept. of Pharmacology, Search Committee (1 hire)
2001-2005	Director, Confocal Microscopy Facility in Dept. of Biology, SU
2002	SU, Biology Search Committee (1 hire)
2002	SU, Biology, Promotions & Tenure Committee
2003-2005	SU Faculty Senate; Promotions and Tenure Committee
2003	SU, Biology Search Committee (1 hire)
May 2003	Project Advance, SUPA speaker, Syracuse and Lubin House, NYC
2003-2005	Arts and Sciences Curriculum Committee; Majors and Minors Subcommittee
2004-2005	Chair, Biology Department Cell Signaling Search Committee
2004-2005	Syracuse University, Biology Undergraduate Curriculum Committee
2004-2005	Syracuse University, Dept. of Biology, Chairman's Advisory Council
2006-2007	WCR Faculty Search committee
2007	WCR 20th Anniversary Symposium committee
2007-present	Geisinger Institutional Biosafety Committee, Chair
2007-present	Weis Center for Research Promotion and Retention Committee

FUNDING HISTORY:

07/01/84 - 06/30/86	**AHA Texas Affiliate Grant – in – Aid; $50,000 total direct costs** "Muscarinic control of ion channels in heart"
05/01/86 - 09/30/87	**NIH F32 HL07458 Postdoctoral Fellowship, $34,835 direct costs** "Receptor regulation of ion channels in heart"
07/01/86 - 06/30/89	**AHA National Center Grant - in – Aid; $90,000 total direct costs** "Receptor Modulation of Ion Channels in Heart"
12/01/88 -11/30/93	**NIH RO1 HL41972; $394,726 total direct costs** "G protein-mediated K^+ channel activation in heart"
02/01/89 - 01/31/91	**Cystic Fibrosis Foundation; $80,000 total direct costs** "Regulation of Cl^- permeability in tracheal cells"

07/01/90 - 06/30/95	**AHA Established Investigator; $175,000 total direct costs**
	"G protein-mediated K^+ channel activation in heart"
06/01/91 - 05/31/92	**Institutional Research Grant Projects Committee; $15,000 total**
	"Lipid modulation of G protein-mediated signal transduction in heart"
09/29/92 - 09/28/97	**NIH PO1 DK44484; $401,917 total direct costs, Project #4**
	"Regulation of Epithelial Differentiation and Active Transport"
	M. Donowitz, P.I.; Project #4, G.E. Breitwieser, P.I.
07/94 - 06/95	**NSF Career Advancement Award; $50,000 total direct costs**
	"Protein-protein interactions in membrane signaling"
09/01/96 - 06/30/00	**NIH RO1 NS11946; subcontract $79,532 total direct costs**
	"Ion Transport in Nerve and Fibroblast"
	J.M. Russell, P.I.; subcontract to G.E. Breitwieser
01/01/97 - 12/31/99	**AHA National Center Grant - in – Aid' $150,000 total direct costs**
	"G protein-mediated potassium channel activation in heart"
12/01/97 - 11/31/98	**IRG/JHUSOM; $18,000 total direct costs**
	"Agonist binding domains of a G protein-coupled receptor subfamily"
07/01/99 - 06/30/00	**JHU School of Medicine Education Grant; $15,000 direct costs**
	"Revitalizing and Upgrading the Laboratories for the Cardiovascular Section of the First Year Medical Physiology Course"
09/01/99 - 08/31/05	**NIH RO1 GM58578; $900,000 total direct costs**
	"Molecular Determinants of Calcium Receptor Function"
05/01/00 – 04/31/02	**Novartis Pharma AG; $130,000 U.S. total direct costs**
	"Allosteric Regulation of the Parathyroid Calcium-Sensing Receptor"
04/01/06 – 03/31/11	**NIH RO1 GM077563; $800,000 total direct costs**
	"Calcium sensing receptors and scaffolds"
07/01/08 – 06/30/10	**SRC-Geisinger Clinic; $96,414 total direct costs**
	"Molecular and Genetic Basis of Renal Stones"
09/30/09 – 03/31/10	**NIH RO1 GM077563; ARRA Administrative Suppl. $80,000 direct**
07/01/11 – 06/30/13	**SRC-Geisinger Clinic; $100,000 total direct costs**
	"Calcium sensing receptor role in vascular calcification"
01/01/13-12/31/14	**SRC-Geisinger Clinic; $100,000 total direct costs**
	"Intestinal transcriptional signatures in obesity"

PENDING APPLICATIONS:

04/01/13-03/31/18	**NIH RO1**
	"CaSR signaling: Identification of novel regulatory targets"

TRAINEES:

Postdoctoral fellows:	(JHU) Roberta Scherer, Ph.D.
	(JHU) Daniel Yuan, M.D.
	(JHU) Josefina Ramos-Franco, M.D.
	(JHU) M. Teresa Perez-Garcia, Ph.D.
	(JHU) Tatyana T. Ivanova-Nikolova, Ph.D.
	(JHU/SU) Susanne U. Miedlich, M.D.
	(SU/Weis Center) Mingliang Zhang, M.D., Ph.D.
	(WCR) Gina Visser Smit, Ph.D.
	(WCR) Alice Cavanaugh, Ph.D.
	(WCR) Michael P. Grant, Ph.D.
Clinical fellows:	(WCR) Roshan Mainali, M.D.
	(WCR) Kiran Padagali, M.D.
Graduate students:	(JHU) C. Frederick Lo, B.S., M.S.
	(SU) Kristina Wickham, B.S., rotation student
	(SU)Ying (April) Huang, B.S., Ph.D. 2006
Summer programs:	(JHU) Aisha Hughes, B.S.

	(JHU) Jessyca Small, B.S.
	(WCR) Erin Fisher
	(WCR) Olivia McGovern
	(WCR) Daniel Esslinger
	(WCR) Genevieve Kelly
	(WCR) Theresa Yurkonis
	(WCR) Chelsea Mandell
	(WCR) Rachel Boy
Undergraduate students:	(JHU) Hahn Huang, B.S., M.P.H.
	(JHU) I-hua Huang, B.S., M.P.H., M.D.
	(JHU) Sanjay Mehta, B.S., M.D.
	(JHU) Daniel Lee, B.S.
	(JHU) Sidney Chen, B.S.
	(SU) Caitlin M. Fink, B.S.
	(SU) Shazia Beg, B.S.
	(SU) Adam Licurse, B.S.
High school students:	(WCR) Genevieve Kelly
	(WCR) Matt Long
	(WCR) Lili McKinley

TEACHING EXPERIENCE:

1992-1993	"Molecules and Cells" (First year medical student course) Lectures & small group discussions – 3 week program
1992-1998	Biochemistry and Cell Biology (First year graduate students) 4 Lectures / Core discussion leader
1987-present	"Organ Systems" (First year medical student course) Lectures /Discussion leader /Dog labs (coordinator) – 3 week program
1994-2000	Director, Cardiovascular Section, Organ Systems Course Re-vamping of CV section, elimination of CV dog labs and establishment of computer-based laboratory, design and implementation of human exercise laboratory
1999-2001	Head, Curriculum and rotations committee for the Cell and Molecular Physiology Graduate Program/JHU SOM Dept. of Physiology
Fall 2001	Bio 610 and Bio 688/Graduate Independent Study
2002, 2003	Freshman Forum
2002-2005	Medical Pharmacology, 2nd year course, SUNY UMU, Lecturer, Endocrinology section, "Pharmacology of the Parathyroids and Bone".
Spring 2003	Junior/Senior Seminar (Bio 421): Molecular Pharmacology & Cell Signaling
Spring 2004	Graduate Seminar (Bio 700): Molecular Pharmacology Biochemistry 576: 5 lectures
2001-2005	Course Director/Lecturer (35-40 lectures), Biochemistry 575 (taught fall semester each year)

SCHOOL/COMMUNITY SERVICE:

2002-2004	Regional Science Fair Judge, OnCenter, Syracuse, N.Y., Senior Category
2002-2004	Syracuse University Marshall, Commencements and Chancellor Inauguration
2007-2009	Lecture at Susquehanna University

BIBLIOGRAPHY:

Starewicz, P.M., **G.E. Breitwieser**, E.A. Hill and P. Kovacic. Ethanolysis and base-promoted elimination reaction of bridgehead alpha-aminosulfides. 3-thioethoxy-4-azahomoadamantanes. Tetrahedron, 35, 819-822 (1979).

Breitwieser, G.E. Characterization of the Na,K-ATPase in a membranous preparation from the optic ganglion of the squid (Loligo pealei). Biochim. Biophys. Acta, 689, 457-463 (1982).

De Weer, P., **G.E. Breitwieser**, B.G. Kennedy and H.G. Smith. ADP-ATP exchange in internally dialyzed squid giant axons. IN: F. Bronner and A. Kleinzeller (eds.), Current Topics in Membranes and Transport, 19, pp. 665-670. Academic Press, N.Y. (1983).

Breitwieser, G.E. and G. Szabo Uncoupling of cardiac muscarinic and β-adrenergic receptors from ion channels by a guanine nucleotide analog. Nature, 317, 538-540 (1985).

Breitwieser, G.E., A. Altamirano and J.M. Russell. Effects of pH changes on sodium pump fluxes in squid giant axon. Amer. J. Physiol., 253, C547-C554 (1987).

Breitwieser, G.E. and G. Szabo. Mechanism of muscarinic receptor-induced K^+ channel activation as revealed by hydrolysis-resistant GTP analogs. J. Gen. Physiology, 91, 469-493 (1988).

Altamirano, A.A., **G.E. Breitwieser** and J.M. Russell. Vanadate and fluoride effects on Na,K,Cl co-transport in squid giant axon: Evidence for phosphatase involvement? Am. J. Physiol., 254, C582-C586 (1988).

Otero, A.S., **G.E. Breitwieser** and G. Szabo. Activation of muscarinic potassium currents by ATP-γ-S in atrial cells. Science, 242, 443-445 (1988).

Breitwieser, G.E., A.A. Altamirano and J.M. Russell. Osmotic stimulation of Na^+,K^+,Cl^- cotransport in squid giant axon is $[Cl^-]_i$-dependent. Amer. J. Physiol., 258, C749-C753 (1990).

Scherer, R.W. and **G.E. Breitwieser**. Arachidonic acid metabolites alter G protein-mediated signal transduction in heart: Effects on muscarinic K^+ channels. J. Gen. Physiol., 96, 735-755 (1990).

Breitwieser, G.E. pH effects on the sodium pump. IN: L. Reuss, J.M. Russell and G. Szabo (eds.), Regulation of Potassium Transport Across Biological Membranes, pp. 65-76. University of Texas Press, Austin, TX. (1990).

Breitwieser, G.E. G protein-mediated ion channel activation. Hypertension, 17, 684-692 (1991).

Ramos-Franco, J., C.F. Lo and **G.E. Breitwieser**. Platelet activating factor receptor-mediated activation of the muscarinic K^+ current in bullfrog atrial myocytes. Circulation Research, 72, 786-794 (1993).

Scherer, R.W., C.F. Lo and **G.E. Breitwieser**. Leukotriene C_4 modulation of muscarinic K^+ current activation in bullfrog atrial myocytes. J.Gen.Physiol., 102, 125-141 (1993).

Lo, C.F. and **G.E. Breitwieser.** Protein kinase-independent inhibition of muscarinic K^+ channels by staurosporine. Am. J. Physiol. (Cell), 266, C1128-C1132 (1994).

Altamirano, A.A., **G.E. Breitwieser** and J.M. Russell. Effects of okadaic acid and intracellular Cl^- on Na^+-K^+-Cl^- cotransport. Am. J. Physiol. (Cell), 269, C878-C883 (1995).

Mjaatvedt, A.E., D.E. Cabin, S.E. Cole, L.J. Long, **G.E. Breitwieser** and R.H. Reeves. Assessment of a mutation in the H5 domain of *GIRK2* as a candidate for the *weaver* mutation. Genome Research, 5, 453-463 (1995).

Breitwieser, G.E., A.A. Altamirano and J.M. Russell. Elevated $[Cl^-]_i$ and $[Na^+]_i$ inhibit Na^+,K^+,Cl^- cotransport by different mechanisms in squid giant axons. J. Gen. Physiol., 107, 261-270 (1996).

Breitwieser, G.E. Mechanisms of K^+ channel regulation. J. Membrane Biology, 152, 1-11 (1996).

Breitwieser, G.E., J.C. McLenithan, J.F. Cortese, J.M. Shields, M.M. Oliva, J.L. Majewski, C.E. Machamer and V.W. Yang. Colonic epithelium-enriched protein A4 is a proteolipid that exhibits ion channel characteristics. Am. J. Physiol. (Cell), 272, C957-C965 (1997).

Ivanova-Nikolova, T.T. and **G.E. Breitwieser**. Effector contributions to Gβγ-mediated signaling as revealed by muscarinic potassium channel gating. J. Gen. Physiol., 109, 245-253 (1997). Commentary by E. Reuveny, Inactivation of a G protein-coupled inwardly rectifying K^+ channel. J. Physiol., 505, 2 (1997).

Gama, L., L.M. Baxendale-Cox and **G.E. Breitwieser**. Calcium sensing receptors in intestinal epithelium. Am. J. Physiol. (Cell), 273, C1168-C1175 (1997).

Gama, L. and **G.E. Breitwieser**. A carboxy terminal domain controls the cooperativity for extracellular Ca^{2+} activation of the human calcium sensing receptor. A study with GFP fusion proteins. J. Biol. Chem., 273, 29712-29718 (1998).

Altamirano, A.A., **G.E. Breitwieser** and J.M. Russell. Activation of Na^{+},K^{+},Cl^{-} cotransport in squid giant axon by extracellular ions: evidence for ordered binding. Biochimica Biophysica Acta, 1416, 195-207 (1999).

Pace, A.J., L. Gama and **G.E. Breitwieser**. Dimerization of the human calcium sensing receptor occurs within the extracellular domain and is eliminated by Cys →Ser mutations at Cys^{101} and Cys^{236}. J. Biol. Chem., 274, 11629-11634 (1999).

Gama, L. and **G.E. Breitwieser**. Generation of epitope-tagged proteins by inverse PCR mutagenesis. Biotechniques, 26, 814-815 (1999).

Breitwieser, G.E. and L. Gama. Calcium sensing receptor activation induces intracellular calcium oscillations. Am. J. Physiol. (Cell), 280, C1412-C1421 (2001).

Gama, L., S.G. Wilt and **G.E. Breitwieser**. Heterodimerization of Calcium Sensing Receptors with Metabotropic Glutamate Receptors in Neurons. J. Biol. Chem., 276, 39053-39059 (2001).

Gama, L. and **G.E. Breitwieser**. Generation of Epitope-tagged Proteins by Inverse PCR Mutagenesis. IN: J. Braman, editor, In-Vitro Mutagenesis Protocols. Methods in Mol. Biol., 182, 77-83 (2002).

G.E. Breitwieser. β-adrenergic receptors and calcium. Focus on: "β-adrenergic potentiation of ER calcium release in brown fat cells". Am. J. Physiol. (Cell), 282, C980-981 (2002).

Miedlich, S.U., L. Gama and **G.E. Breitwieser**. Calcium sensing receptor activation by a calcimimetic suggests a link between cooperativity and intracellular calcium oscillations. J. Biol. Chem., 277, 49691-49699 (2002).

Maldonado-Perez, D., **G.E. Breitwieser**, L. Gama, A.C. Elliott, D.T. Ward and D. Riccardi. Human calcium-sensing receptor can be suppressed by antisense sequences. Biochem. Biophys. Res. Comm., 311, 610-617 (2003).

Breitwieser, G.E. G Protein-coupled receptor oligomerization: Implications for G protein activation and cell signaling. Circulation Research, 94, 17-27 (2004).

Miedlich, S.U., L. Gama, K. Seuwen, R.M. Wolf and **G.E. Breitwieser**. Homology modeling of the calcium sensing receptor transmembrane domain and identification of an allosteric binding site. J. Biol. Chem., 279, 7254-7263 (2004).

Breitwieser, G.E., S.U. Miedlich and M. Zhang. Calcium sensing receptors as integrators of multiple metabolic signals. Cell Calcium, 35, 209-216 (2004).

Zhang, M. and **G.E. Breitwieser**. High affinity interaction with Filamin A protects against Calcium Sensing Receptor degradation. J. Biol. Chem., 280, 11140-11146 (2005).

Breitwieser, G.E. GIRK channels: Hierarchy of control. Focus on: "Protein kinase C-δ sensitizes Kir3.1/3.2 channels to changes in membrane phospholipid levels following M3 receptor activation in HEK293 cells". Am J. Physiol. (Cell), 289, C509-C511 (2005).

Wasicko, M.J., **Breitwieser, G.E.**, Kim, I, and J.L. Carroll. Postnatal development of carotid body glomus cell response to hypoxia. Respiratory Physiology and Neurobiology, 154, 356-371 (2006).

Huang, Y., Niwa, J., Sobue, G. and **G.E. Breitwieser**. Calcium sensing receptor ubiquitination and degradation mediated by the E3 ubiquitin ligase dorfin. J. Biol. Chem., 281, 11610-11617 (2006).

Breitwieser, G.E. Calcium receptors and calcium oscillations. IN: Current Topics in Developmental Biology, Vol. 73, edited by Gerald P. Schatten, pgs. 85-114, (2006).

Lorenz, S., Frenzel, R., Paschke, R., **Breitwieser, G.E.** and S.U. Miedlich. Functional desensitization of the extracellular calcium-sensing receptor is regulated via distinct mechanisms: Role of G protein-coupled receptor kinases, protein kinase C and beta-arrestins. Endocrinology, 148, 2398-2404 (2007).

Huang, Y. and **G.E. Breitwieser**. Rescue of calcium sensing receptor mutants by allosteric modulators reveals a conformational checkpoint in receptor biogenesis. J. Biol. Chem., 282, 9517-9525 (2007).

Breitwieser, G.E. Extracellular calcium as an integrator of tissue function. International Journal of Biochemistry and Cell Biology, 40, 1467-1480 (2008).

White, E., McKenna, J., Cavanaugh, A., and **G.E. Breitwieser**. Pharmacochaperone-mediated rescue of calcium-sensing receptor loss-of-function mutants. Molecular Endocrinology, 23, 1115-1123 (2009). Featured on MDLinx.com May 13, 2009 (Specialities: Internal Medicine, Endocrinology, Medical Student, Physician Assistant).

Stepanchick, A., and **G.E. Breitwieser**. The cargo receptor p24A facilitates calcium sensing receptor maturation and stabilization in the early secretory pathway. Biochem. Biophys. Res. Comm., 395, 136-140 (2010).

Cavanaugh, A., McKenna, J., Stepanchick, A., and **G.E. Breitwieser**. Calcium sensing receptor biosythesis includes a cotranslational conformational checkpoint and endoplasmic reticulum retention. J. Biol. Chem., 285, 19854-19864 (2010).

Stepanchick, A., McKenna, J., McGovern, O., Huang, Y., and **G.E. Breitwieser**. Calcium sensing receptor mutations implicated in pancreatitis and idiopathic epilepsy syndrome disrupt an arginine-rich retention motif. Cellular Physiol. and Biochem., 26, 363-374 (2010).

Cavanaugh, A., Huang, Y., and **G.E. Breitwieser.** Behind the curtain: Cellular mechanisms for allosteric modulation of calcium-sensing receptors. Invited Review. Br. J. Pharmacol., 165(6), 1670-1677 (2011).

Huang, Y., Cavanaugh, A., and **G.E. Breitwieser.** Regulation of stability and trafficking of calcium-sensing receptors by pharmacologic chaperones. Invited Review. Advances in Pharmacol., 62, 143-173 (2011).

Grant, M.P., Stepanchick, A., Cavanaugh, A., and **G.E. Breitwieser**. Agonist-driven maturation and plasma membrane insertion of calcium sensing receptors dynamically controls signal amplitude. Science Signaling, 4(200), ra78 (2011). *Chosen for Faculty 1000. *Highlighted in Kidney International (2012) 82, 123-124 doi:10.1038/ki.2012.236. Journal Club.

Breitwieser, G.E. and A.M. VanHook, Science Signaling Podcast 29 November 2011. Science Signaling, 4, pc25 (2011).

Breitwieser, G.E. Minireview: The intimate link between calcium sensing receptor trafficking and signaling: Implications for Disorders of Calcium Homeostasis. Molecular Endocrinology, 26(9), 1482-95 (2012).

Grant, M.P., Stepanchick A., and **G.E. Breitwieser**. Signaling regulates trafficking of Familial Hypocalciuric Hypercalcemia (FHH) mutants of the Calcium Sensing Receptor. Molecular Endocrinology, 26(12), 2081-2091 (2012).

Breitwieser, G.E. 2013. Chapter 2: The calcium sensing receptor life cycle: Trafficking, cell surface expression, and degradation. IN: A. Conigrave, E.M. Brown, Eds., Best Practice

and Research in Clinical Endocrinology and Metabolism, “Calcium Sensing receptors in Health and Disease”.

INVITED LECTURES, SEMINARS, SYMPOSIA:

November 12, 1987. Department of Physiology, Yale University School of Medicine.
February. 12, 1988. Physiology Section, Armed Forces Radiological Institute, National Institutes of Health.
November. 23, 1988 Department of Physiology, Univ. of California, San Francisco.
February. 24, 1989. Department of Biomedical Engineering, Johns Hopkins University.
October 5, 1989. Department of Physiology, Duke University.
October 10, 1989. Department of Pharmacology, University of North Carolina at Chapel Hill.
November. 6, 1989. Department of Physiology & Biophysics, University of Texas Medical Branch, Galveston.
December 7, 1989. Department of Biophysics, University of Maryland School of Medicine.
December 14, 1989. Department of Neuroscience, Johns Hopkins University School of Medicine.
December 19, 1989. CV Section, Rockefeller University.
March 16, 1990. Department of Nephrology, Johns Hopkins University School of Medicine.
November 31, 1991. Department of Physiology, Yale University School of Medicine.
January 14, 1992. Department of Physiology, University of Pennsylvania School of Medicine.
February 25, 1992. Department of Medicine, GI Division, Johns Hopkins University School of Medicine.
June 12, 1992. Physiology Section, Armed Forces Radiological Institute, National Institutes of Health.
July 6, 1992. Department of Physiology, Loyola University School of Medicine.
December 18, 1992. Department of Pharmacological and Physiological Sciences, The University of Chicago.
December 13, 1993. Department of Physiology, Medical College of Pennsylvania.
June 26, 1995. Gordon Conference, Holderness School, Mechanisms of Membrane Transport.
September 17, 1996. Division of Gastroenterology, Johns Hopkins University School of Medicine.
January 13, 1999. Department of Physiology, Johns Hopkins University School of Medicine.
March 18, 1999. Division of Nephrology, Department of Medicine, Johns Hopkins University.
July 19, 1999. Division of Cardiology, Department of Medicine, University of Chicago.
September 22-26, 1999. American Physiological Society Conference. Biology of Potassium Channels.
October 2, 1999. Salt and Water Club. University of Pennsylvania School of Medicine.
December 13, 1999. Novartis Pharma, AG, Basel Switzerland.
February 24, 2000. Department of Pharmacology, University of Pittsburgh.
March 1, 2000. Department of Pharmacology and Experimental Therapeutics, Tufts University Medical School.
March 27, 2000. Department of Biological Sciences, University of Florida, Talahassee.
April 4, 2000. Department of Molecular Physiology and Biophysics, Baylor College of Medicine.
April 10, 2000. Department of Physiology and Biophysics, University of Texas Medical Branch, Galveston.
April 27, 2000. Department of Physiology, Stritch Loyola College of Medicine, Chicago.
May 8, 2000. Department of Physiology and Biophysics. UMDNJ-Robert Wood Johnson Medical School.
June 16, 2000. Department of Biology, Syracuse University.
August 7, 2000. Department of Biology, Syracuse University.
February 5, 2001. Novartis Pharma, AG, Basel Switzerland.
March 2001. Experimental Biology 2001 meeting, Orlando, FL. Organizer and Keynote Speaker.
November 29, 2001. Department of Pharmacology, SUNY Upstate Medical School.
January 31, 2002. Department of Medicine, Division of Endocrinology, SUNY Upstate Medical School.
March 5, 2002. Frontiers of Science Lecture Series, Department of Science Education, Syracuse University.
April 16, 2002. Department of Medicine, Division of Nephrology, SUNY UMU, Syracuse, NY.
November 18, 2002. Department of Medicine, Division of Cardiology, University of Chicago.
March 1, 2003. Biophysical Society, Membrane Biophysics Subgroup, San Antonio, TX.
March 14, 2003. Weis Center for Research, Geisinger Clinic, Danville, PA.
November 18, 2004. Weis Center for Research, Geisinger Clinic, Danville, PA.
March 2, 2005. Johns Hopkins University School of Medicine, Department of Physiology, Baltimore, MD.
July 25, 2005. Gordon Research Conference, Oxford England: Calcium signaling.
October 1, 2005. Salt and Water Club, University of Pennsylvania School of Medicine, Philadelphia, PA.
October 7, 2006. Salt and Water Club, Johns Hopkins University School of Medicine, Baltimore, MD.
November 2, 2006. University of Rochester Medical Center, Department of Physiology and Pharmacology, NY.

March 26, 2007. Kansas State University Veterinary School, Department of Cell Biology and Physiology, KS.
February 28, 2008 University of Maryland School of Medicine, Department of Physiology, MD.
March 10, 2008. Columbia University, Department of Medicine, Nephrology Rounds, NY.
May 12, 2008. Rush University Medical Center, Dept. of Molecular Biophysics and Physiology, Chicago, IL.
July 6-10, 2008. Invited speaker, FASEB Conference on Calcium, Snowmass, CO.
December, 15, 2008. Invited speaker, ASCB, Roche Workshop, San Francisco, CA.
April 30, 2010. Merck Automated Biotechnology, North Wales, PA.
June 16, 2010. Short talk, FASEB Conference on Calcium and Cell Function, Steamboat Springs, CO.
November 25, 2010. University of Sydney, Molecular Pharmacology and Cell Biology, Sydney, Australia.
December 2-4, 2010 Invited speaker, 6th International meeting Molecular Pharmacology of G protein-coupled Receptors 2010, Monash University, Melbourne, Australia.
January 9-14, 2011. Invited speaker, Gordon Research Conference on Molecular Pharmacology, Ventura, CA.
April 1, 2011. Syracuse University, Dept. of Biology, Syracuse, NY.
June 19, 2012. Invited speaker, Northeast G protein signaling workshop, Rockefeller University, NY.
June 22, 2012. Invited speaker, GPCR Forum, Endocrine 2012, Houston, TX.
November 28, 2012. Keynote speaker, Annual Meeting of the Partners in the EU collaborative project "Multifaceted CaSR", Vienna, Austria.
December 1, 2012. Invited Speaker, International Conference on Progress in Bone and Mineral Research, Symposium on the Calcium Sensing Receptor, Vienna, Austria.
June 16, 2013. Invited speaker, Symposium on "New Twists on GPCR Trafficking", ENDO 2013, San Francisco, CA.