CURRICULUM VITAE

Rennolds S Ostrom, Ph.D.
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EDUCATION

1986 to 1990 **Dartmouth College**, Hanover, NH 03755.
BA, Biology, 1990.

1993 to 1998 **University of California, Irvine**, Irvine, CA 92697.
Ph.D., Pharmacology and Toxicology, 1998.

PROFESSIONAL

2024 - present **Dean.** Chapman University School of Pharmacy.

2022 - 2024 **Interim Dean.** Chapman University School of Pharmacy.

2016 - present **Professor.** Chapman University School of Pharmacy, Department of Biomedical and Pharmaceutical Sciences.

2016 - 2016 **Professor**. University of Tennessee Health Science Center, College of Medicine, Department of Pharmacology.

2011 - 2016 **Program Director**, Integrated Biomedical Sciences Graduate Program. University of Tennessee Health Science Center.

2009 - 2016 **Associate Professor**. University of Tennessee Health Science Center, College of Medicine, Department of Pharmacology.

2003 - 2009 **Assistant Professor**. University of Tennessee Health Science Center, College of Medicine, Department of Pharmacology.

2006 - 2016 **Associate Graduate Faculty**. The University of Memphis, Department of Biomedical Engineering.

2001 - 2003 **Assistant Project Pharmacologist** (research track faculty), University of California, San Diego, School of Medicine, Department of Pharmacology.

1998 - 2001 **Postdoctoral fellow**, laboratory of *Paul A. Insel, M.D.* University of California, San Diego, School of Medicine, Dept. of Pharmacology.

1993 - 1998 **Graduate Student**, laboratory of *Frederick J. Ehlert, Ph.D.* University of California, Irvine, School of Medicine, Dept. of Pharmacology.

1991 - 1993 **Research Associate**, Behavioral Pharmacology Group. CoCensys, Inc., Irvine, CA.

1990 - 1991 **Research Technician**, laboratory of *Kelvin W. Gee, Ph.D.* University of Southern California, School of Pharmacy.

HONORS/AWARDS

Wang-Fradkin Senior Professorship, Chapman University, 2020.
Valerie Scudder Award for Outstanding Faculty Achievement, Chapman University, 2018.
Chapman University Unit Excellence Award for most outstanding School of Pharmacy faculty, 2018.
IUPHAR Young Scientist Award, 2002.
Young Scientist Travel Award, International Symposium on Vascular Neuroeffector Mechanisms, 2002

American Heart Assoc. Louis and Arnold Katz Basic Science Research Prize finalist, 2001.
International Society of Hypertension Young Investigator Travel Award, 2000.
American Society for Biochemistry and Molecular Biology Travel Award, 2000.
American Physiological Society's Caroline Tum Suden/Frances Hellebrandt Award, 2000.
American Society for Pharmacology and Experimental Therapeutics Travel Award, 1999.
UC Regents Dissertation Fellowship, 1997.
Henry J. Elliott Award for Outstanding Pharmacology Graduate Student, 1996-1997.

PROFESSIONAL ASSOCIATIONS
American Society for Pharmacology and Experimental Therapeutics, since 1999.
American Physiological Society, since 2000.
International Union of Pharmacology (IUPHAR), since 1998.
American Association of Colleges of Pharmacy, since 2016.
British Pharmacological Society, since 2020.
Alliance for Cell Signaling, 2001-2012.
American Heart Association, Basic Cardiovascular Science Council, 1999-2008.
American Society for Biochemistry and Molecular Biology, 2004-2009.
Phi Lambda Sigma, since 2022.
Rho Chi, Since 2023.

FUNDING
Current:
Compartmentalized signaling and crosstalk in airway myocytes.
NIH-NHLBI (R01 HL169522) $125,000/yr direct costs 7/1/2023-6/30/2027
Role: Co-PI with Thomas Rich (University of South Alabama) and Raymond Penn (Thomas Jefferson University)
Major Goals: This project uses novel cAMP biosensors, innovative image analysis tools and multiplex imaging to discern spatial cAMP and PKA signaling in human airway smooth muscle cells. Quantitative phosphoproteomics and cell physiological responses will also be assessed and impacts of disruption major compartmentalizing proteins will be determined. A major focus is on understanding how different receptors modulate different signaling pools and thus cell function and studying how these properties are altered in cells from asthmatic patients.

Pending:
Non genomic signaling by glucocorticoids
American Heart Association (1476416) $90,909/yr direct costs 7/1/2025-6/30/2028
Role: PI
Major Goals: This project seeks to identify the G protein-coupled receptor that is activated by glucocorticoids to mediate rapid, non-genomic signaling through the production of cAMP. Model cell lines will be used to screen for glucocorticoid-stimulated cAMP production following transfection of GPCR siRNA.

Completed:
Molecular signal transduction of cAMP compartments.
NIH (R01 GM107094) $245,003/yr direct costs 1/1/2015-7/31/2024
Role: PI
Major Goals: This project will define the cAMP signaling compartments in a model cell based on unique response of different pools centered on AC isoforms. Overexpression of individual AC's define these compartments. The AKAP and PDE isoforms involved in maintaining these compartments will be characterized via knockdown approaches.

G protein-coupled receptor signaling in airway myocytes.
NIH (R01 HL58506) $25,000/yr direct costs 1/1/2019-12/31/2022

Role: Co-Investigator, project PI Raymond Penn, PhD (Thomas Jefferson University)
Major Goals: This project is focused on identifying optimal pro-relaxant therapeutics by examining how different GPCR signal in airway smooth muscle cells. Dr. Ostrom's subcontract is for work using cADDis to measure cAMP signaling in response to various agonists so that these can be correlated to changes in cell stiffness and cell proliferation. Studies will also investigate the distinct roles of EP_2 and EP_4 receptors in airway myocytes.

Defining cAMP signaling compartmentation.
American Heart Association (14GRNT20380762) $75,000/yr 7/1/2014-6/30/2016
Role: PI
Major Goals: This project will define the cAMP signaling compartments in a model cell using quantitative phosphoproteomics. By manipulating AC expression the signaling of these compartments can be altered such that the downstream signaling proteins responsive to each compartment can be defined.

Adenylyl cyclases in airway and GI smooth muscle.
NIH (R01 HL079166) $225,000/yr 01/01/06-12/31/11
Role: PI
Major Goals: This proposal studied the role of cAMP signaling microdomains in airway smooth muscle. ß-adrenergic receptors appear capable of moving between different domains to initiate complex signaling events that can regulated distinct responses. These domains are established, in part, by lipid raft and non-raft localized adenylyl cyclase isoforms, which we show can regulate disparate cellular responses.

Localization and function of adenylyl cyclases in lipid rafts.
American Heart Association (0555291B) $70,000/yr 07/01/05-06/30/07
Role: PI
Major Goals: This proposal sought to define the mechanism(s) by which adenylyl cyclase isoforms target to lipid rafts by creating chimeric proteins from a lipid raft localized isoform, AC6, and a non-raft localized isoform, AC4 then to express a non-raft version of AC6 in cardiac myocytes.

Adenylyl cyclase as a regulator of cardiac fibrosis.
NIH (R01 HL071781) $150,000/yr 09/01/03-08/31/08
Role: PI
Major Goals: This project was designed to examine the signaling and compartmentation of adenylyl cyclase isoforms and G protein-coupled receptors in cardiac fibroblasts and to overexpress 3 different isoforms of adenylyl cyclase with a fibroblast-specific promoter to determine if increased cAMP generation will reduce cardiac fibrosis in an animal model of cardiac hypertrophy.

Molecular Physiology of Heart Failure – Project 4: Adenylyl cyclase regulation and heart failure.
NIH (P50 HL53773,) $74,015/yr 07/01/02-06/30/03
Role: Project Leader, PI Kenneth Chien (University of California, San Diego)
Major goals: In this SCORE, the lab studied the role of adenylyl cyclase type IV as a possible treatment for experimental heart failure primarily using animal models and studies with rat cardiac myocytes. Co-investigator on this project was Dr. H. Kirk Hammond.

The mechanism of 1I-178 activation of adenylyl cyclase activity.
Dynavax, Inc. $29,000 04/01/02-12/31/02
Role: PI
Major Goals: This industry contract was directed at determining the signaling mechanism through which a proprietary lead compound, 1I-178, increased cAMP levels in specific cell types.

PUBLICATIONS

ORCID ID: 0000-0002-7204-0357

Peer Reviewed Original Manuscripts, Reviews and Book Chapters

85. Isabella Cattani-Cavalieri, Katrina F. Ostrom, Jordyn Margolis, Rennolds S. Ostrom, and Martina Schmidt. Air pollution and diseases: signaling, G protein-coupled and Toll like receptors. *Pharmacology and Therapeutics*, in revision.

84. Sarah Orfanos, Brian Deeney, Gaoyuan Cao, Nikhil Karmacharya, Tyler Wu, Anjani Ravi, Cynthia Koziol-White, Rennolds S Ostrom, and Reynold Panettieri. The differential effects of cAMP mobilizing agents on TGF-β-induced extracellular matrix and growth factor expression in human lung-derived fibroblasts: Insights into therapeutic targets for lung fibrosis. *Brit J Pharmacol*, submitted. Preprint at DOI: 10.22541/au.173840072.27477554/v1.

83. Isabella Cattani-Cavalieri and Rennolds S Ostrom. One more negative regulator of AC6: S-nitrosylation. *Am J Respir Cell Mol Biol*, DOI: 10.1165/rcmb.2024-0350ED.

82. Isabella Cattani-Cavalieri, Hoeke A. Baarsma, Asmaa Oun, Christina H.T.J. van der Veen, Emily Oosterhout, Amalia Dolga, Rennolds S Ostrom, Samuel dos Santos Valenca, and Martina Schmidt. Diesel exhaust particles alter cAMP producing capacity and mitochondrial bioenergetics in human bronchial epithelial cells. *Frontiers in Toxicology*, DOI: 10.3389/ftox.2024.1412864.

81. Isabella Cattani-Cavalieri, Jordyn Margolis, Camelia Anicolaesei, Francisco J. Nuñez, and Rennolds S Ostrom. Real-time cAMP dynamics in live cells using the fluorescent cAMP Difference Detector In Situ. *J Vis Exp*, 22(205):10.3791/66451, 2024.

80. Rinzhin T. Sherpa, Karni S. Moshal, Shailesh R. Agarwal, Rennolds S Ostrom and Robert D. Harvey. Role of Protein Kinase A and A Kinase Anchoring Proteins in Buffering and Compartmentation of cAMP Signaling in Human Airway Smooth Muscle Cells. *Brit J Pharmacol*, 181(15):2622-35, 2024.

79. Stephen P H Alexander, Doriano Fabbro, Eamonn Kelly, Alistair A Mathie, John A Peters, Emma L Veale, Jane F Armstrong Elena Faccenda, Simon D Harding, Jamie A Davies, Stephanie Annett, Detlev Boison Kathryn Elisa Burns, Carmen Dessauer, Jurg Gertsch , Nuala Ann Helsby, Angelo A Izzo, Rennolds Ostrom, Andreas Papapetropoulos, Nigel J Pyne, Susan Pyne, Tracy Robson, Roland Seifert, Johannes-Peter Stasch, Csaba Szabo, Mario van der Stelt, Albert van der Vliet, Val Watts, Szu Shen Wong. The Concise Guide to PHARMACOLOGY 2023/24: Enzymes. *Brit J Pharmacol*, 180:S289-S373, 2023.

78. Ajay Nayak, Elham Javed, Dominic Villalba, Yinna Wang, Henry Morelli, Sushrut Shaw, Nicholas Kim, Rennolds S Ostrom, Reynold Panettieri, Steven An, Dale Tang and Raymond Penn. Pro-relaxant EP receptors functionally partition to different pro-contractile receptors in airway smooth muscle. *Am J Respir Cell Mol Biol*, 69(5):584-591, 2023.

77. Isabella Cattani-Cavalieri, Yue Li, Jordyn Margolis, Amy Bogard, Moom R. Roosan and Rennolds S Ostrom. Quantitative phosphoproteomic analysis reveals unique cAMP signaling pools emanating from AC2 and AC6 in human airway smooth muscle cells. *Frontiers in Physiology*, 14:1-13, 2023.

76. Tarsis F. Brust, Rennolds S Ostrom and Val J. Watts. Editorial: Adenylyl Cyclase Isoforms as Potential Drug Targets. *Frontiers in Pharmacology*, 13:1098240, 2022.

75. Katrina F. Ostrom, Justin E. LaVigne, Tarsis F. Brust, Roland Seifert, Carmen W. Dessauer, Val J. Watts and Rennolds S Ostrom. Physiological roles of mammalian transmembrane adenylyl cyclase isoforms. *Physiological Reviews*, 102(2): 815-57, 2022.

74. Carmen W. Dessauer, Rennolds S Ostrom, Roland Seifert, Val J. Watts. Adenylyl cyclases. The Concise Guide to Pharmacology 2021/22: Enzymes (edited by SP Alexander et. al.). *Br J Pharmacol*, 178 Suppl 1:S313-S411, 2021.

73. Simeng Zhu, Shiqian Huang, Guofang Xia, Jin Wu, Yan Shen, Ying Wang, Rennolds S Ostrom, Ailian Du, Chengxing Shen, and Congfeng Xu. Anti-inflammatory effects of CHRNA7 through interacting with adenylyl cyclase 6. *Br J Pharmacol,178(11):2324-2338, 2021.*

72. Yue Li, Ashely Duche, Michael Sayer, Don Roosan, Farid Khalafalla, Rennolds S Ostrom, Jennifer Totonchy, Moom R. Roosan. SARS-CoV-2 Early Infection Signature Identified Potential Key Infection Mechanisms and Drug Targets. *BMC Genomics,* 22(1):125, 2021.

71. Stephen P H Alexander, Doriano Fabbro, Eamonn Kelly, Alistair A Mathie, John A Peters, Emma L Veale, Jane F Armstrong Elena Faccenda, Simon D Harding, Jamie A Davies, Stephanie Annett, Detlev Boison Kathryn Elisa Burns, Carmen Dessauer, Jurg Gertsch , Nuala Ann Helsby, Angelo A Izzo, Rennolds Ostrom, Andreas Papapetropoulos, Nigel J Pyne, Susan Pyne, Tracy Robson, Roland Seifert, Johannes-Peter Stasch, Csaba Szabo, Mario van der Stelt, Albert van der Vliet, Val Watts, Szu Shen Wong. The Concise Guide to PHARMACOLOGY 2021/22: Enzymes. *Brit J Pharmacol*, 178:S313-S411, 2021.

70. Martina Schmidt, Isabella Cattani-Cavalieri, Francisco J. Nuñez and Rennolds S Ostrom. Phosphodiesterase isoforms and cAMP compartments in the development of new therapies for obstructive pulmonary diseases. *Curr Opinion Pharmacol*, 51:34-42, 2020.

69. Francisco J. Nuñez, Nancy A. Schulte, David M. Fogel, Joel Mickalski, Stephen I. Rennard, Raymond B. Penn, Myron L. Toews and Rennolds S Ostrom. Agonist-specific desensitization of PGE_2-stimulated cAMP signaling due to upregulated phosphodiesterase activity in human lung fibroblasts. *Naunyn-Schmiedebergs Arch Pharmacol*, 393:843-856, 2020.

68. Francisco J. Nuñez, Timothy B. Johnstone, Maia L. Corpuz, Austin G. Kazarian, Omar Tliba, Reynold A. Panettieri, Jr., Cynthia Koziol-White, Moom R. Roosan and Rennolds S Ostrom. Glucocorticoids rapidly activate cAMP production via $G_{\alpha s}$ to initiate non-genomic signaling that contributes to one third of their canonical genomic effects. *FASEB J*, 34(2):2882-2895, 2020.

67. Cynthia Koziol-White, Timothy B. Johnstone, Maia L. Corpuz, Rennolds S Ostrom, Gaoyuan Cao, Sarah Orfanos, Vishal Parikh, Brian Deeney, Omar Tliba, Ian Dainty, Anna Miller-Larsson, Reynold A. Panettieri, Jr. Budesonide enhances agonist-induced bronchodilation in human small airways by rapidly increasing cAMP production in human airway smooth muscle. *Am J Physiol, Lung Cell Mol Physiol*, 318(2):L345-L355, 2020.

66. Carmen W. Dessauer, Rennolds S Ostrom, Roland Seifert, Val J. Watts. Adenylyl cyclases. The Concise Guide to Pharmacology 2019/20: Enzymes (edited by SP Alexander et. al.). *Br J Pharmacol*, 176 Suppl 1:S297-S396, 2019.

65. Shailesh R. Agarwal, Chase Fiore, Kathryn Miyashiro, Rennolds S Ostrom, and Robert D. Harvey. Effect of adenylyl cyclase type 6 on localized production of cAMP by $ß_2$-adrenergic receptors in human airway smooth muscle cells. *J Pharmacol Exp Thera*, 370(1):104-110, 2019.

64. Rinzhin T. Sherpa, Ashraf M. Mohieldin, Rajasekharreddy Pala, Dagmar Wachten, Rennolds S Ostrom, Surya M. Nauli. Sensory primary cilium is a responsive cAMP compartment distinct from the cell body. *Scientific Reports*, 9(1):6523, 2019.

63. Christie A. Ojiaku, Elena Chung, Vishal Parikh, Jazmean K. Williams, Anthony Schwab, Ana Lucia Fuentes, Maia L. Corpuz, Victoria Lui, Sam Paek, Natalia M. Bexiga, Shreya Narayan, Francisco J. Nunez, Kwangmi Ahn, Rennolds S Ostrom, Steven S. An and Reynold A. Panettieri, Jr. TGF-ß1 Decreases $ß_2$-Agonist-Induced Relaxation in Human Airway Smooth Muscle. *Am J Respir Cell Mol Biol*, 61(2):209-18, 2019.

62. Reynold A. Panettieri, Yassine Amrani, Cynthia Koziol-White, Rennolds S Ostrom and Omar Tliba. Non-Genomic Effects of Glucocorticoids: An Updated View. *Trends Pharmacol Sci*, 40(1):38-49, 2019.

61. Stephen P H Alexander, Doriano Fabbro, Eamonn Kelly, Alistair A Mathie, John A Peters, Emma L Veale, Jane F Armstrong Elena Faccenda, Simon D Harding, Jamie A Davies, Stephanie Annett, Detlev Boison Kathryn Elisa Burns, Carmen Dessauer, Jurg Gertsch , Nuala Ann Helsby, Angelo A Izzo, Rennolds

Ostrom, Andreas Papapetropoulos, Nigel J Pyne, Susan Pyne, Tracy Robson, Roland Seifert, Johannes-Peter Stasch, Csaba Szabo, Mario van der Stelt, Albert van der Vliet, Val Watts, Szu Shen Wong. The Concise Guide to PHARMACOLOGY 2019/20: Enzymes. *Brit J Pharmacol*, 176:S297-S396, 2019.

60. Mavanoor R Nagaraja, Nivedita Tiwari, Shwetha K Shetty, Amarnath S Marudamuthu, Liang Fan, Rennolds S Ostrom, Jian Fu, Venkadesaperumal Gopu, Steven Idell and Sreerama Shetty. p53 expression in lung fibroblasts is linked to mitigation of fibrotic lung remodeling. *Am J Pathology*, 188(10):2207-2222, 2018.

59. Marwa M. Qadri, Ling X. Zhang, Rennolds S Ostrom, Gregory D. Jay and Khaled A. Elsaid. cAMP Attenuates TGF-β's Profibrotic Response in Osteoarthritic Synovial Fibroblasts: Involvement of PRG4 and Hyaluronan. *Am J Physiol, Cell Physiol*, 315(3):C432-C443, 2018.

58. Timothy B. Johnstone, Kaitlyn H. Smith, Cynthia J. Koziol-White, Fengying Li, Austin G. Kazarian, Maia L. Corpuz, Maya Shumyatcher, Frederick J. Ehlert, Blanca E. Himes, Reynold A. Panettieri, Jr. and Rennolds S Ostrom. PDE8 is expressed in human airway smooth muscle and selectively regulates cAMP signaling by ß$_2$AR-AC6. *Am J Respir Cell Mol Biol*, 58(4):530-541, 2018.

57. Timothy B. Johnstone, Shailesh R. Agarwal, Robert D. Harvey and Rennolds S Ostrom. cAMP Signaling Compartmentation: Adenylyl Cyclases as Anchors of Dynamic Signaling Complexes. *Mol Pharmacol*, 93(4):270-276, 2018.

56. Ailian Du, Shiqian Huang, Xiaonan Zhao, Kuan Feng, Shuangyan Zhang, Jiefang Huang, Xiang Miao, Fulvio Baggi, Rennolds S Ostrom, Xiangjun Chen, Yanyun Zhang and Congfeng Xu. Suppression of CHRN endocytosis by carbonic anhydrase CAR3 in the pathogenesis of myasthenia gravis. *Autophagy*, 13(11):1981-1994, 2017.

55. Shailesh R. Agarwal, Kathryn Miyashiro, Htun Latt, Rennolds S Ostrom and Robert D. Harvey. Compartmentalized cAMP responses to prostaglandin [L-SEP] EP$_2$ receptor activation in human airway smooth muscle cells. *Br J Pharmacol*, 174(16):2748-2796, 2017.

54. Carmen W. Dessauer, Rennolds S Ostrom, Val J. Watts, Marco Conti, Clemens Steegborn, Stefan Dove and Roland Seifert. International Union of Basic and Clinical Pharmacology: Structures and Small Molecule Inhibitors of Mammalian Adenylyl Cyclases. *Pharmacological Reviews*, 69(2):93-139, 2017.

53. Shailesh R. Agarwal, Rennolds S Ostrom and Robert D. Harvey. Membrane microdomains and cAMP compartmentation in Cardiac Myocytes. *Cardiac and Vascular Biology: Microdomains of the Cardiovascular System,* Viacheslav Nikolaev and Manuela Zaccolo (editors), Springer Nature, 2017.

52. Bin Wang, Yu Liu, Lianyan Huang, Ruishan Wang, Jing Jing Li, Young-Don Kwak, Shiyong Diao, Yupin Chen, Jianjun Chen, Eunhee Kim, Carles Justicia, Dehna M. Fong, Deborah Young, Kazuko Sakata, Hao Chen, Anna Planas, Rennolds S Ostrom, Wei Li, Guang Yang, William E. Armstrong, Michael P. McDonald, Ruihong Chen, Detlef Heck & Francesca-Fang Liao. A CNS-permeable Hsp90 inhibitor rescues synaptic dysfunction and memory loss in Alzheimer's mice via an HSF1-mediated mechanism. *Molecular Psychiatry*, 22(7):935, 2017.

51. Rennolds S Ostrom. A two-pronged weapon in the fight against fibrosis: Focus on "Inhibition of Wnt/β-Catenin Signaling Promotes Epithelial Differentiation of Mesenchymal Stem Cells and Repairs Bleomycin-induced Lung Injury." *Am J Physiol, Cell Physiol*, 307(3):C232-3, 2014.

50. Rennolds S Ostrom. A new molecular target for blunting organ fibrosis Focus on "Secreted Frizzled-related protein 2 (sFRP2) as a target in anti-fibrotic therapeutic intervention." *Am J Physiol, Cell Physiol*, 306(6):C527-8, 2014.

49. Amy S. Bogard, Anna V. Birg and Rennolds S Ostrom. Non-raft AC2 defines a cAMP signaling compartment that selectively regulates IL-6 expression in airway smooth muscle cells. *Naunyn-Schmiedebergs Arch Pharmacol*, 387(4):329-39, 2014.

48. Wei Cai, Kuan Feng, Min Jin, Xiaonan Zhao, Liu Qian, Rennolds S Ostrom and Congfeng Xu. Adenylyl cyclase 6 activation negatively regulates TLR4 signaling through lipid raft-mediated endocytosis. *J Immunology*, 191(12):6093-100, 2013.

47. Jason M. Conley, Cameron S. Brand, Amy S. Bogard, Evan P. S. Pratt, Ruqiang Xu, Gregory H. Hockerman, Rennolds S Ostrom, Carmen W. Dessauer and Val J. Watts. Development of a high-throughput screening paradigm for the discovery of small molecule modulators of adenylyl cyclase: Identification of an adenylyl cyclase 2 inhibitor. *J Pharmacol Exp Thera,* 347(2):276-87, 2013.

46. Amy S. Bogard, Piyatilake Adris and Rennolds S Ostrom. Adenylyl cyclase 2 (AC2) selectively couples to EP_2 receptors while adenylyl cyclase 3 (AC3) is not receptor regulated in airway smooth muscle. *J Pharmacol Exp Thera*, 342(2):586-95, 2012.

45. Radomir M. Slominski, Russel J. Reiter, Natalia Schlabritz-Loutsevitch, Rennolds S Ostrom and Andrzej T. Slominski. Melatonin Membrane Receptors in Peripheral Tissues: Distribution and Functions. *Mol Cell Endocrin*, 351:152-166, 2012.

44. Rennolds S Ostrom, Amy S. Bogard, Robert Gros and Ross D. Feldman. Choreographing the adenylyl cyclase signalosome: sorting out the partners and the steps. *Naunyn-Schmiedebergs Arch Pharmacol*, 385(1):5-12, 2012.

43. Amy S. Bogard, Congfeng Xu and Rennolds S Ostrom. Human bronchial smooth muscle cells express adenylyl cyclase isoforms 2, 4 and 6 in distinct membrane microdomains. *J Pharmacol Exp Thera*, 337(1):209-17, 2011.

42. Kirk J. Pak, Rennolds S Ostrom, Minoru Matsui and Frederick J Ehlert. The M_2 muscarinic receptor inhibits the development of streptozotocin-induced neuropathy of mouse urinary bladder. *J Pharmacol Exp Thera,*335(1):239-2489, 2010.

41. Xiaoqiu Liu, Fengying Li, Shu Qiang Sun, Muthusamy Thangavel, Joseph Kaminsky, Louisa Balazs and Rennolds S Ostrom. Fibroblast specific expression of AC6 enhances ß-adrenergic and prostacyclin signaling and blunts bleomycin-induced pulmonary fibrosis. *Am J Physiol, Lung Cell Mol Physiol*, 298(6):L819-29, 2010.

40. Kirk J. Pak, Rennolds S Ostrom, Minoru Matsui and Frederick J Ehlert. Impaired M_3 and enhanced M_2 muscarinic receptor contractile function in a streptozotocin model of mouse diabetic urinary bladder. *Naunyn-Schmiedebergs Arch Pharmacol*, 381(5):441-54, 2010.

39. Michael T. Griffin, Minoru Matsui, Rennolds S Ostrom and Frederick J. Ehlert. The guinea pig ileum lacks the direct, high-potency, M_2-muscarinic, contractile mechanism of the mouse ileum. *Naunyn-Schmiedebergs Arch Pharmacol*, 380(4):327-35, 2009.

38. Congfeng Xu, Yanhui H. Zhang, Muthusamy Thangavel, Mekel Richardson, Li Liu, Bin Zhou, Yi Zheng, Rennolds S Ostrom and Xin A. Zhang. CD82 endocytosis reveals cholesterol-dependent reorganization of tetraspanin-enriched microdomains and lipid rafts. *FASEB J*, 23(10):3273-88, 2009.

37. Muthusamy Thangavel, Xiaoqiu Liu, Shu Qiang Sun, Joseph Kaminsky and Rennolds S Ostrom. The C1 and C2 domains target human type 6 adenylyl cyclase to lipid rafts and caveolae. *Cellular Signalling*, 21(2):301-8, 2009.

36. Hemal Patel and Rennolds S Ostrom. An orphan GPCR finds a home in the heart. Focus on “Myocardial expression, signaling and function of GPR22; a protective role for an orphan G protein-coupled receptor.” *Am J Physiol, Heart Circ Physiol*, 295(2):H479-81, 2008.

35. Xiaoqiu Liu, Muthusamy Thangavel, Shu Qiang Sun, Joseph Kaminsky, Penden Mahautmr, Jeremiah Stitham, John Hwa and Rennolds S Ostrom. Adenylyl cyclase type 6 overexpression selectively enhances ß-adrenergic and prostacyclin receptor mediated inhibition of rat cardiac fibroblast function due to co-localization in lipid rafts. *Naunyn-Schmiedebergs Arch Pharmacol*, 377(4-6):359-69, 2008.

34. Rennolds S Ostrom and Xiaoqiu Liu. Detergent and detergent-free methods to define lipid rafts and caveolae. *Methods Mol Biol,* 400:459-68, 2007.

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32. Xiaoqiu Liu, Shu Qiang Sun, Aviv Hassid and Rennolds S Ostrom. cAMP inhibits TGF-ß-stimulated collagen synthesis via inhibition of ERK1/2 and Smad signaling in rat cardiac fibroblasts. *Mol Pharmacol*, 70:1992-2003, 2006.

31. Rennolds S Ostrom and Paul A. Insel. Methods for the study of signaling molecules in membrane lipid rafts and caveolae. *Methods Mol Biol,* 332:181-91, 2006.

30. Xiaoqiu Liu, Shu Qiang Sun and Rennolds S Ostrom. Fibrotic lung fibroblasts show blunted inhibition by cAMP due to deficient cAMP response element-binding protein phosphorylation.. *J Pharmacol Exp Thera*, 315(2):678-87, 2005.

29. Paul A. Insel, Brian P. Head, Rennolds S Ostrom, Hemal H. Patel, James S. Swaney, Chih-Min Tang and David M. Roth. Caveolae and lipid rafts: G protein-coupled receptor signaling microdomains in cardiac myocytes. *Ann N Y Acad Sci*, 1047:166-172, 2005.

28. Rennolds S Ostrom. Caveolins muscle their way into the regulation of cell differentiation, development and function. Focus on “Muscle-specific interaction of caveolin isoforms (Cav-1, Cav-2 and Cav-3): Differential complex formation between caveolins in fibroblastic *versus* muscle cells.” *Am J Physiol, Cell Physiol*, 288(3):C507-9, 2005.

27. Rennolds S Ostrom and Paul A. Insel. The evolving role of lipid rafts and caveolae in G protein-coupled receptor signaling: Implications for molecular pharmacology. *Brit J Pharmacol*, 143:235-245, 2004.

26. Rennolds S Ostrom, Richard A. Bundey and Paul A. Insel. Nitric oxide inhibition of adenylyl cyclase type 6 activity is dependent upon lipid rafts and caveolin signaling complexes. *J Biol Chem*, 279(19): 19846-53, 2004.

25. Xiaoqiu Liu, Rennolds S Ostrom and Paul A. Insel. Cyclic AMP-elevating agents and adenylyl cyclase overexpression promote an anti-fibrotic phenotype in pulmonary fibroblasts. *Am J Physiol, Cell Physiol*, 86(5):C1089-99, 2004.

24. Rennolds S Ostrom, Jennifer E. Naugle, Miki Hase, Caroline Gregorian, James S. Swaney, Paul A. Insel, Laurence L. Brunton and J. Gary Meszaros. Angiotensin II enhances adenylyl cyclase signaling via Ca2+/calmodulin. Gq-Gs cross-talk regulates collagen production in cardiac fibroblasts. *J Biol Chem*, 278(27):24461-8, 2003.

23. William H. Loomis, Sachiko Namiki, Rennolds S Ostrom, Paul A. Insel, Wolfgang G. Junger. Hypertonic stress co-stimulates T cell IL-2 expression through a feedback mechanism involving ATP release and P_2 receptor activation of p38 MAP kinase. *J Biol Chem*, 278(7):4590-6, 2003.

22. Paul A. Insel and Rennolds S Ostrom. Forskolin as a tool for examining adenylyl cyclase expression, regulation and G protein signaling. *Cell Mol Neurobiol*, 23(3):305-14, 2003.

21. Rennolds S Ostrom, Brinda K. Rana and Paul A. Insel. Stoichiometry of G Protein-coupled Receptor Signaling: Implications in the Genomic Era. *Pharmaceutical News*, 9:295-303, 2003.

20. Rennolds S Ostrom, Xiaoqiu Liu, Brian P. Head, Caroline Gregorian, Tammy M. Seasholtz and Paul A. Insel. Localization of adenylyl cyclase isoforms and G protein-coupled receptors in vascular smooth muscle cells: expression in caveolin-rich and non-caveolin domains. *Mol Pharmacol*, 62(4):983-92, 2002.

19. Rennolds S Ostrom. New determinants of receptor-effector coupling: trafficking and compartmentation in membrane microdomains. *Mol Pharmacol,*61(3):473-6, 2002.

18. Rennolds S Ostrom, Caroline Gregorian, Ryan M. Drenan, Yang Xiang, John W. Regan and Paul A. Insel. Receptor number and caveolar co-localization determine receptor coupling efficiency to adenylyl cyclase. *J Biol Chem*, 276:42063-9, 2001.

17. Bin Zheng, Yong-Chao Ma, Rennolds S Ostrom, Christine Lavoi, Gordon N. Gill, Paul A. Insel, Xin-Yun Huang and Marilyn G. Farquhar. RGS-PX1, GAP for Ga_s and a sorting nexin in vesicular trafficking. *Science*, 294:1939-42, 2001.

16. Rennolds S Ostrom, Caroline Gregorian, Ryan M. Drenan, Kathryn Gabot, Brinda K. Rana and Paul A. Insel. Key role for constitutive cyclooxygenase type 2 of MDCK cells in basal signaling and response to released ATP. *Am J Physiol Cell Physiol,* 281:C524-31, 2001.

15. Rennolds S Ostrom and Paul A. Insel. Adenylyl cyclase type 3. Nature - Alliance for Cell Signaling molecule page (peer reviewed), 2001. http://www.signaling-gateway.org

14. Rennolds S Ostrom. Caveolin-2. Nature - Alliance for Cell Signaling molecule page (peer reviewed), 2001. http://www.signaling-gateway.org

13. Paul A. Insel, Rennolds S Ostrom, Martin C. Michel and Rainer Büscher. alpha$_1$-adrenergic receptors of MDCK-D_1 cells utilize multiple signaling components. *Proceedings of the Ninth International Catecholamine Society*, 2001.

12. Paul A. Insel, Rennolds S Ostrom, Alexander C. Zambon, Richard J. Hughes, Maria A. Balboa, Darakhshanda Shehnaz, Caroline Gregorian, Brian Torres, Bonnie Firestein, Mingzhao Xing, Steven Post. P2Y receptors in MDCK cells: epithelial cell regulation by extracellular nucleotides. *Clin Exp Pharmacol Physiol*, 28(4): 351-4, 2001.

11. Rennolds S Ostrom, Caroline Gregorian and Paul A. Insel. Cellular release of and response to ATP as key determinants of the set-point of signal transduction pathways. *J Biol Chem*, 275 (16):11735-739, 2000.

10. Rennolds S Ostrom, Jon Violin, Scott Coleman and Paul A. Insel. Selective enhancement of β-adrenergic receptor signaling by overexpression of adenylyl cyclase 6: co-localization of receptor and adenylyl cyclase in caveolae of cardiac myocytes. *Mol Pharmacol*, 57:1075-1079, 2000.

9. Rennolds S Ostrom, Steven R. Post and Paul A. Insel. Stoichiometry and compartmentation in G protein-coupled receptor signaling: implications for therapeutic interventions involving Gs. *J Pharmacol Exp Thera*, 294:407-412, 2000.

8. Rennolds S Ostrom and Paul A. Insel. Compartmentation of signal transduction pathways in caveolae. *Science and Medicine*, February/March:44-54, 2000.

7. Steven R. Post, Rennolds S Ostrom and Paul A. Insel. Biochemical methods for detection and measurement of cyclic AMP and adenylyl cyclase activity. *Methods in Molecular Biology,* 126:363-74, 2000.

6. Mingzhao Xing, Steven R. Post, Rennolds S Ostrom, Michael Samardzija and Paul A. Insel. Inhibition of cPLA$_2$-mediated arachidonic acid release by cyclic AMP defines a negative feedback loop for P2Y-receptor activation in MDCK-D_1 cells. *J Biol Chem*, 274:10035-10038, 1999.

5. Rennolds S Ostrom and Paul A. Insel. Editorial. Caveolar microdomains of the sarcolemma: compartmentation of signaling molecules comes of age. *Circ Res*, 84:110-112, 1999.

4. Rennolds S Ostrom and Frederick J. Ehlert, Differential roles of the M_2 and M_3 muscarinic receptors in the functional antagonism of isoproterenol in guinea pig ileum and trachea. *J Pharmacol Exp Thera*, 288:969-976, 1999.

3. Rennolds S Ostrom and Frederick J. Ehlert. M_2 muscarinic receptors inhibit forskolin- but not isoproterenol-mediated relaxation in bovine trachea. *J Pharmacol Exp Thera*, 286:234-242, 1998.

2. Frederick J. Ehlert, Rennolds S Ostrom and Gregory W. Sawyer. Subtypes of the muscarinic receptor in smooth muscle. *Life Sciences*, 61(18): 1729-1740, 1997.

1. Rennolds S Ostrom and Frederick J. Ehlert. M_2 muscarinic receptor inhibition of agonist-induced cyclic adenosine monophosphate accumulation and relaxation in the guinea pig ileum. *J Pharmacol Exp Thera*, 280:189-199, 1997.

Dissertation

Functional antagonism of relaxant effects by M_2 muscarinic acetylcholine receptors in smooth muscle. University of California, Irvine, 1998.

Published Abstracts (selected from more than 70)

46. I Cattani-Cavalieri, Y Li, J Margolis, A Bogard, M Roosan and RS Ostrom. Quantitative phosphoproteomic analysis defines distinct cAMP signaling networks emanating from AC2 and AC6 in human airway smooth muscle cells. Journal of Pharmacology and Experimental Therapeutics June 2023, 385 (S3) 78; DOI: https://doi.org/10.1124/jpet.122.147910

45. DP McCutcheon, M Fariborzi, I Cattani-Cavalieri, FJ Nuñez, MR Roosan and RS Ostrom. Phosphodiesterase 7B regulates prostanoid- but not ß-adrenergic-stimulated cAMP levels in primary human airway smooth muscle cells. *FASEB J,* 2022.

44. I Cattani-Cavalieri, HA Baarsma, A Oun, M van der Veen, EOosterhout, A Dolga, RS Ostrom, S dos Santos Valença and Martina Schmidt. Diesel exhaust particles alter cAMP dynamics in human bronchial epithelial cells. *FASEB J,* 2022.

43. MR Roosan, FJ Nuñez and RS Ostrom. Non-genomic glucocorticoid signaling via Gαs contributes to one-third of their canonical genomic effects. *FASEB J,* 34(S1), 2020.

42. FJ Nuñez, M Corpuz, DM Fogel, KT Lyon, AG Kazarian, TB Johnstone and RS Ostrom. Glucocorticoids rapidly stimulate cAMP production in a Gαs-dependent manner. *FASEB J,* 34(S1), 2020.

41. CA Ojiaku, JK. Williams, RS Ostrom, SS An, and RA Panettieri Jr. TGF-β1 Mediates HASM Cell Hyporesponsiveness to β2-Agonist-Induced Relaxation. *Am Thoracic Society,* 2018.

40. FJ Nuñez, M Corpuz, A Kazarian, TB Johnstone and RS Ostrom. Desensitization of PGE_2-stimulated cAMP Signaling Due to Upregulated Phosphodiesterase Activity in Human Lung Fibroblasts. *FASEB J,* 2018.

39. ML Corpuz, TB Johnstone, AG Kazarian and RS Ostrom. Inhaled Corticosteroids Stimulate cAMP Production and Enhance ßAR Signaling in a Non-Genomic Fashion in Human Airway Smooth Muscle Cells. *FASEB J,* 2018.

38. TB Johnstone, M Corpuz, A Kazarian, FJ Ehlert and RS Ostrom. PDE8 Activity Regulates cAMP Signaling by $ß_2$AR But Not Prostanoid EP_2 Nor EP_4 Receptors in Human Airway Smooth Muscle. *FASEB J,* 2018.

37. SF Wong, KA Elsaid, JM Yamaki and RS Ostrom. Administration of an Integrated Examination and its Utility in Outcomes Assessment and Curricular Quality Improvement. *Pharmacy Education,* 2018.

36. SR Agarwal, K Miyashiro, HLatt, RS Ostrom and RD Harvey. Adenylyl Cyclase Isoform Specific Effects in Lipid Raft and Non-Lipid Raft Membrane Domains Regulate cAMP Compartmentation in Human Airway Smooth Muscle Cells. *FASEB J,* 2017.

35. C.J. Koziol-White, J. Zhang, T. Johnstone, RS Ostrom, and R.A. Panettieri. Budesonide has little effect on carbachol-induced bronchoconstriction, but significantly augments formoterol-induced bronchodilation of human small airways and cAMP production in airway smooth muscle. Nemacolin International Asthma Conference, 2017.

34. M Qadri, RS Ostrom and KA Elsaid. Activation of Adenylyl Cyclase Reduces TGF-β Profibrotic Response in Osteoarthritic Fibroblast-like Synoviocytes.Osteoarthritis Research Society International, World Congress, 2017.

33. KM Hill, F Li, AS Bogard and RS Ostrom. The IBMX-insensitive PDE8A is expressed in human airway smooth muscle cells and selectively regulates signaling through AC6. *FASEB J,* 2016.

32. K Miyashiro, SR Agarwal, H Latt, RS Ostrom and RD Harvey. Compartmentalized cAMP response to EP2 receptor activation in human airway smooth muscle cells. *FASEB J,* 2016.

31. ML Toews, NA Schulte, RS Ostrom, SI Rennard. Specificity and Mechanisms for Induction of PDE4 Up-Regulation by PGE2 and Related Agents in Lung Fibroblasts. *FASEB J,* 2016.

30. J Reedus, C Shelton, T Sweatman, RS Ostrom and S Phelps. Survey of Student Pharmacist Perceptions of an Interactive Pharmacology Simulation Session. *Am Col Clin Pharm*, 2015.

29. ML Toews, NA Schulte, Y Tu, JC. Meyer, JM Michalski, RS Ostrom, X Liu, and SI Rennard. PGE_2 Up-Regulates PDE4 Enzyme Activity to Induce a PGE-Selective Desensitization of cAMP Accumulation in Lung Fibroblasts. *Am Thoracic Society,* 2015.

28. A Bogard and RS Ostrom. Non-raft AC2 defines a cAMP signaling compartment that selectively regulates IL-6 expression in airway smooth muscle cells. *FASEB J,* 2013.

27. A Bogard, JM Elam and RS Ostrom. Adenylyl cyclase 6 defines a distinct compartment that increases somaostatin expression by airway smooth muscle cells. *FASEB J,* 2012.

26. A Bogard and RS Ostrom. β -adrenergic receptors stimulate IL-6 production in human bronchial smooth muscle cells: enhancement by non-raft AC2 but not lipid raft AC6. *FASEB J,* 2011.

25. T Muthusamy, P Adris and RS Ostrom. Localization and coupling of adenylyl cyclase isoforms 2, 3 and 6 with G protein-coupled receptors in mouse bronchial smooth muscle cells. *FASEB J*, 2009.

24. X Liu, F Li and RS Ostrom. Fibroblast-specific expression of adenylyl cyclase 6 reduces myofibroblast differentiation and protects against bleomycin-induced pulmonary fibrosis. *FASEB J*, 2008.

23. M Thangavel, X Liu and RS Ostrom. Proteomic analysis detects cytoskeletal-related proteins that interact with the intracellular C1 domain of adenylyl cyclase 6. *FASEB J*, 2008.

22. M Thangavel, X Liu and RS Ostrom. The proximal segments of the cytosolic domain of adenylyl cyclase type 6 localize to plasma membrane lipid rafts and caveolae. *FASEB J*, 2007.

21. R Reece, X Liu, SQ Sun, FJ Ehlert and RS Ostrom. Expression and localization of adenylyl cyclases and G protein receptors in guinea pig ileum caveolae and lipid rafts. *FASEB J*, 2007.

20. X Liu, S Sun and RS Ostrom. TGFß Signaling via ERK1/2 and Smad is Inhibited by cAMP-Elevating Agents in Rat Cardiac Fibroblasts. *FASEB J,* 2006.

19. X Liu, S Sun and RS Ostrom. Palmitoylation at Cys 1145 in the Carboxyl Terminus of Human Type 6 Adenylyl Cyclase is Not Required for Targeting to Lipid Rafts and Caveolae. *FASEB J,* 2006.

18. X Liu, S Sun and RS Ostrom. Fibrotic pulmonary fibroblasts show blunted inhibition by cAMP-elevating agents due to decreased CREB phosphorylation. *FASEB J*, 2005.

17. X Liu, S Sun and RS Ostrom. cAMP-elevating agents inhibit collagen synthesis and myofibroblast differentiation via inhibition of SMAD3/4- and STAT5/6-mediated transcription in rat cardiac fibroblasts. *FASEB J*, 2005.

16. X Liu, JE Naugle, S Sun, JG Meszaros and RS Ostrom. cAMP-elevating agents inhibit activation of mouse cardiac fibroblasts. *FASEB J*, 2005.

15. X Liu, PA Insel, RS Ostrom. Decreased sensitivity of fibroblasts cultured from human fibrotic lung to cAMP-mediated inhibition of cell proliferation and collagen synthesis. *FASEB J*, 18(5), 2004.

14. RS Ostrom, J Deckenback, M Hase, PA Insel. Nitric oxide inhibition of cyclic AMP formation is dependant upon lipid rafts and caveolin signaling complexes. *Circulation*, 108(17): IV-206, 2003.

13. RS Ostrom, M Hase, FJ Ehlert, C Gregorian. Overexpression of adenylyl cyclase 6 localizes in caveolae and selectively enhances ß-adrenergic receptor relaxation in airway smooth muscle. *FASEB J*, 17(5): A36, 2003.

12. JS Swaney, DM Roth, M Hase, PA Insel and RS Ostrom. Overexpression of adenylyl cyclase attenuates extracellular matrix production by cardiac fibroblasts. *FASEB J*, 17(5): A1042, 2003.

11. X Liu, PA Insel and RS Ostrom. EP_2, EP_4 and IP receptors are expressed in pulmonary fibroblasts and mediate inhibition of cell proliferation and collagen synthesis. *FASEB J*, 17(5): A90, 2003.

10. RS Ostrom, M Hase, PA Insel. Inhibition of adenylyl cyclase activity by nitric oxide in cardiac myocyte caveolae. *Circulation,* abstract ID#114982, 2002.

9. BP Head, RS Ostrom, AN Ander, DM Roth, PA Insel. Caveolar microdomains concentrate signal transduction of $ß_1$-adrenergic receptors, but not $ß_2$-adrenergic receptors in adult rat cardiac myocytes. *Circulation,* abstract ID#115796, 2002.

8. RS Ostrom, C Gregorian, RM Drenan, A Gustafsson, LL Brunton, MP Printz, PA Insel. Cardiac fibroblasts express seven isoforms of adenylyl cyclase but only AC3 and AC5/6 localize in caveolin-rich membrane fractions. *FASEB J*, 16(5):A1160, 2002.

7. RS Ostrom, X Liu, C Gregorian, RM Drenan TM Seasholtz, PA Insel. Cell-specific compartmentation of adenylyl cyclase regulation in cardiomyocytes and vascular smooth muscle cells. *Circulation*, 104(17) II-7, 2001.

6. RS Ostrom, C Gregorian, SS McDaniel, JX Yuan, PA Insel. Adenylyl cyclase isoform expression and receptor coupling in human pulmonary artery smooth muscle cells. *Circulation*, 104(17) II-144, 2001.

5. RS Ostrom, RM Drenan, C Gregorian and PA Insel. $P2Y_2$ receptor-mediated activation of cytosolic PLA_2 at the nuclear membrane: signaling into then out of caveolae. *FASEB J*, 15(4): A218, 2001.

4. RS Ostrom, BK Rana, C Gregorian, JG Meszaros, LL Brunton, MP Printz and PA Insel. Adenylyl cyclase in cardiac fibroblasts: activation of adenylyl cyclase-6 by ß-adrenergic receptors. *Circulation*, 102(18) II-116, 2000.

3. RS Ostrom, K Gabot and PA Insel. Overexpression of adenylyl cyclase type VI enhances β-adrenergic cAMP production in cardiac myocytes without blunting inhibition by carbachol and endothelin. *Circulation*, 100(18):I-488, 1999.

2. RS Ostrom and PA Insel. Selective effects of overexpression of adenylyl cyclase type VI in cardiac myocytes and fibroblasts. *J Mol Cell Cardiol*, 31(5):A16, 1999.

1. RS Ostrom and PA Insel. Nucleotides and cyclooxygenase products as determinants of basal and Ca^{+2}-stimulating agonist-induced cyclic AMP formation in Madin Darby canine kidney D_1 (MDCK-D_1) cells. *FASEB J,*13(5 pt 2):A789, 1999.

ACADEMIC ACTIVITIES

Peer Review

Associate Editor: Naunyn-Schmiedeberg's Archives of Pharmacology, 2015 - 2023.
British Journal of Pharmacology, 2020 - present.

Editorial Boards: Molecular Pharmacology, 2020 - present.
American Journal of Physiology, Cell Physiology, 2012 - present.
Naunyn-Schmiedeberg's Archives of Pharmacology, 2008 - present.
Frontiers in Pharmacology, 2016 - 2019.

Journal ad hoc review: Proceedings of the National Academy of Sciences, Journal of Biological Chemistry, Journal of Pharmacology and Experimental Therapeutics, American Journal of Physiology – Lung Cellular

and Molecular Physiology, American Journal of Physiology – Heart and Circulatory Physiology, The FASEB Journal, PLOS One, Circulation Research, American Journal of Hypertension, American Journal of Respiratory Cell and Molecular Biology, American Journal of Respiratory and Critical Care Medicine, Hypertension, Allergy, FEBS Letters, Trends in Pharmacological Sciences, Journal of Cellular and Molecular Medicine, Cardiovascular Research, Journal of Molecular and Cellular Cardiology, Journal of Cardiovascular Pharmacology, Current Medicinal Chemistry, Experimental Lung Research.

Grant peer review: American Heart Association, Signaling 1 Peer Review Committee, 2021. NHLBI Program Project Review Panel, 2011-2012. Oak Ridge Associated Universities, performance review panel, 2010-2013. NIH Special Emphasis Panel, ad hoc reviewer, 2009. American Heart Association, National Center, Molecular Signaling, 2008-2009. American Heart Association, Region 2, Lipoproteins, Lipid Metabolism and Nutrition, 2008. American Heart Association, Southeast Affiliate, Molecular Signaling/Basic Cell and Molecular Biology, 2005-2007. American Heart Association, National Center, Vascular Biology/Blood Pressure Regulation, 2004-2005. National Science Foundation, ad hoc reviewer, 2006. The Medical Research Council, United Kingdom, ad hoc reviewer, 2006.

Teaching

2017 - present	Lecturer, PHRM549, Integrated Therapeutics: Pulmonary Therapeutics, CUSP.
2018 - 2022	Course Director, PHS612/735, Advanced Principles of Drug Action, CUSP
2017 - 2022	Course Director, PHRM549, Integrated Therapeutics: Pulmonary Therapeutics, CUSP.
2017 - 2022	Course Director, PHRM555, Infectious Diseases II, CUSP.
2014 - 2016	Co-Course Director, Dental Pharmacology, 2nd year dental students, UTHSC.
2014 - 2016	Hypertension TBL Leader, 2nd year pharmacy students, UTHSC.
2013 - 2016	Lecturer, Cellular Signaling, MSCI861, graduate students, UTHSC.
2012 - 2016	Course Director, IBS Students Seminars, IP810, graduate students, UTHSC.
2012 - 2016	Lecturer and TBL Leader, Cardiovascular System Organ Block, 1st year medical students, UTHSC.
2012 - 2016	Autonomics TBL Leader, Pharmacy Pharmacology, 1st year pharmacy students, UTHSC.
2009 - 2011	Course Director, Foundations in Pharmacology I, MS students, UTHSC.
2013 - 2016	Lecturer, Foundations in Pharmacology I, MS students, UTHSC.
2009 - 2016	Lecturer, Foundations in Pharmacology II, MS students, UTHSC.
2009 - 2016	Lecturer, Special Topics in Pharmacology, MS students, UTHSC.
2009 - 2014	Lecturer, Pharmacological Research Techniques, MS students, UTHSC.
2008 - 2016	Lecturer, Essentials of Cell Biology IP841, graduate students, UTHSC.
2006 - 2011	Lecturer, Medical Pharmacology, 2nd year medical students, UTHSC.
2005 - 2016	Lecturer, Dental Pharmacology, 2nd year dental students, UTHSC.
2004 - 2016	Lecturer, Pharmacy Pharmacology, 1st year pharmacy students, UTHSC.
2005 - 2008	Lecturer, Nursing 816, Graduate Nursing Pharmacology, UTHSC.
2005 - 2007	Lecturer, Tennessee Institute for Pre-professionals, UTHSC.
2004 - 2007	Lecturer, Systems Biology IP842, graduate students, UTHSC.
2003 - 2004	Lecturer, Pharmacology 822. Principles of Drug Action, graduate students, UTHSC.
2002 - 2003	Course coordinator, Signal Transduction Journal Club (Pharm 294), U.C. San Diego.
2001 - 2003	Cardiovascular lab instructor, Principles of Pharmacology, medical and graduate students, U.C. San Diego.
1999 - 2002	Lecturer, Principles of Pharmacology, undergraduates, U.C. San Diego.
1998 - 2003	Discussion groups, Principles of Pharmacology, medical students, U.C. San Diego.
1999 - 2002	Special Lecturer – Frontiers of Pharmacology, Medical Pharmacology, 2nd year medical and graduate students, U.C. Irvine.
1996 - 1997	Lecturer, Principles of Toxicology, 2nd year graduate students, U.C. Irvine.

Mentoring

Faculty:

2017 - 2024 Sherif Elshahawi, Ph.D., Assoc. Professor, Chapman University.
2016 - 2021 Ajay Sharma, Ph.D., Assoc. Professor, Chapman University.
2016 - 2021 Miao Zhang, Ph.D., Assoc. Professor, Chapman University.
2016 - present Inno Maslennikov, Ph.D., Asst. Professor, Chapman University.

Postdoctoral Fellows:
2021 - present Isabella Cavalieri, Ph.D., postdoctoral fellow. Dr. Cavalieri is investigating cAMP compartmentation in airway epithelial cells.
2005 - 2009 Thangavel Muthusamy, Ph.D., postdoctoral fellow. Dr. Muthusamy investigated the mechanisms of adenylyl cyclase localization in lipid rafts.
2008 - 2009 Piyatilake Adris, Ph.D., postdoctoral fellow. Dr. Adris investigated cAMP signaling microdomains in airway smooth muscle.
2007 - 2008 Congfeng Xu, Ph.D., postdoctoral fellow. Dr. Xu investigated signaling and compartmentation of adenylyl cyclases in airway smooth muscle.
2001 - 2006 Xiaoqiu Liu, M.D., Ph.D., postdoctoral fellow. Dr. Liu investigated the signaling and compartmentation of G protein-coupled receptors and adenylyl cyclases in cardiac and pulmonary fibroblasts.

Graduate Student Major Advisor:
2023 - present Camelia Anicolaesei, Ph.D. student, Chapman University.
2016 - 2022 Francisco Nuñez, M.S and Ph.D. student, Chapman University.
2013 - 2015 Joseph Caron, IBS Ph.D. student, UTHSC.
2009 - 2013 Amy Bogard, IBS Ph.D. student, UTHSC.
2009 - 2010 Radomir Slominsky, Pharmacology MS student, UTHSC.
2004 - 2006 Richard Reece, IPBS Ph.D. student, UTHSC.

Graduate Student Committee Member:
2022 - present Wajd Zakir, Ph.D. student, Chapman University.
2020 - present Ashley Duche, Ph.D. student, Chapman University.
2021 - 2022 Kate Lozada, M.S. student, Chapman University.
2021 - 2022 Alyana Corpuz, M.S. student, Chapman University.
2020 - 2022 Sandy ElSayed, Ph.D. student, Chapman University.
2020 - 2023 Wonsuk Choi, M.S. student, Chapman University.
2020 - 2023 Nedaa Alomari, Ph.D. student, Chapman University.
2020 - 2021 Nancy Palmerin, M.S. student, Chapman University.
2019 - 2021 Feryal Aalam, Ph.D. student, Chapman University.
2018 - 2021 Kiumars Shamloo, Ph.D. student, Chapman University.
2017 - 2019 Rinzhin Sherpa, Ph.D. student, Chapman University.
2017 - 2020 Marwa Qadri, Ph.D. student, Chapman University.
2013 - 2016 Bin Wang, IBS Ph.D. student, UTHSC.
2013 - 2014 Rachel Scheib, MS student, St. Jude's Children's Research Hospital.
2011 - 2014 Nayaab Khan, IPBS Ph.D. student, UTHSC.
2011 - 2014 Xi Wang, IPBS Ph.D. student, St. Jude's Children's Research Hospital.
2009 - 2012 Kristin Timmer, IPBS graduate student, UTHSC.
2011 - 2012 Andrew Lasiter, MS student, St. Jude's Children's Research Hospital.
2011 - 2012 Jin Cheng, MS student, St. Jude's Children's Research Hospital.
2007 - 2010 Scott Latimer, MS student, UTHSC.
2007 - 2010 Damo Narayan, IPBS Ph.D. student, UTHSC.
2004 - 2007 Michael Liu, IP Ph.D. student, UTHSC.
2004 - 2006 Aleksandra Janik, Pharmacology Ph.D. student, UTHSC.
2004 - 2006 Kawleen Oberoi, Biomedical Engineering Ph.D. student, University of Memphis.
2004 - 2005 Yixin Liang, Pharmacology Ph.D. student, UTHSC.

Other:

2021 - 2023 Capstone research advisor for Garrett Malter and Aida Pazhoohesh.
2021 - 2022 Capstone research advisor for Katherine Lyon, Hannah Sim and Jessica Espinoza.
2018 - 2019 Grand Challenges Initiative mentor, Chapman University undergraduates.
2001 - 2003 Supervised and directed the research projects of Richard Bundey, Ph.D. and Hemal Patel, Ph.D. (postdoctoral fellows), James Swaney, Brian Head and Ross Corriden (Ph.D. students) at U.C. San Diego.

Over 60 undergraduate researchers have trained directly under Dr. Ostrom as volunteer lab assistants or summer research fellows at UCSD, UTHSC and Chapman University.

University & Professional Service

2021 - 2022 IACUC, member, Chapman University
2021 - 2022 Assessment Committee, Chair, CUSP.
2021 Integrated Exam Task Force, Chair, CUSP.
2022 - 2024 Communications Officer, Molecular Pharmacology Division, ASPET.
2019 - 2022 Office of Research Faculty Fellow, Chapman University.
2020 - 2022 Faculty Review Committee and Full Professor Review Committee, Chair, CUSP.
2020 - 2022 Graduate Program and Research Committee, CUSP.
2020 - 2021 Dean's Council, member, CUSP.
2020 Associate Dean of Assessment and Scholarship (interim), CUSP.
2019 Faculty Opportunity Fund Review Panel, member, Chapman University.
2019 Innovation in Teaching & Learning Award Selection Committee, member, CUSP.
2018 - 2020 Chair, Item Review Committee, CUSP.
2018 - 2019 Chair, Full Professor Review Committee, CUSP.
2018 - 2021 Assessment Committee, member, CUSP.
2018 - 2019 Faculty Personnel Council, member, Chapman University.
2018 - 2019 Chair, Web Site Redesign Committee, CUSP.
2018 - 2019 Academic Integrity Committee, member, CUSP.
2018 - 2024 Faculty Advisor, Phi Delta Chi professional pharmacy fraternity, CUSP.
2017 - 2018 Chair, Faculty Personnel Council, Chapman University.
2017 - 2018 Member, Faculty Senate Executive Board, Chapman University.
2017 - 2018 Chair, Assessment Committee, CUSP.
2016 - 2022 Faculty Mentor, Biomedical and Pharmaceutical Sciences Department, CUSP.
2016 - 2022 PharmD Student Success Advisor, CUSP.
2017 - 2018 ACPE Self-Study Steering Committee, member, CUSP
2017 - 2018 Item Review Committee, member, CUSP
2016 - 2017 Faculty Personnel Council, Chapman University.
2016 - 2017 Faculty Search Committee (Natural Products), Biomedical and Pharmaceutical Sciences Department, CUSP.
2015 - 2017 IUPHAR Committee on Adenylyl Cyclase Structure, Function and Nomenclature.
2015 - 2016 Pharmacology Department Faculty Search Committee, UTHSC.
2015 - 2016 CGHS Strategic Implementation Team, Recruitment, UTHSC.
2015 CGHS Strategic Map Planning Committee, UTHSC.
2014 - 2016 Communications Officer, Molecular Pharmacology Division, ASPET.
2013 UTHSC Strategic Planning: Student Access and Success Goal Committee, UTHSC.
2012 CGHS Associate Dean of Student Affairs Search Committee, UTHSC.
2012 - 2015 SACS Student Policies and Procedures workgroup, CGHS representative, UTHSC.
2012 - 2015 Secretary/Treasurer, Molecular Pharmacology Division, ASPET.
2011 - 2016 Director, Integrated Biological Sciences (IBS) graduate program, UTHSC.
2010 - 2011 Track Director, Molecular and Systems Pharmacology track, Integrated Biological Sciences (IBS) graduate program, UTHSC.

2009 - 2012 Ad Hoc member of Executive Committee, Molecular Pharmacology Division, ASPET.
2007 - 2014 Director, Pharmacology Summer Undergraduate Research Fellowship program (funded by ASPET from 2010-2014), UTHSC.
2008 - 2012 Federal Demonstration Partnership, inaugural faculty representative for UT System.
2007 - 2016 Department of Pharmacology Graduate Education and Curriculum Committee, UTHSC.
2011 Medical curriculum redesign, Pharmacology Representative, UTHSC.
2010 Hyde Chair of Excellence Search Committee, Department of Orthopedics, UTHSC/Campbell's Clinic.
2008 CGHS Associate Dean of Health Careers Search Committee, UTHSC.
2008 IPBS Core Curriculum Design Committee, UTHSC.
2007 - 2011 Director, Molecular Therapeutics and Cell Signaling track, Integrated Program in Biological Sciences (IPBS) graduate program, UTHSC.
2007 - 2008 UTHSC Faculty Development Advisory Committee.
2007 UTHSC Faculty Senate Research Committee, subcommittee on animal per diems.
2006 Department of Pharmacology Faculty Search Committee, UTHSC.

Invited lectures and moderations

2023 Symposium organizer, "Space: The Final Frontier of cAMP Signaling." ASPET 2023, St. Louis, MO, international.
2021 Invited speaker, University of Groningen Research Institute for Asthma and COPD, Groningen, Netherlands, international.
2021 Oral abstract presentation, Johns Hopkins University School of Education, Master of Education in the Health Professions annual conference.
2020 Organizer and speaker, Pharmacology 2020 symposium "Novel Platform Technologies in Early Drug Discovery and Receptor Signaling," Liverpool, England, international.
2017 Keynote speaker, American Thoracic Society Young Investigator Meeting, Philadelphia, PA, international.
2017 Invited speaker, Experimental Biology, ASPET Axelrod Symposium, Chicago, IL, international.
2014 Invited speaker, Department of Medicine, Thomas Jefferson University, regional.
2012 Invited speaker, Dept. of Pharmacology and Experimental Neuroscience, University of Nebraska Medical Center, regional.
2012 Invited speaker, Department of Biology seminar series, University of Memphis, regional.
2012 Invited speaker, Microbiology, Immunology and Biochemistry seminar series, UTHSC, local.
2011 Invited speaker, Experimental Biology 2011 symposium "Novel Regulation, Physiological Roles, and Pharmacological Intervention of G Protein Coupled Receptor – Adenylyl Cyclase Signaling Systems." Washington, DC, international.
2011 Invited Speaker, University of Memphis symposium "Understanding the Organization of the Intracellular Region." Memphis, TN, national.
2010 Invited speaker, University of Nevada Dept. of Physiology & Cell Biology, regional.
2009 Invited speaker, Gordon Research Conference, Phosphorylation and G Protein Mediated Signaling Networks, international.
2008 Invited speaker, School of Pharmacy Lecture Series, University of Mississippi, Oxford, MS, regional.
2007 Invited speaker, International Receptor Symposium, Shizuoka University, Japan, international.
2007 Invited speaker, Endocrinology Grand Rounds, UTHSC, local.
2007 Organizer and speaker, Experimental Biology symposium "Higher order organization of GPCR signaling components: lipid rafts and multimeric protein complexes." Washington DC, international.
2006 Invited speaker, Cardiology Grand Rounds, UTHSC, local.
2006 Invited speaker, Endocrinology Grand Rounds, UTHSC, local.
2005 Invited speaker, Experimental Biology symposium on receptors and signaling pathways in lung, international.
2004 Invited speaker, University of Cincinnati Dept. of Pharmacology and Cell Biophysics. regional.
2004 Invited speaker, Northeastern Ohio Universities College of Medicine, regional.

2004 Invited speaker, Research Seminar Series, Veterans Administration Hospital, Memphis, local.
2003 Invited speaker, Experimental Biology symposium on caveolae and lipid rafts, international.
2002 Invited speaker. Pharmacology Lecture Series, University of California, Irvine, local.
2001 Invited speaker, Pharmacology Lecture Series, University of California, Irvine, local.

Consultant activities:

2009-2013 Beta tester and consultant to LabArchives, Inc., Carlsbad, CA.
2001-2003 Consultant to Dynavax, Inc., Berkeley, CA
1999-2002 Consultant to Collateral Therapeutics, San Diego, CA.
1998-present Beta tester for Graph Pad Software, San Diego, CA.