

## CURRICULUM VITAE

### BIOGRAPHICAL

**Name:** Alexander D. Sorkin **Birthplace:** St. Petersburg (former Leningrad), Russia (former U.S.S.R.)

**Home Address:** 409 McKean Drive **Citizenship:** U.S.A.  
Wexford, PA 15090

**Home Phone:** (724) 799-8402

**Business Address:** Department of Cell Biology  
University of Pittsburgh School of Medicine  
S362 Biomedical Science Tower  
3500 Terrace Street  
Pittsburgh, PA 15261

**Business Phone:** (412) 624-3116 **Business Fax:** (412) 648-8330  
**E-mail Address:** sorkin@pitt.edu

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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>
1974-1979	Leningrad Pedagogical Institute Leningrad, U.S.S.R.	B.A. – 1979	Biology and Chemistry

#### GRADUATE:

<i>Dates Attended</i>	<i>Name and Location of Institution</i>	<i>Degree Received and Year</i>	<i>Major Subject</i>
1981-1986	Institute of Cytology Academy of Sciences of the U.S.S.R.	Ph.D. - 1986	Cell Biology

#### POST-GRADUATE:

<i>Dates Attended</i>	<i>Name and Location of Institution</i>	<i>Name of Program Director and Discipline</i>
1990-1991	Department of Biochemistry Vanderbilt University School of Medicine Nashville, TN	Graham Carpenter, Ph.D.

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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>
1979-1985	Institute of Cytology, Academy of Sciences of the U.S.S.R.	Research Associate
1985-1990	Institute of Cytology, Academy of Sciences of the U.S.S.R.	Research Scientist, Senior Scientist and Group Leader
1989	Department of Pathology, Uppsala University (Bengt Westermark)	Visiting Scientist
1991-1992	Department of Biochemistry, Vanderbilt University School of Medicine	Research Instructor
1992-1994	Department of Biochemistry, Vanderbilt University School of Medicine	Research Assistant Professor
1994-2001	Department of Pharmacology, University of Colorado Health Sciences	Assistant Professor
2001-2006	Department of Pharmacology, University of Colorado Health Sciences	Associate Professor with Tenure
2006-present	Department of Pharmacology, University of Colorado Health Sciences	Professor
2010 – Present	Department of Cell Biology, Richard Beatty Mellon Professor and Chair, University of Pittsburgh School of Medicine	

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### HONORS

<i>Title of Award</i>	<i>Year</i>
HHMI Young Investigator Award	1997
Cancer League of Colorado Awards	1997, 1998, 1999
Excellence in Teaching, University of Colorado	2000
Excellence in Research, University of Colorado	2002
Excellence in Research, University of Colorado	2009
Richard Beatty Mellon Professor	2010

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### PUBLICATIONS

1. Sorokin, A.B., **Sorkin, A.D.**, Nikol'sky, N.N. (1981) Uridine transport and phosphorylation in 3T3 and CHO cells depending on the culture growth conditions. *Tsitologiya* 23: 419-426. PMID 6167038

2. Sorokin, A.B., **Sorkin, A.D.**, Nikol'sky, N.N. (1981) Uridine transport and phosphorylation in 3T3 and CHO cells with induced cell proliferation. *Tsitologiya* 23: 523-530. PMID 6167039
3. **Sorkin, A.D.**, Sorokin, A.B. (1983) Mathematical analysis and experimental study of uridine transport and phosphorylation in 3T6 cells. *Tsitologiya* 25: 784-792. PMID 6623636
4. Salnikov, K.V., **Sorkin, A.D.** (1984) Decreased rate of uridine and glycerine uptake in L cells resistant to ethidium bromide. *Tsitologiya* 26: 699-705. PMID 6528367
5. **Sorkin, A.D.**, Bogdanova, N.P., Nikolsky, N.N., Sorokin, A.B. (1985) Effect of amines on the pH in the lysosomes of 3T3 cells. *Tsitologiya* 27: 203-208. PMID 3992660
6. Nikolsky, N.N., Bogdanova, N.P., Vinogradova, N.A., Nesterov, A.M., **Sorkin, A.D.** (1985) Stimulating action of epidermal growth factor and insulin on uridine phosphorylation in 3T3 and 3T6 cells. *Tsitologiya* 27: 1367-1373. PMID 3911515
7. **Sorkin, A.D.**, Teslenko, L.V., Nikolsky, N.N., Troshin, A.S. (1986) Common endocytosis pathway of the epidermal growth factor and transferrin associated with the Golgi apparatus acidic (pH 6.1) compartment of A431 cells. *Dokl Akad Nauk SSSR* 289: 212-215. PMID 3015539
8. Rosanov, Ju.M., **Sorkin, A.**, and Sorokin, A. (1986) Studies of the dynamic properties of the membrane of single intact 3T3 cells by polarized fluorescence. *Biol. Membranes* 3: 829-837.
9. Teslenko, L.V., Zvonarev, O.F., Plakhov, S.A., **Sorkin, A.D.**, Nikolsky, N.N. (1986) Receptor-mediated endocytosis of alpha 2-macroglobulin in living intact 3T3 cells. *Tsitologiya* 28: 1097-1102. PMID 243382
10. Leonova, E.V., **Sorkin, A.D.**, Teslenko, L.V., Rodionov, V.I., Nadezhkina, E.S. (1986) A cytoskeletal protein with a molecular weight of 100 Kd is a component of the endosomes participating in receptor-mediated endocytosis. *Tsitologiya* 28: 1222-1226. PMID 2436365
11. Teslenko, L.V., Kornilova, E.S., **Sorkin, A.D.**, Nikolsky, N.N. (1987) Recycling of epidermal growth factor in A431 cells. *FEBS Lett* 221: 105-109. PMID 3497821
12. Kornilova, E.S., **Sorkin, A.D.**, Nikolsky, N.N. (1987) Compartmentalization dynamics of the epidermal growth factor in A431 cells. *Tsitologiya* 29: 904-910. PMID 3318045
13. Nesterov, A.M., Vinogradova, N.A., Kudriavtseva, N.V., **Sorkin, A.D.**, Sorokin, A.B. (1987) Effect of dansylcadaverine on the epidermal growth factor-stimulated phosphorylation of uridine. *Tsitologiya* 29: 1020-1026. PMID 3501621
14. **Sorkin, A.D.**, Teslenko, L.V., Nikolsky, N.N. (1988) The endocytosis of epidermal growth factor in A431 cells: a pH of microenvironment and the dynamics of receptor complex dissociation. *Exp. Cell Res.* 175: 192-205. PMID 2894318
15. Barkan, R.S., **Sorkin, A.D.**, Nikolsky, N.N. (1988) Endocytosis and intracellular transport of epidermal growth factor after destruction of the actin cytoskeleton by cytochalasin B. *Tsitologiya* 30: 1311-1317. PMID 3266692
16. **Sorkin, A.D.**, Bogdanova, N.P., Sorokin, A.B., Teslenko, L.V., Nikolsky, N.N. (1989) The recycling of EGF-receptor complexes in A431 cells. *Tsitologiya* 31: 300-312. PMID 2787557
17. **Sorkin, A.**, Kornilova, E., Teslenko, L., Sorokin, A., Nikolsky, N. (1989) Recycling of epidermal growth factor-receptor complexes in A431 cells. *Biochim Biophys Acta* 1011: 88-96. PMID 2784329
18. Sorokin, A.B., Nesterov, A.M., **Sorkin, A.D.**, Ignatova, T.N., Galaktionov, N.V. (1989) Production and Characterization of monoclonal antibodies to the external domain of the EGF receptor in human A431 epidermoid carcinoma cell line. *Tsitologiya* 31: 549-555. PMID 2475949
19. Vinogradova, N.A., Nesterov, A.M., Reshetnikova, G.F., **Sorkin, A.D.**, Nikolsky, N.N. (1990) The use of immunofluorescent staining for the detection of the phosphorylated EGF receptors during their internalization in A-431 cells. *Tsitologiya* 32: 384-387. PMID 1700521
20. **Sorkin, A.D.**, Krolenko, S., Kudryavtseva, N., Lazebnik, U., Teslenko, L., Nikolsky, N.N. (1991) Recycling of epidermal growth factor receptor complexes in A 431 cells: identification of dual pathways. *J. Cell Biol.* 112: 55-63. PMID 1986007

21. **Sorkin, A.**, Westermark, B., Heldin, C.-H., Claesson-Welsh, L. (1991) Internalization and degradation of platelet-derived growth factor (PDGF) and the PDGF- $\alpha$ Receptor: effect of inactivation of the receptor tyrosine kinase. *J. Cell. Biol.* 112: 463-478. PMID 1846866
22. **Sorkin, A.**, Waters, C. Overholser, A., Carpenter, G. (1991) Multiple autophosphorylation site mutations of the epidermal growth factor receptor: analysis of kinase activity and endocytosis. *J. Biol. Chem.* 266: 8355-8362. PMID 2022651
23. **Sorkin, A.** and Carpenter, G. (1991) Dimerization of internalized growth factor receptors. *J. Biol. Chem.* 266: 23453-23460. PMID 1683870
24. Diakonova, M.Y., **Sorkin, A.**, and Nikolsky, N.N. (1992) Effect of primaquine on endocytosis of epidermal growth factor in A431 cells. *Tsitologia.* 34: 63-69. PMID 1475854
25. Diakonova, M.Y., **Sorkin, A.**, and Nikolsky, N.N. (1992) Internalization of normal and mutant of the platelet-derived growth factor receptors. *Tsitologia.* 34: 74-81. 1293877
26. **Sorkin, A.**, Helin, K., Waters, C.M., Carpenter, G., and Beguinot, L. (1992) Multiple autophosphorylation sites of the epidermal growth factor receptor are essential for receptor kinase activity and internalization: contrasting significance of tyrosine 992 in the native and truncated receptors. *J. Biol. Chem.* 267: 8672-8678. PMID 1314835
27. Waters, C.M., Overholser, K.A., **Sorkin, A.**, and Carpenter, G. (1992) Analysis of the influences of the E5 transforming protein on kinetic parameters of epidermal growth factor binding and metabolism. *J. Cell. Physiol.* 152: 253-263. PMID 1639860
28. **Sorkin, A.**, Eriksson, A., Heldin, C.-H., Westermark, B., and Claesson-Welsh L. (1993) Platelet-derived growth factor - receptors remain tyrosine-phosphorylated after ligand-induced internalization. *J Cell Physiol.* 156: 373-382. PMID 7688373
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36. **Sorkin, A.** Receptor-mediated Endocytosis of Growth Factors (1996) In: Texts for Signal Transduction. Eds. Bradshaw R., Purton, M. pp. 109-123.
37. Kornilova, E., Sorkina, T., Beguinot, L and **Sorkin, A.** Lysosomal Targeting of EGF Receptors Via a Kinase-dependent Pathway Is Mediated By The Receptor Carboxyl-terminal Residues 1022-1123. *J. Biol. Chem.* 271: 30340-30346. PMID 8939994
38. Tebar, F., Sorkina, T., **Sorkin, A.**,\* Ericsson, M., and Kirchhausen, T. (1996) Eps15 is a component of clathrin-coated pits and vesicles and is located at the rim of coated pits. *J. Biol. Chem.* 271: 28727-28730. \*Corresponding author. PMID 8910509.
39. Tebar, F., Confalonieri, S., Carter, R.E., Di Fiore, P.P. and **Sorkin, A.** (1997) Eps15 is constitutively oligomerized due to homophilic interaction of its coiled-coil region. *J. Biol Chem.* 272: 15413-15418. PMID 9182572
40. Di Fiore, P.P., Pelicci, P.-G., and **Sorkin, A.** (1997) EH: A novel protein-protein interaction domain potentially involved in intracellular sorting. *Trends.Biochem Sci.* 22: 411-413. PMID 9397678

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43. De Beer T., Carter, R., Lobel-Rice, K., **Sorkin, A.**, and Overduin, M. (1998) Solution structure and Asn-Pro-Phe binding pocket of the Eps15 Homology domain. *Science* 281: 1357-1360. PMID 9721102
44. Carter, R., and **Sorkin, A.** (1998) Endocytosis of epidermal-growth-factor receptor green-fluorescent-protein chimera. *J. Biol. Chem.* 273: 35000-35007. PMID 9857032
45. Nesterov, A., Carter, R.E., Sorkina, T., Gill, G.N., and **A. Sorkin.** (1999) Inhibition of the receptor-binding function of clathrin adaptor protein AP-2 by dominant-negative mutant  $\mu$ 2 subunit and its effects on endocytosis. *EMBO J.* 18: 2489-2499. PMID 10228163
46. Tebar, F., Bohlander, S., and **Sorkin, A.** (1999) Clathrin assembly lymphoid myeloid leukemia (CALM) protein: Localization in endocytic coated pits, interactions with clathrin and the impact of overexpression on clathrin-mediated traffic. *Mol. Biol. Cell.* 10: 2687-2702. PMID 10436022
47. Jullien-Flores, V., Mahe, Y., Mirey, G., Leprince, C., Meunier-Bisceuil, B., Flanders, J. **Sorkin, A.**, and Camonis, J. H. (2000) RLIP76, an effector of the GTPase Ral, interacts with the AP2 complex: involvement of the Ral pathway in receptor endocytosis. *J. Cell Sci.* 113: 2837-2844. PMID 10910768
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49. Gu, C., **Sorkin, A.** and Cooper, D.M.F. (2001) Persistent interactions between the two transmembrane clusters dictate the targeting and functional assembly of adenylyl cyclase. *Current Biology.* 11, 185-190. PMID 11231154
50. Huang, F., Nesterov, A., Carter, R. E., and **Sorkin, A.** (2001) Trafficking of yellow-fluorescent-protein-tagged  $\mu$ 1 subunit of clathrin adaptor AP-1 complex in living cells. *Traffic.* 2: 345-357. PMID 11350630
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57. Sorkina, T., Doolen, S., Galperin, E., Zahniser, N. R., **Sorkin, A.** (2003) Oligomerization of dopamine transporters visualized in living cells by FRET microscopy. *J. Biol. Chem.* 278: 28274–28283. PMID 12746456
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60. Huang, F. Khvorova, A., Marshall, W. and **Sorkin, A.** (2004) Analysis of EGF receptor endocytosis by RNA interference. *J. Biol. Chem.* 279: 16657–16661. PMID 14985334

□2 subunit of c

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63. Zahniser, N.R. and **Sorkin, A.** (2004) Rapid regulation of the dopamine transporter: role in stimulant addiction? *Neuropharmacology.* 47: 80-91. PMID 15464127
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73. Huang, F., Kirkpatrick, D., Jiang X., Gygi, S. and **Sorkin, A.** (2006) Differential Regulation of EGF Receptor Internalization and Degradation by Multi-Ubiquitination within the Kinase Domain. *Molecular Cell.* 21, 737-748. PMID 16543144
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77. Von Zastrow, M., and **Sorkin, A.** Signaling on endocytic pathway (2007) *Curr. Opi. Cell Biol.* 19:436–445. PMID 17662591
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95. Rao, A., Richards, T. L., Simmons, D., Zahniser, N. R., and **Sorkin, A.** Epitope-tagged dopamine transporter knock-in mice reveal rapid endocytic trafficking and filopodia targeting of the transporter in dopaminergic axons. (2012) *J FASEB J* fj.11-196113; published ahead of print. PMID 22267337
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100. Huang, F., Zeng, X., Kim, W., Balasubramani, M., Fortian, A., Gygi, SP., Yates, NA, **Sorkin, A.** Lysine 63-linked polyubiquitination is required for EGF receptor degradation *Proc. Natl. Acad. Sci. USA* (2013) 110: 15722-7. PMID 24019463

101. Fortian, A. **Sorkin, A.** Live cell fluorescence imaging reveals high stoichiometry of Grb2 binding to the EGF receptor sustained during endocytosis. (2014) *J. Cell Sci.* 127:432-44. PMID 24259669
102. Saunders MJ, Block E, **Sorkin A**, Waggoner AS, Bruchez MP. A Bifunctional Converter: Fluorescein Quenching scFv/Fluorogen Activating Protein for Photostability and Improved Signal to Noise in Fluorescence Experiments. *Bioconjug Chem.* (2014) Aug 6 (Epub). PMID 25072845
103. Nagashima, T., Inoue N, Yumoto N, Saeki Y, Magi S, Volinsky N, **Sorkin, A.**, Kholodenko, B., Okada-Hatakeyama, M. (2014) Feedforward regulation of mRNA stability by prolonged ERK activity. *FEBS Lett.* 2015 Feb;282(4):613-29. PMID: 25491268
104. Caltagarone, J., Ma, S. **Sorkin, A.** (2015) Dopamine transporter is enriched in filopodia and induces filopodia formation. *Mol. Cell. Neuroscience.* 2015 Apr 30;68:120-130. PMID: 25936602
105. Tomas, A., Vaughan, S. O., Burgoyne, T., **Sorkin, A.**, Hartley., Hochhauser, J. A. D., Futter, C. E. WASH and Tsg101/Alix-dependent diversion of stress-activated EGFR from the canonical endocytic pathway. *Nat. Comm.* 2015 Jun12;6:7324. PMID: 26066081.
106. Cheng, M.H., Hu, F., Block, E., Cobanoglu, MC., **Sorkin, A.**, Bahar, I. Insights into modulation of dopamine transporter function modulation by amphetamine, orphenadrine and cocaine binding. *Frontiers Neuropharm.* 2015 Jun 9:6:134. PMID: 26106364
107. Fortian, A., Dionne, L. K., Hong, S. H., Kim, W., Gygi, S. P., Watkins, S., **Sorkin, A.** (2015) Endocytosis of ubiquitylation-deficient EGF receptor mutants via clathrin coated pits is mediated by ubiquitylation. *Traffic.* 2015 11: 1137-1154
108. Block, E., Nuttle, J., Balcita-Pedicino, J. J., Caltagarone, J., Watkins S. C., Sesack, S. R., **Sorkin, A.** (2015) Brain region-specific trafficking of the dopamine transporter. *J. Neurosci.* (2015). 35(37):12845-58. PMID: 26377471
109. Martínez-Mármó, R., Comes, N., Pérez-Verdaguer, M., Vicente, R., Pujadas, L., Soriano, E., **Sorkin, A.**, Felipe, A. (2015) Unconventional EGF-induced ERK1/2-mediated Kv1.3 endocytosis. *Cell.Mol.Life Sci.* In press.
110. Pinilla-Macua I, Watkins, S. C., and **Sorkin, A.** (2016) Endocytosis separates active EGF receptors from endogenously labeled HRas and diminishes signaling to MAP kinases from endosomes. *Proc. Natl. Acad. Sci. USA.* In press.

#### Reviews (not peer-reviewed), book chapters, proceedings, books

1. Nikolsky, N.N., **Sorkin, A.D.**, Sorokin, A.B. *Epidermal Growth Factor.* Nauka, Leningrad. 1987. 200 pages.
2. **Sorkin, A.D.**, Teslenko, L.V. (1988) Fluorescence microscopy of living cells. In: *Methods of Cell Culture.* Nauka, Ed. Pinaev, G., pp.126-136.
3. **Sorkin, A.**, Kornilova, E., and Krolenko, S. (1992) Two recycling pathway of epidermal growth factor receptor complexes in A431 cells. In: *Endocytosis.* Springer-Verlag (ed. P. Courtoy) 181-186.
4. Carpenter, G., Soler, C., Baulida, J., Beguinot, L., **Sorkin, A.** (1995) Interaction of signalling and trafficking proteins with the carboxyterminus of the epidermal growth factor receptor. *Ann. N.Y. Acad. Sci.* 766: 44-51. PMID 7486689
5. **Sorkin, A.** Eps15. In: Guidebook to the Cytoskeletal and Motor Proteins. Eds: R. Vale, T. Kreis. pp. 527-529.
6. **Sorkin, A.** (1998) Endocytosis and intracellular sorting of receptor tyrosine kinases. *Frontiers in Bioscience* 3: d729-738.
7. **Sorkin, A.** (1999) Endocytosis and intracellular sorting of growth factor receptors. *The Encyclopedia of Cell Technology.* Ed: Spier, R. E. Wiley, Inc. pp. 1068-1075.
8. **Sorkin, A.** (2000) The endocytosis machinery. *J. Cell. Sci.* 113 (24): 4375-4376. PMID 11082028
9. **Sorkin, A.** (2001) Internalization of the epidermal growth factor receptor: Role in signaling. *Biochem. Soc. Trans.* 29, pt. 4, 480-484. PMID 11498013
10. Schmid, S. L. and **Sorkin, A.** (2002) Days and knights discussing membrane dynamics in endocytosis: meeting report from the Euresco/EMBL membrane dynamics in endocytosis, 6-11 October in Tomar, Portugal. *Traffic* 3: 77-85. PMID 11872146
11. **Sorkin, A.** TRKing signals through the Golgi. *Sci. STKE* 2005, pe1 (2005). PMID 15657262

12. **Sorkin, A.** Ubiquitination without E3. *Molecular Cell*. (2007) 26, 771-773. PMID 17588512
13. **Sorkin, A.** Endocytosis and degradation of EGF receptor. In: *EGFR Signaling Networks in Cancer Therapy*; Series: Cancer Drug Discovery and Development, Haley, John D. and Gullick, William (Eds.) (2008) 450 p., Hardcover ISBN: 978-1-58829-948-2.
14. **Sorkin, A.** Regulation of endocytic trafficking of receptors and transporters by ubiquitination: possible role in neurodegenerative disease. In: *Intracellular Traffic and Neurodegenerative Disorders (2009) P. St. George\_Hyslop et al. (eds). Springer-Verlag Berlin Heidelberg* pp. 141-156.
15. Duex, JE, **Sorkin, A.** Protein Processing, Endocytosis and Intracellular Sorting of Growth Factors (2010) *The Encyclopedia of Cell Technology*. Ed: Spier, R. E. Wiley, Inc. eib508, 2745-2754.
16. Eden, E. R., Burgoyne, T., Edgar, J., **Sorkin, A.** and Futter, C. E. The relationship between ER:multivesicular body membrane contacts and the ESCRT machinery (2012) *Biochem. Soc. Trans.* Apr;40(2):464-8. PMID 22435831
17. Goh, LK, **Sorkin A.** (2013) Endocytosis of receptor tyrosine kinases. *Cold Spring Harb Perspect Biol* 2013;5:a017459. PMID 23637288
18. **Sorkin, A.**, Puthenveedu, M., (2013) Clathrin mediated endocytosis. Y. Yarden and G. Tarcic (eds.), *Vesicle Trafficking in Cancer*, Springer Science+Business Media New York. In press.
19. **Sorkin, A.** Fortian, A.(2014) Endocytosis and post-endocytic trafficking of receptor tyrosine kinases. In: *Receptor Tyrosine Kinases: Structure, Functions and Role in Human Disease*. D. L. Wheeler and Y. Yarden (eds).Springer Science+Business media NY 2015. Pp 133-161.
20. Endocytosis (monograph) (2014) *Cold Spring Harbor Perspect Biol*. Eds. Schmid, S. L., **Sorkin, A.** and Zerial, M. 590 p.
21. Schmid, S. L., **Sorkin, A.** Zerial, M. (2014) Endocytosis: Past, Present, and Future. *Cold Spring Harb Perspect Biol* doi: 10.1101/cshperspect.a022509. PMID 25359499
22. Pinilla-Macua I, and **Sorkin, A.** (2015) Methods to study endocytic trafficking of the EGF receptor. *Meth. Cell Biol.* 2015;130:347-67. PMID 26360045

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## PROFESSIONAL ACTIVITIES

### TEACHING:

#### Teaching at University of Pittsburgh School of Medicine

- |               |  |
|---------------|--|
| 2012 –present | Thesis advisor Shiqi Ma CNUP   |
| 2011-12       | thesis committee: E. Wilkinson   |
| 2012-present  | Student Rotation: Shiqi Ma Spring 2012<br>Nikita Trivedi Fall 2013<br>Gulidanna Shayan Fall 2014 (Tsinghua fellow).<br>Lorenz Guertin, Joshua spring 2015 (Pharmacology) |
| 2012 -        | Comprehensive exam committee- George Michael Preston   |
| 2013-         | Graduate Course: Foundations – Introduction to Cell Biology – 1 hr   |
| 2013          | Comprehensive exam committee member Erin Stachowski, Neurobiology CNUP (January)<br>Comprehensive exam committee member John Sekar, Computational Biology (May 9)        |
| 2013          | Thesis defense committee Sarah Rogstad (University of Colorado, Denver)  |
| 2013-2015     | Thesis committee – Noah Peyser (Molecular Pharmacology)  |
| 2014-present  | Thesis committee – Fernando Concha Benavente, Fernando (Molecular Pharmacology)  |
| 2014-present  | Thesis committee – Erin Stachowski, Neurobiology, CNUP   |
| 2013-present  | Thesis committee – John Sekar, Computational Biology   |
| 2015          | Thesis committee – Amanda Soohoo, CMU  |
| 2015          | Thesis committee – Yi Wang, CMU  |

#### Courses:

- |        |  |
|--------|--|
| 2011 – | Graduate Course: Imaging of living systems – 2 hours |
|--------|--|

2011 - Graduate Course: Cell Biology of normal state and disease – 2 hrs.  
2014- Graduate Course: Summer Membrane Traffic – 4 hrs  
2014 Graduate Course: Foundations – Introduction to Cell Biology – 2 hr

### **Graduate Training Program Memberships**

IDGP/CBMP

CNUP

ISB

### **Teaching at University of Colorado Health Sciences Center**

#### **Teaching Awards**

Department of Pharmacology Teacher of the Year 2000 Award

### **Course teaching at University of Colorado Health Sciences Center**

2001-present Medical Pharmacology PHCL6000 (Drug Metabolism)  
1996-present Dental Pharmacology Course DSBS6600 (Ionization; Pharmacokinetics, Drug Metabolism)  
2003-present Graduate Pharmacology PHCL 7620 (Biochemical Mechanisms of Synaptic Transmission; Cell Biology of Neurotransmitter Transporters; Trafficking of G-Protein Coupled Receptors)  
1999-present Biomedical Sciences Core Course I (IDPT 7801) (Formation of Membrane Transport Vesicles; Endocytosis Pathways; Phagocytosis and Caveolae)  
1998-present Frontiers in Pharmacology Course (PHCL 7600) (ErbB Receptors: Role in Cancer)  
1998-present Receptor and Cell Signaling Course (Integrin Signaling; Subcellular Localization of Receptor Signaling)  
1996-2004 Molecular Biology Technique Course 7630 (Antibody Techniques), 3 days of practical exercise  
2002 Short Course: Use of Imaging in Molecular Biology (Molecular Biology Program)  
2004 Short Course: RNA Interference (Molecular Biology Program)

### **Graduate Training Program Memberships**

Pharmacology

Biomedical Science (BSP)

Cellular and Developmental Biology

MSTP

Cancer Biology

Neuroscience

### **Course Directing**

1999-2000 Director, Frontiers in Pharmacology Graduate Course PHCL7600  
2001-2003 Co-Director, Medical Pharmacology PHCL6000  
2004 Co-Director, Frontiers in Pharmacology Graduate Course PHCL7600  
2005, 2006 Co-Director, Dental Pharmacology DSBS6600

### **Graduate Student Thesis Committees (Colorado):**

Pharmacology: Kris DeMali, Amelia Gartner, Ronald Lickteig, Kathy Lobel, Richard Klinghoffer, Susan Sleight, Eric Horne, Rachel Alvestad, Tomas Precht, Adele Blackley, Roman Brunesty, Patrick O'Toole, Bruce Mandt, Robert Hom, Henrik.

Cell & Developmental Biology: Jiaming Wang, Randy Taylor, Luis Miranda, Stephen Deitz, Steven Jones, Kenneth Kosten, James Witowsky, Glenn Simon, Jean Jing.

Molecular Biology Program: Amy Bernard, Matt Cheivers, Andrew Jackson.

Neuroscience: Chen Gu, David Grosshans, Joice Gu, Matt Pink, Kalen Dionne.

Immunology: Jeff Colbert (NJC); Condor, Lisa (NJC).

MSTP: John Prescott, Seth Olivier.

**Student Comprehensive Exam Committees:**

Kris DeMali, William Watson, James Witowsky, David Grosshans, Christine Wu, Elisabeth Gonzales, Jiaming Wang, Randy Taylor, Luis Miranda, Stephen Deitz, Kenneth Kosten, Curt Davies, Adele Blackler, Glenn Simon, Jason Neil, Emily Galliher, Bruce Mandt, Patrick O'Toole, Matthew Pink, Jian Jing, Rob Henton.

**Student Rotations:**

Andrea Bild, Maria McClure, Davin Korstjens, Bruce Mandt, Robert Hom, Jim Galligan (Pharmacology)  
Anthony Farnensi, Fangtian Huang, LaiKuan Goh, Ying Zhang (C&DB program)  
Andrey Marusyk, Sarah Moore, Michael Mullins (BSP)  
David Stewart (MSTP)  
Jennifer Smith (Cancer Biology)

**Other Course teaching**

1993 Advanced biochemistry course for graduate students "Protein Interactions During Biological Processes. Protein Sorting," Vanderbilt  
2002 Cold Spring Harbor Laboratory Summer Course "Imaging of Neurons" FRET  
2002 International Course on Cellular Imaging (FRET) Turku BioCenter. Finland  
2005 Advanced Graduate Course: Endocytosis and Signal Transduction, Weizmann Institute, Rehovot, Israel  
2006 RTK system biology course in Yokohama, Japan

**Teaching Honors**

2001 Primary Thesis Committee Member (L. E. Johanessen) in the University of Oslo, Norway  
2010 Primary Thesis Committee Member (J. Erikson) in the University of Copenhagen, Denmark  
2011 Primary Thesis Committee Member (B. Simonsen) in the Victoria University, Wellington, New Zealand  
2014 Primary Thesis Committee Member (T. Rahbek-Clemmensen) in the University of Copenhagen, Denmark

**Thesis Supervision**

Fangtian Huang (C&DB Program, UCHSC)  
Davin Korstjens (Pharmacology, UCHSC)  
LaiKuan Goh (C&DB Program, Colorado)  
Arnau Vina (University of Barcelona)  
Shiqi Ma (University of Pittsburgh)

**Research rotations of International Students:**

Maria Calvo (University of Barcelona) – Role of calmodulin in regulation of EGFR  
Anna Llado (University of Barcelona) – Role of PKC in EGF receptor endocytosis  
Ruben Vinchence Garcia (University of Barcelona) - Interactions of the subunits of the potassium channel.  
Ramon Martinez (University of Barcelona) Endocytosis of potassium channels.

**Postdoctoral Fellows:**

Elena Kornilova	1996
Royston Carter	1996-1999
Francisc Tebar	1996-1999
Xuejun Jiang	2001-2003
Xuejun Jiang	2005-2006
Manuel Miranda	2004-2007
Emilia Galperin	2001-2010
Jason Duex	2005-2011
Anjali Rao	2008-2012

Diana Simmons	2009-2010
John Caltagarone	2010 - 2014
Arola Fortian	2010 – 2014
Itziar Pinilla Macua	2012 - present
Ethan Block	2013-2015

## 2. Invited Lectureships at National or International Meetings:

1. Endocytosis of Growth Factors. Symposium "Oncogenes and Growth Factors," Tartu, Estonia, March 1986
2. Recycling of Epidermal Growth Factor. Symposium "Biology of the Cell," Leningrad, USSR, October 1987
3. Recycling of Epidermal Growth Factor Receptor Complexes. First European Workshop on Endocytosis, Oiras, Portugal, November 1988
4. Two Recycling Pathways of Epidermal Growth Factor Receptor Complexes. Second European Workshop on Endocytosis, Paris, France, October 1990
5. Interaction of the EGF Receptor with Other Proteins. Gordon Research Conference "Peptide Growth Factors," August 1994
6. Interaction of EGF Receptor with Clathrin Adaptors: Mechanism and Role in Endocytosis. EMBO/ESF conference "Membrane Dynamics in Endocytosis," Blarney, Ireland. September 1995
7. EH domains in endocytosis. Gordon Research Conference "Molecular membrane dynamics," July 1997
8. Endocytosis of EGF receptors. Annual ASCB meeting, December 1998
9. Clathrin-adaptor proteins. At the European Science Foundation Conference "Membrane Dynamics in Endocytosis," Greece, September 1999
10. Visualization of EGFR/Grb2 interactions by FRET. Gordon Research Conference "Peptide Growth Factors," August 2000
11. Visualization of interactions of the EGFR with effector proteins in living cells. World Congress on Molecular and Cellular Biology. Jena, Germany, October 2000
12. Internalization of EGF receptors: Role in signaling. Annual Meeting of Biochemical Society. Bristol, UK, April 2001
13. Interactions of the EGF receptor during endocytosis. FRET/FLIM meeting. San Antonio, TX, June 2001
14. Mechanisms of endocytosis of EGF receptor. EMBO/ESF conference "Membrane Dynamics in Endocytosis," Tomar, Portugal, October 2001
15. Endocytosis of EGF receptors: Role of Grb2. Annual ASCB meeting/Satellite Meeting on ErbB Receptor Signaling. December 2001
16. Interface of signaling and trafficking of EGFR. "Protein Trafficking Workshop" organized by NIDA, Bethesda, January 2002
17. Interface of signaling and trafficking of EGFR: studies by FRET. ASPET/Exp.Biol Annual Meeting, New Orleans, April 2002
18. Mechanisms of EGF receptor endocytosis. Gordon Research Conference "Lysosomes," 2002
19. International Workshop on Cellular Imaging. Turku BioCenter, Finland, November 2002
20. Annual Meeting of American Society for Neuroscience. New Orleans, 2003
21. Annual Meeting of the Japanese Cell Biology Society. Osaka, Japan, May 2004
22. 12<sup>th</sup> International Congress on Second Messengers and Phosphorylation, Montreal, August 2004
23. First International Consortium on Receptor Tyrosine Kinase Network, Yokohama, Japan, January 2005
24. The Third Consortium on Targeted Therapy on Head and Neck, February 2005
25. FASEB Research Conference "Membrane Transporters," July 2005
26. FASEB Research Conference "Receptor and Signaling," August 2005
27. National Cancer Institute, Meeting of APRC grantees. October, 2005
28. 15<sup>th</sup> Neuropharmacology Conference of New Perspectives in Transporter Biology. October, 2005
29. The Forth Consortium on Targeted Therapy on Head and Neck, Miami, February, 2006
30. RTK workshop on System Biology (Imaging in RTK biology) Tokyo, Japan October, 2006

30. Signaling transduction modulators in cancer therapy. Denver, December, 2006
31. Computational Cell Biology. Cold Spring Harbor Laboratory Meeting, March 2007
32. Spatial regulation of signaling/EMBO meeting, Jerusalem, Israel, March 2007
33. Mechanisms and dynamics of endocytosis. EMBO meeting. Villars, Switzerland, September, 2007.
34. Role of protein trafficking in neurodegenerative disease. Ipsen Foundation, Paris, France, April 2008.
35. Gordon Conference: Membrane Transport proteins. El Cioco. Italy, July 2008.
36. Trafficking Mini-symposium. Salk Lake City, Utah, April 2009.
37. Symposium "Role of ubiquitination in trafficking" May, Paris, France 2010
38. Gordon Conference. Lysosomes and endocytosis. June, 2010
39. ESCRTs in health and disease, ASBMB meeting, Utah, October 2010
40. Application of Microscopy Imaging, Wellington, New Zealand February, 2011 (keynote speaker)
41. Endocytosis, Muenster, Germany, June 2011
42. EGF receptor, MD Anderson Center, September 2011
43. Membrane dynamics in cancer. Beatson International cancer conference, Glasgow, Scotland July, 2012
44. Life Sciences, BioConference Live September 12, 2012
45. Endocytosis and signaling. ASCB Annual meeting, San Francisco, December, 2012.
45. NCI-sponsored workshop "Dysregulated endocytosis in cancer", Bethesda, MD January 10-11, 2013.
46. Harden Conference "Receptor Tyrosine Kinases", Sheffield, UK, September, 2013
47. EGFR: Future Directions. Jerusalem, Israel, November 2013
48. Gordon Conference. Lysosomes and endocytosis. June, 2014
49. Annual Meeting of the German Society of cell Biology. Cologne, Germany, March, 2015 (plenary lecture)
50. MMBioS Mini Symposium on "Multiscale Modeling and Visualization of Signaling" September 2015 (Pittsburgh)
51. EB2016, San Diego April, 2016
52. Traffic Meeting, Braga, Portugal. Endocytosis, signaling and cancer. April, 2016
53. Traffic Meeting, Braga, Portugal. Neurotransmitter transporters, trafficking and role in disease. May, 2016

#### ***Invited Lectures and Seminars***

1. Receptor-Mediated Endocytosis in Mammalian Cells. Moscow State University, Moscow, 1985.
2. Endocytosis of Epidermal Growth Factor. Institute of Molecular Biology. Berlin, German Democratic Republic. January, 1988.
3. Endocytosis of Epidermal Growth Factor. Ludwig Institute for Cancer Research, Uppsala, Sweden, May, 1989.
4. Internalization and Degradation of the Platelet-Derived Growth Factor Receptor. Pathology Institute, University of Uppsala, Uppsala, Sweden. September, 1989.
5. Endocytosis of Growth Factor Receptors. National Cancer Institute (S.Aaronson's Lab) Bethesda, USA. February, 1992.
6. Endocytosis of Growth Factor Receptors. Department of Pharmacology (J.Schlessinger's Lab), New York University Medical Center, New York. February 21, 1992.
7. Endocytosis of Growth Factor Receptors. Center for Reproductive Biology, Vanderbilt University, Nashville, April, 1992.
8. Interaction of EGF receptors with Coated Pits. Annual Retreat of the Department of Biochemistry, Vanderbilt University, Nashville, November, 1993.
9. Endocytosis of growth factor receptors. University of Indiana, Department of Biology, Bloomington, February, 1994.
10. Endocytosis of growth factor receptors. University of Indiana Medical School, Department of Biochemistry, Indianapolis, February, 1994.
11. Endocytosis of growth factor receptors. University of Colorado Medical School, Department of Pharmacology, Denver, Colorado, April, 1994.
12. Endocytosis and Intracellular sorting of growth factor receptors. University of Connecticut,

- Department of Molecular and Cellular Biology, Storrs, April 1994.
13. Interaction of the EGF receptor with clathrin adaptors and SH2 domains. Department of Cell Biology, Harvard Medical School, Boston, April 1994.
  14. Endocytosis and Intracellular Trafficking of Growth Factor Receptors. University of California, Irvine, Department of Developmental and Cellular Biology, May, 1994.
  15. Endocytosis and Intracellular Trafficking of Growth Factor Receptors. Vanderbilt University, Department of Biochemistry, May, 1994.
  16. Endocytosis and Intracellular Trafficking of Growth Factor Receptors. University of Wisconsin, Madison, Department of Pharmacology, June, 1994.
  17. Endocytosis and intracellular trafficking of growth factor receptors: Recycling of Ideas. Department of Cellular and Structural Biology, UCHSC, 10/1994.
  18. Trafficking of growth factor receptors. Cancer Center and Endocrinology Seminar Series. University of Colorado HSC, May, 1995.
  19. Endocytosis and Intracellular Trafficking of growth factor receptors. DIBIT Rafaele. Milan, Italy. September 1995.
  20. Trafficking of Growth Factor Receptors. Ludwig Institute for Cancer Research, Uppsala, Sweden. September 1995.
  21. Interaction of receptors, adaptors and eps15. UCSD (Host: S.Emr). December, 1996
  22. Eps15. UCSF (Host: F. Brodsky) December, 1996.
  23. Eps15 in endocytosis. Institute of Pasteur, Paris (host - A. Dautry-Varsat) September 1997.
  24. Protein interactions during endocytosis. University of Barcelona (host: M. Soler) 9/1997
  25. Interactions of adaptors, receptors and eps15. Radium Institute, Oslo (host - S. Olsnes) 9/97
  26. Protein interactions during endocytosis. Biomedical Center, Uppsala, Sweden (host - L. Claesson-Welsh) September, 1997.
  27. Protein-protein interactions during endocytosis. Department of Cellular and Structural Biology. October, 1997 (UCHSC).
  28. Receptors, adaptors and eps15 in endocytosis. University of Arkansas School of Medicine (host: R. Kurten). October, 1997.
  29. Department of Pharmacology, UCHSC, October, 1998.
  30. Protein-protein interactions during clathrin-mediated endocytosis. MRC, London, September 1999
  31. Protein-protein interactions during clathrin-mediated endocytosis. Department of Pharmacology, UCHSC, September, 1999.
  32. Protein-protein interactions during clathrin-mediated endocytosis. Cell Biology/Physiology, Pittsburgh University School of Medicine, October, 1999.
  33. EGFR endocytosis: new methods to test old dogmas. Cancer Center Cell Biology Program, UCHSC. March, 2000.
  34. Regulation of cell transformation by endocytosis. Mayo Foundation Clinic, Rochester, MN, April, 2000.
  35. Signaling by EGFR: new approaches to test old dogmas. Vanderbilt, Nashville, TN, September, 2000.
  36. Signaling and trafficking of EGFR: new approaches to test old dogmas. PNNL, January, 2001.
  37. Trafficking and signaling by the EGF receptor. University of Barcelona, Spain. June, 2001.
  38. Trafficking and signaling by the EGF receptor. University of Vermont, Burlington, VT, July, 2001.
  39. The interface of the trafficking and signaling by the EGF receptor. Boston University, October, 2001.
  40. The interface of the trafficking and signaling by the EGF receptor. Medical Oncology Basic Science Seminar. December, 2001.
  41. UT Southwestern, Dept. Physiology (March, 2002).
  42. University of Toledo Medical School (May, 2002).
  43. McGill University, Montreal, Canada (February, 2004).
  44. UCHSC, Department of Physiology (2005).
  45. UCHSC Cancer Center Research Seminar (2005).
  46. University of Texas at Galveston (November, 2005).
  47. University of Osaka Medical School, Osaka, Japan (March, 2006).
  48. Institute of Cardiology and Vascular Diseases, Osaka, Japan (March, 2006).

49. University of Nebraska Medical School (April, 2006).
50. Neuroscience Program UCHSC (May, 2006).
51. NIH, Division of Cell Biology (May 2006).
52. University of Oklahoma (September, 2006).
53. Thomas Jefferson University (February, 2007).
54. Vanderbilt University (March 2007).
55. University of Vermont, Burlington (March, 2007)
56. Washington University, St. Louis, MS (April 2007).
57. University of Beijing, China (May 2007).
58. University of Arizona, Tucson, (October, 2007)
59. University of Texas Southwestern, Dallas (February, 2008)
60. Weill Cornell College, New York (September, 2008)
61. MD Anderson Medical Center, Houston (October, 2008)
62. Purdue University Cancer Center, Purdue (October, 2008)
63. University of Pittsburgh Medical School (March 2009)
64. National Cancer Institute (May, 2009)
65. System Biology Symposium, Pittsburgh, (November, 2009) (Keynote)
66. Childrens Hospital, Pittsburgh, Department of Pediatrics (June, 2010)
67. Science Transformations. University of Pittsburgh (October, 2010)
68. Stony Brook University (November 2010)
69. University of Barcelona, Spain (December 2010)
70. Department of Psychiatry, University of Pittsburgh (2011)
70. Meherry Medical College, (March 2011)
71. University of Geneva (August 2011).
72. Department of Pharmacology, University of Pittsburgh (October 2011).
73. University of West Virginia (November 2011).
74. Department of Structural Biology, University of Pittsburgh (December 2011).
75. Department of Endocrinology, McGill University, Montreal, Canada (April, 2012)
76. Department of Biochemistry, Lexington, Kentucky, November, (2012).
77. Department of Biochemistry, Wright State University, February, (2013).
78. Department of Molecular Cell Biology, University of Birmingham, UK (2013)
79. NIH, Bethesda (September 2013)
80. Magee Women's Institute (November, 2013)
81. Vanderbilt University, Dept. Cell and Dev. Biol. (January, 2014)
82. Microbiology and Molecular Genetics, University of Pittsburgh (February, 2014)
83. Department of Pathology, The Children's Hospital of Philadelphia, UPENN (March 2014)
84. Panum Institute, University of Copenhagen, Denmark (May 2014)
85. Science Transformations. University of Pittsburgh (October, 2014)
86. Boston University, Boston (November, 2014)
87. Drug Discovery Institute, Pittsburgh (December, 2014)
88. University of Texas at Austin, Institute for Cellular and Molecular Biology, Austin TX (October, 2015)

### **3. Other research related activities.**

#### ***Professional Organization Memberships:***

American Society for Cell Biology  
Society for Neuroscience

#### **Professional Organization Activities:**

Co-Chair, Minisymposium "Endocytosis and Cell Signaling" (Annual Meeting of the American Society for Cell Biology, 1998)

Co-Chair, Symposium “Signaling in Space and Time” (World Congress on Molecular and Cellular Biology,” Germany, 2000)

Organizer, Symposium in memory of T. Dinwiddie, October 2001, Denver

Chair, Symposium “Cellular Signaling in Time and Space” (Annual Meeting of Experimental Biology/ASPET, New Orleans, 2002)

Session Chair at the Symposium “Membrane Dynamics in Endocytosis” (Euresco ESF meeting, September 2003)

Co-Chair, Symposium “Protein Internalization and Processing” (12<sup>th</sup> International Congress on Second Messengers and Phosphorylation, Montreal, August 2004)

Founding Member of the International Consortium: Receptor Tyrosine Kinase Signaling Network (RTKsys) (2005)

Organizer and Chair: NCI-sponsored workshop “Dysregulated endocytosis in cancer”, Bethesda., MD, January 10-11, 2013

**Grant Review Panels** (current and past):

2016 Springboard UK/Ireland (mail)  
2015 World Cancer research (Italy) (mail)  
2015 WellcomeTrust-India Alliance (mail)  
2015 NIH/NCI Omnibus Cancer Biology 3 ZCA1 RPRB-O (J1)  
2014 NIH/NCI Omnibus Cancer Biology 3 ZCA1 RPRB-O (J1)  
2014 Association for International Cancer Research (mail)  
2013 NIH/NCI Omnibus Cancer Biology 3 ZCA1 RPRB-O (J1)  
2012 NIH/NCI PAR12-144 “Cancer Biology-2”  
2010 NIH Neurodevelopment and neuroregeneration SC, June 2010 Ad Hoc  
2008-present ASIRC (Italian Association for Cancer Research; standing member)  
2008 ZRG1 ONC-W 91 L, Oncology AREA  
2004-2007 Tumor Cell Biology review panel (NIH) Ad Hoc  
2006 ZRG1 MDCN-F  
2006 Ad Hoc Biophysical and Physiological Neuroscience Study Section (NIH)  
2006 ZDA1-RXL-E-16 Program projects Review Panel (NIDA, NIH)  
2003 Ad Hoc CDF-4 panel (NIH)  
2002-2003 Reviewer NIDA SEBRA (mail)  
2001 Reviewer American Heart Association  
2001-2004 Reviewer National Science Foundation  
2001-2004 Reviewer Italian Cancer Society  
2002-present Reviewer The Wellcome Trust (U.K.)  
2003 Reviewer Cancer Research Fund UK  
2003-2004 Reviewer BSF Israel-USA Collaborative Grants  
2002 UCHSC Cancer Center Seed/ACS grants  
2002 March of Dimes (mail)  
2004 FWF (Austria) (mail)

**Editorial Boards:**

*Molecular Biology of the Cell* (reviewing board)

*Traffic* (Associate Editor)

*Scientific Reports (Nature)*

**Journal Review** (*Ad Hoc*): Cell, Nature, Science, Nature Cell Biology, Molecular Cell, Developmental Cell; Nature Reviews Mol. Cell. Biol.; Nature Methods, Science, Science Signaling, EMBO J., PNAS, Current Biology, J. Cell Biology, PLoS Biology, J. Biol. Chem., Cancer Research, Biochemistry, J. Cell Science, Molecular Biology of the Cell, Biochem. J., Exp. Cell Research, BioEssays, Mol. Cell. Biol., J. Neuroscience, Oncogene, Traffic, Molecular Targ. Therap., Nat. Comm., eLife, Oncotarget, *etc.*

**SERVICE:**

**University of Pittsburgh:**

Dickson Prize in Medicine Committee (2013 – present)

**Colorado:**

**Departmental Administration**

Department of Pharmacology Chair Advisory Committee  
Department of Pharmacology Faculty Search Committees  
Pharm-Cancer Center Search Committee for Associate Director of Cancer Center  
Department of Pharmacology Safety Committee  
Department of Pharmacology Space Planning Committee  
Promotion Committee  
Post-tenure review committee

**Departmental Activities and Service:**

Colorado: Manager, Department of Pharmacology Fluorescence Microscopy Imaging Facility  
Organizer of the research seminar series “Signaling in Time and Space”

**Departmental Awards:**

Colorado:  
Departmental Annual Research Awards - Years 2002 and 2010

**UCD MS Administrative Activities:**

UCDHSC Health and Safety Committee  
Dean School of Pharmacy Promotion Committee (2006)  
Faculty Search Committees (OBGYN, CD)

**Advisory Boards:**

External Advisory Committee for Nevada's Cell Biology COBRE Grant, University of Nevada School of Medicine  
Reno, NV