

Curriculum Vita

SARAH F. HAMM-ALVAREZ

Gavin S. Herbert Professor of Pharmaceutical Sciences
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PERSONAL INFORMATION:

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ACADEMIC BACKGROUND

1982-1986 B. A. (Chemistry, with Distinction), Carleton College, Northfield MN
1986-1990 Ph. D. (Biochemistry, minor in Toxicology), Duke University, Durham NC

PROFESSIONAL EXPERIENCE

1990-1993 Postdoctoral Fellow, Dept. of Cell Biology, Duke University
1993-1999 Assistant Professor, Department of Pharmaceutical Sciences, University of Southern California (USC)
1993- Member, Norris Comprehensive Cancer Center
1995- Member, USC Center for Liver Diseases
1995-1999 Assistant Professor, Department of Physiology and Biophysics (secondary), USC
1999-2005 Associate Professor, Departments of Pharmaceutical Sciences and Physiology and Biophysics
1998-2006 Director, Confocal Microscopy Subcore, USC Center for Liver Diseases
2001-2005 Associate Professor, Department of Ophthalmology (secondary), USC
2005- Professor of Pharmaceutical Sciences, Physiology and Biophysics and Ophthalmology, USC
2006 Interim Chair, Department of Pharmaceutical Sciences, USC
2006- Chair, Department of Pharmacology and Pharmaceutical Sciences
2007- Cell Biology Core Director, USC Center for Liver Diseases
2009- Associate Dean for Research Affairs, School of Pharmacy

HONORS

1991-1993 Postdoctoral Research Fellow, Muscular Dystrophy Association
1994-1996 Initial Investigatorship, American Heart Association-Greater Los Angeles Affiliate
2000-2004 John A. Biles Professor of Pharmaceutical Sciences, USC
2003 Doctor of Philosophy, *honoris causa*, University of Kalmar, Sweden
2004- Gavin S. Herbert Professor of Pharmaceutical Sciences, USC

RESEARCH INTERESTS

Cytoskeleton and membrane trafficking; epithelial cell biology; lacrimal gland; tear film and ocular surface, dry eye and Sjögren's syndrome; drug targeting and intracellular drug delivery; viral trafficking; cellular junctions; extracellular matrix

PUBLICATIONS

Primary Research Articles—Peer Reviewed

1. Johnson JL, **Hamm-Alvarez S**, Payne G, Sancar GB, Rajagopalan KV, and Sancar A. Identification of the second chromophore of *Escherichia coli* and yeast DNA photolyases as 5,10-methenyltetrahydrofolate. *Proc Natl Acad Sci USA*. 85: 2046-2050, 1988.
2. **Hamm-Alvarez S**, Sancar A, and Rajagopalan KV. The role of the enzyme-bound 5,10-methenyltetrahydropteroylpolyglutamate in catalysis by *Escherichia coli* DNA photolyase. *J Biol Chem* 264: 9649-9656, 1989.
3. **Hamm-Alvarez S**, Sancar A, and Rajagopalan KV. The presence and distribution of reduced folates in *Escherichia coli* dihydrofolate reductase mutants. *J Biol Chem* 265: 9850-9856, 1990.
4. **Hamm-Alvarez S**, Sancar A, and Rajagopalan KV. A novel catalytic folate: studies on the folate cofactor of *Escherichia coli* DNA photolyase. *J Biol Chem* 265: 18656-18662, 1990.
5. **Hamm-Alvarez SF**, Kim PY, and Sheetz MP. Regulation of microtubule-dependent vesicle transport in CV-1 cells and extracts. *J Cell Sci* 106: 955-966, 1993.
6. **Hamm-Alvarez SF**, Alayof B, Himmel H, Kim PY, Crews AL, Strauss HC, and Sheetz MP. Coordinate depression of bradykinin receptor recycling and microtubule-dependent transport by taxol. *Proc Natl Acad Sci USA* 91: 7812-7816, 1994.
7. McIlvain JM, Burkhardt JK, **Hamm-Alvarez S**, Argon Y, and Sheetz MP. Regulation of kinesin activity by phosphorylation of kinesin-associated proteins. *J Biol Chem* 269: 19176-19182, 1994.
8. **Hamm-Alvarez SF**, Sonee M, Loran-Goss K, and Shen W. Paclitaxel and nocodazole differentially alter endocytosis in CV-1 cells. *Pharm Res* 13:1645-1654, 1996.
9. **Hamm-Alvarez SF**, Wei X, Berndt N and Runnegar MT. Protein phosphatases independently regulate vesicle transport and microtubule subpopulations in hepatocytes. *Am J Physiol (Cell Physiol)* 271: C929-942, 1996.
10. Sussman M, **Hamm-Alvarez SF**, Vilalta P and Kedes L. Involvement of phosphorylation in doxorubicin-mediated myofibril degeneration: an immunofluorescence microscopy analysis. *Circ Res* 80: 52-51, 1997.
11. **Hamm-Alvarez SF**, da Costa S, Yang T, Wei, X-H, Gierow P, and Mircheff AK. Cholinergic stimulation of lacrimal acinar cells promotes redistribution of membrane-associated kinesin and the secretory protein, β -hexosaminidase, and increases kinesin motor activity. *Exp Eye Res* 64:141-156, 1997.
12. Runnegar M, Wei X, Berndt N and **Hamm-Alvarez SF**. Transferrin receptor recycling in hepatocytes is regulated by protein phosphatase 2A, possibly through effects on microtubule-dependent transport. *Hepatology* 26:176-185, 1997.
13. da Costa, SR, Yarber, FA, Zhang, L, Sonee, M and **Hamm-Alvarez, SF**. Microtubules facilitate the stimulated secretion of beta-hexosaminidase in lacrimal acinar cells. *J Cell Sci* 111: 1267-1276, 1998.

14. Vilalta P, Zhang L and **Hamm-Alvarez SF**. A novel taxol-induced vimentin phosphorylation revealed by studies on stable microtubule and vimentin intermediate filaments. *J Cell Sci* 111: 1841-1852, 1998.
15. Bolger MB, Haworth IS, Yeung AK, Ann DK, von Grafenstein H, **Hamm-Alvarez SF**, Okamoto CT, Kim K-J, Basu SK, Wu SK and Lee VHL. Structure, function, and molecular modeling approaches to the study of the intestinal dipeptide transporter PepT1. *J Pharm Sci* 11:1286-1291, 1998.
16. Sonee M, Barron E, Yarber FA and **Hamm-Alvarez SF**. Taxol inhibits endosomal/lysosomal membrane trafficking at two distinct steps in CV-1 cells. *Am J Physiol* 275:C1630-1639, 1998.
17. Yeung AK, Basu SK, Wu SK, Chu C, Ann DK, Haworth IS, Bolger MB, **Hamm-Alvarez SF**, Okamoto CT, von Grafenstein H, Shen W-C, Kim K-J and Lee, VHL. Tyrosine 167 in the human intestinal proton-coupled dipeptide transporter (hPepT1) is essential for glycyl sarcosine uptake. *Biochem Biophys Res Comm* 250:103-107, 1998.
18. Runnegar M, Wei X and **Hamm-Alvarez SF**. Increased protein phosphorylation of cytoplasmic dynein results in impaired motor function. *Biochem J* 346:1-6, 1999.
19. Lee VHL, Chu C, Mahlin ED, Basu SK, Ann DK, Bolger MB, Haworth IS, Yeung AK, Wu SK, **Hamm-Alvarez SF** and Okamoto CT. Biopharmaceutics of transmucosal peptide and protein drug administration: role of transport mechanisms with a focus on the involvement of PepT1. *J Control Release* 62:1299-140, 1999.
20. Zhang L, da Costa S, Yarber FA, Sonee M, Runnegar M and **Hamm-Alvarez SF**. Protein phosphatase inhibitors alter cellular microtubules and reduce carbachol-dependent protein secretion in lacrimal acini. *Curr Eye Res* 20:373-383, 2000.
21. da Costa S, Wang Y, Vilalta P, Schonthal A and **Hamm-Alvarez SF**. Changes in cytoskeletal organization in polyoma middle T antigen-transformed fibroblasts: involvement of protein phosphatase 2A and *src* tyrosine kinases. *Cell Motil Cytoskel* 47: 253-268, 2000.
22. Wang Y, Wei X, Duncan R, Ann D and **Hamm-Alvarez SF**. Identification of a novel taxol-sensitive kinase activity associated with the cytoskeleton. *Biochem Biophys Res Comm* 277: 525-530, 2000.
23. Lindberg J, Fernandez M, Ropp D and **Hamm-Alvarez SF**. Nocodazole treatment of CV-1 cells enhances nuclear/perinuclear accumulation of lipid-DNA complexes and increases gene expression. *Pharm Res* 18: 246-249, 2001.
24. **Hamm-Alvarez SF**, Chang A, Wang Y, Jerdeva G, Kim K-J and Ann DK. Etk/Bmx Activation Modulates Barrier Function in Epithelial Cells. *Am J Physiol (Cell Physiol)* 280: C1657-1668, 2001.
25. Qian L, Yang T, Chen H, Xie J, Zeng H, Warren DW, MacVeigh M, Meneray MA, **Hamm-Alvarez SF** and Mircheff AK. Heterotrimeric GTP-binding proteins in the lacrimal acinar cell endomembrane system. *Exp Eye Res* 74: 7-22, 2002.
26. Yang L, Leong PKK, Chen J, Lubman RL, **Hamm-Alvarez SF** and McDonough AA. Acute hypertension provokes internalization without inhibition of proximal tubule NHE3. *Am J Physiol (Renal Physiol)* 282:F730-F740, 2002.
27. Wang Y, Jerdeva G, Yarber FA, da Costa SR, Xie J, Qian L, Rose CM, Mazurek C, Kasahara, N, Mircheff AK and **Hamm-Alvarez SF**. Cytoplasmic dynein participates in apically-targeted stimulated secretory traffic in primary rabbit lacrimal acinar epithelial cells. *J Cell Sci* 116: 2051-2065, 2003.

28. da Costa SR, Sou E, Yarber FA, Okamoto CT, Pidgeon M, Kessels MM, Mircheff AK, Schechter J, Qualmann B and **Hamm-Alvarez SF**. Impairing actin filament or syndapin functions promotes accumulation of clathrin-coated vesicles at the apical plasma membrane of polarized cells. *Mol Biol Cell* 14:4397-4413, 2003.
29. **Hamm-Alvarez SF**, Xie J, Wang Y and Medina-Kauwe LK. Modulation of secretory functions in epithelia by adenovirus capsid proteins. *J Control Rel* 93: 129-140, 2003.
30. Qian L, Wang W, Xie J, Rose CM, Yang T, Nakamura T, Sandberg M, Zeng H, Schechter JE, Chow RH-P, **Hamm-Alvarez SF** and Mircheff AK. Biochemical changes contributing to functional quiescence in lacrimal gland acinar cells after chronic *ex vivo* exposure to a muscarinic agonist. *Scand J Immunol* 58:550-565, 2003.
31. Xie J, Qian L, Wang Y, Yang T, **Hamm-Alvarez SF** and Mircheff AK. A novel biphasic traffic of EGF to recycling and degradative compartments in lacrimal acinar cells is independent of EGFR degradation. *J Cell Physiol* 199:108-125, 2004.
32. Xie J, Qian L, Wang Y, **Hamm-Alvarez SF** and Mircheff AK. Role of the microtubular cytoskeleton in traffic of EGF through the lacrimal acinar cell endomembrane network. *Exp Eye Res* 78:1093-1106, 2004.
33. Wang Y, Xie J, Yarber FA, Mazurek C, Trousdale M, Medina-Kauwe L, Kasahara N and **Hamm-Alvarez SF**. The adenoviral capsid modulates secretory compartment organization and function in acinar epithelial cells from rabbit lacrimal gland. *Gene Ther* 11: 970-981, 2004.
34. Qian L, Xie T, Rose CM, Sou E, Zeng H, **Hamm-Alvarez SF** and Mircheff AK. Altered traffic to the lysosome in an *ex vivo* model of chronic muscarinic receptor stimulation. *Exp Eye Res* 79:665-675, 2004.
35. Chu C, Okamoto O, **Hamm-Alvarez SF** and Lee VHL. Stable transfection of MDCK cells with epitope-tagged human PepT1. *Pharm Res* 21:1970-1973, 2004.
36. Rose CM, Qian L, Hakim L, Wang Y, Jerdeva GY, Marchelletta R, Nakamura T, **Hamm-Alvarez SF** and Mircheff AK. Accumulation of catalytically active cathepsins in lacrimal gland acinar cell endosomes during chronic *ex vivo* muscarinic receptor stimulation. *Scand J Immunol* 61:36-50, 2005.
37. Rentsendorj A, Agadjanian H, Chen X, Ciravella M, MacVeigh M, Kedes L, **Hamm-Alvarez SF** and Medina-Kauwe LK. The Ad5 fiber mediates non-viral gene transfer in the absence of the whole virus, utilizing a novel cell entry pathway. *Gene Ther* 12: 225-237, 2005.
38. Jerdeva G, Yarber FA, Trousdale MD, Rhodes CJ, Okamoto CT, Dartt DA and **Hamm-Alvarez SF**. Dominant negative PKC ϵ impairs apical actin remodeling in parallel with inhibition of carbachol-stimulated secretion in rabbit lacrimal acini. *Am J Physiol (Cell Physiol)* 289:C1052-C1068, 2005.
39. Jerdeva G, Wu K, Yarber FA, Rhodes CJ, Kalman D, Schechter JE and **Hamm-Alvarez SF**. Actin and non-muscle myosin II facilitate apical exocytosis of tear proteins in rabbit lacrimal acinar epithelial cells. *J Cell Sci* 118:4797-4812, 2005.
40. da Costa SR, Wu, K., MacVeigh M, Pidgeon M, Ding C, Schechter JE and **Hamm-Alvarez SF**. Male NOD mouse lacrimal glands exhibit profound age-related changes in the exocytotic pathway early in postnatal development. *Exp Eye Res* 82:33-45, 2006.

41. Ding C, MacVeigh M, Pidgeon M, da Costa SR, Wu K, **Hamm-Alvarez SF** and Schechter JE. Unique ultrastructure of lacrimal glands in NOD and BALB/c mice. *Curr Eye Res* 31:13-22, 2006.
42. Andersson SV, **Hamm-Alvarez SF** and Gierow JP. Integrin adhesion in regulation of lacrimal gland acinar cell secretion. *Exp Eye Res* 83:543-553, 2006.
43. Rentsendorj A, Xie J, MacVeigh M, Agadjanian H, **Hamm-Alvarez SF** and Medina-Kauwe LK. Typical and atypical trafficking pathways of Ad5 penton base recombinant protein: implications for gene transfer. *Gene Ther* 13:821-836, 2006.
44. Xie J, Chiang L, Contreras J, Wu K, Garner, JA, Medina-Kauwe L and **Hamm-Alvarez SF**. A novel fiber-dependent entry mechanism for Ad5 in lacrimal acini. *J Virol*. 80:11833-11851, 2006.
45. Wang Y, Chiu C, Nakamura T, Walker A, Petrodou B, Trousdale M, **Hamm-Alvarez SF**, Schechter JE and Mircheff AK. Elevated prolactin redirects secretory vesicle traffic in rabbit lacrimal acinar cells. *Am J Physiol (Endocrinol and Metab)* 292:E1122-1134, 2007.
46. Schenke-Layland K, Xie J, Hagvall SH, Konig K, Angelis E, **Hamm-Alvarez SF**, Stock UA, Brockbank KGM and MacLellan WR. Effects of cryopreservation techniques on extracellular matrix damage in cardiac tissues: implications for graft durability. *Ann Thor Surg* 83:1641-1650, 2007.
47. Wang Y, Chiu CT, Nakamura T, Walker A, Petridou B, Trousdale MD, **Hamm-Alvarez SF**, Mircheff AK, and Schechter JE. Traffic of endogenous, transduced and endocytosed prolactin in rabbit lacrimal acinar cells. *Exp Eye Res* 85:749-761, 2007.
48. Norouziyan F, Shen WC and **Hamm-Alvarez, SF**. Tyrphostin 8A stimulates a novel trafficking pathway of apically-endocytosed transferrin through rab11-enriched compartments in Caco-2 cells. *Am J Physiol (Cell Physiol)* 294:C7-21, 2008.
49. Evans E, Zhang W, Jerdeva G, Chen, C-Y, Chen X, **Hamm-Alvarez SF** and Okamoto CT. Direct interaction between rab3D and the polymeric immunoglobulin receptor may regulate its trafficking through regulated secretory vesicles in lacrimal gland acinar cells. *Am J Physiol (Cell Physiol)* 294:C662-674, 2008.
50. Schenke-Layland K, Xie J, Riemann I, Starcher B, Wu K, MacLellan WR and **Hamm-Alvarez SF**. Lacrimal glands in an animal model of Sjögren's syndrome, the male NOD mouse, exhibit altered extracellular matrix structures relative to BALB/c mouse lacrimal glands. *Matrix Biol* 27:53-66, 2008.
51. Yacobi NR, DeMaio L, Xie J, **Hamm-Alvarez SF**, Borok Z, Kim K-J and Crandall ED. Polystyrene nanoparticle trafficking across alveolar epithelium. *Nanomed* 4:139-45, 2008.
52. Marchelletta RR, Jacobs D, Schechter JE, Cheney R and **Hamm-Alvarez SF**. Myosin 5c facilitates actin filament remodeling and compound fusion of mature secretory vesicles during exocytosis in lacrimal acini. *Am J Physiol (Cell Physiol)* 295:C13-28, 2008.
53. Brockbank KGM, MacLellan WR, Xie J, **Hamm-Alvarez SF**, Chen ZZ and Schenke-Layland K. Quantitative second harmonic generation imaging of cartilage damage. *Cell and Tissue Banking* 9:299-307, 2008.
54. Joo K, Lei Y, Lee C, Lo J, Xie J, **Hamm-Alvarez SF** and Wang P. Site-specific labeling of enveloped viruses with quantum dots for single virus tracking. *ACS Nano* 2:1553-1562, 2008.
55. Xie J, Marchelletta R, Thomas PB, Jacobs DT, Yarber FA, Cheney RE, **Hamm-Alvarez SF** and Trousdale M. Transduced viral IL-10 is exocytosed from lacrimal acinar secretory

- vesicles in a myosin-dependent manner in response to carbachol. *Exp Eye Res* **88**:467-478, 2009.
56. Wu K, Joffre C, Li X, MacVeigh Aloni M, Hom, M, Hwang J, Ding C, Gregoire S, Bretillon L, Zhong JF and **Hamm-Alvarez SF**. Altered expression of genes functioning in lipid homeostasis is associated with lipid deposition in NOD mouse lacrimal gland. *Exp Eye Res*, in press.

Primary Research Articles—In Revision or Submitted:

57. Wang Y, Chiu CT, Nakamura T, Walker AM, Petridou B, Okamoto CT, Trousdale MD, Schechter JE, **Hamm-Alvarez SF** and Mircheff AK. Prolactin supports lacrimal SC secretion by directing pIgR into the transcytotic apparatus. Manuscript in revision.
58. Schenke-Layland K, Xie J, Magnusson M, Angelis E, Li X, Wu K, Reinhardt DP, MacLellan WR and **Hamm-Alvarez SF**. Lymphocytic infiltration leads to degradation of lacrimal gland extracellular matrix structures in NOD mice which exhibit Sjögren's syndrome-like exocrinopathy. Manuscript submitted.
59. Yacobi N, Malmstadt N, Fazlollahi F, DeMaio L, Marchelletta R, **Hamm-Alvarez SF**, Borok Z, Kim KJ and Crandall E. Mechanisms of alveolar epithelial translocation of a defined population of nanoparticles. Manuscript submitted.

Reviews and Chapters

60. **Hamm-Alvarez, SF**. Microtubule-dependent motor proteins: new targets for drug delivery? *Pharm Res* **13**: 489-496, 1996. (peer-reviewed)
61. **Hamm-Alvarez SF**. Molecular motors and their role in membrane traffic. *Adv Drug Deliv Rev* **29**: 229-242, 1998. (peer-reviewed)
62. **Hamm-Alvarez SF** and Sheetz MP. Microtubule-dependent vesicle transport: modulation of channel and transporter activity in liver and kidney. *Physiol Rev* **78**:1109-1129, 1998. (peer reviewed)
63. **Hamm-Alvarez SF**, da Costa SR, Sonee M, Warren DW and Mircheff AK. Kinesin activation drives the retrieval of secretory membranes following secretion in rabbit lacrimal acinar cells. *Lacrimal Gland, Tear Film, and Dry Eye Syndromes 2: Basic Science and Clinical Relevance. Adv Exp Med Biol* **438**:177-180, 1998.
64. Mircheff AK, Gierow JP, Yang T, **Hamm-Alvarez SF**, Zhang J, Wood RL, Azzarolo AM, Warren DW, Zeng H, Okamoto CT, Guo Z, Kaslow HR and Bachmann M. Sjögren's autoimmunity: how perturbation of recognition in endomembrane traffic may provoke pathological recognition at the cell surface. *J Molec Recog* **11**: 40-48, 1998.
65. **Hamm-Alvarez SF**. Targeting endocytosis and motor proteins to enhance DNA persistence. *Pharm Sci Tech* **2**:190-196, 1999. (peer-reviewed)
66. **Hamm-Alvarez, SF**. Focus on "EGF receptor downregulation depends on trafficking motif in distal tyrosine kinase domain". *Am J Physiol (Cell Physiol)* **282**:C417-C419, 2002.
67. Mircheff AK, Xie J, Qian L and **Hamm-Alvarez SF**. Diverse perturbations may alter the lacrimal acinar cell autoantigenic spectra. *DNA and Cell Biol* **21**:435-42, 2002.
68. Mircheff AK, Qian L, Xie J, Wang Y and **Hamm-Alvarez SF**. M3 receptor autoimmunity. Losing tolerance to a familiar protein. *Adv Exper Med Biol.* **506**:51-58, 2002.

69. da Costa SR, Andersson S, Yarber FA, Okamoto C and **Hamm-Alvarez SF**. Cytoskeletal participation in stimulated secretion and compensatory apical plasma membrane retrieval in lacrimal gland acinar cells. *Adv Exper Med Biol*. 506:199-206, 2002.
70. Xie J, Quan L, **Hamm-Alvarez SF** and Mircheff AK. Epidermal growth factor traffic in lacrimal acinar cells. *Adv Exper Med Biol* 506:213-218, 2002.
71. da Costa SR, Okamoto CT and **Hamm-Alvarez SF**. Actin filaments et al.: the many components, effectors and regulators of epithelial cell endocytosis. *Adv Drug Deliv Rev* 55:1359-1383, 2003. (peer-reviewed)
72. Mircheff, AK, **Hamm-Alvarez SF**, Schechter JE, Trousdale MD, Kaslow, HR, Azzarolo AM and Warren DW. Lacrimal epithelial cell – lymphocyte interactions. The endocrine system and the ocular surface modulate the conversation. *Epithelial Cell Biology: Implications for the Ocular Surface*. S.C. Yiu, ed. Doheny Eye Institute, Los Angeles, 20 – 26, 2003.
73. **Hamm-Alvarez SF**, Mircheff AK, Wang Y, Jerdeva G, da Costa S and Schechter J. Molecular mechanisms of apical secretion and retrieval in lacrimal acinar epithelia, *Epithelial Cell Biology: Implications for the Ocular Surface*. S.C. Yiu, ed. Doheny Eye Institute, Los Angeles, 27 - 29, 2003.
74. **Hamm-Alvarez SF** and Okamoto CT. Endocytosis and sorting of macromolecules: Preface. *Adv Drug Deliv Rev* 55: 1351-1352, 2003.
75. Mircheff AK, Wang Y, de Saint Jean M, Ding C, Trousdale MD, **Hamm-Alvarez SF** and Schechter JE. Mucosal Immunity and Self-Tolerance in the Ocular Surface System. *The Ocular Surface* 3:182-193, 2005. (peer-reviewed)
76. Mircheff AK, **Hamm-Alvarez SF**, Kaslow HR, Schechter JE and Trousdale MD. Epithelial cells in lymphocyte regulation in the lacrimal gland. In *Immunology of the Ocular Surface and the Lacrimal Gland*, in press.
77. Medina-Kauwe LK, Xie J and **Hamm-Alvarez SF**. Intracellular trafficking of non-viral vectors. *Gene Ther* 12:1734-1751, 2005 (peer-reviewed).
78. Mircheff AK, Wang Y, de St Jean M, Ding C, Trousdale MD, **Hamm-Alvarez SF** and Schechter JE. Mucosal Immunity and Self-Tolerance in the Ocular Surface System. *Ocul Surf* 4:182-193, 2005 (peer-reviewed)
79. Wu K, da Costa SR, Jerdeva G, Sou E, Schechter J and **Hamm-Alvarez SF**. Mechanisms of exocytosis in lacrimal gland. *Exp Eye Res* 83: 84-96, 2006 (peer-reviewed).
80. Selvam S, Thomas PB, **Hamm-Alvarez, SF**, Schechter JE, Stevenson D, Mircheff AK and Trousdale MD. Current status of gene delivery and gene therapy in lacrimal gland using viral vectors. *Adv Drug Deliv Rev* 58: 243-1257, 2006 (peer-reviewed).
81. Hamm-Alvarez SF and Cadenas E. Mitochondrial medicine and mitochondrion-based therapeutics. *Advanced Drug Deliv Rev* 60:1437-1438, 2008.
82. Marchelletta RR and **Hamm-Alvarez SF**. Microtubules, actin filaments and motor-mediated vesicular transport in polarized epithelial cells. In “Liver” (Eds Wolkoff AW, Fausto N, Boyer J, Shafritz D, Arias I and Cohen DE); 5th Edition; Wiley-Blackwell Publishing Co., in press.
83. Edman M, Marchelletta RR and **Hamm-Alvarez SF**. Ocular Surface: lacrimal gland overview. In “Encyclopedia of the Eye” Elsevier, in press.

Edited Volumes:

Sarah F. Hamm-Alvarez, Ph. D., Curriculum vita

Co-editor, with Curtis Okamoto, *Advanced Drug Delivery Reviews* issue entitled “Endocytosis and Sorting of Macromolecules”, vol 55 (11), 2003.

Co-editor, with Enrique Cadenas, *Advanced Drug Delivery Reviews* issue entitled “Mitochondrial Medicine and Mitochondrion-based therapeutics”, vol 60 (issues 13-14).

GRANT SUPPORT

Active:

1. "Microtubule-based transport in lacrimal gland function"; NIH 5 RO1 EY011386-12; **Sarah F. Hamm-Alvarez, PI**; 25% effort; \$1,105,000; (current year—no cost extension) April 1, 2004-March 31, 2010
2. "Ad5 fiber entry and intracellular trafficking in lacrimal acini"; NIH ROI EY017293-03; **Sarah F. Hamm-Alvarez, PI**; 25% effort; \$1,175,000 (current year \$248,318); April 1, 2006-March 31-2011.
3. "pIgR trafficking in lacrimal gland"; NIH RO1 EY016985-02; **Sarah F. Hamm-Alvarez, PI**; 15% effort, \$975,000 (current year \$200,000); August 1, 2006-July 31, 2011.
4. "Analysis of drug action on functional and organizational parameters of secretory vesicle exocytosis in lacrimal gland acinar cells", Alcon; 5% effort; \$239,668; July 1, 2007-Dec 31, 2009.
5. "Basal-lateral endomembrane traffic in lacrimal acini"; NIH 5 RO1 EY005081-21; Austin Mircheff, PI (**Sarah F. Hamm-Alvarez, coinvestigator**); 5% effort; (current year \$250,000); October 1, 2004-September 30, 2009.
6. Digestive Diseases Core Center"; NIH P30 DK048522-14; Neil Kaplowitz, PI (**Sarah F. Hamm-Alvarez, Cell Biology Core director**); 5% effort; March 1, 2006-March 31, 2011.

Pending:

1. "Nanoparticle properties and alveolar epithelial barrier/transport functions"; NIH RO1 ES017034; Edward Crandall, PI (**Sarah F. Hamm-Alvarez, coinvestigator**); 10% effort; \$1,250,000; July 1, 2009-August 31, 2014.
2. Digestive Diseases Core Center"; NIH P30 DK048522-14; Neil Kaplowitz, PI (**Sarah F. Hamm-Alvarez, Cell Biology Core director**); 5% effort; April 1, 2011-March 31, 2016.
3. "Discovery and validation of novel tear biomarkers for Sjögren's syndrome"; NIH Challenge grant; **Sarah F. Hamm-Alvarez PI**; 10% effort; \$1,000,000; September 30, 2009-September 28, 2011.
4. "Microtubule-based transport in lacrimal gland function"; NIH RO1 EY011386-13; **Sarah F. Hamm-Alvarez, PI**; 15% effort; \$1,500,000; December 1, 2009-November 30, 2014.
5. "A rapid reversible switch for perturbing cellular trafficking pathways"; NIH Challenge grant; Andrew Mackay, PI (**Sarah F. Hamm-Alvarez, coinvestigator**); 5% effort; September 30, 2009-September 28, 2011.

Previously held:

1. "Effect of taxol on membrane trafficking"; American Cancer Society Institutional Research Grant/USC Norris Cancer Center; \$14,300; **Sarah F. Hamm-Alvarez, PI**; Jan 1993-Dec 1993.
2. "CFTR and its effect on microtubule-dependent vesicle transport", Medical Faculty Women's Association/USC, \$1960, **Sarah F. Hamm-Alvarez, PI**; April 1993-March 1994.
3. "A novel mechanism for reversing taxol's inhibition of microtubule-dependent vesicle transport"; American Association of Colleges of Pharmacy; \$7500; **Sarah F. Hamm-Alvarez, PI**; Dec 1993-May 1995.
4. "The effect of microtubule accumulation on membrane trafficking in cardiac cells"; American Heart Association, Greater Los Angeles Affiliate Initial Investigatorship and

- Grant-in-aid awards; **Sarah F. Hamm-Alvarez, PI**; \$51,000 (Initial Investigatorship) and \$59,556 (Grant-in-Aid); July 1994-June 1996.
5. "Tear Gland Fluid Formation"; NIH ORWH Supplement to EY-05081; Austin K. Mircheff, PI (**Sarah F. Hamm-Alvarez, co-PI**); \$39,815; Oct 1994-Sept 1995.
 6. "Regulation of microtubule-dependent vesicle transport by microcystin-LR in hepatocytes"; Pilot project award from the USC Center for Liver Diseases (P30 DK48522); \$24,557; **Sarah F. Hamm-Alvarez, PI**; March 1995-Feb 1996).
 7. "Regulation of microtubule-dependent vesicle transport by microcystin-LR in hepatocytes"; Pilot project award from USC Center for Liver Diseases (P30 DK48522); \$24,000; **Sarah F. Hamm-Alvarez, PI**; March 1996-Feb 1997.
 8. "Biochemical correlates for pathological response to paclitaxel"; California Breast Cancer Research Program; Silvia Formenti, PI; \$123,071 (**Sarah F. Hamm-Alvarez, coinvestigator**); June 1, 1997-May 31, 1998.
 9. "Cellular mechanisms of taxol toxicity"; NIH R29 CA63387; **Sarah F. Hamm-Alvarez, PI**; \$350,000; April 1, 1994-May 15, 1999.
 10. "Vesicle transport regulation in intoxication and disease"; NIH RO1 DK56040; Maria Runnegar, PI (**Sarah F. Hamm-Alvarez, coinvestigator**); \$795,364; September 1, 1999-August 31, 2004.
 11. "Mechanisms of taxol/estramustine phosphate action in prostate cancer"; USC Norris Translational Pilot Project; **Sarah F. Hamm-Alvarez** and Heinz Josef Lenz, **co-PIs**; \$20,000; December 1, 1999-November 30, 2000.
 12. "Mechanisms of HSV-1 Transport in CNS Neurons"; NIH RO1 NS38246; Judy Garner, PI (**Sarah F. Hamm-Alvarez, coinvestigator**); July 1, 2000-June 30, 2004.
 13. "PepT1: Structure-function, sorting and modulation"; NIH RO1 GM59297; Vincent Lee, PI (**Sarah F. Hamm-Alvarez, coinvestigator**) 3% effort; March 1, 2000-Feb 28, 2005.
 14. "Adenovirus modulation of lacrimal acinar function"; NIH 5 RO3 EY013949; **Sarah F. Hamm-Alvarez, PI**; 15% effort; \$300,000; April 1, 2003-March 31, 2006.
 15. Digestive Diseases Core Center"; NIH P30 DK048522; Neil Kaplowitz, PI (**Sarah F. Hamm-Alvarez, Confocal Microscopy Sub-Core director**); 5% effort; March 1, 1998-March 31, 2006.
 16. "Molecular hierarchies in salivary adaptive responses"; NIH 5 RO1 DE014183-05; David Ann, PI (**Sarah F. Hamm-Alvarez, coinvestigator**) 8% effort; July 1, 2001-April 30, 2006.
 17. "Regulation of sodium transport in the kidney"; NIH 5 RO1 DK034316; Alicia McDonough, PI (**Sarah F. Hamm-Alvarez, coinvestigator**); 2% effort; April 1, 2004-March 31, 2008.
 18. "Confocal Microscopy Imaging System"; S10 RR022508-A1; Murad Ookhtens, PI (**Sarah F. Hamm-Alvarez, coinvestigator**); \$500,000; April 1, 2007-March 31, 2008.

SELECTED ABSTRACTS

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12. **Hamm-Alvarez SF**, Wei X, Berndt N and Runnegar M. Regulation of endocytic processing by protein phosphatase 2A in hepatocytes. *AASLD*, 1996.
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29. da Costa SR, Andersson S, Yarber FA, Okamoto CT and **Hamm-Alvarez SF**. Cytoskeletal participation in compensatory apical plasma membrane retrieval following stimulated secretion in lacrimal acinar cells. Third International Conference on the Lacrimal Gland, Tear Film and Dry Eye Syndromes: Basic Science and Clinical Relevance, Maui, November 2000.
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63. **Hamm-Alvarez SF**, Medina-Kauwe L and Xie J. The adenoviral capsid penton inhibits lacrimal acinar secretory functions through multiple penton-integrin interactions at the cell surface. Controlled Release Society Annual Meeting, June 2005.
64. Xie J, Rentsendorj A, Agadjanian H, Medina-Kauwe LK and **Hamm-Alvarez SF**. Novel Fiber-Mediated Adenovirus Interactions in Primary Rabbit Lacrimal Acini. Gene Therapy Annual Meeting, June 2005.

65. Marchelletta R, Jacobs D, Cheney R, Garner JA and **Hamm-Alvarez SF**. Myosin Vc and Cytoplasmic Dynein are enriched in membrane compartments in lacrimal acinar epithelial cells. 177, American Society for Cell Biology Annual Meeting, Dec 2005.
66. Zhang W, Jerdeva G, **Hamm-Alvarez SF** and Okamoto CT. Interaction between rab3D and the polymeric immunoglobulin receptor in lacrimal acinar cells. 1184, American Society for Cell Biology Annual Meeting, Dec 2005.
67. Yaghoobian N, Liang C, Xie J, **Hamm-Alvarez SF**, Peng CA, DeMaio L, Borok Z, Crandall ED and Kim KJ. Nanoparticle interactions with and trafficking across lung alveolar epithelium. Plenary lecture at the session “Pulmonary barrier - mucosal barriers”, VIth International Conference and Workshop on Cell Culture and in vitro Models for Drug Absorption and Delivery, Department of Biopharmaceutics and Pharmaceutical Technology, Saarland University, Saarbrücken, Germany, March 6, 2006.
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73. Xie J, Stevenson D, Yarber FA, **Hamm-Alvarez SF** and Trousdale MD. Transduced viral IL-10 is exocytosed from lacrimal acinar secretory vesicles in response to carbachol. ARVO 1964, 2006.
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76. Xie J, Marchelletta R, Stevenson D, Yarber FA, **Hamm-Alvarez SF** and Trousdale MD. Transduced vIL-10 is exocytosed in a myosin-dependent manner from lacrimal acinar secretory vesicles in response to carbachol. ARVO 1911, 2007.
77. Wu K, Li X, MacVeigh M and **Hamm-Alvarez SF**. Increased expression of the autoimmune-related genes, FG2 and PADI2, in NOD mouse lacrimal glands relative to BALB/c mouse lacrimal glands characterized by cDNA microarray and real time PCR. TFOS, Sicily, 2007.
78. Chiang L, Wu K, Yarber F, Karvar S and **Hamm-Alvarez SF**. The role of rab27b in the regulation of intracellular trafficking in the lacrimal gland. TFOS, Sicily, 2007
79. Xie J, Pei H, Medina-Kauwe L and **Hamm-Alvarez SF**. Intracellular delivery of adenoviral knob-conjugated quantum dots into rabbit lacrimal gland acinar cells. AAPS J 9(S2): M1239, 2007.

80. Li X, Wu K, MacVeigh M and **Hamm-Alvarez SF**. Increased expression of cathepsins and their regulatory cytokines in the lacrimal gland of male NOD mouse. ARVO 425, 2008.
81. Wu K, Li X and **Hamm-Alvarez SF**. Genes encoding salivary gland-enriched proteins exhibit increased expression in diseased lacrimal glands from male NOD mice. ARVO 2450, 2009.
82. Joffre C, Wu K, Li X, Gregoire S, Bretillon L, Creuzon-Garcher C and **Hamm-Alvarez SF**. Identification of lipid accumulation in lacrimal gland from NOD mice. ARVO 5290, 2008.
83. Chiang L, Marchelletta R, Yarber F, Karvar S and **Hamm-Alvarez, SF**. Maturation of rab27b-coated secretory vesicles involves association with both actin and microtubule components in lacrimal gland acinar cells. ASCB 2445, 2008.
84. Edman MC, Pidgeon M, Ding C, Okamoto C, Schechter JE and **Hamm-Alvarez SF**. Polymeric IgA receptor knockout mice exhibit significant changes in lacrimal gland morphology and tear fluid composition. ASCB 2446, 2008.
85. Contreras J, Wu K, Hseuh A and **Hamm-Alvarez SF**. Efficient transfection of primary rabbit lacrimal gland acinar cells by nucleofection. ARVO 3640; 2009.
86. Xu S, Marchelletta R, Chiang L, Okamoto C and **Hamm-Alvarez S**. Rab11a distribution and role in trafficking of the polymeric immunoglobulin A receptor in primary rabbit lacrimal gland acinar cells. ARVO 4240, 2009.

RESEARCH SEMINARS

1. Department of Neurobiology, USC, "Regulation of microtubule-dependent vesicle transport", March 6, 1996.
2. West Coast Salt and Water Club, "Kinesin activation is correlated with stimulation of secretion in lacrimal acinar cells", Morro Bay CA, March 10, 1996.
3. Department of Medicinal Chemistry and Pharmaceutics, University of Kentucky. "Regulation of microtubules, vesicle transport, and endocytosis by protein phosphatases", Oct 3, 1996.
4. Department of Biology, Centre College of Kentucky. "Regulation of microtubules, vesicle transport, and endocytosis by protein phosphatases", Oct 7, 1996.
5. Cancer Center Grand Rounds, USC Norris Cancer Center. "Regulation of microtubules and vesicle transport by protein phosphatases", Dec 17, 1996.
6. USC Center for Liver Diseases, "Regulation of microtubules and vesicle transport by microcystin in hepatocytes", Jan 25, 1997.
7. University of Michigan, Departments of Medicinal Chemistry and Pharmaceutics, "Regulation of microtubule-based vesicle transport and endocytosis by protein phosphatase 2A in hepatocytes", March 10, 1997.
8. Duke University, Department of Cell Biology, "Microtubule-dependent vesicle transport: a role in regulated secretion in the lacrimal gland", October 8, 1997.
9. University of North Carolina, Department of Pharmaceutics, "Cellular mechanisms of taxol toxicity in interphase", October 9, 1997.
10. Sixth Biennial Conference of the Membrane Biophysics Subgroup of the Biophysical Society: Advances in Membrane transport: from Molecules to Medicine, Beaufort North Carolina, "Microtubules and microtubule-based motor proteins in regulated secretion in a secretory epithelium", October 13, 1997.

11. Albert Einstein College of Medicine, Liver Center, "Regulation of cytoplasmic dynein and endocytosis in liver", January 16, 1998.
12. Megabios (San Francisco), "A novel mechanism for gene delivery to liver by regulation of the molecular motor, cytoplasmic dynein", May 4, 1998.
13. 25th International Symposium on Controlled Release of Bioactive Materials, Las Vegas Nevada, "Molecular motors and regulation of endocytosis", June 22, 1998.
14. Cancer Center Grand Rounds, USC Norris Cancer Center, "Taxol's recruitment of MAPKs to the cytoskeleton is accompanied by changes in cytoskeletal phosphorylation and dynamics", February 2, 1999.
15. American Association of Pharmaceutical Scientists annual meeting, New Orleans LA, "Molecular motors as targets for regulation of endocytosis". November 17, 1999.
16. University of Southern California Keck School of Medicine, Department of Physiology, "Kinesin function in the lacrimal gland—multiple roles for a versatile motor", Feb 11, 2000.
17. Controlled Release Society 2001 Annual Meeting, San Diego CA, Workshop on Intracellular Drug Delivery, "Cytoskeletal Control of Membrane Trafficking and Intracellular Targeting", June 23, 2001.
18. Schepens Eye Institute (Harvard University), "Cytoskeletal participation in stimulated apical secretion in lacrimal acinar epithelial cells", October 12, 2001.
19. USC/Norris Comprehensive Cancer Center. "A major role for cytoplasmic dynein in stimulated exocytosis in lacrimal acinar epithelial cells", January 15, 2002.
20. Center for Liver Diseases, Albert Einstein College of Medicine. "Cytoskeletal orchestration of stimulated exocytosis in lacrimal acinar epithelial cells", January 30, 2002.
21. Center for Liver Diseases, University of Southern California, "Cytoskeletal orchestration of stimulated exocytosis in lacrimal acinar epithelial cells", February 16, 2002.
22. Controlled Release Society 2002 Annual Meeting, Seoul Korea, "Cytoskeletal modulation of membrane trafficking in epithelial cells", July 25, 2002.
23. Toyama Pharmaceutical University, Toyama, Japan, "Molecular mechanisms of apical endocytosis in epithelial cells", July 26, 2002.
24. Controlled Release Society 2003 Winter Symposium, Salt Lake City UT "Modulation of epithelial secretory functions by adenovirus and adenovirus capsid proteins. March 4, 2003.
25. University of Iowa, Department of Pharmaceutics, "Role of actin filaments and novel effector proteins in apical clathrin-mediated endocytosis in epithelial cells", April 28, 2003.
26. University of Kalmar, Sweden, Department of Chemistry and Biochemistry, "Cytoskeletal orchestration of exocytosis and endocytosis in lacrimal acinar epithelial cells", May 25, 2003.
27. University of North Carolina, Department of Cellular and Molecular Physiology, "How cells cry: mechanisms of exocytosis in lacrimal acinar epithelial cells", November 4, 2003.
28. Emory University, Department of Physiology, "Apical actin remodeling in stimulated exocytosis of lacrimal acinar epithelial cells", May 6, 2004.
29. West Los Angeles VA Medical Center, Pancreas Group, "How cells cry: mechanisms of apical exocytosis in lacrimal acinar epithelial cells", June 10, 2004.
30. Advanced Medical Optics, Santa Ana CA, "The acinar cells of the lacrimal gland: physiological mechanisms of secretion and contributions to the health and integrity of the ocular surface", July 9, 2004.
31. Research Center for Liver Disease, University of Southern California, "Actin filament remodeling in apical exocytosis in acinar epithelial cells", October 7, 2004.

32. 4th International Conference on the Tear Film, Ocular Surface and Dry Eye Syndromes: Basic Science and Clinical Relevance, Fajardo, Puerto Rico, “The actin cytoskeleton and its effectors mediate multiple steps in secretory vesicle exocytosis in rabbit lacrimal acinar epithelial cells”, November 17, 2004.
33. USC-Japan Conference on Drug Development and Rational Drug Design, Universal City, CA “Novel adenoviral capsid protein interactions in acinar epithelial cells”, August 3, 2005.
34. 24th Biennial Cornea Research Conference, Schepens Eye Research Institute, Boston MA “Non-muscle myosin II promotes compound fusion and exocytosis of secretory vesicles in lacrimal acinar epithelial cells”, September 30, 2005.
35. Department of Pulmonary and Critical Care Medicine, USC, Los Angeles CA “Mechanisms of endocytosis in epithelial cells”, May 27, 2006.
36. Department of Pharmaceutical Sciences, University of Pittsburgh School of Pharmacy, Pittsburgh PA “A novel fiber-dependent internalization of adenovirus in secretory epithelial cells”, January 30, 2007.
37. Gordon Conference on Salivary Glands and Exocrine Secretion, Ventura CA “Role of actin and myosin motors in exocrine secretion in lacrimal acini”, February 13, 2007.
38. “Molecular mechanisms of exocytosis in lacrimal gland”, Alcon, Ft. Worth, TX, May 21, 2007.
39. “A novel fiber-dependent internalization mechanism for adenovirus in secretory epithelia”, Saban Research Institute, Children’s Hospital Los Angeles, June 12, 2007.
40. “Fiber-dependent internalization of adenovirus in secretory epithelia”, College of Pharmacy, Trinity College, Dublin (Galenos Network Annual Meeting), September 11, 2007.
41. “Actin filaments and diverse myosin motors promote compound fusion and exocytosis of secretory vesicles in lacrimal acinar epithelial cells”, Laguna Beach, CA (Pacific Ocular Regenerative Biology Conference XII), September 18, 2007.
42. “Actin filament remodeling in endocytosis and exocytosis”, Department of Chemistry, Whittier College, Whittier CA, Feb 29, 2008.
43. “Making tears: engineering the tear film by targeting endocytotic and exocytotic pathways in the lacrimal gland”, Department of Pharmacology, University of Pennsylvania, Philadelphia PA, March 3, 2008.
44. “Creating Futures for Pharmacy Practice and Research”, School of Pharmacy, University of Washington, Seattle WA, March 7, 2008.
45. “Tear protein production and exocytosis by the lacrimal gland: insights into mechanisms associated with tear-deficient dry eye”, Jules Stein Eye Research Institute, UCLA, Los Angeles CA, September 24, 2008.
46. “Tear protein production and release by the lacrimal gland: insights into mechanisms associated with Sjögren’s syndrome”, Brasel Basic Science Lecture, Department of Molecular Medicine, Harbor UCLA, Los Angeles CA, January 6, 2008.
47. “Trafficking of rab27-enriched vesicles in lacrimal acini” Gordon conference in Salivary Glands and Exocrine Secretion, Galveston Tx, February 10, 2008.
48. “Rabs and myosins in lacrimal acinar secretory vesicle exocytosis”, Department of Human Genetics, UCLA, Los Angeles CA, May 18, 2008.

TEACHING

Graduate Courses:

1. **Drug Transport and Delivery (PSCI 665).** Department core course offered every spring term to ~20 graduate students and providing an introduction to principles of drug transport and delivery including controlled release, drug targeting and the delivery of biotechnology products. Areas of lecture specialization: membrane trafficking, drug targeting, antisense and gene therapy.
2. **Intracellular Drug Delivery and Targeting: Mechanism and regulation of cellular membrane transport (PSCI 667).** Advanced graduate seminar course providing a detailed analysis of recent literature in intracellular transport, including both basic and applied sciences. Offered every other spring to 10-20 advanced graduate students in biomedical sciences and engineering.
3. **Advanced Cell Biology (INTD 531).** Survey course for first year graduate students in the biomedical sciences. Offered every fall term to 60-80 graduate students from different biomedical disciplines. Areas of lecture specialization: cytoskeleton, molecular motors, membrane traffic.
4. **Mechanisms of Cell Signaling (MPTX 500).** Survey course focused on signal transduction mechanism and techniques. Area of lecture specialization: signaling and scaffolding, imaging of signaling complexes.

Professional/Pharm D Courses:

1. **Pharmaceutics III: Advanced Drug Delivery** 3rd and final course in the Pharmaceutics core sequence covering advanced drug targeting strategies, systemic drug delivery and biologically based drugs. Offered every spring term to 160-170 Level II Pharm D students. Areas of lecture specialization: biological targeting, chemical targeting, antisense and gene therapies.
2. **Basic Research Design (PH 565) (Coordinator)** An applied research elective designed to provide Pharm D students with interests in bench research with experience in laboratory techniques, data analysis, and scientific writing. Offered every fall and spring to ~5 Level III Pharm D students or Level II with instructor permission.

Professional Education Seminars

1. Continuing Medical Education (CME) Course: Epithelial Cell Biology: Implications for the Ocular Surface. “Molecular mechanisms of apical secretion and retrieval in lacrimal acinar epithelia”, October 26, 2002, Doheny Eye Institute.
2. Continuing Medical Education (CME) Course: Dry Eyes. “Protein secretion in lacrimal gland”, April 9, 2005, Doheny Eye Institute.

GRADUATE AND POSTDOCTORAL TRAINING

MS Committees:

Silvia da Costa	M.S., 1998, Department of Pharmaceutical Sciences (Chair)
Liping Zhang	M.S., 1999, Department of Pharmaceutical Sciences (Chair)
Hongtao Zheng	M.S., 2001, Department of Physiology and Biophysics
Chadron Rose	M.S., 2004, Department of Physiology and Biophysics
Chiao-Yu Chen	M.S., 2006, Department of Pharmaceutical Sciences (Chair)
Melinda Hom	M.S., 2008, Department of Pharmaceutical Sciences (Chair)

Dissertation Committees:

Pratik Saha	Ph. D., 1997, Pharmaceutical Sciences
Chioma Ikonte	Ph. D. 2000, Pharmaceutical Sciences
Vidya Ganapathy	Ph. D. 2001, Pharmaceutical Sciences (Chair)
Manisha Sonee	Ph. D., 2000, Pharmaceutical Sciences (Chair)
Clara Magyar	Ph. D., 2000, Physiology and Biophysics
Cindy Xia	Ph. D. 2001, Pharmaceutical Sciences
Johnny Yang	Ph. D. 2001, Pharmaceutical Sciences
Pornchai Rojsitthisak	Ph. D., 2001, Pharmaceutical Sciences
Limin Qian	Ph. D., 2002, Physiology and Biophysics
Li Yang	Ph. D., 2002, Physiology and Biophysics
Silvia da Costa	Ph. D., 2002, Pharmaceutical Sciences (Chair)
Jiansong Xie	Ph. D., 2003, Physiology and Biophysics
Huynh-Hu Bui	Ph. D., 2002, Pharmaceutical Sciences
Chun Chu	Ph. D., 2004, Pharmaceutical Sciences (Chair)
Galina Jerdeva	Ph. D., 2004, Pharmaceutical Sciences (Chair)
Carlos Clavijo	Ph. D., 2005, Molecular Pharmacology and Toxicology
Jennica Zaro	Ph. D., 2005, Pharmaceutical Sciences
Jinoh You	Ph. D. 2005, Chemical Engineering
Maureen Barnes	Ph. D. 2006, Pharmaceutical Sciences
Rasheeda Hawk	Ph. D. 2006, Physiology and Biophysics
Alexandra Schiewe	Ph. D. 2006, Pharmaceutical Sciences
Elizabeth Davis	Ph. D. 2006, Cell and Neurobiology
Liyun Yuan	Ph. D. 2007, Pharmaceutical Sciences
Haijiang Cai	Ph. D. 2007, Physiology and Biophysics
Ron Marchelletta	Ph. D. 2007, Pharmaceutical Sciences (Chair)
Julie Kang	Ph. D. 2008, Systems Biology
Eunbyul Sou	Ph. D. 2008, Pharmaceutical Sciences (Chair)
Thejani Rajapaksa	Ph. D. 2008, Pharmaceutical Sciences
Jo-Lin Chen	Ph. D. 2008, Molecular Pharmacology and Toxicology
Omar Khalid	Ph. D. 2008, Pharmaceutical Sciences
Lilian Chiang	Ph. D. candidate, Pharmaceutical Sciences (Chair)
Janette Contreras	Ph. D. candidate, Pharmaceutical Sciences (Chair)
Jennifer-Ann Bayan	Ph. D. candidate, Molecular Pharmacology and Toxicology
Shi Xu	Ph. D. candidate, Pharmaceutical Sciences (Chair)
Corey Helchowski	Ph. D. candidate, Biochemistry
Kye-il Joo	Ph. D. candidate, Chemical Engineering
Yu-Chuan Liu	Ph. D. candidate, Chemical Engineering
Jiyoung Lee	Ph. D. candidate, Genetics, Molecular and Cellular Biology
Randy Kenien	Ph. D. candidate, Pharmaceutical Sciences

International students sponsored:

Jimmy Lindberg	1997, University of Kalmar, Sweden
Sofia Anderson	1999, University of Kalmar, Sweden

Sawsan Aljazrawi 2004, University of Gothenberg, Sweden
Maria Edman 2005 and 2006, University of Kalmar, Sweden
Oranna Martin 2007, Saarland University, Germany
Barbara Schulz 2007, Saarland University, Germany

Undergraduate/High School students sponsored:

Maria Rodriguez 1995 (Bravo Medical Magnet High School)
Jana Prieto 1999, 2000 (USC Undergraduate)
Jasmin Hu 2003, 2004 (Alhambra High School/Edmondson Fellow)
Shannon Yarber 2004 (West Covina High School)
Letiticia Salas 2004 (Bravo Medical Magnet High School/Cancer Center CURE fellow)
Afshin Arianjam 2004 (USC Undergraduate)
Alexandra Monroy 2005 (Bravo Medical Magnet High School/Cancer Center CURE fellow)

Student Fellowship Awards:

Silvia da Costa Kirchstein-NRSA minority predoctoral fellowship 2000-2002
Fight for Sight Summer Graduate Research Fellowships in 1997 and 1999
Galina Jerdeva Fight for Sight Summer Graduate Research Fellowship, 2001
Ron Marchelletta Kirchstein-NRSA minority predoctoral fellowship, 2004-2007
Afshin Arianjam Fight for Sight Summer Undergraduate Research Fellowship, 2004
Lilian Chiang Sjogren's Syndrome Summer Graduate Research Fellowship, 2007
Janette Contreras Kirchstein-NRSA minority predoctoral fellowship, 2008-present.

Postdoctoral fellows trained:

Patricia Vilalta 1994-1998
Yanru Wang 1998-2003
Silvia da Costa 2004-2005
Limin Qian 2002-2003
Jiansong Xie 2003-2008
Kaijin Wu 2004-present
Xiaodong Li 2006-present
Maria Edman 2007-present
Ron Marchelletta 2007-2009
Eunbyul Evans 2008-present

EXTERNAL SERVICE

Study Sections/Advisory Boards/External Review:

1996-1997 Research Committee, American Heart Association, Greater Los Angeles Affiliate
1997-1998 Study Section, American Heart Association, California Affiliate
1998-1999 Study Section, American Heart Association, Western States Affiliate
2000 Cell Development and Function Review IRG (CDF6), NIH
2000- West Coast Salt and Water Club, Advisory Board
2001 Pharmacology Study Section (Ad hoc), NIH
2001-2003 Advisory Board, Center for Gastroenterology Research on Absorptive and Secretory Processes (GRASP), Tufts/New England Medical Center

- 2001- American Heart Association Western States Affiliate study section 3B (Basic Cell and Molecular Biology and Immunology)
- 2003, 2004 R03 Special Emphasis Panel, NEI/NIH (ZEY1-VSN-01)
- 2004 External Reviewer, Action Plan for Liver Disease Research, NIDDK/NIH
- 2004 External reviewer (Ad hoc), Medical Research Council (MRC), England
- 2004-2006 Research Committee, Western States Affiliate, American Heart Association
- 2005 PPG Special Emphasis Panel, NIDDK (ZDK1 GRB-D)
- 2005-2007 Genes and Drug Delivery Systems permanent member (GDD) Study Section, NIH
- 2007-present Gene and Drug Delivery Systems (GDD) Study Section Chair, NIH
- 2008 External Reviewer, Graduate Council Review, Graduate Program in Pharmaceutical Sciences and Pharmacogenomics, UCSF
- 2008 R24 Special Emphasis Panel, NEI/NIH

Professional Organizations:

- 1990- American Society for Cell Biology (ASCB)
- 1994- American Association for Research in Vision and Ophthalmology (ARVO)
- 1994- American Association of Pharmaceutical Scientists (AAPS)
- 1999-2007 Controlled Release Society (CRS)
- 2000- American Physiological Society (APS)
- 2001- Tear Film and Ocular Surface Society (TFOS)
- 2006- American Association of Colleges of Pharmacy (AACP)

Leadership/Professional Organizations:

- 1998-2001 Co-Chair, Cellular and Molecular Therapeutics Focus Group, AAPS
- 1999 Organizer, Gene Therapy Symposium, AAPS Annual Meeting, Denver CO,
- 2001-2002 Program Chair, West Coast Salt and Water Meeting
- 2001-2005 Governing Board, Tear Film and Ocular Surface Society
- 2004-2005 Co-chair, American Heart Association Western States Affiliate study section 3B (Basic Cell and Molecular Biology and Immunology)
- 2004- Program Planning Committee (2004 Puerto Rico Meeting), Tear Film and Ocular Surface Society
- 2004- Travel Awards Committee (2004 Puerto Rico Meeting), Tear Film and Ocular Surface Society
- 2004-2005 Co-Chair, American Heart Association Western States Affiliate study section 3B (Basic Cell and Molecular Biology)
- 2005- Treasurer, Tear Film and Ocular Surface Society
- 2005-2006 Chair, American Heart Association Western States Affiliate study section 3B (Basic Cell and Molecular Biology)
- 2007-present Chair, Gene and Drug Delivery Systems (GDD) study section, NIH CSR

Editorial Boards:

- 2001-2005 Editorial Board, *Advanced Drug Delivery Reviews*
2003- Editorial Board, *Molecular Pharmaceutics*
2005- Executive Editor, *Advanced Drug Delivery Reviews*
2007- Editorial Board, *Current Molecular Pharmacology*

UNIVERSITY SERVICE (selected)

- 1993-present Graduate Affairs Committee, Department of Pharmaceutical Sciences, USC School of Pharmacy
1993-2000 Scholarship Standards Committee, USC School of Pharmacy
1994-1995 Faculty Search Committee, Department of Pharmaceutical Sciences
1995-2002 Graduate Fellowship Committee, USC/Norris Cancer Center
1996-2001 Executive Board, Pharmacy Faculty Assembly, USC School of Pharmacy
1996-1997 Secretary, Pharmacy Faculty Assembly, USC School of Pharmacy
1998-present Advisory Board, USC Center for Liver Diseases
1998-present Director, Confocal Microscopy Sub-Core, USC Center for Liver Diseases
1998-2000 Undergraduate Student Research, School of Pharmacy (Chair)
1998-1999 Academic Senate, USC
1999-2000 President, Pharmacy Faculty Assembly, USC School of Pharmacy
2000-2001 Faculty Search Committee, Department of Pharmaceutical Sciences (Chair)
2001-2002 Research Committee, USC
2002 Task Force on Development of New Curriculum, USC School of Pharmacy
2003-2006 External Programs Committee, USC School of Pharmacy
2003 Task Force, Development of Systems Biology Integrated Graduate Program, USC
2003 Centennial Committee, School of Pharmacy
2003 Faculty Search Committee, Department of Pharmaceutical Sciences (Chair)
2003 Faculty Merit Review (Dean's representative), USC School of Pharmacy
2004 Strategic Planning Group, USC School of Pharmacy (Research Area Leader)
2004-2006 iPIDD Graduate Committee, USC
2004-2005 Budget Advisory Committee, USC School of Pharmacy
2004-2005 Faculty/Chair Search Committee, Department of Pharmaceutical Sciences
2005-2006 University Task Force on Graduate Education, USC
2005-2006 Program and Activities Committee, Biomedical Imaging Sciences Initiative, USC
2006-2007 USC Search Committee for Vice-Provost for Information Technology
2006-present USC Provost's Committee for Provost's Interdisciplinary Scholars
2006-present Advisory Board, Systems Biology and Disease Graduate Program
2007-present USC Biomedical Nanoscience Initiative Committee
2008-present Health Sciences Campus Capital Planning Master Committee
2008-present Assessment Committee, School of Pharmacy
2008-2009 Self Study Committee for 2009 ACPE Reaccreditation, School of Pharmacy