VITAE

Bradley J. Stith

Bradley.stith@ucdenver.edu

University of Colorado Denver
Int Biology Department (campus box 171)
PO Box 173364
Denver, CO 80217
Tele: 303 315 7669

for FED EXP/UPS:
University of Colorado Denver
Integrative Biology 171
1201 Fifth St
Denver, CO 80204)

EDUCATION

Institution	Date	Degree	Major
Denison University	1970-1971		
Ohio State University	1971-1974	B.S.	Zoology
Washington State University			
	1976-1982	Ph.D.	Zoophysiology

PROFESSIONAL EXPERIENCE

2001-present Professor, Department of Biology, University of Colorado at Denver.

1994-2001 Associate Professor, Department of Biology, University of Colorado at Denver.

1987-1994 Assistant Professor, Department of Biology, University of Colorado at Denver

1982-1987 Postdoctoral Fellow, Department of Pharmacology, School of Medicine, University of Colorado Health Sciences Center

1982-1986 Instructor, University of Colorado at Denver Continuing Education Program

1976-1982 Teaching Assistant, Department of Zoology, Washington State University

1979 Teaching Assistant, Department of Biology, Stanford University (Hopkins Marine Station).

1978-1981 Research Assistant, Department of Zoology, Washington State University

1974 Teaching Assistant, Department of Biology, Ohio State University

REFEREED PUBLICATIONS (from 1991, most authors are students)

2018 Colby P. Fees, Bradley J. Stith. Insemination or phosphatidic acid induces an outwardly spiraling disk of elevated Ca+2 to produce the Ca+2 wave during Xenopus laevis fertilization. Submitted.

2015 Bradley J. Stith. Phospholipase C and D regulation of Src, calcium release and membrane fusion during Xenopus laevis development. Developmental Biology 401(2):188–

205. A review with original data, invited by Editor Richard Harland (Berkeley). http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4424143

2015 Ryan C. Bates, Bradley J. Stith, Karen E. Stevens. Increasing pro-survival factors within whole brain tissue of Sprague Dawley rats via intracerebral administration of modified valproic acid. Journal of Pharmacological Sciences 128:193–201. Medical Research Service, Veterans Affairs Medical Center, 1055 Clermont Street, Denver, CO 80220, USA, Department of Psychiatry, University of Colorado Denver | Anschutz Medical Campus, School of Medicine, 12800 East 19th Ave. Aurora, CO 80045, USA, Department of Integrative Biology, University of Colorado Denver, 1205 5th St. Denver, CO 80204, USA

2014 Ryan C. Bates[a,b,c,d], Bradley J. Stith[d], Karen E. Stevens[a,b] and Catherine E. Adams[a,b]. Reduced Chrna7 expression in mice is associated with increases in hippocampal parvalbumin and glutamate decarboxylase-67 (GAD67) and altered levels of GABAA receptor subunits. Neuroscience 273:52–64. [a]Medical Research, Veterans Affairs Medical Center, Denver, CO 80220, [b]Department of Psychiatry, University of Colorado Denver Anschutz Medical Campus, Aurora, CO 80045 and [c]Department of Toxicology and Pharmacology, University of Colorado Denver Anschutz Medical Campus, Aurora, CO 80045. [c]Department of Pharmaceutical Sciences, University of Colorado Denver Anschutz Medical Campus, Skaggs School of Pharmacy and Pharmaceutical Sciences, 12850 E. Montview Blvd., Aurora, CO 80045, USA. [d]Department of Integrative Biology, University of Colorado Denver Downtown Denver Campus, Denver, CO 80217.

2014 Ryan C. Bates[a], Colby P. Fees[a], William L. Holland[a], Courtney C. Winger[a], Khulan Batbayar[a], Rachel Ancar[a], Todd Bergren[b], Douglas Petcoff[c] and Bradley J. Stith[a], Activation of Src and release of intracellular calcium by phosphatidic acid during Xenopus laevis fertilization. Developmental Biology 386:165-180. [a]University of Colorado Denver. [b]Community College of Aurora. [c]Metropolitan State University of Denver. Colorado, USA.

2014 Stith, Bradley; lead author; PowerPoint clicker questions for 18 chapters, ~380 questions, editions 2014, 2016 of *Campbell Biology in Focus* (authors: L. Urry, M. Cain, S. Wasserman, P. Minorsky, R. Jackson, Jane B. Reece). Pearson Education Inc.

2012 Ryan Bates, Bradley J Stith, Karen Stevens. Chronic central administration of valproic acid: Increased pro-survival phosphor-proteins and growth cone associated proteins with no behavioral pathology. Pharmacology, Biochemistry and Behavior 103:237-244.

2008 Douglas W. Petcoff, William L. Holland, Bradley J. Stith. Lipid levels in sperm, eggs, and during fertilization in *Xenopus laevis*. Journal of Lipid Research 49:2365-2378.

2008 Bradley J. Stith. Metformin action on the insulin receptor, other tyrosine kinases and phosphatases. In Metformin: Mechanistic Insights towards New Applications. Editors: Gilles Mithieux and Nicolas Wiernsperger. Pgs 59-80. Transworld Research Network publishers, Kerala, India.

2006 Ken-ichi Sato*, Yasuo Fukami, and Bradley J. Stith.* Signal transduction pathways leading to Ca2+ release in vertebrate fertilization: lessons from Xenopus eggs.

Seminars in Cell and Developmental Biology. 17: 285-92. *corresponding authors.

2004 Bradley J. Stith. Use of animation in teaching cell biology. Cell Biology Education 3:8-15, 2004.

2004 William Holland, Thomas Morrison, Ying Chang, Nicolas Wiernsperger, and Bradley J. Stith. Metformin (Glucophage) inhibits tyrosine phosphatase activity to stimulate the insulin receptor tyrosine kinase. Biochemical Pharmacology 67:2081-2091.

2003 William L. Holland, Erin C. Stauter, and Bradley J. Stith. Quantification of phosphatidic acid and lysophosphatidic acid by HPLC with evaporative light scattering detection. Journal of Lipid Research 44:854-858.

2002 Ayala Luria*, Vaida Vegelyte-Avery*, Bradley Stith§, Nelly M. Tsvetkova*, Willem F. Wolkers*, John H. Crowe*, Fern Tablin1, and Richard Nuccitelli.*2 From the *Section of Molecular and Cellular Biology, University of California, Davis, CA 95616, 1Department. Of Anatomy, Physiology and Cell Biology, School of Veterinary Medicine, University of California, Davis, and the §Department of Biology, University of Colorado-Denver, Denver, CO 80217. Discrete Microdomains in the Plasma Membrane of Xenopus laevis eggs. Biochemistry. 41:13189-13197.

2000 Thomas Morrison, Leslie Waggoner, Laura Whitworth-Langley, and Bradley J. Stith. Nongenomic action of progesterone: activation of Xenopus oocyte phospholipase C through a plasma membrane-associated tyrosine kinase. Endocrinology, 141: 2145-2152.

2000 Stith, Bradley J. Use of a web site to enhance a Biology lecture course. Technological Horizons in Education, 27:20-28.

2000 Stith, Bradley J., Jennifer Hall, Patrick Ayes, Leslie Waggoner, James Moore, Walt Shaw. Quantification of major classes of Xenopus phospholipids. Journal of Lipid Research 41: 1448-1454.

1998 Stith, Bradley J., Keith Woronoff, and Nicolas Wiernsperger. Stimulation of the intracellular portion of the human insulin receptor by the antidiabetic drug metformin. Biochemical Pharmacology 55:533-536.

1997 Stith, Bradley J., Keith Woronoff, Ronald Espinoza, and Tanya Smart. Sn-1,2-diacylglycerol and choline increase after fertilization in *Xenopus laevis*. Molecular Biology of the Cell 8:755-765.

1996 Stith, Bradley J., Marc L. Goalstone, Ronald Espinoza, Cori Mossel, Dawn Roberts, and Nicolas Wiernsperger. The antidiabetic drug metformin elevates receptor tyrosine kinase activity and inositol 1,4,5-trisphosphate mass in *Xenopus* oocytes. Endocrinology 137:2990-2999.

1994 Stith, Bradley J., Ronald Espinoza, Dawn Roberts and Tanya Smart. Sperm increase egg inositol 1,4,5-trisphosphate mass in *Xenopus* eggs preinjected with calcium chelators or heparin. Developmental Biology 165:206-215.

1993 Stith, Bradley J., Marc Goalstone, Sally Silva and Chris Jaynes. Inositol 1,4,5-trisphosphate mass changes from fertilization through first cleavage in *Xenopus laevis*. Molecular Biology of the Cell 4:435-443.

1992 Stith, Bradley J., Marc L. Goalstone and Allen J. Kirkwood. Protein kinase C initially inhibits the induction of meiotic cell division. Cell Signaling 4:393-403.

1992 Stith, Bradley J., Chris Jaynes, Marc L. Goalstone and Sally Silva. Insulin and progesterone increase $^{32}P0_4$-labeling of phospholipids and inositol 1,4,5-trisphosphate mass in *Xenopus* oocytes. Cell Calcium 13:341-352.

1991 Stith, Bradley J., Allen J. Kirkwood, and Erica Wohnlich. Insulin-like growth factor 1, insulin and progesterone induce early and late increases in *Xenopus* oocyte sn-1,2-diacylglycerol levels before meiotic cell division. Journal of Cellular Physiology 149:252-259.

1989 Stith, Bradley J. and William R. Proctor. Microinjection of inositol 1,2-(cyclic)-4,5-trisphosphate, inositol 1,3,4,5-tetrakisphosphate,and inositol 1,4,5-trisphosphate into intact *Xenopus* oocytes can induce membrane currents independent of extracellular calcium. Journal of Cellular Biochemistry 40:321-330.

1987 Stith, Bradley J. and James L. Maller. Induction of meiotic maturation in *Xenopus* oocytes by 12-0-tetradecanoylphorbol 13-acetate (TPA). Experimental Cell Research 169:514-523.

1986 Maller, James L., Linda Pike, Gary Freidenburg, Renzo Cordera, Bradley J. Stith, Edwin Krebs and Jeffrey Olefsky. The phosphorylation of ribosomal protein S6 is increased following microinjection of insulin receptor-kinase into *Xenopus* oocytes. Nature(L) 20:459-461.

1986 Maller, J.L., D. Stefonovic, E. Erikson, and B.J. Stith. Regulation of ribosomal protein S6 phosphorylation by protein-tyrosine kinases. In Current Communications in Molecular Biology: Translational Control. Ed. by M.B. Mathews, published by Cold Spring Harbor Laboratory.

1985 Stith, Bradley J. and James L. Maller. Increased intracellular pH is not necessary for ribosomal protein S6 phosphorylation or meiotic maturation in *Xenopus* oocytes. Developmental Biology 107:460-469.

1984 Stith, Bradley J. Biochemical examination of *Rana pipiens* epithelial mucus. Journal of Comparative Physiology B. 155:89-96.

1984 Stith, Bradley J. Effects of an external charged layer on transepithelial ion movement. Journal of Comparative Physiology B. 155:97-101.

1984 Stith, Bradley J. and James L. Maller. The effect of insulin on intracellular pH and ribosomal protein S6 phosphorylation in oocytes of *Xenopus laevis*. Developmental Biology 102:79-89.

INVITED RESEARCH AND EDUCATION PLATFORM/ORAL PRESENTATIONS

2017 Lipid regulation of Src tyrosine kinase. UCD Chemistry Department.

2016 Phosphatidic Acid directly activates Src and PLC to release Calcium in Xenopus fertilization. European Calcium Society meeting, University of Valladolid, Spain.

Phosphatidic acid binding and activation of Src tyrosine kinase: a conformational change model. University of Barcelona. Invitation of Dr. Miguel Pons.

Phosphatidic Acid activation of Src tyrosine kinase. FASEB: Phospholipid Signaling in Cancer, Neurodegeneration and Cardiovascular Disease. Steamboat Springs, Colorado.

2015, 2014, 2013, 2010 Invited Speaker and Faculty Mentor; Council on Undergraduate Research program: "Beginning a Research Program in the Natural Sciences at a Predominantly Undergraduate Research Institution" at Conference Center, Greensboro, NC; Convention Center, San Diego, CA; Calvin College, Grand Rapids, MI. In 2015, I was the local organizer for the Denver meeting.

2014 Lipid activation of src tyrosine kinase and calcium release. Department of Integrative Biology seminar. September.

2011 Invited research presentation, School of Biological Sciences, University of Northern Colorado. Lipid Regulation of Src Tyrosine Kinase and Fertilization. September

2011 Invited speaker, Department of Pharmacology, AMC, May 6 2011

2011 Invited lecturer, Department of Biology, Metropolitan State University

2010 Invited Plenary Speaker. Successful Undergraduate Research Programs. Augusta State College (Augusta, GA). March.

2009 Invited Speaker/Mentor at Proposal Writing Workshop, Mississippi State University, Starkville, MS. June.

2008, 2006 Program Organizer and Speaker: Grant Writing Workshop, with Ami Ahern-Rindell, University of Portland, and Sally O'Connor, National Science Foundation. National Conference, council on Undergraduate Research, DePauw University, June.

2008 Invited Plenary Speaker. Successful Undergraduate Research Programs. Clarion University (PA). October.

2008 Invited Plenary Speaker. Development of Undergraduate-based Research Programs. Northern Michigan University. February.

2008 Lipids in Fertilization. Clarion University, PA. October.

2008 Lipid Signaling in Fertilization. Northern Michigan University, February.

2007 Invited Speaker, University of Colorado Denver, Cancer Center at Anschutz Medical Center. Phosphatidic Acid (PA) Activation of Src and PLCγ: Lipid Regulation of a Tyrosine Kinase. November.

2007 Lipomics Workshop at Experimental Biology 2007. Washington, D.C. Overview of protocols developed by LIPID MAPS Consortium for Lipidomic analysis. Poster Presentation: "HPLC and Evaporative Light Scattering Detection for LIPOMICS During Fertilization." April.

2007 Invited Speaker, National Science Foundation, Cell Biology group; April. "Phosphatidic Acid May be a New Ca++ Regulator during Fertilization."

2005 Invited Plenary Speaker, Faculty Forum on Undergraduate Education at Southern Connecticut State University, New Haven, CT. Topic: The Use of Undergraduate Research in Teaching.

2004 Invited speaker, University of South Florida Medical School, Dept. of Biochemistry, Mechanism of anti-diabetic drug metformin, November.

2004 Invited speaker, MBRS SCORE program, Colorado State University-Pueblo, Lipid analysis: mechanism of fertilization. November.

2003 Program Organizer and Speaker, Role of Phosphatidic acid in Fertilization, Amphibian Fertilization meeting, American Society for Cell Biology, San Francisco, CA. December.

2002 Invited speaker: Membrane fusion at fertilization by phosphatidic acid; American Society for Cell Biology, San Francisco, CA. December.

2002 Invited speaker, national meeting of Council on Undergraduate Research, "Obtaining funding at Primarily Undergraduate Institutions." Research Poster: Lipid Signaling in fertilization. National meeting of the Council on Undergraduate Research, Connecticut College, CT.

2001 Invited speaker, "Phospholipase D and PA regulation of Phospholipase C." FASEB summer conference on phospholipase D, Tucson, AZ.

2001 Invited Speaker, "Undergraduate Research," FASEB meeting, American Association of Anatomists, Orlando FL, March.

2001 Invited Speaker, "Lipid Signaling in Development." Biology Department, University of South Florida, Tampa FL, February.

2000 Platform talk ; "Use of a web sites, animation and video in college teaching." At the annual meeting of the National Association of Biology Teachers, Orlando FL, October.

2000 Four platform presentations at the national meeting for Council on Undergraduate Research at College of Wooster, Wooster OH (1) Adapting to a PUI after a Medical School PostDoctorate; a workshop I set up with Dr. E. Levy of UCD chemistry, and Dr. M. Coussons-Read of psychology, (2) Biology grant writing workshop with Mary Jane Saunders of the NSF and M. Brodl, (3) Use of technology in teaching; a workshop I set up with Malcolm Campbell of Davidson, and (4) Students and Undergraduate Research (setting up a student research club); June 21-24.

2000 Presentation on "Teaching with Flash Web Animation and Digitalized Video" at the Teaching with Technology Conference at the University of Colorado- Colorado Springs; July 14.

2000 Keystone Conference on Lipid Signaling; Feb. 5-10; "Lipid signaling during Fertilization."

2000 Invited speaker, Department of Cell Biology, University of Colorado Health Sciences Center, spring, 2000. "PI turnover in meiotic cell division and fertilization."

2000 Invited presentation to Biology graduate students; "How to handle the difficult student." Biology department, UCD. August.

2000 Invited talk on "Bioinfomatics and biological structure" to Dr. Greenberg's graduate class in mathematics (Math 4/5779). August 28.

2000 Invited speaker, Retreat for Department of Pharmacology, University of Colorado Health Sciences Center, Copper Mountain, CO. October 6.

1999 Invited speaker (by Dr. E. Nuhfer), Teaching with Technology Conference, School of Mines, July 13-15, 1999. Use of a Web Site and WebCT to Enhance a Biology Course.

1999 Stith, B.J., Presentation at FASEB Summer Conference on Protein Kinases and Phosphorylation. July 24-29.

1998 Invited speaker (developed presentation and part of panel discussion), Ambiguity and Uncertainty in the 21st Century, March 27, sponsored by Chancellor's Scholars and Leaders and IBM.

1998 Invited speaker at the "International Conference on *Xenopus* and Amphibian fertilization;" Sardinia, Italy, September. Talk: "Lipid Signaling in *Xenopus* Fertilization." Meeting sponsored by the University of Milan, Italy.

1998 Invited presenter at the University of Colorado Reagents meeting (Jan. 22). Presentation on research involving undergraduates.

1998 Invited speaker at University of Lyon, "The action of metformin." Sept.

1998 Invited speaker and panel member at the Chancellor's Scholars and Leaders meeting on setting up a science "Discovery Room" (Research connections display; interactive learning). December 3.

1996-1998 Presentation for new Biology graduate student orientation meeting.

1996-1998 Presentation for incoming faculty at the University of Colorado-Denver Faculty Orientation (at request of Dr. F. Baca).

1992 Invited speaker at American Society for Cell Biology; "Involvement of Undergraduate students in the Research Lab"

PUBLICATIONS IN PREPARATION OR UNDER REVIEW

In preparation: Colby Fees, Jason Stafford, Joshua Snyder, Shilo Smith, Bradley J. Stith. A direct activation of phospholipase C by phosphatidic acid leads to calcium release in Xenopus fertilization.

In preparation: Pengsue Yang, Bradley J. Stith. Phosphatidic acid binds with specificity to Src tyrosine kinase.

In preparation: Ryan Bates, Bradley J. Stith. Phosphatidic acid mass increases during the acrosome reaction in *Xenopus laevis* sperm.

In preparation: Elana Costanza, Bradley J. Stith. Fertilization or Phosphatidic acid addition induces a cycling of Src activity.

UNIVERSITY OF COLORADO RESEARCH DAY POSTER PRESENTATIONS:

2018 Chase Riedel, Emily Greene, Bradley J Stith. Src tyrosine kinase activation cycling induced by sperm, phosphatidic acid, and ca^{2+} ionophore in *X. laevis* eggs. UCD Research and Creative Activities Day

2017 Hinal Rathi, Leslie Simmons, Elana Costanza, Bradley J Stith. Src Tyrosine Kinase Activation in *Xenopus laevis* Fertilization. UCD Research and Creative Activities Day

2016 Src Tyrosine Kinase Activation in Xenopus laevis Fertilization. Elana Costanza and Dr. Bradley Stith. UCD Research and Creative Activities Day

2015 3 poster presentations with students: Alesia Blanchard, Robin Feldman, Andrew Lamp, Elana Costanza, Courtney Warren, Rachel Ancar. UCD Research and Creative Activities Day

2014 Five poster presentations with 7 students, UCD Research and Creative Activities Day

2013 Three poster presentations, UCD Research and Creative Activities Day

2012 Three poster presentations, UCD Research and Creative Activities Day

1996 Brandt Gillum, Melanie Overley and I put together a poster presentation for the first UROP/OSCAR poster session held during the fall of 1996. My students and I have presented at every UROP poster session since their inception.

PUBLICATIONS IN REFEREED MEETING PROCEEDINGS (abstracts since 1990, most authors were students)

2018 Bradley J. Stith. Model for lipid activation of Src tyrosine kinase. FASEB summer conference, Steamboat Springs, Colorado, USA.

2018 Bradley J. Stith. Lipomics in Fertilization. Bioenergetics and Metabolic Disease, Jan. 21-25, 2018. Keystone Symposium, Keystone, Colorado, USA.

2017 Bradley J. Stith. Src tyrosine kinase activation by lipid phosphatidic acid. Kinases: Next-Generation Insights and Approaches. Keystone Symposia (Breckinridge, CO).

2016 Bradley J. Stith. Lipid phosphatidic acid and an outwardly spiraling disk of calcium release leads to the fertilization calcium wave. European Calcium Society, Valladolid, Spain.

2016 Bradley J. Stith. Src Tyrosine Kinase Activation in Xenopus laevis Fertilization. FASEB: Phospholipid Signaling in Cancer, Neurodegeneration and Cardiovascular Disease. Steamboat Springs, Colorado.

2016 Bradley J. Stith. Lipid regulation of fertilization. Exosomes/Microvesicles: Novel Mechanisms of Cell-Cell Communication, Keystone Symposium.

2015 Bradley J. Stith. Lipid regulation of src and phospholipase c. Systems Biology of Lipid Metabolism. Keystone conference, CO.

2014 Bradley J. Stith. Phosphatidic acid activates Src, phospholipase C-gamma and calcium release. NF-kB System in Health and Disease. Keystone conference, CO.

Bradley J. Stith, The Role of lipid rafts and demonstration of direct lipid interaction during the activation of Src. FASEB summer conference: Lipids and Lipid Regulated Kinases in Cancer. Keystone conference, Steamboat Springs, CO.

2013 Courtney Warren, Rachel Ancar, Bradley J. Stith. Activation of Src Tyrosine Kinase by Lipids: Phosphatidic Acid Binds & Stimulates Src, later action requires Intact Rafts, and PA Increases PLCγ in Rafts. American Society for Cell Biology national meetings, New Orleans, LA.

2013 Bradley J. Stith, Lipid Signaling in Fertilization, Kern Lipid Conference. Vail, CO.

2012 Douglas W. Petcoff, Aviva A. Bulow, Trevor D. Hostetter, Bradley J. Stith. Sphingolipid metabolism in *Xenopus laevis* oocyte maturation and apoptotic death. American Society for Biochemistry and Molecular Biology national meetings, San Diego, CA.

2012 Bradley Stith. Lipids in Cancer, FASEB Summer Conference. Phosphatidic Regulation of Src tyrosine kinase.

2011 Colby Fees, Ryan Bates, Bradley Stith. Phospholipase D Inhibitors FIPI and 1-Butanol Inhibit Calcium Release at Fertilization. Poster 669, American Society for Cell Biology national meetings, Denver, CO.

2011 Ryan Bates, Bradley Stith, Karen Stevens. Chronic Central Administration of Valproic Acid Increased Pro-Survival Proteins and Growth Cone Signaling Without Altering Rat Behavior. Poster 1214, American Society for Cell Biology national meetings, Denver.

2011 Benjamin Fulroth, Colby Fees, Bradley Stith. Role of Lipids in Apoptosis in *Xenopus laevis* Eggs. Poster 1819, American Society for Cell Biology national meetings, Denver.

2011 Stith, B., Ryan Bates, Colby Fees, Pengsue Yang. Phosphatidic Acid regulation of Src, PIP2, DAG and Phospholipase C. Keystone Conference, Phosphoinositides. Keystone, CO.

2011 Poster Presentation, Lipid Signaling in Fertilization, Kern Lipid Conference. Vail, CO.

2009 Bates, R., Shilo Smith, Josh Snyder, Colby Fees, Bradley Stith. Lipid Activation of Src During Fertilization in *Xenopus laevis.* American Society for Cell Biology national meetings, San Diego.

2009 B.J. Stith, R. Bates, P. Yang. Lipid Binding and Activation of Src in *Xenopus laevis* sperm. American Society for Cell Biology national meetings, San Diego.

2008 R. Bates, B. J. Stith. Tyrosine Phosphorylation Changes during *Xenopus* Sperm Acrosome Reaction and Fertilization. Mol. Biol. Cell 19 (suppl), abstract # 1393 (CD-ROM); page 402; http://www.ascb.org/files/am08/abstracts/regular.pdf

2007 B. J. Stith,[1] J. Juergens,[1] J. Snyder,[1] R. Bates,[1] J. Ash,[1] D. Petcoff,[2] E. Cook,[2] A. Barkans,[2] M. Lintz[2]; [1]Biology, University of Colorado Denver, Denver, CO, [2]Biology, Metropolitan State College, Denver, CO. Phosphatidic Acid (PA) Activates *Xenopus* Src and Phospholipase C Whereas PIP Strip Fat Blots Show Src Binds PA. Mol. Biol. Cell 18 (suppl), abstract # 2053 (CD-ROM).
http://www.abstractonline.com/viewer/viewAbstractPrintFriendly.asp?CKey={A6187F58-6F35-445E-9E82-3AE5F71FD625}&SKey={17A57D52-11D8-4405-A7D4-A9481015E90C}&MKey={66B05B0E-3C08-4BB1-869F-AAF586698022}&AKey={088FBDBF-3C4D-4212-865B-3612F7DD115B}

2006 K.-I. Sato, M. Kurokawa, K. Sakakibara, A. K. M. Mahbub Hasan, Y. Ueda, Z. Ou, T. Iwasaki, B. J. Stith, R. A. Fissore, Y. Fukami. Signal Transduction pathways leading to Ca^{2+} release and egg activation in vertebrate fertilization: lessons from Xenopus and mammalian eggs. Lipid Rafts and Cell Function, Keystone Symposium, March 23-28, 2006.

2006 B. J. Stith,[1] J. Juergens,[1] J. Stafford,[1] J. Snyder,[1] M. Wood,[2] D. Petcoff[2]; [1]Biology, University of Colorado Denver, Denver, CO, [2]Biology, Metropolitan State College, Denver, CO. Release of Calcium by Phosphatidic Acid in *Xenopus* Oocytes and Eggs. Mol. Biol. Cell 17 (suppl), abstract # 1188 (CD-ROM).
http://www.abstractsonline.com/viewer/viewAbstractPrintFriendly.asp?CKey={92BD1EF9-138F-44AB-B95C-E33D392E1D82}&SKey={77D20C9B-1B37-4276-AE0D-BA690A7080A9}&MKey={0C1CA8A7-4052-4C63-8057-193FDAECCB64}&AKey={088FBDBF-3C4D-4212-865B-3612F7DD115B}

2005 B. J. Stith,[1] J. Stafford,[1] Y. Chang,[1] T. Kane,[2] R. Bates,[2] A. Nickle,[2] D. Petcoff[2]; [1]Biology, University of Colorado Denver, Denver, CO, [2]Biology, Metropolitan State College, Denver, CO. The Role of Phosphatidic Acid in Regulation of Intracellular Calcium during Fertilization in *Xenopus.* Mol. Biol. Cell 16(suppl), abstract#515 (CD-Rom).
http://www.abstractsonline.com/viewer/viewAbstract.asp?CKey={76BDCA05-3D4E-4F99-91E9-3873C8B31CD2}&MKey={A017DB07-275B-4A9D-833F-DB2760E62BDA}&AKey={088FBDBF-3C4D-4212-865B-3612F7DD115B}&SKey={7A0EB81C-EABB-4A87-94C6-3F6C8BDB9A37}

2004 S. Pelech,[1,2] G. Cheung,[2] H. Paddon,[2] X. Shi,[2] B. Stith,[3] H. Zhang[1]; 1:Kinexus Bioinformatics Corporation, Vancouver, BC, Canada, 2:The Brain Research Centre, University of British Columbia, Vancouver, BC, Canada, 3: Biology, University of Colorado, Denver, CO. Kinetworks Analysis of the Phosphoproteome during Frog Oocyte Maturation. Molecular Biology of the Cell 15: 26a.

2003 Tseng, N., Chang, Y., Silverstein, T., Szczesny, C., Stith, BJ. Phosphatidic acid increases IP3 and Induces Calcium-Dependent Events in *Xenopus* eggs. Molecular Biology of the Cell 14: 387a.

2003 Stith, B.J. Lipid signaling in fertilization: role of phosphatidic acid. The FASEB Journal 17:123.6

2002 Holland, W., Stith, BJ. Insulin stimulates meiotic cell division and phospholipase D activity in *Xenopus* oocytes. American Society of Cell Biology meeting. Molecular Biology of the Cell 13:12a.

2002 Phospholipase C Activation by progesterone; FASEB Summer conference on Phospholipases, Tucson AZ, June.

2002 Research presentation at "Regulation of Cellular Responses by Lipid

Mediators," Keystone conference, Taos, NM. February.

2001 Holland, W., Stith, BJ. Funding Primarily Undergraduate Research in Cell Signaling, FASEB Journal 15, A405.

2000 Petcoff, D., Holland, W., Stith, B.J.. Phosphatidic acid may play a central role in fertilization. Molecular Biology of the Cell 11:406a.

2000 Holland, W., Medina, P., Petcoff, D., Savi, K., Stith, B.J. Fertilization and lipid signaling in *Xenopus laevis*. Developmental Biology 222:242.

1999 Stith, B.J., Lupe, C., Holland, W., Swise, L. Lipid changes at fertilization in *Xenopus laevis*. Molecular Biology of the Cell 10:359a.

1999. Petcoff, D., Medina, P., Savi, K., Morrison, T., Bergren, T., Batbayar, K., Stith, B.J. Detection of phospholipase D in *Xenopus* oocytes. Molecular Biology of the Cell 10:335a.

1998 Waggoner, L., T. Morrison, B. Stith. Regulation of *Xenopus* Phospholipase C. Molecular Biology of the Cell 9:119a.

1997 Waggoner, L., Morrison, T., Stith, B. Sphingomyelinase is activated at fertilization. Molecular Biology of the Cell 8:107a.

1997 Gordon Conference on "Fertilization and Activation of Development," August, Holderness School, New Hampshire.

1997 Morrison, T. Waggoner, L., Stith, B. Phospholipids from *Xenopus* eggs, sperm and zygotes. Molecular Biology of the Cell 8:107a.

1996 "Mechanism of induction of cell division by IGF-1." Fifth International Insulin and IGF Symposium, Univ. of Florida, March 3-5.

1996 Keystone Conference on "Lipid Signaling," March, Taos, New Mexico. I gave a poster/paper on the role of protein kinase C in the induction of meiotic cell division.

1996 International *Xenopus* Conference, August, Estes Park, CO. Role of phosphatidylinositol turnover in the induction of meiotic cell division and in fertilization.

1996 Woronoff, K., Whitworth, L., Espinoza, R., Stith, B.J.. Insulin and progesterone stimulate phospholipase D in *Xenopus* oocytes. Molecular Biology of the Cell 7:9a.

1995 "Phospholipid second messengers after fertilization of *Xenopus* eggs." Gordon Research Conference, Plymouth, NH. July 30-August 4.

1995 "Mechanism of Induction of Meiosis in *Xenopus* oocytes by IGF-1." International Symposium on IGF-1 action on Ovarian Cells, Montpellier, France, Sept. 15-16.

1995 "Progesterone and elevated calcium stimulate tyrosine kinase in a membrane-cortical preparation from *Xenopus* oocytes." Special "Hot" poster session, American Society for Cell Biology, Washington, D.C., Dec. 9-13.

1995 Mossel, C.A., Woronoff, K., Espinoza, R., Stith, B.J. Activation by hormone and metformin of IGF-1 receptor in a cortical-membrane preparation from *Xenopus* oocytes. Mol. Biol. Cell 6:11a.

1994 Stith, B.J. Protein kinase C initially inhibits then stimulates the induction

of cell division. J. Cell. Biochem. 18D:92. Keystone Symposium, Protein Kinase C.

1994 Smart, T., R. Espinoza, K. Woronoff, D. Roberts, B.J. Stith. Progesterone or insulin increase IP3 release in cortical preparations, PKC translocation in whole *Xenopus* oocytes and maturation is inhibited by buffering intracellular calcium. Mol. Biol. Cell 5:94a.

1994 Roberts, D., C.A. Ferdensi, T. Smart, R. Espinoza, B.J. Stith. PI turnover after fertilization. Mol. Biol. Cell 5:462a.

1993 R. Espinoza, D. Roberts, T. Smart, B.J. Stith. Sperm addition increases inositol 1,4,5-trisphosphate mass in eggs preinjected with calcium buffers. Mol. Biol. Cell 4:140a.

1993 B.J. Stith. Changes in inositol 1,4,5-trisphosphate and sn 1,2-diacylglycerol during meiosis, mitosis and fertilization in *Xenopus laevis*. J. Cell. Biochem. 17A:289. Keystone Symposium, Phosphorylation/dephosphorylation in signal transduction.

1992 Stith, B., M. Goalstone, C. Jaynes, S. Silva. Insulin and Progesterone increase ^{32}P-labeling of phospholipids, and DAG and IP3 mass during induction of meiosis in *Xenopus* oocytes. J. Cell. Biochem. 16B:180. Keystone Symposium, Positive and Negative Growth Control.

1992 Goalstone, M., and B.J. Stith. Microinjection of Ras p21 into *Xenopus* oocytes induced an immediate decrease in sn-1,2-diacylglycerol and a late increase in both DAG and inositol 1,4,5-trisphosphate mass. Mol. Biol. Cell 3:18a.

1992 Silva, S., M. Goalstone, C. Jaynes, W. Dickerson, and B.J. Stith. Multiple changers in inositol 1,4,5-trisphosphate and sn-1,2-diacylglycerol mass occur from fertilization through first cleavage in *Xenopus laevis*. Mol. Biol. Cell 3:24a.

1991 Silva, S., M.L. Goalstone, C. Jaynes and B.J. Stith. Insulin and progesterone increase 32P-labeling of phospholipids and inositol 1,4,5-trisphosphate mass in *Xenopus* oocytes. J. Cell Biol. 115:46a. American Society for Cell Biology, Boston, MA.

1990 Tienda, Y., A. Kirkwood, J. McLemore and B.J. Stith. Addition of phosphatidylcholine-specific phospholipase C inhibits insulin-, insulin-like growth factor 1-, and progesterone-induced meiotic cell division in *Xenopus* oocytes. J. Cell Biol. 111:365a. American Society for Cell Biology, San Diego, C.A.

1990 Stith, B.J. and E. Wohnlich. Insulin, insulin-like growth factor 1, and progesterone increase DAG levels at 15 min and immediately before meiotic cell division in *Xenopus* oocytes. J. Cell Biol. 111:365a.

1989 Stith, B.J. 1,2-Diacylglycerol Increases at Meiotic Cell Division. Biology of Cellular Transducing Signals 9:385. Biology of Cellular Transducing Signals, George Washington University, Washington, D.C..

1988 Stith, B.J., Proctor, W.R. Comparison of Inositol Phosphate Action in an Intact Cell. J. Cell. Biochem. 12E:112. UCLA Symposium on Cellular Activation and Signal Initiation, Keystone, CO.

1987 Stith, B., J., Proctor, W. R. The affects of inositol phosphate derivatives on membrane depolarization in the *Xenopus* oocyte. Soc. Neuro. Abst. 13:107. Society for

Neuroscience, New Orleans, LA.

1987 Stith, B., Maller, J. Involvement of protein kinase C but not inositol phosphates in meiotic cell division. FASEB Summer Conference on Intracellular Calcium, Bellows Falls, VT.

1986 Stith, B. and Maller, J. Effects of tumor-promoting phorbol ester on meiotic cell division in *Xenopus* oocytes. J. Cell Biochem. 10C:207. UCLA Symposium on Growth Factors, Tumor Promoters, and Cancer Genes; Steamboat Springs, CO.

1985 Stith, B. and Maller, J. Evidence polyphosphoinositide turnover is involved in *Xenopus* oocyte maturation. J. Cell Biol. 101:490a. American Society for Cell Biology, New Orleans, LA.

1985 Stith, B., Maller, J. Intracellular pH does not regulate cell division. International Society of Differentiation; Heidelberg, Germany.

1984 Stith, B. and Maller, J. The effect of priming *Xenopus laevis* females with pregnant mare's serum gonadotropin on subsequent progesterone-induced oocyte maturation in vitro. J. Cell Biol. 99:52a. American Society for Cell Biology, Kansas City, KA

1983 Stith, B. and Maller, J. The effect of insulin and progesterone on intracellular pH and ribosomal protein S6 phosphorylation in oocytes of *Xenopus laevis*. J. Cell Biol. 97:21a. American Society for Cell Biology; San Antonio, TX.

1980 Stith, B.J. Intracellular pH increases during maturation of Patiria miniata. Northwest Society for Developmental Biology; Friday Harbor, WA.

NON-REFEREED PUBLICATIONS

Web publications and presentations from national meetings (http://carbon.cudenver.edu/~bstith/; most updated on regular basis):

Adjusting to a PUI after a research institute or medical center
Use of web animation and video in teaching
Use of the popular movie "Lorenzo's Oil" in teaching Cell Biology
Use of WebCT for a web site for a lecture course
Funding Sources for Undergraduate Research
How To: Grant Writing
How To: Use of NSF's FASTLANE submission process
Web animation and video in teaching

1999 Stith, BJ. Proposal Advice, published in the Research Advocate, Office of Sponsored Programs. Vol. 17, 12, June 1999.

COURSES TAUGHT

General Cell Biology 3611
Advanced Cell Biology/Cell Biology of Disease 4064/5064
Developmental Biology 4054/5054
Cell Signaling (Biochemistry of hormones) 4550/5550
Cell Biology laboratory 3612

Principles of Biological Research 5705

RECOGNITIONS, HONORS, ETC.

2017 Promotion. Based on research accomplishments, promotion from affiliate member of the AMC Cancer Center to full member status. July 1 2017.

2014 Lab student Rachel Ancar, won first place and the John C. Johnson Award for Excellence in Student Research at the national conference of the Beta Beta Beta Biological Honor Society.

2014 Invited author, clicker questions for 19 chapters of "Campbell Biology in Focus" general biology textbook, Urry et al..

2012 Invited reviewer, World of the Cell textbook, Pearson Publishing

2010-2008, 2006, 2004, 1994-1998 Panel Member, Signal Transduction grant proposal review panel, National Science Foundation

2009 Excellence in Research Award, College of Liberal Arts and Sciences, University of Colorado Denver

2001-2009 Invited facilitator, Council on Undergraduate Institute on Proposal Writing Institute, various locations around USA. July of each year.

2008 Faculty Award for Outstanding Student Mentoring; Research and Creative Activities Symposium. April 11, 2008.

2007 Excellence in Service Award, College of Liberal Arts and Sciences, University of Colorado Denver

2005-2015 Invited author and reviewer of questions for the "Biochemistry, Cell and Molecular Biology" and "Biology" Subject tests of the Graduate Record Exam.

2006 Invited author, "clicker" questions for chapters 1-5 of the textbook "World of the Cell." Benjamin-Cummings Publishing.

2005-Present Invited collaborator in the Virtual Cell Project at http://vcell.ndsu.nodak.edu/animations/ (use of computer animation in higher education; collaborator on a National Science Foundation CCLI grant submitted January 2006, contributor to an article on the project for NSF's Discoveries magazine at http://www.nsf.gov/discoveries/).

2005-Present Associate Member, University of Colorado Cancer Center

2004- Present Reviewer of textbooks, Benjamin Cummings (scientific publisher)

2005 Outside Reviewer, Biology Department of Juniata College, Huntingdon, PA.

2005-1999 Accepted invitation from Dr. Virendra Mahesh to review up to 2 manuscripts per month for Biology of Reproduction, March.

2004 Outside Reviewer, Master's program for Applied Natural Sciences, Colorado State University at Pueblo, CO.

2004 Outside Reviewer, Biology Department, Appalachian State University,

Boone, NC.

2004 Chair of outside review committee for the Biology Department at Colorado State University at Pueblo, January.

2001 Grant reviewer, National Science Foundation, Course, Curriculum and Laboratory Improvement Program. July.

2000 Chair of outside review committee for the Biology Department at the University for the Sciences at Philadelphia, PA. Sept. 28-29.

2000 My web site paper of adrenoleukodystrophy is recognized as one of the the "best layman" summaries of the disease. In 2002, the Myelin Foundation linked its web site to mine.

1999 National Science Foundation, Collaborative Research in Undergraduate Institutions Grant Review panel member.

1999 National Science Foundation, Course, Curriculum and Laboratory Improvement Grant review panel member.

1998 Invited reviewer by Dr. W. Becker; "World of the Cell" textbook (the most popular college-level Cell Biology text used in the United States).

1997 Dr. J. Sando (Professor, Pharmacology, University of Virginia Medical School) spent the fall semester in my lab. She came to learn about extraction of phospholipids, their separation by HPLC and detection by an evaporative light scattering detector. As she could have gone to other labs yet chose mine, this was a complement to our work.

1996 Dr. B. Ciapa (Univ. of Nice, France) came to my lab during the summer. She collaborated on a series of experiments that examined the breakdown of IP3. As she could have gone to other labs around the world, yet she chose my lab, this was a complement to our work.

1987-1986 American Heart Association Fellowship,

1986-1985 National Institutes of Health Postdoctoral Traineeship,

1981 Cystic Fibrosis Foundation Fellowship,

1981 National Institutes of Health Predoctoral Traineeship,

1974 Cum Laude degree, Ohio State University

1971-1970 Scholarship, Denison University, Granville, OH

PROFESSIONAL ORGANIZATIONS

American Society for Cell Biology

National Association of Biology Teachers

Council on Undergraduate Research

Society for Developmental Biology

American Society for Biochemistry and Molecular Biology

OTHER INDICATORS OF SCHOLARSHIP

Research Support

2016 Activation of Phospholipase D and Phosphatic Acid Activation of Phospholipase C in Xenopus Fertilization. Grant from National Institutes of Health, AREA program. 3 years, $466,498.00.
2016 New step in fertilization, possible new path to cancer. UCD college CRISP program, $7000
2016 CLAS Dissemination Grant, $1000
2016 Undergraduate Research Opportunities Grant, with students Hinal Rathi and Leslie Simmons, $2500.

2015 Which form of enzyme PLC is activated at fertilization? Office of Research Services, $3000.
2015 CLAS PostTenure Review Professional Development grant, $4500.

2014 Role for lipid phosphatidic acid in fertilization and activation of cancer associated Src enzyme. UCD college CRISP program. $9000.
2014 Undergraduate Research Opportunities Grant. The mechanism of activation of membrane raft, gamma type of phospholipase C during fertilization. Jordan Long, Andrew Lamp, Alesia Blanchard, Robin Feldman. Awarded $3000.
2014 Submitted proposal to National Science Foundation, Improving Undergraduate STEM Education (IUSE), as co-PI: Promoting Faculty Development and Student Success through the Adoption of the Learning Assistant Model. Laurel Hartley and Bud Talbot wrote it, and I have a minimal role up to this point. Not funded.

2013 Internal award, Undergraduate Research Opportunities Grant. Rachel Ancar, Mackenzie Gribble, Tara Collister, (Mary) Yen-Ha Hoang. $3600.

2012 Tri Beta grant on membrane rafts in fertilization, with undergraduate Rachel Ancar. $500.
2012 Contributed to grant applications: NIH PREP with Dr. Scott Reed and Gutierrez-Hartmann, NIH IMSD grant renewal (for LabCoats Program). Not funded.

2011 CoPI with Dr. Knight (Chemistry): CRISP award. Effects of long term glucose elevation on the phospholipid compositions of insulin secreting cells. $10,000 awarded.
2011 CoPI with Dr. Knight (Chemistry): NSF MRI for total internal reflection fluorescence and atomic force (TIRF/ATM) microscope. Not funded.

2009 Lipid Signaling During Fertilization. National Institutes of Health, AREA R15 program. $454,604.00. 2010-2013
2009 CLAS Research Innovation Seed Program (CRISP) Grant. $4900.

2008 Undergraduate Research Opportunities Grant. Shilo Smith, Colby Fees.

2008 Combined Theoretical and Experimental Search for the Acting Mechanism of the Commonly-Used Antidiabetic Drug Metformin and Derivatives. National Institutes of Health, R 15 AREA. coPI: Hai Lin (Chemistry). Submitted October 2008. Requested: $225,467. Not funded.

2007-2010 MRI: Acquisition of a Nanoflow Hybrid Triple Quadrupole/Linear Trap Mass Spectrometer System for Three Diverse Institutions. $469,227. National Science Foundation. Co-PI: Karen Jonscher.

2006- 2010 Role of Phosphatidic Acid in the Sperm Acrosome Reaction. $214,500. National Institutes of Health AREA R15 program grant.

2006 Undergraduate Research Opportunities Grant, with students Jeffery Taylor Juergens, Karina Bogdasarova, and Brandon Mauracher ($3000).

2005 Undergraduate Research Opportunities Grant, with students Dan Crona and Afsaneh Manshadi ($2000). Master's Student Grant with Jason Stafford ($1750).

2001-2004 National Science Foundation grant; Lipid Signaling in Fertilization; Developmental Mechanisms and Signal Transduction; $350,000.

2004 Undergraduate Research Opportunities Grants, $1100 and $1000, University of Colorado at Denver. One with undergraduate Thomas Arthur, one with Yaser Namvargolian.

2002 Research support from Lyonnaise industrielle pharmaceutique (LIPHA) on the mechanism of action of the antidiabetic drug metformin, $40,000 from 1992-1998; in 1999: $14,500; in 2000: $14,000; 2002, $18,000.
2002 Co-PI on $2 million IGERT grant application to the NSF to support bioinformatics program (multinstitutional program). Not funded.

2001 Faculty grant, mechanism of metformin, University of Colorado-Denver, $5,000.

2000 Awarded travel support to present a talk on teaching with technology, National Association of Biology Teachers, October. Support from Dr. E. Nuhfer.

2000 Undergraduate Research Opportunities Program grant (with Erinn Stauter; $1150).

1999 Undergraduate Research Opportunities Program grant (with William Holland)

1998 Undergraduate Research Opportunities Program grant ($2000; funding for support for 3 students and supplies).

1998 Awarded travel support to attend a conference on teaching with computers (Educom, Oct. 1998). Support from Drs. E. Nuhfer and C. Pletsch.

1997, 2000 Obtained internal funding for page and publication charges ($668; $500) from the Office of Sponsored Programs (Dr. F. Baca).

1997-2000 National Science Foundation Grant, Role of Phospholipase D in fertilization, $280,000.

1996-1997 National Science Foundation Grant, Role of Phospholipase D in fertilization, $93,000.

1994-1999 Undergraduate Research Opportunity Program grants, University of Colorado-Denver, sponsor of student grants totaling $8,150.

1990-1999 Summer Supplement for the National Science Foundation grant, for student stipend and research supplies, totaling $75,000

1993-1996 National Science Foundation Grant, Induction of cell division by protein kinase C, $362,356,

1990-1993 National Science Foundation Grant, Mechanism of action of the ras p21 protein. $221,088.

1989 Junior Faculty Development Award, University of Colorado-Denver $4,500.

1987 Junior Faculty Development Award, University of Colorado-Denver, $4,500.

Other activities

2014 Sponsor of lab research, Ryan Bates, Ph.D. student at AMC, Toxicology research internship (class is Tox #7650)

2014 Reviewer of 2 manuscripts: International Journal of Molecular Sciences and Andrology

2008 Moderator and Sponsor, with Dr. Mary Reyland, for Cancer Center talk by Richard Kolesnick, MD; Professor, Department of Molecular Pharmacology & Chemistry, Sloan-Kettering Institute at Memorial-Sloan Kettering Cancer Center at Anschutz Medical Center; Tuesday, April 15th, 2008

2008, 2007, 2006, 2005 Outside reviewer for HHMI Interdisciplinary/Collaborative Research Fellowships, Canisius College

2005 Due to two student nominations, selected for inclusion in "Who's Who Among America's Teachers, 2005."

2005 Attended “The Undergraduate Experience” summary of student surveys presented by Dr. Richard Light (Harvard). Sept. 23, 2005.

2003-Present With support from a community grant to Dr. L. Edwards, I conducted lab demonstrations on fertilization with groups of 3 to 8 local science teachers.

2003-1999 Through support of an NSF E2020 grant, each summer about 3 high school teachers worked in my research lab.

2001 With funding from UCD Office of Teaching Enhancement, attend course on developing animations for teaching (Macromedia Flash software). Compuskills, Dec. 10, 18.

2001 Attended "Brain Based Learning" teaching seminar; given at UCD by Dr. Robert Leamnson (Univ. of Mass-Dartmouth), Feb. 16.

2001 Invited reviewer of Dr. W. Becker's World of the Cell textbook. Feb.

1999-2000 Developed two new courses: Developmental Biology and Advanced Cell Biology (while continuing to teach General Cell Biology and Cell Signaling)

1999 Among the first Web-enhanced lecture course in the College of Liberal Arts and Sciences: Developmental Biology. I used WebCT to develop this web site for the course; the software allows posting of student grades, email, bulletin boards, direct use of web, illustrations and videos. In 2000, I used Blackboard software to develop web site for Advanced Cell Biology 4054-5054 (a new course), and subsequently switched to Blackboard.

1999 Participant; Delphi study on use of technology in teaching.

1999 Participant, Focus group, UCB, Online learning and Research, Net Library, Sept.

1998 I attended workshops on teaching with world wide web and the use of Powerpoint in classrooms (Oct. 22, 1998; and Oct. 27, 1998). I then incorporated use of these techniques in Cell Biology.

1998 Attended program on Teaching and Technology teleconference; Feb. 10. This material was used to develop Cell Biology and Developmental Biology.

1998 Attended program on "Becoming an OSCAR Winning Teacher" by Tony Grasha; Feb. 19. Sponsored by Dr. Ed Nuhfer.

1998 Attended program on "Mentoring Students To Higher-Level Thinking" by Dr. M. Pavelich, School of Mines. Material applied to Cell Biology course.

1998 Attended National Conference for the Council on Undergraduate Research, Occidental College, Los Angeles, July. Support for travel from the Chancellor's Office and Office of Sponsored Programs.

1998 Due to student nomination, selected for inclusion in "Who's Who Among America's Teachers, 1998."

1998 My web site and summary of online instruction has been used by Dr. M. Karpen, Dr. Jensen, Trinity University, by Dr. W. Mech Dean of the honors program at Florida Atlantic University, by the Council on Undergraduate Research, by Dr. W. Wasserman at Loyola, and by Dr. E. Ferroni, Benedictine University.

1997 Developed my web site for both teaching and research (a web site that has had over 6000 hits by year 2000). The web site includes illustrations, course information, papers published, videos and animation of biological processes. It has been used by many other professors at other institutions (who teach similar courses, or perform similar research) and acknowledged by (and linked to) web sites for "*Xenopus* one" (a web site used by researchers), the Society for Developmental Biology, and The Myelin Foundation.

1997 Attended program on Enhancing and Evaluating Teaching Performance; a video conference with Peter Seldin (Nov. 14). Sponsored by Ed Nuhfer.

1997 Attended program on "Becoming an OSCAR Winning Teacher" video conference on Friday, Oct. 31. Sponsored by Ed Nuhfer.

1997 Worked with Carl Pletsch on use of animations in classroom; obtained $2900 Laptop computer for department teaching.

1997 I introduced the use of CD-ROMs and animation in the teaching of subjects poorly shown by static illustrations (DNA replication, transcription and translation) in lectures of General Biology, and later, Cell Biology 3611.

1992 Attended National Association of Biology Teachers meeting and participated in discussions on teaching General Biology.

1993 Attended "Council on Undergraduate Research Dialog;" a meeting with the National Institutes of Health, National Science Foundation and other funding agencies to discuss research at predominately non-Ph.D.-granting institutions.

1990-Present Attend annual Symposium on Teaching Cell Biology at the American Society for Cell Biology meeting.

1990-Present. Attend yearly Symposia on Improvement of Teaching skills at the University of Colorado at Denver. In 2000, I suggested the theme of the meeting and helped organize it.

1990 Attended Workshop on Academic Research Enhancement Award (AREA) Program at the National Institutes of Health, Washington, DC. Report to Office of Sponsored Programs on research support for smaller institutions.

1978, 1979 Developmental Biology Course, Hopkins Marine Station, Stanford University (1978 student; 1979 selected to be a Teaching Assistant in the course).

SERVICE

Department of Biology

2017 Undergraduate Research Opportunity Program grant reviewer.

2017 Ms. committee, Evan Webber.

2017-2018 Member, Developmental Biologist Search Committee

2017 Member, Promotion committee for Drs. Leo Bruederle, Greg Cronin

2011-2016 Chair, Mentoring Committee; to fall 2016, then member

2010-present Chair, Merit Review Committee 2011-2012, then Member, then Chair in 2015 to present

2016 to present Performance Improvement Agreement Committee

2014, 2015 Member, Committees for promotion or retention for Drs. Hartley, Ferguson, Charlesworth, Vajda, Johnson, Cronin and Phiel.

2014 Teaching committees; Objectives for Cell Biology, Scaffolding

2011-2012 Chair of 2 search committees: Molecular Biology and Genetics hires

2011-2012 Member, Search Committee for Chair, Integrative Biology Department

2012 Comprehensive Review Committees; Alan Vajda, Amanda Charlesworth

2011 Hiring Committee, mentoring, Cell Biology instructor (Laurel Beck)

2011 Comprehensive Review Committees; Laurel Hartley, Michael Wunder

2010-2012 Chair (2011), Graduate Advising Committee

2011 Presentation and lab tours, Biology Open Day, September

2010 Presenter for Department; Stemapalooza at Colorado Convention Center.

2008-2009 Chair, Search Committee, Developmental Biology position.

2007-2008 Chair, Search Committee, Biological Sciences Educator position

2003-2004 Chair, Search Committee, Molecular Biologist position.

2001 Chair, Search Committee, Physiology position

1999 Search Committee member, Lab Coordinator.

1999 to 2004 Department secretary for faculty meetings

1999 to present Mentoring Committees for junior faculty

1998 Search Committee member, Physiology position

1998 Summary: discussion held at the American Society for Cell Biology on teaching Biology and the future of Biology departments.

1998 Two surveys in Cell Biology 3611 concerning issues in teaching and in computer skills.

1994 Search Committee member, Plant Physiologist

1992 Search Committee Member, Biology lab coordinator

<u>College of Liberal Arts and Sciences</u>

2017, 2015 Member, review committee for CRISP awards

2012 Member, Review Committee for Promotion for Chemistry

2002 to 2007 Member, Oversight committee, Certificate Program in Computational Biology.

1989-1995 Member of College of Liberal Arts and Sciences Council.

2000 Animal Quarters space committee

2000 Math Core Curriculum committee

University

2017 URCA task force, member.

2005-present Chair 2005-2008, then member: Undergraduate Research Opportunity Program (UROP) Steering Committee. Began service in 1994.

2016, 2011 Member, Research and Creative Activities Symposium committee

1988-2007 Member and, in 1991, Chair of Institutional Animal Care and Use Committee.

2008 Member, Vice Chancellor's Advisory Committee for Retention, Tenure and Promotion.

2005-2007 Member, Committee for the Research and Creative Activities Day

2005 Member, Experiential Learning Committee

2005 Member, Undergraduate Research/Science Planning Committee

2004 Member, UCD-UCHSC merger team

1999-2002 Faculty Assembly Academic Personnel Committee

1999-2001 Academic Standards Committee

2000-2002 Educational Planning and Policy Committee

2000-2002 Goldwater Scholarship Committee

1999 Panel member, Successful Strategies for Winning Grants, workshop sponsored by Vice Chancellor and Office of Sponsored Research Feb. 18.

1999 Committee member, University of Colorado-Denver Teaching committee; initiated idea for theme of annual teaching seminar (held Feb, 2000).

1998 Member, Peer Advisory Board, Informed Citizen's Quarterly (publication of Chancellor's Scholars and Leaders Program)

1988 Report to Office of Research Administration on undergraduate research and funding based on attendance at the National Council on Undergraduate Research Conference at Carleton College, Northfield, MN.

1998 Invited member of the "Informed Citizen's Quarterly" (journal of the Chancellor's Scholars and Leaders); meeting on Dec. 1, 1998.

Local Communities

2017 Lab tour, Overland High School students (January)

2016 to present Member, Komen Colorado Grant panel

2011 Hosted school group; lab tour and presentation on cells. April 20

2008 Presentation to Scouts at Salem United Church of Christ (Denver), showing videos taken through microscopes (e.g., white blood cells crawling from a blood vessel to a cut in the skin). Scoutmaster Jim Reagan said that the ~20 kids and about 25 adults paid more attention than when Hawk Quest came! (September 19)

2004, 2005 Team leader, Destination Imagination, Eastridge Elementary and Prairie Middle School

1999-2006 My research lab hosted High School Biology teachers through the NSF E2020 program or through a local Boetcher Foundation grant.

2003-2006 Consultant to local Rose Foundation grant for enhancing high school teacher skills

1999 Committee member, hiring of Teacher, Rocky Mountain School of Expeditionary Learning (public school supported by 4 districts). May.

1997 Advised Steve Hall of Jefferson County Magnet School on Cell Biology

Federal

2010-2008, 2006, 2004, 1994-1998 Panel Member, National Science Foundation, Signal Transduction and Regulation Grant Review Panel.

2001, 1999 Panel Member, Course, Curriculum, and Laboratory Improvement grant review panel. National Science Foundation. July.

1999 Panel Member, Collaborative Research in Undergraduate Institutions grant review panel. National Science Foundation. Two meetings in Washington D.C. in spring.

Industry

1992-2004 Consultant on mechanism of action of anti-diabetic drug metformin to manufacturer Lyonnaise industrielle pharmaceutique (LIPHA).

1999-2004 Collaborator with Avanti Polar Lipids, Inc. (Alabaster, AL) on new lipid analysis methodology.

Professional Associations

2016 Reviewer, Molecular Biology of the cell, Developmental Biology

2010-2015 Editorial Committee, Graduate Record Exam, Educational Testing Service, Princeton, NJ.

2015 Local Arranger, Council on Undergraduate Research Proposal Writing Institute, University of Colorado Denver, November.

2001-2009 Invited facilitator, Council on Undergraduate Institute on Proposal Writing Institute, various locations around USA. July of each year.

2005 Local Arrangements Committee, Council on Undergraduate Research

Proposal Writing Institute, Colorado State University-Pueblo, July.

2003-2005 Chair, Council on Undergraduate Research Finance Committee.

1996 to 2009 Annual meetings of the Council on Undergraduate Research: governing body, grant writing presentation organizer, and research poster presentation. June.

2002-present Reviewer, abstracts for Council on Undergraduate Research "Posters on the Hill;" Washington DC, January.

1998-present Biology Councilor for the Council on Undergraduate Research

1998-2005 Member, Council on Undergraduate Research Finance Committee.

1998 Service to "Council on Undergraduate Research": paper on online teaching.

1997-present Nominated by Dr. Randall Tagg (Physics) to position of Biology Councilor for the Council on Undergraduate Research (elected early, 1998).

1997 Service to Council on Undergraduate Research: paper on content of departmental web sites.

1992 Local Arrangements committee for the national meeting of the American Society for Cell Biology.

1988-1997 Outside reviewer for United States-Israeli Binational Science Foundation.

1987-Present Reviewer for various journals (e.g., Development, Diabetologia Developmental Biology, Biochemical Pharmacology, , Journal of Experimental Zoology, Life Sciences Education/Cell Biology Education, etc.) and granting agencies (National Science Foundation, Israeli Bi-national Grant program, Murdock Trust, Veteran's Medical Association). Past Associate Editor of "Biology of Reproduction" and "Cell Biology Education/Life Sciences Education."