

CURRICULUM VITAE
(Effective January 2013)

David George Capco

PRESENT POSITION AND ADDRESS:

Professor, Cellular and Molecular Biosciences Faculty
School of Life Sciences
Arizona State University
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EDUCATION:

1971-1975 B.S. (Biology) Edinboro State College, Edinboro, Pennsylvania (James G. Spaulding, advisor).
1975-1977 M.S. (Biology) University of Houston, Houston, Texas (Luther E. Franklin and William R. Jeffery, co-advisors).
1977-1980 Ph.D. (Cell and Developmental Biology) The University of Texas at Austin, Austin, Texas (William R. Jeffery, advisor).
1980-1983 Postdoctoral Fellow (Cell Biology) Massachusetts Institute of Technology, Cambridge, Massachusetts (Sheldon Penman, sponsor).
Summer 1989 Neural Systems and Behavior Course, Marine Biological Laboratory, Woods Hole, Massachusetts.

PREVIOUS POSITIONS HELD:

1995-Present Professor, Department of Zoology (later Biology, then SOLS), Arizona State University.
1990-1995 Associate Professor, Department of Zoology, Arizona State University.
1994-1995 Director of the Cell Biology Program, National Science Foundation Arlington, VA on assignment from Arizona State University (Associate Professor of Zoology) Sept. 1, 1994 for 1 year.
1992-1993 Visiting Scholar, Max Planck Institute for Biophysical Chemistry Göttingen, Germany; Host: Dr. Herbert Jäckle; August 1992 - February 1993.
1985-1990 NIH Research Career Development Awardee and Assistant Professor, Department of Zoology, Arizona State University.
1984-1985 Assistant Professor, Department of Zoology, Arizona State University.
1982-1983 Postdoctoral Fellow, NIH (NCI/NRSA), Department of Biology, Massachusetts Institute of Technology.
1980-1982 Postdoctoral Fellow (Anna Fuller Fund for Medical Research), Department of Biology, Massachusetts Institute of Technology.
1979-1980 Research Assistant, Department of Zoology, University of Texas at Austin.
1978(Summer) Research Associate, Marine Biological Laboratory, Woods Hole, Massachusetts.
1977-1978 Research Assistant, Department of Zoology, University of Texas at Austin.
1977 Research Assistant, Department of Biophysical Sciences, University of Houston.
1975-1976 Teaching Assistant, Department of Biology, University of Houston.
1974-1975 Laboratory Assistant, Department of Biology, Edinboro State College.

AWARDS AND HONORS:

1980-1982 Recipient of Anna Fuller Fund Postdoctoral Fellowship for Medical Research.
1982-1983 Recipient of NIH (NCI/NRSA) Fellowship.
1985-1990 Recipient of NIH Research Career Development Award.
1989 Howard Hughes/MBL Summer Scholarship.
1990 Sponsor Laboratory for High School Teacher Training awarded by the American Society for Cell Biology.
1992-1993 Senior Fulbright Scholar.
1993 Governor's Recognition Award (Team Award).
2005 & 2006 & 2007 & 2008 & 2009 & 2010 & 2012 Nominee, Professor of the year, ASU
2005 & 2006 & 2008 & 2009 Nominee, Last Lecture series, ASU
2005 & 2006 & 2007 & 2009 Nominee, CLAS Distinguished Lecturer, ASU
2007 Professor of the Month (October), Delta Zeta Sorority
2005 & 2007 Advising Support Award, Non-advising Faculty from Council of Academic Advisors, ASU
2009 CLAS Outstanding Undergraduate Mentor-single annual award from the College
2011 Sun Award for cooperation and performance - SOLS Mentors

PROFESSIONAL SOCIETY MEMBERSHIPS:

American Society for Cell Biology
Society for Developmental Biology
American Association for the Advancement of Science

NATIONAL COMMITTEE MEMBERSHIP:

American Society for Cell Biology, Education Committee 1989, 3 year term.
American Society for Cell Biology, Education Committee 1992, 3 year term.
Society for Developmental Biology, Board of Trustees 1993, 3 year term.
Society for Developmental Biology, Chair, Education Committee, 1993 three year term.
Cell Biology Panel (Cell Organization), National Science Foundation, member 1994.
Director, Cell Biology Program (Two Panels: 1)Signal Transduction and Regulation and 2) Cell Organization), National Science Foundation, Sept. 1, 1994 1 year term.
Co-Chair of panel for Women's Planning Grants and Career Advancement Awards, National Science Foundation, Division of Molecular and Cellular Bioscience, 1994-1995.
Member, Review Panel, Division of Undergraduate Education, National Science Foundation, 1996.
Member, NASA Gravitational Biology, "Pillars" development program, 1998.
Member, Flinn Foundation Biomedicine/Life Sciences Organizing Committee, 1998.
Member, International Space Life Sciences Working Group in Developmental Biology, NASA, 1999.

PRESENTATIONS: (selected presentations)

Society for Developmental Biology, Northeast Regional meeting, 1983
Embryology Course, Marine Biological Laboratory, Woods Hole, Ma, 1983
Conference entitled, "Cryogenic Techniques in Biological Electron Microscopy."ASU, 1987
Seminar, University of California at Davis, College of Medicine, 1989
Seminar, University of Kansas Medical Center, 1990
Seminar, Tufts University Health Science Center, 1990
Speaker, High School Teacher Education Program, ASCB Meeting, 1990
Seminar, Clemson University, 1991
Lecture, Gamete Discussion Group, U C Davis. *PKC acts downstream of calcium to induce mammalian egg activation*, 1992
Lecture, Southwest Regional Conference of the Society for Developmental Biology. *High resolution imaging of the cytoskeletal sheets, an analysis of their probable role(s) during mammalian development*, 1992
Lecture, Fourth International *Xenopus* Conference, Asliomar, California. *Regulation of the cortical cytoskeleton during meiotic maturation*, 1992
Plenary Address, Molecular Genetics of Morphoregulatory Processes, Germany. *How does a sperm turn an egg on? Conserved mechanisms among amphibians and mammals*, 1993.
Program Chair, Session III "Receptor interactions in development" at the southwest regional meeting of the Society for Developmental Biology in Kingston, Oklahoma, 1993.
Lecture, Annual Meeting of the American Society for Cell Biology. New Orleans, LA. *Not simply cells, but eggs and embryos. Are they special?*, 1993.
Seminar, National Science Foundation, *Cellular remodeling by signal transduction mechanisms*, Arlington Virginia, March 1994 .
Program Chair Session I "Gene Regulation" at the southwest regional meeting of the Society for Developmental Biology in Houston, Texas, May 1994.
Invited Topic, Complementary roles of PKC and PKM, and a requirement for vinculin, in the establishment of a contractile network in the *Xenopus* egg. Fifth International *Xenopus* Meeting, Doorwerth, The Netherlands, June 1994.
Education Forum Introduction, "Challenges to the Education Process in the U.S.A.: Who should change to address these challenges?" National meeting of the Society for Developmental Biology, Madison, Wisconsin, 1994.
Presentation at the NSF conference on "Diversity in the Scientific and Technologic Workforce" for the area of biology, *Why work in biology?* Omni Hotel, Washington, DC, 1994.
Seminar, *Cellular remodeling regulated by signal transduction mechanism*, University of Texas at Dallas, Richardson, Texas, 1995.
Seminar, *Cellular remodeling regulated by signal transduction mechanisms*, University of Virginia, Charlottesville, VA, 1995.
Seminar, Current Topics in Cell Biology: How the sperm turns the egg on; at the National Association of Biology Teachers meeting, for the American Society for Cell Biology, Phoenix, AZ , Oct. 1995.

PRESENTATIONS CONTINUED:

Seminar, *Regulation of egg activation by cytoplasmic signal transduction*, at the Biological Structure and Gene Expression Conference, Colorado, 1996.

Presentation, *Biotechnology at Arizona State University*, at the Arizona BioIndustry Conference: Designing the future, Phoenix, AZ, April 1997.

Presentation, *Biotechnology at Arizona State University* for the Arizona Department of Commerce, Marketing Division, Tempe, AZ, April 1997.

Presentation, *How the sperm turns the egg on*. Texas A&M University, Corpus Christi, Texas, Developmental Biology Conference, May 1998.

Lecture to the public for Spirit of the Senses "What are stem cells? What can you do with them?" at Barrow Neurological Institute, August 2001.

Lecture, *Biotechnology and Cell Culture*, Glendale Community College, Glendale, AZ 2004, 05, 06, 07

Gordon Conference presentation: Nanoparticles in water environment: Characterization, removal, environmental applications, bio-accumulation, and cytotoxicity; Environmental Sciences Water June 25-30, 2006; Holderness School, Plymouth, NH

ASU East: Alternative Medicine Program lecture on Chinese Medicine 2006, 2007

Crittenden, J.C., Y. Zhang, B.A. Koeneman, Y. Chen, P. Westerhoff, D.G. Capco, Nanoparticles in Water

Environment: Characterization, Removal, Environmental Applications, Bio-accumulation, & Cytotoxicity,

International Workshop on Environmental Engineering – Tsinghua University, Beijing, China, July 25, 2007.

Zhang, Y., B.A. Koeneman, Y. Chen, P. Westerhoff, D.G. Capco, J.C. Crittenden, Fate, Transport, and Toxicity of Nanomaterials in Drinking Water, Nano Science and Technology Institute-Nanotech 10th Annual Meeting, Santa Clara, CA, May 23, 2007.

PROFESSIONAL ACTIVITIES:

1981-1998, External Reviewer NSF Grant Proposals

1986-1998, Reviewer for Journal of Cell Biology; Journal of Histochemistry and Cytochemistry; Developmental Biology; Anatomical Record; Cell Regulation; Molecular Reproduction and Development; Biology of Reproduction, Zygote.

Member of Education Committee of the American Society for Cell Biology, 1989-1994.

Sponsoring Laboratory for Summer High School Teacher Fellowship awarded from the American Society for Cell Biology, one of ten awards made in the nation, 1990.

Consultant on questions for American College Testing, medical section, 1992.

German Fulbright Commission Evaluation Board for German Students, 1992.

Member, Steering Committee, Bioindustry Cluster, Governors Strategic Taskforce for Economic Devel. 1996-98.

Member, ASU Biomedical Strategic Planning Committee, 1998.

Consultant on questions for the Graduate Record Exams subject test, 1998, 1999.

Elected Member, Board of Directors, Arizona Bioindustry Cluster, Inc. 1998-2003.

Chair Nominating Committee, Arizona Bioindustry Cluster 2001-2003.

EDITORIAL BOARDS:

Associate Guest Editor, "The Ultrastructure of Development Series," for the Journal of Electron Microscopy Technique. 1988 to 1994

Special Editor, Current Topics in Developmental Biology, 1994-1996.

Associate Editor, Molecular Reproduction and Development, 1996-2012.

Managing Editor for Molecular and Biochemical Regulation of Mammalian Pre-Implantation Development, for Frontiers in Bioscience. 2000-2002.

Member, Editorial Board, Frontier in Bioscience 2001 - current

SCIENCE EDUCATION CONFERENCES:

1991 PreCollege Science Education Conference sponsored by the NSF and the Education Development Center, Inc. Location: Boston, MA.

1994 Working Conference for Scientists and Engineers, sponsored by the National Science Resources Center, Smithsonian Institution, National Academy of Sciences. Location: Huntsville, AL, 1994.

1995 National Convocation for Undergraduate Science Education, "From Analysis to Action," National Academy of Sciences, Washington DC, April 1995

1997, 1998 Arizona SMETE Conference for undergraduate education.

CONFERENCES ORGANIZED:

Life Science Meeting renamed Cell and Molecular Biology Conference at Tontozona 1986, 1987, 1988, 1989, 1990, 1991, 1992; organizer and co-organizer.
Cryogenic Techniques in Biological Electron Microscopy 1987; co-organizer.
American Society for Cell Biology Symposium at the National Association of Biology Teachers Annual Meeting, Nov. 1991; co-organizer.
Subgroup session at American Society for Cell Biology Annual Meeting (1993). Specialized function of the cytoskeleton during early development, New Orleans, LA. December 1993.
Education Workshop for Life Science Faculty at Arizona State University, Tempe, AZ, March 11, 1994.
Education Forum, Special Session at the annual meeting of the Society for Developmental Biology, Madison, Wisconsin, June 17, 1994.
Education Session, National Meeting of the Society for Developmental Biology, San Diego, Ca, August 1995.
Seminar on Undergraduate Science Education for BIO Directorate NSF, Dr. Jay Labov, Study Director, NAS Committee on Undergraduate Science Education.
Member, Flinn Foundation Biomedicine/Life Science Organizing Committee, 1998

EDUCATION LEADERSHIP:

Member, Advisory Board of the BioTech Project, University of Arizona, 1996, 1997.
Member, AA-SMETE, An alliance of organizations associated with the Phoenix Urban Systemic Reform Initiative funded by NSF, 1996, 1997.
Organizer, Education focus in Arizona: Planning for 1997, 1996.
Member, Science Strategic Planning Committee for levels K- 12, Mesa Public School District, 1998

PREVIOUS GRANT SUPPORT:

Arizona State University, Faculty Grant-in-Aid, \$3,000, P.I. 1984.
Arizona State University, Biomedical Research, \$4,800, P.I. 1984.
NIH: Maternal mRNA and Protein Localizations in *Xenopus* Oocytes. David G. Capco, P.I. Direct costs \$239,035. July 1, 1984 - 3 year.
Graduate College Conference Grant, ASU, for Conference entitled, "Cryogenic Techniques in Biological Electron Microscopy," \$2,500, co-PI, 1987.
ASU,RIA: The cytoskeleton in trophectoderm development. David G. Capco and Robert W. McGaughey, Co-PI. \$10,000. April 1, 1987 - 1 year.
NIH: Equipment grant for purchase of a Biological Electron Microscope. Co-investigator. \$191,000. December 1, 1987 - 1 year.
NIH: Research Career Development Award. David G. Capco, P.I. Direct costs and indirect costs approximately \$200,000. September 1, 1985 - 5 year.
NIH: Role of the Cytoskeleton in Trophectoderm Development. David G. Capco, Robert W. McGaughey, Co-PI. Direct Costs \$235,000. May 1, 1988 - Expiration Date Oct. 31, 1991.
Fulbright International Scholarship 1992-1993.
NSF: Instrumentation grant for purchase of high pressure freezer. Co-investigator. \$123,000, 1994.
NIH: Interaction of anti-HIV drugs with placental models, D.G. Capco, P.I.; Coinvestigators: B. Jacobs and R.W. McGaughey, direct costs and indirect costs \$480,547, September 30, 1991 - 3 year.
NIH: PKC: Cytoplasmic regulator of early development. D.G. Capco, P.I., direct costs and indirect costs \$555,723, May 1, 1992 - 4 year; no cost extension.
Whitaker Pilot Grant: Development of an artificial pericardium, Co-PI, \$20,000, 1 year
Whitaker Pilot Grant: Investigation of factors affecting bone mineralization. Co-PI, \$20,000, 1 year
Whitaker Pilot Grant: Development of 3-dimensional culture systems to expand T lymphocyte progenitor cells, Co-PI, \$20,000, 1 year.
NIH: Signal Transduction: Regulation of mammalian development, D.G. Capco, P.I.; direct and indirect costs \$600,000, June 1, 1996 - 4 year-no cost extension. Minority Supplement: Additional direct and indirect costs \$126,862.
NSF/KDI: 3D Knowledge: Acquisitions, representation, and analysis in a distributed environment; co-investigator on multi-disciplinary grant. Co-PI \$2,500,000 1999.
DARPA: Advanced Neural Implants, Co-PI, \$6,000,000 total award. no cost extension.
EPA: The fate, transport, transformation and toxicity of manufactured nanomaterials in drinking water. Co-PI, Nov. Co-PI \$349,880. 3 year.

CURRENT GRANT SUPPORT:

EPA: Development of an In Vitro Test and a Prototype Model to Predict Cellular Penetration of Nanoparticles
Co-PI \$399,628.

PUBLICATIONS: Thesis and Dissertation

Analysis of the distribution of messenger RNA during insect development by *in situ* hybridization with radioactive polyuridylic acid, (Luther E. Franklin and William R. Jeffery, co-advisors; University of Houston).
Analysis of the spatial distribution of RNA during oogenesis and early development of *Xenopus laevis*, (William R. Jeffery, advisor; University of Texas at Austin).

ABSTRACTS SINCE 1986:

Capco, D.G. and C.A. Larabell. Functioning Ca²⁺ channels related to disruption of poly(A)⁺ RNA localizations in stage 6 oocytes of *Xenopus*. American Society for Cell Biology, 1986.
Capco, D.G. and R.W. McGaughey. Unique cytoskeletal elements in mammalian eggs and embryos. American Society for Cell Biology annual meeting, 1987.

ABSTRACTS CONTINUED:

Gassmann, C.J. and D.G. Capco. A method to examine the detergent-resistant cytoskeleton of cells in organs. American Society for Cell Biology, 1987.
Bement, W.M. and D.G. Capco. *In vitro* meiotic maturation of the *Xenopus* oocyte induced by reduction of transmembrane Ca²⁺ flux causes ultrastructural changes not present in progesterone-matured oocytes. American Society for Cell Biology, 1986
Mutchler, D.V., R.W. McGaughey, and D.G. Capco. Cytoskeletal organization during early development in the mouse. American Society for Cell Biology, 1988.
Bement, W.M. and D.G. Capco. Phorbol myristate acetate induces cortical granule exocytosis, cortical contraction and cleavage furrow formation in *Xenopus* oocytes and eggs. American Society for Cell Biology, 1988.
Dersch, M.A. and D.G. Capco. The cortical compartment of *Xenopus* oocytes contains a primordial membrane network which develops into the cortical endoplasmic reticulum in the activation-competent egg. American Society for Cell Biology, 1989.
Bement, W. M. and D.G. Capco. The role of protein kinase C in the early *Xenopus* cell cycle. American Society for Cell Biology, 1989.
Bement, W.M. and D.G. Capco. Parallel pathways of cell cycle control at *Xenopus* egg activation. American Society for Cell Biology, 1990.
Bement, W.M. and D.G. Capco. *In vitro* analysis of contractile ring formation: Protein kinase C controls embryonic cytokinesis. American Society for Cell Biology, 1990.
Gallicano, G.I., D.G. Capco and R.W. McGaughey. The cytoskeleton of the mouse egg and embryo: A role for intermediate filaments. American Society for Cell Biology, 1990.
Gallicano, G.I., D.G. Capco and R.W. McGaughey. Cytoskeletal sheets comprised of intermediate filaments: Novel cytoskeletal elements characteristic of mammalian embryos. American Society for Cell Biology, 1990.
Bement, W.M. and D.G. Capco. Analysis of contractile ring formation *in vitro*: Role for protein kinase C in embryonic cytokinesis. American Society of Zoologists, 1990. *Student oral presentation, awarded best student presentation.*
Tutnick, J.M. and D.G. Capco. The role of protein kinase C in the reorganization of the cortical cytoskeleton in the transition from oocyte to fertilization - competent egg. American Society for Cell Biology, 1991.
Gallicano, G.I., C.A. Larabell, R.W. McGaughey, and D.G. Capco. Substructure of cytoskeletal sheets: A highly organized array of 10 nm filaments with periodic crossbridges. American Society for Cell Biology, 1991.
Gallicano, G.I., S.M. Schwarz, R.W. McGaughey, and D.G. Capco. PKC acts in concert with calcium to mediate mammalian egg activation. American Society for Cell Biology, 1992.
Olson, J.H. and D.G. Capco. Crosstalk between MPF and protein kinase C in the reorganization of the cortical cytoskeleton. American Society of Cell Biology, 1992.
Gallicano, G.I., S.M. Schwarz, and R.W. McGaughey. Protein kinase C acts after calcium to induce egg activation. Southwest regional Conference of the Society for Developmental Biology, 1992, *student oral presentation.*
McGaughey, R.W., Vinee Usaha, G.I. Gallicano, D.G. Capco, and B.L. Jacobs. Azidothymidine (AZT), a viral reverse transcriptase inhibitor, disrupts early development in mice. American Society for Cell Biology, 1992.
Gallicano, G.J., C.A. Larabell, D.G. Capco and R.W. McGaughey. Intermediate voltage microscopy and quick-freeze, deep-etch analyses of unique cytoskeletal elements identified in mammalian eggs. Arizona Society for Electron Microscopy and Microbeam Analysis, 1993, *student oral presentation.*
Gallicano, G.J., C.A. Larabell, D.G. Capco and R.W. McGaughey. Intermediate voltage microscopy and quick-freeze, deep-etch analyses of unique cytoskeletal elements identified in mammalian eggs. Southwest regional meeting of the Society for Developmental Biology, 1993, *student oral presentation.*

- Gallicano, G.J., R.W. McGaughey and D.G. Capco. Cytoskeletal sheet reorganization at fertilization is controlled by PKM, the cytosolic form of PKC. American Society for Cell Biology, 1993.
- Schwarz, S.M., R.W. McGaughey, and D.G. Capco. A role for intermediate filaments in the establishment of the primitive epithelium during mammalian embryogenesis. American Society for Cell Biology, 1993.
- Gallicano, G.I., R.W. McGaughey, and D.G. Capco. Specialized cytoskeletal elements regulated by PKC reorganize at major developmental transitions in mammalian embryos. American Society for Cell Biology, 1993, *student oral presentation*.
- Gallicano, G.I., R.W. McGaughey, and D.G. Capco. PKC initiates development of cellular polarity at embryonic compaction by phosphorylation of uvomorulin. Society for Developmental Biology, 1994, *student oral presentation*.
- O'Connor, P.K., G.I. Gallicano, and D.G. Capco. b- and g-catenin during preimplantation development of mammals. Mol. Biol. of the Cell 6:206a, 1995.
- Bierle, B.M., G.I. Gallicano, and D.G. Capco. Roles for Ca²⁺ dependent molecules in mammalian egg activation. Mol. Biol. of the Cell 6:432a, 1995.
- Bierle, B.M., G.I., Gallicano, and D.G. Capco. Evidence for the involvement of calmodulin and CaMKII in the metaphase II to anaphase II transition at egg activation. Mol. Biol. of the Cell. 7:644a, 1996.
- Pauken, C.M. and D.G. Capco. Control of embryonic compaction of the 8 cell mouse embryo. Develop. Biol. , 1998
- Patrick Rourke (2000). Tissue Engineering Approach for Pericardial Repair - (Senior Design Project) Mentors: Dr. Stephen Massia and Dr. David Capco, Biomedical Engineering Poster Competition, Arizona State University, Tempe, AZ
- Baluch, P.D., J-X Hu, A. Huang, A. Razdan, G. Nielson, G Farin, D.G. Capco (2001) New Perspectives of the Mammalian Meiotic Spindle. ASCB annual meeting. Molecular Biology of the Cell 12: 260a.
- Huang, A., Nielson, G., Razdan, A., Farin, G., Capco, D., Baluch, P. (2002) Line and net pattern segmentation using shape modeling. IS&T/SPIE Conference, Visualization and Data Analysis
- Baluch, D. P., Koeneman, B. A., McGaughey, R. W. and Capco, D. G. (2004) Unique association of PKC zeta at the meiotic spindle. Biol Repro.
- Baluch, D. P., Koeneman, B. A., McGaughey, R. W. and Capco, D. G. (2004) A possible role of PKC zeta in maintaining spindle integrity. American Society for Cell Biology 41st Annual Conference. Molec Bio Cell
- Koeneman, B.A. A. Panitch, J. He, D.G. Capco, Evaluating the Behavior of Neural Cells Near an Electrode in Rat Brain Slice Cultures, The American Society of Cell Biology 45th Annual Meeting, San Francisco, CA, December 14, 2005, p688a.
- P. Westerhoff, B.A. Koeneman, Y. Zhang, J. Crittenden, D. Capco, Y. Chen, Removal and Toxicity of Nanoparticles in Drinking Water, American Water Works Association Annual Conference, San Antonio, TX, June 12-15, 2006.
- Y. Zhang, B.A. Koeneman, K. Hristovski, Y. Chen, P. Westerhoff, D.G. Capco, D. Gerrity, H. Ryu, M. Abbaszadegan, J. Crittenden, Nanoparticles in Water Environment: Characterization, Removal, Environmental Applications, Bio-Accumulation, & Cytotoxicity, Gordon Conference: Environmental Sciences, Plymouth, NH, June 25, 2006.
- B.A. Koeneman, Y. Zhang, K. Hristovski, P. Westerhoff, Y. Chen, J.C. Crittenden, D.G. Capco. Effects from the exposure of nanoparticles on human intestinal cells, Mol. Biol. Cell 17 (suppl), L067 (Wed). The American Society for Cell Biology 46th Annual, 2006
- Koeneman B.A., Y. Zhang, K. Hristovski, P. Westerhoff, Y. Chen, J. Crittenden, D.G. Capco (2007). Cytotoxicity of Nanoparticles on Human Intestinal Cells, Mol. Biol. Cell **18** (suppl), 85(Sunday), The American Society for Cell Biology 47th Annual Meeting, Washington D.C., December 2, 2007.
- Koeneman, B.A., Y. Zhang, K. Hristovski, P. Westerhoff, Y. Chen, J.C. Crittenden, D.G. Capco, Impact of Nanoparticles on Human Intestinal Cells, Arizona Imaging and Microanalysis Society Annual Meeting, Tempe, AZ, March 8, 2007. (Won Best Poster for Life Sciences).
- Faust, J.J., Zhang, W., Chen, Y., Capco, D.G. Size matters to a syncytiotrophoblast: Alpha-Fe₂O₃ nanoparticles elicit diameter-dependent effects. American Society for Cell Biology 2012, *student presentation*

PUBLISHED PAPERS:

1. Capco, D.G. and W.R. Jeffery (1978). Differential distribution of poly(A)-containing RNA in the embryonic cells of *Oncopeltus fasciatus*. Analysis by *in situ* hybridization with a (³H)-poly (U) probe. Develop. Biol. 67: 137-151.

2. Jeffery, W.R. and D.G. Capco (1978). Differential accumulation and localization of maternal poly(A)-containing RNA during early development of the ascidian, Styela. *Develop. Biol.* 67: 152-166.
3. Capco, D.G. and W.R. Jeffery (1979). Origin and spatial distribution of maternal messenger RNA during oogenesis of an insect, Oncopeltus fasciatus. *J. Cell Sci.* 39: 63-76.

PUBLISHED PAPERS CONTINUED:

4. Capco, D.G. and W.R. Jeffery (1981). Regional accumulation of vegetal pole poly(A)⁺ RNA injected into fertilized eggs of Xenopus laevis. *Nature* 294: 255-257.
5. Penman, S., A. Fulton, D. Capco, A. Ben-Ze'ev, S. Wittelsberg, and C.T. Fyne (1981). Cytoplasmic and nuclear architecture in cells and tissue: Form, function and mode of assembly. *Cold Spring Harbor Symp. Quant. Biol.* 46: 1013-1028.
6. Capco, D.G. and W.R. Jeffery (1982). Transient localizations of messenger RNA in Xenopus laevis oocytes. *Develop. Biol.* 89: 1-12.
7. Capco, D.G. (1982). The spatial pattern of RNA in fully grown oocytes of an amphibian, Xenopus laevis. *J. Exp. Zool.* 219: 147-154.
8. Capco, D.G., K.M. Wan, and S. Penman (1982). The nuclear matrix: Three-dimensional architecture and protein composition. *Cell* 29: 847-858.
9. Capco, D.G. and H. Jackle (1982). Localized protein synthesis during oogenesis of Xenopus laevis: Analysis by in situ translation. *Develop. Biol.* 94: 41-50.
10. Penman, S., D.G. Capco, E.G. Fey, P. Chatterjee, T. Reiter, S. Ermisch, and K. Wan (1983). The three-dimensional structural networks of cytoplasm and nucleus; Function in cells and tissue, in the *Modern Cell Biology Series: Spatial organization of eukaryotic cells.*, J.R. McIntosh, ed., Alan R. Liss, Inc., NY. pp 385-415.
11. Capco, D.G. and S. Penman (1983). Mitotic architecture of the cell: The filament networks of the nucleus and cytoplasm. *J. Cell Biol.* 96: 896-906.
12. Capco, D.G., G. Krochmalnic, and S. Penman (1984). A new method of preparing embedment-free sections for TEM: Applications to the cytoskeletal framework and other three-dimensional networks. *J. Cell Biol.* 98: 1878-1885.
13. Fey, E.G., D.G. Capco, G. Krochmalnic, and S. Penman (1984). Epithelial structure revealed by chemical dissection and unembedded electron microscopy. *J. Cell Biol.* 99: 203s-208s.
14. Reiter, T., S. Penman, and D.G. Capco. (1985). Shape-dependent regulation of cytoskeletal protein synthesis in normal and transformed cells. *J. Cell Science* 76: 17-33.
15. Capco, D.G. and R.W. McGaughey (1986). Cytoskeletal reorganization during early mammalian development: Analysis using embedment-free sections. *Develop. Biol.* 115: 446-458.
16. Capco, D.G., D.M. Munoz, and C.J. Gassmann. (1987). A method for the analysis of the detergent-resistant cytoskeleton of cells within organs. *Tissue and Cell* 19: 607-616.
17. Capco, D.G. and M.D. Mecca. (1988). Analysis of proteins in the peripheral and central region of amphibian oocytes and eggs. *Cell Diff.* 23: 155-164.
18. Larabell, C.A. and D.G. Capco. (1988). Role of calcium in the localization of maternal poly(A)⁺ RNA and tubulin mRNA in Xenopus oocytes. *Roux's Arch. Dev. Biol.* 197:175-183.
19. Perry, B.A. and D.G. Capco. (1988). Spatial reorganization of actin, tubulin and histone mRNAs during meiotic maturation and fertilization in Xenopus oocytes. *Cell Diff. and Devel.* 25:98-108.
20. Bement, W.M. and D.G. Capco. (1989). Intracellular signals trigger ultrastructural events characteristic of meiotic maturation in Xenopus oocytes. *Cell Tissue Res.* 255:183-191.
21. Bement, W.M. and D.G. Capco. (1989). Activators of protein kinase C trigger cortical granule exocytosis, cortical contraction and cleavage furrow formation in Xenopus laevis oocytes and eggs. *J. Cell Biol.* 108:885-892.
22. Hauptman, R.J., B.A. Perry, and D.G. Capco. (1989). A freeze-sectioning method for preparation of the detergent-resistant cytoskeleton identifies stage-specific cytoskeletal proteins and associated mRNA in Xenopus oocytes and embryos. *Devel. Grow. and Differ.* 31: 157-164.
23. McGaughey, R.W. and D.G. Capco. (1989). Specialized cytoskeletal elements in mammalian eggs: Structural and biochemical evidence for their composition. *Cell Motil. Cytoskel.* 13: 104-111.
24. Bement, W.M. and D.G. Capco. (1990). Protein kinase C acts downstream of calcium at the first mitotic interphase of Xenopus laevis. *Cell Regul.* 1: 315-326.
25. Bement, W.M. and D.G. Capco. (1990). Transformation of the amphibian oocyte into the egg: Structural and biochemical events. *J. Elect. Mic. Tech.* 16: 202-234.

26. Smith, R., W.M. Bement, M.A. Dersch, M. Dworkin, E. Dworkin, and D.G. Capco. (1990). Nonspecific effects of oligodeoxynucleotide injection in *Xenopus* oocytes: A reevaluation of previous D7 mRNA ablation experiments. *Develop.* 110: 769-779.
27. Bement, W.M. and D.G. Capco. (1990). Synthesis, assembly and organization of the cytoskeleton during early amphibian development. *Sem. in Cell Biol.* 1: 383-389.
28. Bement, W.M., and D.G. Capco. (1991). Analysis of inducible contractile rings suggest a role for protein kinase C in embryonic cytokinesis and wound healing. *Cell Motil. Cytoskel* 20: 145-157.

PUBLISHED PAPERS CONTINUED:

29. Gallicano, G.I., R.W. McGaughey, and D.G. Capco. (1991). The cytoskeleton of the mouse egg and embryo: Reorganization of planar elements. *Cell Motil. and the Cytoskel.* 18: 143-154. *Journal Cover Micrograph.*
30. Dersch, M.A., W.M. Bement, C.A. Larabell, M.D. Mecca, and D.G. Capco. (1991). Cortical membrane-trafficking during the meiotic resumption of *Xenopus laevis* oocytes. *Cell and Tiss. Res.* 263: 375-383.
31. Bement, W.M. and D.G. Capco. (1991). Parallel pathways of cell cycle control during *Xenopus* egg activation. *Proc. Nat'l. Acad. Sci.* 88: 5172-5176.
32. Capco, D.G. and W.M. Bement. (1991). Oocyte test for detection of tumor promoting compounds. *Off. Gazet. U.S. Pat. and Trad. Off.* 1122: 898.
33. Capco, D.G. and C.A. Larabell. (1991). "The Cytoskeleton During Early Development: Structural Transformation and Reorganization of RNA and Protein," in *Progress in Molecular and Subcellular Biology*, vol. 12, pp. 59-88. Springer-Verlag.
34. Capco, D.G. and W.M. Bement. (1991). "Analysis of cellular signalling events, the cytoskeleton, and spatial organization of macromolecules during early *Xenopus* development." in *Methods in Cell Biology*, vol. 36, pp. 249-270, B.K. Kay and B. Peng, eds. Academic Press, New York.
35. Bement, W.M., G.I. Gallicano and D.G. Capco. (1992). The role of the cytoskeleton in early development. *Micros. Res. Tech.* 22: 23-48.
36. Gallicano, G.I., R.W. McGaughey, and D.G. Capco (1992). Cytoskeletal sheets appear as universal components of mammalian eggs. *J. Exp. Zool.* 263: 194-203.
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38. Capco, D.G., J.M. Tutnick, and W.M. Bement (1992). The role of protein kinase C in the cortical cytoskeleton during transition from oocyte to fertilization-competent egg. *J. Exp. Zool.* 264: 395-405.
39. Capco, D.G., G.I. Gallicano, R.W. McGaughey, K.H. Downing and C.A. Larabell (1993). Cytoskeletal sheets of mammalian eggs and embryos: A lattice-like network of intermediate filaments. *Cell Motil. Cytosk.* 24: 85-99.
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43. Gallicano, G.I., C.A. Larabell, R.W. McGaughey, and D.G. Capco. (1994). Novel cytoskeletal elements in mammalian eggs are composed of a unique arrangement of intermediate filaments. *Mech. Develop.* 45:211-226.
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45. Gallicano, G.I., R.W. McGaughey, and D.G. Capco(1995). Protein kinase M, the cytosolic counterpart of protein kinase C remodels the internal cytoskeleton of the mammalian egg during activation. *Develop. Biol.* 167:482-501.
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48. Capco, D.G. (1996). Specializations in cytoskeletal function during early development. *The Cytoskeleton*, JAI Press 2:59-112.
49. Gallicano, G.I., M.C. Yousef, and D.G. Capco. (1997) PKC - a pivotal regulator of early development. *Bioessays.* 19: 29-36.

50. Gallicano, G.I., R.W. McGaughey, and D.G. Capco (1997). Activation of protein kinase C after fertilization is required for remodeling the mouse egg into the zygote. *Mol. Reprod. Develop.* 46:587-601.
51. Johnson J. and D.G. Capco (1997). Progesterone acts through protein kinase C to remodel the cytoplasm as the amphibian oocyte becomes the fertilization-competent egg. *Mech. of Develop.* 67:215-226.
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54. Pauken, C.M and D.G. Capco (1999). Regulation of cell adhesion during embryonic compaction of mammalian embryos: Roles for PKC and b-catenin. *Mol. Reprod. and Develop.* 54:135-144.
55. Pauken C. M. and D.G. Capco (2000). The expression and stage-specific localization of protein kinase C isoforms during mouse preimplantation development. *Develop. Biol.* 223:411-421.
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57. Capco, D.G. (2001). Molecular and biochemical regulation of mammalian early development. *Int. Rev. Cytology.* 207:195-235.
58. Razdan, A., K. Patel, G.E. Farin, and D.G. Capco (2001). Volume visualization of multicolor laser confocal microscope data. *Computers and Graphics* 25: 371-382.
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63. Koeneman, B.A., K-K Lee, A. Singh, J. He, G.B. Raupp, A. Panitch, and D.G. Capco. (2004) An ex vivo method for evaluating the biocompatibility of neuronal electrodes in rat brain slice cultures. *Journal of Neuroscience Methods* 137: 257-263.
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66. Huang, A., G.M. Nielson, A. Razdan, G.E. Farin, D.P. Baluch and D.G. Capco (2006). Thin structure segmentation and visualization in three dimensional biomedical images: A shape-based approach. *Visualization and Computer Graphics* 12:93-102
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68. Koeneman, B.A., Y. Zhang, K. Hristovsky, P. Westerhoff, Y. Chen, J.C. Crittenden, D.G. Capco (2009). Experimental approach for an in vitro toxicity assay with non-aggregated quantum dots. *Toxicology in Vitro*, 23: 955-962.
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71. Zhang W., Kalive M., Capco DG., Chen Y. (2010). [Adsorption of hematite nanoparticles onto Caco-2 cells and the cellular impairments: effect of particle size.](#) *Nanotechnology.* 21(35):355103.
72. Kalive, M., Baluch, D.P., Capco, D.G. (2011). PKC ζ -GSK3 β interaction promotes the stability of the metaphase spindle. Involvement of PKC and GSK3 β in the stability of the metaphase spindle. (DOI) 10.1007/s11626-011-9476-6.
73. Faust, J. J.M., Kalive, A. Abraham and D.G. Capco (2011). PKC Regulation of Gametogenesis and Early Development. *InTech Open Access Meiosis* (ISBN 979-953-307-212-7).
74. Faust JJ., Zhang, W., Koeneman, BA., Chen, Y., Capco DG (2012). Commenting on the effects of surface treated- and non-surface treated TiO₂ in the Caco-2 cell model. *Particle and Fibre Toxicology.* Nov 12;9:42.
75. Kalive, M., W. Zhang, Y. Chen, D.G. Capco (2012) Human intestinal epithelial cells exhibit a cellular response indicating a potential toxicity upon exposure to hematite nanoparticles. *Cell Bio Toxicology* DOI 10.1007/s10565-

012-9229-7.

76. Kalive, M., D.P. Baluch, and D.G. Capco (2012) Involvement of PKC ζ and GSK3 β in the stability of the metaphase spindle. *In Vitro Cell Dev. Biol.* 48:97-111.

77. Faust, JJ. & Capco, DG (2013). Multifunctional scaffolds in mammalian eggs: Sites for localization, signal transduction and meiotic spindle polarity. *Frontiers in Bioscience (Schol. Ed)* Jan 1;5:496-506.

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INVITED SUMMARIES:

Koeneman, B.A. and Capco, D.G. (2010). VISIONS: the art of science (Effects of titanium dioxide on human intestinal cells). *Mol. Reprod. Dev.* 77:835. doi: 10.1002/mrd.21225

Koeneman, B.A. and Capco, D.G. (2010). VISIONS: the art of science (Mouse embryonic stem cells co-cultured with living rat brain slices). *Mol. Reprod. Dev.* 77:649. doi: 10.1002/mrd.21207

IMAGING AWARDS AND RECOGNITIONS:

Faust, J.J. & Capco, DG (2013). Laser scanning confocal micrograph of a motile HeLa cell transfected with LifeAct. *Ibidi LLC imaging competition, 2013 cover image.*

Faust, JJ. & Capco, DG (2012). Stereo pair of an embedment-free, detergent-extracted hamster egg at meiotic metaphase II. *American Society for Cell Biology Image Library.* CIL: 40672.

Faust, JJ. & Capco, DG (2012). Stereo pair of an embedment-free, detergent-extracted hamster egg at the 8-cell stage. *American Society for Cell Biology Image Library.* CIL: 40673.

BOOKS:

Editor, D. G. Capco: *Cytoskeletal Mechanisms in Animal Development*, publisher, Academic Press, NY. Publisher 1995.

Editor, D.G. Capco: *Molecular and Biochemical regulation of pre-implantation development*, *Frontiers in Bioscience*, Pub; electronic issue. 2001

PATENTS:

Capco, D.G. and W.M. Bement. Oocyte assay for tumor promoting compounds. U.S. Patent 4,983,527. Jan. 8, 1991.

Rouhani, S.T. and D. G. Capco. Provisional Patent Application: Microcapillary Bioreactor for Growth of Human and Animal Tissue. Filing Date: February 28, 2002 Regular Patent application February 28, 2003. PCT/US03/06251. International Patent filed Sept 12, 2003.

Co-inventor (Capco) . A 3D digital library system PCT/US03/10655.

Co-inventor (Capco) Benzocyclobutene (BCB) as a biocompatible material. 60/445,156

Key for journal titles:

Bioessays	=Bioessays
Cell	= Cell
Cell Diff.	=Cell Differentiation
Cell. Diff. and Develop.	=Cell Differentiation and Development
Cell Motil. Cytoskel.	=Cell Motility and the Cytoskeleton
Cell Regul.	=Cell Regulation
Cell Tissue Res.	=Cell and Tissue Research
Cold Spring Harbor Symp. Quant. Biol.	=Cold Spring Harbor Symposium on Quantitative Biology
Current. Top. Develop. Biol.	=Current Topics in Developmental Biology
Develop.	=Development
Develop. Biol.	=Developmental Biology
Devel. Grow. and Differ.	=Development Growth and Differentiation
J. Cell Biol.	=Journal of Cell Biology
J. Cell Sci.	=Journal of Cell Science
J. Elect. Mic. Tech.	=Journal of Electron Microscopy Technique
J. Exp. Zool.	=Journal of Experimental Zoology

Mech. Develop.	=Mechanisms of Development
Micro. Res. Tech.	=Microscopy Research and Technique
Mol. Reprod. Develop.	=Molecular Reproduction and Development
Nature	=Nature
Off. Gazet. U.S. Pat. and Trad. Off.	=Official Gazette of the U.S. Patent and Trademark Office
Proc. Nat'l. Acad. Sci.	=Proceedings of the National Academy of Science
Roux's Arch. Dev. Biol.	=Roux's Archives of Developmental Biology
Sem. in Cell Biology	=Seminars in Cell Biology
Tissue and Cell	=Tissue and Cell
Proc. Elect. Micro. Soc. Amer.	=Proceedings of the Electron Microscopy Society of America
Zygote	=Zygote

UNIVERSITY-RELATED ACTIVITIES SUPPLEMENT

TEACHING LOG ARIZONA STATE UNIVERSITY:

		<u>% effort</u>
<u>1984</u>		
Spr.	ZOL 591 Cell Biology Seminar	100
Spr.	BIO 430 Concepts in Developmental Biology	33
Fall	BIO 101 General Biology, honors section	50
Fall	BIO 101 General Biology, honors laboratory	50
Fall	BIO 433 Animal Cytology	50
*Instructor for BIO 310 Special Problems and Techniques course:		
	Student- William Flemming, 1 semester	100
<u>1985</u>		
Spr.	BIO 430 Concepts in Developmental Biology	100
Fall	BIO 332 Cell Biology	50
*Instructor for Independent Study or Special Problems and Techniques course:		
	Students- David Munoz, 2 semesters	100
	Carl Gassman, 2 semesters	100
	Cynthia Richards, 1 semester	100
	Mark Titus, 2 semesters	100
	Tim Bishop, 1 semester	100
<u>1986</u>		
Fall	BIO 332 Cell Biology	50
Fall	ZOL 591 Special Topics - Biological Processes	100
*Instructor for Independent Study course:		
	Students- Ron Hauptman, 2 semesters	100
	Leslie Krahal, 1 semester	100
<u>1987</u>		
*Instructor for Independent Study course:		
	Students- Herbert Haag, 1 semester	100
	Robert Fairbanks, 2 semesters	100
<u>1988</u>		
Fall	BIO 332 Cell Biology	50
*Instructor for Independent Study and Special Problems and Techniques course:		
	Students- Patricia Johnson, 1 semester	100
	Mark Dersch, 2 semesters	100
	Tammy Kastre, 1 semester	100
<u>1989</u>		
*Instructor for Independent Study course:		
	Students- Eleanor Brice, 1 semester	100
	Robert Russell, 1 semester	100

1990

*Spring Instructor for Independent Study course:		
Students-	Eleanor Brice, 1 semester	100
	Robert Russell, 1 semester	100
	Joel Tutnick, 1 semester	100
Fall	BIO 332 Cell Biology	50
Fall	BIO 181 honors	50
Fall	BIO 181 honors Lab	50

*Instructor for Independent Study Course:		
Student-	Joel Tutnick, 1 semester	100

1991

Spr.	BIO 494 Cytoskeleton and Cell Regulation	100
	BIO 598 Cytoskeleton and Cell Regulation	100

* Instructor for Special Problems and Techniques Course		
Student-	Joel Tutnick, 1 semester	100

Summer Session	BIO 430 Advanced Developmental Biology	100
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* Instructor for Independent Study		
Student-	Jacqueline Fergusson, Summer Session	

Fall	BIO 332 Cell Biology	50
	ZOL 591 Cell, Molecular and Developmental Biology Seminar	100

*Instructor for Independent Study Course		
Student-	Stella Schwartz, 1 semester	

1992

Spr.	BIO 100 The Living World	100
------	--------------------------	-----

* Instructor for Independent Study Course		
Students-	Stella Schwartz, 1 semester	
	Sara Peña, 1 semester	
	Mark Mortensen, 1 semester	

1993

Spr.	BIO 100	The Living World	100
Fall	BIO 332	Cell Biology	50
	ZOL 591A	Cell Biology Seminar	100
		Supervised Research	
		Veronica Smart - Hughes Foundation Student	

1994

Spr.	BIO 100	The Living World	100
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*Each student registered for approximately three credit hours each semester in which they were enrolled in the course and worked on a project independent of the other student(s).

1995

Fall	MCB 555	Molecular and Cellular Biology Core	33
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1996

Spr. 1996	BIO 100	The Living World	100
Fall 1996	BIO 332	Cell Biology	50
	MCB555	Molecular and Cellular Biology Core	33

1997

Spr. 1997	BIO 332	Cell Biology	100
Fall 1997	BIO 353	Cell Biology	50
	MCB 555	Molecular and Cellular Biology Core	33

1998

Spr. 1998	BIO 353	Cell Biology	100
	BIO 494	ST: Cell Biology	100
Fall 1998	BIO 100	The Living World	100
	Independent Study for Debra Page Blauch		

1999

Spr. 1999	BIO 353	Cell Biology	100
	BIO 494	ST:Cell Biol.	100
Fall 1999	BIO 494A	Cell Biotechnology Laboratory Course	100
	This newly developed course was made possible by a grant from the Howard Hughes Foundation.		

2000

Spr 2000	Sabbaticle		
Fall 2000	Bio 494	Cell Biotechnology Laboratory course	100
	BIO 494	Cell Biology Practicum	100

2001

Spr 2001	BIO353/494/MCB598	Cell Biology	100
Fall 2001	BIO 494/BME494	Cell Biotechnology Lab. Course	100
Fall 2001	BIO 494	Practicum	100
	Supervised research for Shidfar Rouhani (Honors Thesis Credit)		

2002

Spr. 2002	BIO 353	Cell Biology	100
Spr. 2002	MCB 498	Cell Biology Applications	100
Fall 2002	BIO 494	Cell Biotechnology Lab Course	100
Fall 2002	BIO 591	Special Topics in Cell Biology	100

2003

Spr. 2003	BIO 353	Cell Biology	100
Spr. 2003	BIO 591	Special Topics Cell Biol of Fertil.	100
Fall 2003	BIO 194	Career Paths in the Life Sciences	100
Fall 2003	BIO 591	Special Topics Cell Biol of Fertil.	100
Fall 2003	Co-Director of the Human Disease and Society Learning Community		

2004

Spr. 2004	BIO 353	Cell Biology	100
Spr. 2004	BIO 591	Special Topics Cell Biol of Fertil.	100
Fall 2004	BIO 194	Career Paths in the Life Sciences	100
Fall 2004	BIO 591	Special Topics Cell Biol of Fertil.	100
Fall 2004	BIO 188	Introductory Biology II	50
Fall 2004	BIO 451	Cell Biotech. Laboratory Course	50
Fall 2004	Co-Director of the Human Disease and Society Learning Community		

2005

Spr. 2005	BIO 353	Cell Biology	100
Fall 2005	BIO 194	Career Paths in the Life Sciences	50
Fall 2005	BIO 188	Introductory Biology II	50
Fall 2005	Co-Director of the Human Disease and Society Learning Community		

2006

Spr. 2006	BIO 353	Cell Biology	100
Fall 2006	BIO 194	Career Paths in the Life Sciences	50
Fall 2006	BIO 188	Introductory Biology II	100
Spr 2006	Director of the Human Disease and Society Learning Community		
Fall 2006	Director and developer Medicine, Culture and Healing Learning Community		

2007

Fall 2007	BIO 194	Career Paths in the Life Sciences	50
Fall 2007	BIO 188	Introductory Biology II	100
Fall 2007	Director and developer Medicine, Culture and Healing Learning Community (LIA 194)		
Spr 2007	Director and developer Medicine, Culture and Healing Learning Community (LIA 294)		

2008

Spr. 2008	LIA 294	Culture and Medicine Seminar	36
Spr 2006	Director of the Medicine, Culture and Healing Learning Community		
Fall 2008	BIO 189	Career Paths in the Life Sciences	290
Fall 2008	BIO 188	Introductory Biology II	433
Fall 2008	Director of the Medicine, Culture and Healing Learning Community		
Fall 2008	LIA 194	Medicine and Culture Seminar	48

2009

Spr 2009	Director of the Medicine, Culture and Healing Learning Community		
Spr 2009	LIA 294	Culture and Healing Seminar	30
Spr 2009	HST 201	Hist. Themes in Asia: Hist. Chin. Med	47

2010

Spr 2010	Sabbatical		
Fall 2010	BIO 181	Intro. Biology for Majors	285
Fall2010	BIO 189	Career Paths in the Life Sciences	235
Fall2010	BIO 499	Leadership in the Life Sciences	30

2011

Fall 2011	BIO 181	Introductory Biology for Majors	432
Fall 2011	BIO 189	Career Paths in the Life Sciences	285
Fall 2011	BIO 499	Leadership in the Life Sciences	40
Fall 2011	BIO 310	SOLS Mentor Emeritus	11

2012

Fall 2011	BIO 564/494	Cell Physiology and Transduction	24
Fall 2011	BIO 499	Leadership in the Life Sciences	43
Fall 2011	BIO 310	SOLS Mentor Emeritus	31

ACADEMIC ACTIVITIES:

Advisor for Independent Study or Special Problems and Techniques or lab research.

David M. Munoz, 1985	Ron Hauptman, 1986	Herbert Haag, 1987	StellaSchwartz, 1991/2
Carl Gassmann, 1985	Leslie Krahal, 1986	Robert Fairbanks, 1987	Mark Mortensen, 1992
Tammy Kastre, 1988	Patricia Johnson, 1988	Robert Russell, 1989-90	Sara Peña, 1992
Eleanor Brice, 1989-90	Joel Tutnick, 1990	Jacqueline Fergusson, 1991	Greg German, 1997
D. Page Baluch, 1998	Amie Balle, 2000	Mark Dersch, 1988	Jason Rider, 1992
William Flemming, 1984	Mark Titus, 1985	Mark Dersch, 1988	John Horne, 2003/4
Cynthia Richards, 1985	Tim Bishop, 1985	Joel Tutnick, 1991	Marueen Scholl, 2003/4

Shannon DiNapoli, 2004 Kal Clark, 2004 Jon McNiven, 2004 Basil Al-Khatib, 2004
Janna Long, 2004 Ramin Sadeghi, 2004 Mikki Jarman 2004 Geoffrey Iles, 2004
Cassandra Wolf, 2004 SEE UNIVERSITY SERVICES PAGES FOR APPROPRIATE YEAR FOR
ADDITIONAL STUDENTS.

Advisor for MCB Program Laboratory Rotation Student
Sandra Lew, 1996

Graduate College Representative to thesis defense of:

Ms. Nichole Trushell (Botany), 1985

Mr. John B. Eitzen (Agriculture), 1985

PROFESSIONAL SERVICE TO COMMUNITY:

Spring 1984, Judge at Science Fair for State of Arizona.

1990, Sponsor Laboratory High School Teacher Fellowship for a High School teacher in the state of Arizona,
awarded by the American Society for Cell Biology.

1998, Member, Science Strategic Planning Committee for K-12 education, Mesa Public School District, Mesa, AZ.

DEPARTMENTAL AND COLLEGE ACTIVITIES:

SERVICE WITHIN THE UNIVERSITY

1984

Member interdepartmental an undergraduate teaching laboratundergraduate teaching laboratory in Cell Biology.

Coordinated preparation of decision package.

Member ad hoc committee for design of undergraduate Cell Biology curriculum.

Member and coordinator of ad hoc committee for Cell and Developmental Biology Group; Coordinated
advertisements to high schools in Arizona and National Universities.

Member, Zoology Graduate Admissions Committee.

Member, Zoology Electron Microscope Committee.

Co-organizer of the Life Sciences Conference at Camp Tontozona.

1985

Member, Zoology Molecular Genetics Search Committee.

Member, Programs Committee. Coordinator, Cell Biology Ph.D. comprehensive exam.

Member and coordinator of ad hoc committee for Cell and Developmental Biology Group; Coordinated
advertisements to high schools in Arizona and National Universities.

Organizer of the Life Sciences Conference at Camp Tontozona.

Coordinator for collection of Industrial funds for MCB Tontozona Conference.

Thesis Committee for Susan Allen.

1986

Member and coordinator of ad hoc committee for Cell and Developmental Biology Group; Coordinated
advertisements to high schools in Arizona and National Universities.

Member, Zoology Graduate Programs Committee. Coordinator, Cell Biology Ph.D. comprehensive exam.

Life Science Representative to Legislative Tour.

Life Sciences Representative to High School Lab Tour.

Organizer of the Cell and Developmental Biology Predoctoral Fellowships.

Organizer of the Cell and Molecular Biology Conference at Camp Tontozona.

Coordinator for collection of Industrial funds for MCB Tontozona Conference.

Chair, Dissertation Committee for William Bement.

Dissertation Committee for Alyce DeMarias.

Thesis Committee for Susan Allen.

1987

Member, Zoology Graduate Programs Committee. Coordinated Cell Biology Ph.D. comprehensive exam.

Co-investigator on Equipment Grant to NIH and NSF for the purchase of a biological electron microscope.

Co-organizer of the Cell and Molecular Biology Conference at Camp Tontozona.

Coordinator for collection of Industrial funds for MCB Tontozona Conference.

Chair, Dissertation Committee for William Bement.
Dissertation Committee for Alyce DeMarias, Michael Kennedy.
Thesis Committee for Susan Allen, Scott Webster.

1988

Aided in planning for Goldwater Building on two separate subcommittees. The Microscopy and Image Analysis subcommittee and the Teaching Laboratory in Cell Biology subcommittee.
Co-organizer of the Cell and Molecular Biology Conference at Camp Tontozona.
Coordinator for collection of Industrial funds for MCB Tontozona Conference.
Chair, Dissertation Committee for William Bement.
Dissertation Committee for Alyce DeMarias, Michael Kennedy.
Chair, Thesis Committee for Mark Dersch.
Thesis Committee for Susan Allen, Guang Wang, Scott Webster.

1989

Member, Zoology Graduate Programs Committee. Coordinator, Cell Biology Ph.D. comprehensive exam.
Aided in planning for Goldwater Building on the Microscopy and Image Analysis subcommittee and the Teaching Laboratory in Cell Biology subcommittee.
Co-organizer of the Cell and Molecular Biology Conference at Camp Tontozona.
Coordinator for collection of Industrial funds for MCB Tontozona Conference.
Chair, Dissertation Committee for William Bement.
Dissertation Committee for Alyce DeMarias, Michael Kennedy, Barry Bonnell.
Chair, Thesis Committee for Mark Dersch.
Co-chair, Thesis Committee for Ian Gallicano.
Thesis Committee for Guang Wang, Scott Webster.

1990

Member, Zoology Graduate Programs Committee. Coordinator, Cell Biology and Biochemistry Ph.D. comprehensive exam.
Faculty co-sponsor of the Cell and Molecular Biology Conference at Camp Tontozona; organized by graduate students.
Coordinator for collection of Industrial funds for MCB Tontozona Conference.
Sponsoring Laboratory for Summer High School Teacher Fellowship awarded from the American Society for Cell Biology, one of ten awards made in the nation.
Chair, Dissertation Committee for William Bement.
Dissertation Committee for Alyce DeMarias, Michael Kennedy, Barry Bonnell.
Chair, Thesis Committee for Mark Dersch.
Co-chair, Thesis Committee for Ian Gallicano.

1991

Member, Search Committee for chair of Executive Committee, Interdisciplinary Molecular and Cell Biology Program.
Member, University Hughes Committee for initiatives in undergraduate biological sciences.
Faculty co-sponsor of the Cell and Molecular Biology Conference at Camp Tontozona; organized by graduate students.
Coordinator for collection of Industrial funds for MCB Tontozona Conference.
Member, University Radiation Protection Committee
Chair, Dissertation Committee for William Bement.
Co-chair, Dissertation Committee for Ian Gallicano.
Dissertation Committee for Alyce DeMarias, Michael Kennedy, Barry Bonnell, Dale Young.

1992

Member, University Howard Hughes Steering Committee for Initiatives in Undergraduate Biological Sciences Program.
Member, University Radiation Protection Committee.
Coordinator for collection of Industrial funds for MCB Tontozona Conference.
Co-chair, Dissertation Committee for Ian Gallicano.

Chair, Dissertation Committee for John Olson.
Chair, Thesis Committee for Stella Schwarz.

1993

Member, University Howard Hughes Steering Committee for Initiatives in Undergraduate Biological Sciences Program.
Member, University Radiation Protection Committee.
Member, Zoology Personnel Committee.
Coordinator for collection of Industrial funds for MCB Tontozona Conference.
Co-chair, Dissertation Committee for Ian Gallicano.
Chair, Dissertation Committee for John Olson.
Chair, Thesis Committee for Stella Schwarz.

1994

Member, University Howard Hughes Steering Committee for Initiatives in Undergraduate Biological Sciences Program.
Member, University Howard Hughes Undergraduate Selection Committee.
Member, University Howard Hughes Undergraduate interview subcommittee.
Member, University Radiation Protection Committee.
Member, Zoology Personnel Committee.
Coordinator for collection of Industrial funds for MCB Tontozona Conference.
Co-chair, Dissertation Committee for Ian Gallicano.
Chair, Dissertation Committee for John Olson.
Chair, Thesis Committee for Stella Schwarz.
Interim advisor for Martin Yousef, Beverly Bierle, and Pam O'Conner.

1995

Member, University Howard Hughes Steering Committee for Initiatives in Undergraduate Biological Sciences Program.
Institution Coordinator for review of NAS/NRC document entitled, *Science Teaching Reconsidered*.
Member Zoology Undergraduate Programs Committee.
Advisor for Martin Yousef, Beverly Bierle, and Pam O'Conner.

1996

Member, University Howard Hughes Steering Committee for Initiatives in Undergraduate Biological Sciences Program.
Member Zoology Undergraduate Programs Committee.
Member, Advisory Board of the BioTech Project, University of Arizona, 1996.
Member, AA-SMETE, An alliance of organizations associated with the Phoenix Urban Systemic Reform Initiative funded by NSF, 1996.
Organizer, A Education focus in Arizona: Planning for 1997", 1996.
Assisted in visit of Luther Williams, Assistant Director of NSF for EHR.
Assisted in of NAS/NRC staff site visit related to our review of the draft handbook, *Science Teaching Reconsidered*.
Undergraduate conducting research in my laboratory: Clair Guy McDonald, Greg German, Sreputna Chatterjee Dimetir Segal.
Advisor for Martin Yousef, Beverly Bierle, and Joshua Johnson.
Molecular Genetics Search Committee member
Advisory Committee member U of A BIOTECH Project
Organizer of the ASU Biotechnology Conference
ASU (ad hoc) Biotech Planning Committee member
ASU (ad hoc) Biotech Curriculum Committee member
Member, Hugh's Cell Biology Teaching Laboratory Planning Committee
MCB Program Comprehensive Exam Committee

1997

Member, AA-SMETE, An alliance of organizations associated with the Phoenix Urban Systemic Reform Initiative funded by NSF, 1996.

Undergraduate conducting research in my Laboratory: Greg German
Advisor for Martin Yousef, Beverly Bierle, and Joshua Johnson.
Molecular Genetics Search Committee member
Organizer of the ASU Biotechnology Conference
Advisory Committee member U of A BIOTECH Project
ASU (ad hoc) Biotech Planning Committee member
ASU (ad hoc) Biotech Curriculum Committee member
Member, Hughes= Cell Biology Teaching Laboratory Planning Committee
MCB Program Comprehensive Exam Committee

1998

Advisor for Joshua Johnson (Awarded NSF Predoctoral Fellow, declined to accept NIH minority supplement).
Member, Advisory Committee member U of A BIOTECH Project
Chair, Hughes' Cell Biology Teaching Laboratory Planning Committee
Member, MCB Program Comprehensive Exam Committee
Member, ASU Biomedicine Strategic Planning Committee
Member, Biology Undergraduate Program committee
Undergraduate conducting research in my Laboratory: Debra Page Baluch
Member, Arizona Bioindustry Cluster Steering Committee of GSPED
Member, Flinn Foundation Biomedicine/Life Sciences Organizing Committee
Consultant, Graduate Record Exams Subject Test.
Dissertation Committee for John Robertson

1999

Member, Advisory Committee member U of A BIOTECH Project
Chair, Hughes' Cell Biology Teaching Laboratory Planning Committee
Member, MCB Program Comprehensive Exam Committee
Member, ASU Biomedicine Strategic Planning Committee
Member, Biology Undergraduate Program committee
Undergraduate conducting research in my Laboratory: Debra Page Baluch
Member, Board of Directors, Arizona Bioindustry Cluster, Inc.
Member, Flinn Foundation Biomedicine/Life Sciences Organizing Committee
Consultant, Graduate Record Exams Subject Test.
Dissertation Committee for John Robertson
Dissertation Committee for Gidget Hudson
Dissertation Committee for John Zimmer

2000

Member, MCB Program Admission Committee (spring)
Member MCB Program ad hoc committee on revision of Comprehensive Exams
Member, MCB Program ad hoc committee on the Website
Hughes Student conducting research in my Laboratory: :April Phillips
Member, Board of Directors, Arizona Bioindustry Cluster, Inc.
Dissertation Committee for Gidget Hudson
Dissertation Committee for John Zimmer
Dissertation Committee for Aaron Johnson
Supervised research for Honors Student Sara Tarioumian
Mentor: Honors Thesis and supervised research for Shidfar Rouhani

2001

Member MCB Program ad hoc committee on revision of Comprehensive Exams
Member, MCB Program ad hoc committee on the Website
Undergraduates conducting research in my Laboratory: Sara Tarioumian, Tana Goettlicher, Gloria Ramirez, Jennifer Rogers
Member, Board of Directors, Arizona Bioindustry Cluster, Inc.
Dissertation Committee for Gidget Hudson
Dissertation Committee for John Zimmer
Dissertation Committee for Aaron Johnson
Supervised research for Honors Student Sara Tarioumian
Mentor: Honors Thesis and supervised research for Shidfar Rouhani
Member, Campus Environment Team, ASU President's Committee

2002

Member, MCB Program ad hoc committee on the Website
Member, Campus Environment Team, ASU President's Committee
Member, Board of Directors, Arizona BioIndustry Cluster, Inc.
Chair, Nominating Committee, Arizona BioIndustry Cluster
Dissertation Committee for Gidget Hudson
Dissertation Committee for John Zimmer
Dissertation Committee for Aaron Johnson

2003

Member, Department of Biology Advisory Committee
Member, SOLS ad hoc committee on the Website
Member, SOLS ad hoc Undergraduate Program Committee
Development Group: SOLS Learning Community entitled Human Disease and Society
Development Group: SOLS freshman course "Career Paths in the Life Sciences"
Member, Campus Environment Team, ASU President's Committee
Member, Board of Directors, Arizona BioIndustry Cluster, Inc.
Chair, Nominating Committee, Arizona BioIndustry Cluster
Dissertation Committee for Gidget Hudson
Dissertation Committee for John Zimmer
Dissertation Committee for Aaron Johnson
Undergraduates in Lab: John Horne, Marcus Goodwin, Maureen Scholl, Houston Davis
Graduate Mentor: Page Baluch, Brian Koeneman, and Shidfar Rouhani
Maricopa Community College District Strategic Taskforce on Biotechnology
Member, Steering Committee Battelle Study on Maricopa Bioindustry Workforce Commission, Needs Assessment,
Member, SOLS Molecular Genetics Search Committee
Member SOLS Undergraduate Program Committee

2004

Co-Director CLAS Learning Community entitled Human Disease and Society, Lead faculty Spring Semester.
Dissertation Committee for Gidget Hudson
Dissertation Committee for Aaron Johnson
Undergraduates in Lab: John Horne, Maureen Scholl, Shannon DiNapoli, Kal Clark, Cassranda Wolf
Jon McNiven, Basil Al-Khatib, Janna Long, Ramin Sadeghi, Geoffrey Iles, Mikki Jarman
Graduate Mentor: Page Baluch, Brian Koeneman, and Shidfar Rouhani
Maricopa Community College District Strategic Taskforce on Biotechnology
Member SOLS Undergraduate Program Committee
Member, Cellular and Molecular Bioscience Faculty Personnel Committee

2005

Co-Director CLAS Learning Community entitled Human Disease and Society, Lead faculty Spring Semester.
Dissertation Committee for Gidget Hudson, Aaron Johnson, Massoud Khraiche (Bioengineering)
Undergraduates in Lab: John Horne, Maureen Scholl, Cassranda Wolf
Jon McNiven, Basil Al-Khatib, Janna Long, Ramin Sadeghi, , Benedict Emesowum, Olivia Knouff, Sara Hayden, Kyle Pacheco, Brian Wojeck, Jamal Dabbah, Shujera Bhutta, Danielle Ciraola, Alex Escobar, Shadi Refaeilzadeh
Graduate Mentor: Page Baluch, Brian Koeneman, and Shidfar Rouhani
Maricopa Community College District Strategic Taskforce on Biotechnology
Member SOLS Undergraduate Program Committee
Nominated, ASU Professor of the Year
Nominated, CLAS Distinguished Lecturer
Nominated , ASU Last Lecture Series

2006

Spring, Co-Director CLAS Learning Community entitled Human Disease and Society, Lead faculty Spring Semester.

Fall, Developer and director of the CLAS Learning Community entitled, Medicine, Culture and Healing
Dissertation Committee for Gidget Hudson, Aaron Johnson, Cassranda Wolf
Undergraduate in Lab

Jon McNiven, Ramin Sadeghi, , Benedict Emesowum, Olivia Knouff, Sara Hayden, Kyle Pacheco, Brian
Wojeck, Jamal Dabbah, Shujera Bhutta, Danielle Ciraola, Alex Escobar, Shadi Refaeilzadeh, Bo “Anne” Lui,
Nathaniel Krupp, Emalee Craft, Kevin Dalling

Graduate Mentor: Page Baluch, Brian Koeneman, and Madhavi Kalive
Maricopa Community College District Strategic Taskforce on Biotechnology
Member SOLS Undergraduate Program Committee
Nominated, ASU Professor of the Year
Nominated, CLAS Distinguished Lecturer
Nominated , ASU Last Lecture Series

2007

Spring, Fall, Developer and director of the CLAS Learning Community entitled, Medicine, Culture and Healing
Dissertation Committee for Gidget Hudson, Aaron Johnson, Undergraduates in Lab: Cassranda Wolf

Undergraduate in Lab: Brian Wojeck, Danielle Ciraola, Nathaniel Krupp, James Faust, Shehran Islam,
Nadia Sadeghi, Arthur Baird, Charles Rolsky, Christina Newberg – current Honors Thesis student
Undergraduates who successfully completed their Honors Thesis in 2007: Benedict Emesowum, Olivia Knouff,
Sarah Hayden, Shadi Refaeilzadeh, Travis Powell

Graduate Mentor: Page Baluch, Brian Koeneman, and Madhavi Kalive
Successfully completed Ph.D. Page Baluch – December 2007

Member SOLS Undergraduate Program Committee

Nominated, ASU Professor of the Year

Nominated, CLAS Distinguished Lecturer

Awarded, Professor of the Month (October), Delta Zeta Sorority

Awarded, Advising Support Award, Non-advising Faculty from Council of Academic Advisors, ASU

2008

Spring, Fall, Director of the CLAS Learning Community entitled, Medicine, Culture and Healing
Dissertation Committee for, Janine Quijano, Charlotte Konikoff, Khraiche, Massoud

Undergraduate in Lab: Brian Wojeck, Danielle Ciraola, Nathaniel Krupp, James Faust,

Arthur Baird, , Christina Newberg – current Honors Thesis student

Undergraduates who successfully completed their Honors Thesis in 2008 Jaclyn Rapisarda

Graduate Mentor: Brian Koeneman, and Madhavi Kalive

Member SOLS Undergraduate Program Committee

Nominated, ASU Professor of the Year

Nominated, Last Lecture Series

2009

Spring, Director of the CLAS Learning Community entitled, Medicine, Culture and Healing
Dissertation Committee for, Janine Quijano, Charlotte Konikoff, Khraiche, Massoud

Undergraduate in Lab: James Faust, Arthur Baird, Justin Rabinowitz, Kesley Pike, Dyman Shepherd, Lev Korvin

Undergraduates who successfully completed their Honors Thesis in 2009 Christina Newberg

Graduate Mentor: Madhavi Kalive

Successfully completed Ph.D. Brian Koeneman August 2009

Member SOLS Undergraduate Program Committee

Nominated, ASU Professor of the Year

Nominated, Last Lecture Series

Aided with improvements and scaling up of the SOLS Academic Success Clusters and upperclassmen cohorts.

Honors College Disciplinary advisor for Genetics, Cell and Develop. Biol. concentration in SOLS – 34 students

Honors College Mock interview committee member

Awarded Outstanding Undergraduate Mentor; a College of Liberal Arts Award to a single faculty each year.

2010

Dissertation Committee for, Janine Quijano, Charlotte Konikoff,

Undergraduate in Lab: Anup Abraham, Melina Ghods. Matthew Moore

Graduate Mentor: Madhavi Kalive, James Faust

Member SOLS Undergraduate Program Committee

SOLS Undergraduate Curriculum Reform Committee

Nominated, ASU Professor of the Year

Nominated, Last Lecture Series

Aided with improvements and scaling up of the SOLS Academic Success Clusters and upperclassmen cohorts.
Honors College Disciplinary advisor for Genetics, Cell and Develop. Biol. concentration in SOLS – 34 students

2011

Dissertation Committee for, Janine Quijano,

Undergraduate in Lab: Anup Abraham, Ashley Almajan, Wade Blom, Briana Basler

Graduate Mentor: Madhavi Kalive, James Faust

Member SOLS Undergraduate Program Committee

SOLS Undergraduate Curriculum Reform Committee

Aided with improvements and scaling up of the SOLS Academic Success Clusters and upperclassmen cohorts;

SOLS Mentors and SOLS Mentor Emerit.

Honors College Disciplinary advisor for Genetics, Cell and Develop. Biol. concentration in SOLS – 72 students

Faculty advisor Genetics Cell and Developmental Biology Concentration in SOLS

2012

Dissertation Committee for, Janine Quijano,

Undergraduate in Lab: Anup Abraham, Mario Moreno, Ben Massaraino, Tucker Logan, Cameron Vanderlinden

Graduate Mentor: Madhavi Kalive, James Faust

Aided with improvements and scaling up of the SOLS Academic Success Clusters and upperclassmen cohorts;

SOLS Mentors and SOLS Mentor Emerit.

Developed and managed Blackboard for “SOLS Mentor -BIO 189” SOLS freshmen retention effort

Honors College Disciplinary advisor for Genetics, Cell and Develop. Biol. concentration in SOLS – 100 students

Faculty advisor Genetics Cell and Developmental Biology Concentration in SOLS

Nominated, ASU Professor of the Year

PERSONNEL PLACEMENT:

<u>Laboratory Position</u>	<u>Subsequent Position</u>
<u>Postdoc</u>	
Brian A. Perry	Research Staff, Lawrence Livermore National Laboratory, West Coast Regional Sales Manager at Genomics, CA
Christine Pauken	Manager, Cell Culture Facility CEAS, ASU
<u>Graduate Students</u>	
G. Ian Gallicano	M.S., December 1990; January 1991, PhD program Ph.D., August 1994. Lab Manager ASU (1 year). Postdoctoral Researcher with Dr. Elaine Fuchs, University of Chicago, July 1995. 2000 Assistant Professor Georgetown University 2006 Associate Professor Georgetown University
William M. Bement	Ph.D., May 1991 Postdoctoral Researcher with Dr. Mark Mooseker at Yale University, March 1991 NIH/NRSA and ACS Postdoctoral Fellowships 1994 Assistant Professor University of Wisconsin, Madison Department of Zoology 2000 Associate Professor 2005 Professor
Mark A. Dersch	Master of Natural Science, May 1990, Science Teaching Sunny Slope High School, Scottsdale, AZ
Stella Schwarz	M.S., August 1994; Faculty member, Becker College, Department of Science, Leicicester Campus, Leicicester, MA 1999 Professor

Debra Page Baluch,

Ph.D. December 2007; Manager of the Keck Bioimaging
Laboratory at Arizona State University.

Brian Koeneman

Ph.D August 2009; Banner Health Systems,
Lab Manager Diagnostic Lab. In 2011 Lab Manager in new
Banner M.D. Anderson Cancer Center in Gilbert.

Madhavi Kalive

Ph.D. December 2012; Postdoc for Professor
Stuart Newfeld starting February 2013.