

Dana M. García

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EDUCATION

Ph. D.	1993	University of California, Berkeley	Physiology (Cell Biology)
B. S.	1986	Texas A&M University, College Station	Zoology

RESEARCH INTERESTS

Cell biology of retinal pigment epithelium, cell signaling, cytoskeleton, membrane transport, molecular evolution

PROFESSIONAL EXPERIENCE

2004- present	Professor of Biology, College of Science, Texas State University-San Marcos
1999 – 2004	Associate Professor of Biology, College of Science, Texas State University-San Marcos
2001	Guest Professor, Zoologie, Universität Mainz – Johannes Gutenberg University, Germany
1993 – 1999	Assistant Professor of Biology, School and College of Science, Southwest Texas State University, San Marcos

AWARDS AND HONORS

2001-2002	Honored Member America's Registry, Edition 2001-2002.
2001	AAAS Mentor Award Nominee
2000	Presidential Excellence in Scholarly Activity Award Nominee
1998	President's Excellence in Service Award runner-up
1997	Alpha Chi National Honor Society Favorite Professor
1996	SWT Outstanding Mentor
1996	Alpha Chi National Honor Society, Favorite Professor
1990-1993	Chancellor's Minority Fellow, University of California, Berkeley
1987-1990	National Science Foundation Graduate Fellow

GRANTS

Current

- 2003-2005 NSF (IBN 0235523) RUI: Pigment Granule Dispersion in Teleost Retinal Pigment Epithelium: Cholinergic Mechanisms, \$151,653 (PI)
- 2000-2005 NSF (INT 0078261) Role of Vimentin in RPE, \$16,662 (PI)

Previous

- 1998-2004 NSF (ESIE 9731321). Teacher Enhancement Proposal - A Summer Research Experience for Science Teachers, \$728,952 (co-PI; PI Joe Koke)
- 2000-2003 NSF (IBN 0077666) RUI: Pigment Granule Dispersion in Teleost Retinal Pigment Epithelium: Cholinergic Mechanisms, \$50,487 (PI)
- 2001-2003 NSF (IBN 0132212) REU Supplement to IBN 0077666, \$11,612 (PI)
- 2002-2003 NSF (IBN 0228857) REU Supplement to IBN 0077666, \$6325 (PI)
- 2000-2002 Texas Higher Education Coordinating Board. Eisenhower Program - A Summer Research Experience for Science Teachers, \$74,838 (co-PI; Julie Westerland, PI)
- 1999-2003 NIH NIGMS – Research-Oriented Bridges to the Baccalaureate, \$514,773 (PI; co-PI Robert J. C. McLean 1999-2002)
- 1999-2003 Southwestern Bell Corporation Foundation. A Summer Research Experience for Science Teachers, \$200,000 (made to the SWT Development Foundation).
- 2001 SWT. Phylogenetic Characterization of alpha-Actinin. \$15,990 (co-PI; PI Mike Forstner)
- 1999-2000 SWT. Molecular Architecture of Muscle: Complete Characterization of the G.3.5 Antigen. \$15,996 (PI; co-PI Joe Koke)
- 1998 SWT. Synthesis of Fluoresceinated Cyclic Adenosine Monophosphate, \$1760 (PI)
- 1998-1999 Texas Higher Education Coordinating Board. Eisenhower Program - A Summer Research Experience for Science Teachers, \$88,196. (PI; co-PI Joe Koke)
- 1996-1998 NSF (DUE 9650654) ILI Grant - An integrated and networked microscopy center for undergraduate education, \$99,994 (co-PI; PI Joe Koke)
- 1996 American Society for Cell Biology. Summer Teacher Research Fellowship. Isolation and Characterization of Circumferential Microfilament Bundles from Teleost Retinal Pigment Epithelium, \$750
- 1996 SWT. Communication between the Retina and the Retinal Pigment Epithelium. \$6000 (PI)
- 1994-1996 NSF (IBN 9411836) Minority Research Initiatives Planning Grant, \$18,000 (PI)

- 1995-1996 NSF (IBN 9542519) REU Supplement to IBN 9411836, \$8900 (PI)
- 1994-1995 SWT. Intermediate Filaments and their Associated Proteins in Retinal Pigment Epithelium. \$6000 (PI)
- 1994 SWT. Communication between the Retina and the Retinal Pigment Epithelium. \$6000 (PI)
- 1994 Indirect Cost Research Project, Southwest Texas State University, \$4000 (PI)

PUBLICATIONS

- González, A. III., E. Crittenden and **D. M. García**. 2004. Carbachol-induced pigment granule dispersion in RPE. *BMC Neuroscience* **5**:23.
- García, D. M.**, S. E. Weigum and J. R. Koke. 2003. GFAP and nuclear lamins share an epitope recognized by monoclonal antibody J1-31. *Brain Research* **976**(1):9-21.
- Weigum, S. E., **D. M. García**, T. R. Raabe, N. Christodoulides and J. R. Koke. 2003. Discrete nuclear structures in actively growing neuroblastoma cells are revealed by antibodies raised against phosphorylated neurofilament proteins. *BMC Neuroscience* **4**:6.
- Dixson, J. D., M. R. J. Forstner and **D. M. García**. Evolutionary history of the alpha-actinin gene family: a phylogenetic study. *J. Molecular Evolution* **56**(1):1-10.
- Glass, T. L., T. R. Raabe, **D. M. García** and J. R. Koke. 2002. Phosphorylated neurofilaments and SNAP-25 in SH-SY5Y neuroblastoma cells *in vitro*. *Brain Research* **934**(1):34-48.
- Westerlund, J. F., **D. M. García**, J. R. Koke, T. A. Taylor and D. S. Mason. 2002. Summer scientific research for teachers: the experience and its effect. *J. Science Teacher Education* **13**(1):63-83.
- García, D. M.** 1998. Carbachol-induced pigment granule dispersion in teleost RPE. *Cytobios* **94**:31-37.
- Bolanos, S. H., D. O. Zamora, **D. M. García**, and J. R. Koke. 1998. An α -actinin isoform that may cross-link intermediate filaments and microfilaments. *Cytobios* **94**:39-61.
- King-Smith, C., P. Chen, **D. M. García**, H. Rey and B. Burnside. 1996. Calcium-independent regulation of pigment granule aggregation and dispersion in teleost retinal pigment epithelial cells. *Journal of Cell Science* **109**:33-43.
- García, D. M.** and B. Burnside. 1994. Suppression of cAMP induced pigment granule aggregation by inhibitors of organic anion transport. *Investigative Ophthalmology and Visual Science* **35**:178-188.
- Tiffany-Castiglioni, E., **D. M. García** J.-N. Wu, J. Zmudzki, G. R. Bratton. 1988. Effects of lead on viability and intracellular metal content of C6 rat glioma cells. *Journal of Toxicology and Environmental Health* **23**(2): 267-279.

Invited Review/Book Chapter

García, D. M. and J. R. Koke. 1996. The cytoskeleton of the retinal pigment epithelium. In: S. K. Malhotra, ed. *Advances in Structural Biology*, vol. 4, Greenwich, Connecticut: JAI Press, Inc., pp. 151-174.

Abstracts (2000 – present)

Ramsey, G.

Neece, J., M. Salas, P. Phatarpekar and D. M. García. Isolation and sequencing of fugu muscarinic acetylcholine receptor genes. *The FASEB J.* Abstract number 7648.

Copeland, C., E. L. Crittenden and D. M. García. Muscarinic receptors in *Lepomis macrochirus*: a pharmacological approach. *The FASEB J.* Abstract number 9735.

Neece, J., P. Phatarpekar and D. M. García. 2004. Isolation and sequencing of fugu muscarinic acetylcholine receptor genes. *Mol. Biol. Cell.*

Phatarpekar, P. V., S. Durdan, C. Copeland, E. L. Crittenden and D. M. García. 2004. Activation of muscarinic receptors on fish RPE induces pigment granule dispersion. *Mol. Biol. Cell*

Phatarpekar, P. V., J. D. Neece and D. M. García. 2004. Molecular characterization of muscarinic acetylcholine receptor genes in fish. *The FASEB J.* **18(5)**:A338.

Westerlund, J., R. Schwartz, J. Koke, **D. M. García** and T. Taylor. 2003. Explicit/reflective NOS instruction and authentic science research: Effects on teachers' NOS views. Seventh International History, Philosophy and Science Teaching Conference, Winnipeg, Canada.

Saleem, S., A. González III, E. Crittenden and **D. M. García**. 2002. Muscarinic receptors in fishes: Pharmacological and molecular analysis. Annual Meeting of the American Society for Cell Biology "Hot Papers."

Dixon, J. D., M. R. J. Forstner and **D. M. García**. 2001. Cloning and characterization of rat alpha-actinin 3: a phylogenetic investigation. *Mol. Biol. Cell* 12S:286a.

Needham, J. N., Jr., M. R. J. Forstner and **D. M. García**. 2001. Cloning and characterization of rat alpha-actinin 3: structural analysis. *Mol. Biol. Cell* 12S:286a.

García, D. M. and A. Guerra. 2001. A research-oriented Bridges to the Baccalaureate program. *Mol. Biol. Cell* 12S:97a.

Taylor, T., J. Westerlund, **D. M. García** and J. R. Koke. 2001. Teachers as Researchers: Does a Summer Research Experience Improve Education in Science? *Mol. Biol. Cell* 12S:94a.

- Cen, E. O., Jr. and **D. M. García**. 2001. Further analysis of vimentin intermediate filaments in teleost retinal pigment epithelial cells. Annual Meeting of the Society for the Advancement of Chicanos and Native Americans in Science, A New Tapestry of Science: Woven across Cultures and Disciplines, p. 133.
- Westerlund, J., J. Koke, **D. García**. 2001. A Model for Retention and Preparation of Teachers. 17th Annual Recruitment and Retention Conference "Closing the Gaps," Austin, Texas.
- García, D. M.** and R. J. C. McLean. 2001. NIH Bridges to the Baccalaureate Program at Southwest Texas State University. Bridges Program Directors' Meeting, Ellicott, MD.
- García, D. M.** and R. J. C. McLean. 2001. NIH Bridges to the Baccalaureate Program at Southwest Texas State University. Grants Resource Center, American Association of State Colleges and Universities Meeting, Washington DC.
- Dixson, J. D., M.R.J. Forstner, **D.M. García** and J.R. Koke. 2001. Molecular genetic characterization of alpha-actinin isoforms. Texas Academy of Science Meeting, Southwest Texas State University.
- Needham, J. N., **D. M. García**, J. R. Koke, and M. R. J. Forstner. 2001. Molecular characterization of a possible alpha-actinin isoform. Texas Academy of Science Meeting, Southwest Texas State University.
- Cen, E. O. and **D. M. García**. 2000. Localization of vimentin intermediate filaments in light- and dark-adapted RPE from bluegills. *Molecular Biology of the Cell* **11S**:352a-353a.
- Dixson, J., J. Needham, J. R. Koke and **D. M. García**. 2000. Molecular characterization of a possible α -actinin isoform. *Molecular Biology of the Cell* **11S**:76a.
- González, A., III and **D. M. García**. 2000. Cholinergic mechanisms of light adaptation in teleost retinal pigment epithelium. *Molecular Biology of the Cell* **11S**:412a.
- González, A., III and **D. M. García**. 2000. Cholinergic mechanisms of light adaptation in teleost retinal pigment epithelium. Presented at ASPET meeting in Boston.
- González, A., III and **D. M. García**. 2000. Cholinergic mechanisms of light adaptation in teleost retinal pigment epithelium. *Proceedings of the 2000 103rd Annual Meeting of the Texas Academy of Sciences*, Kingsville, Texas.
- Westerlund, J.F., T. Taylor, **D. M. García** and J. R. Koke. 2000. Teachers as summer scientific researchers: Transformative experiences. *Proceedings of the 2000 103rd Annual Meeting of the Texas Academy of Sciences*, Kingsville, Texas.
- Westerlund, J.F., T. Taylor, **D. M. García** and J. R. Koke. 2000. Teachers as summer scientific researchers: Transformative experiences. *Proceedings of the 2000 National Association of Research in Science Teaching Annual Meeting*, New Orleans, Louisiana.

Invited Presentations

Date	Institution
October 3, 2002	New Mexico State University, Department of Biology
April 1, 2002	SWT, Department of Biology
February 22, 2002	St. Philip's College, San Antonio, Texas, Bridges Program
June 19, 2001	17 th Annual Recruitment and Retention Conference "Closing the Gaps," Austin, Texas
June 8, 2001	Bridges Program Directors' Meeting, Ellicott, MD
January 16, 2001	Johannes Gutenberg - Universität Mainz, Germany, Markl Research Group
October 23, 2000	St. Philip's College, San Antonio, Texas, Bridges Program,
September 16, 2000	St. Mary's University, San Antonio, Texas, Department of Biology
April 1, 1999	Texas A&M University, Kingsville, Texas, Department of Biology,
November 9, 1998	SWT, Department of Biology
January 24, 1997	University of Texas at San Antonio, MARC/MBRS Program,
October 28, 1996	Trinity University, San Antonio, Texas, Department of Biology,
March 9, 1996	St. Phillip's College, San Antonio, Texas, Women's History Week
December 5, 1994	Texas A&M University, College Station, Toxicology Group,
February 4, 1994	University of Texas Marine Sciences Institute, Port Aransas
December 3, 1993	University of Texas, Austin, Department of Zoology,

TEACHINGCourses Taught

<i>Graduate</i>	<i>Undergraduate</i>
Neurobiology	Neurobiology
Cell Physiology	Cell Physiology
Traffic ATPases	Vertebrate Physiology
Biology of Pigmented Cells	Cell Biology
Last Week in Science	General Genetics (non-majors)
Cell Motility and Cytoskeleton	University Seminar
Departmental Seminar	
Cell, Micro and Molecular Biology	

Theses Supervised*Graduate*

Student	Date MS	Thesis Title
David Zamora	8/97	Localization of Cytoskeletal Elements in Teleost Retinal Pigment Epithelium
Ernesto Pérez, Jr.	5/99	Characterization of the Intermediate Filament Cytoskeleton in Teleost Retinal Pigment Epithelium
Corey Waller (w/D. Feakes)	5/99	Synthesis of Polyhedral Boranes for Use in Boron Neutron Capture Therapy for Cancer
Alfredo González, III	12/00	Muscarinic Regulation of Pigment Granule Dispersion in Teleost Retinal Pigment Epithelium
Jack Needham, Jr.	8/01	Molecular Characterization of Alpha-Actinin
Jamie Dixson	12/01	Evolution of the Alpha-Actinin Gene Family
Shazia Saleem	12/03 (exp.)	Computer-based Recovery of the m5 Muscarinic Receptor Gene from Zebrafish and Fugu
Prasad Phatarpekar	5/04	Isolation and Sequencing of Muscarinic Receptor Genes from Fishes
Chad Copeland	5/05 (exp.)	Cholinergic Stimulation of Pigment Granule Dispersion in Bluegill RPE: Second Messenger Pathways
Elizabeth Crittenden	5/06 (exp.)	Localization of Muscarinic Receptors in Fish RPE: <i>In situ</i> Hybridization
Varsha Radhakrishnan	5/09 (exp. Ph. D.)	G-protein Involvement in Pigment Granule Dispersion in Bluegill RPE: G ₁₁ expression

Undergraduate Honors Theses

Student	Date BS	Thesis Title
Thomas Keith	5/95	Pigment Granule Aggregation in Retinal Pigment Epithelium Isolated from Bluegill Sunfish
Ben McCalip	12/95	Localization of an Intermediate Filament Associated Protein in the Retinal Pigment Epithelium of Blue Gill Fish

Other Research Supervised*Summer Teacher Research Fellows*

Teacher	Date	Project Title
Shantel Tharps	2002	Characterization of the Phosphorylation State of the J1-31 Antigen
Bryn Caddell	2001	Alpha-actinins from Rat
Valerie Mendoza	2001	Pharmacological Characterization of Muscarinic Receptors in Bluegill RPE
Yevertt Anderson	1999	Characterization of Dispersion-inducing Muscarinic Receptors on Bluegill RPE
Sue Lighthall	1999	Complete characterization of the G.3.5 antigen
Kedric George	1998	Pharmacological Characterization of Receptors Involved in Carbachol-induced Pigment Granule Dispersion in Teleost RPE
Ruben Guajardo	1996	Functional Characterization of the G.3.5 Antigen using Circumferential Microfilament Bundles from RPE as a Model System

Supervised Undergraduate Research

Student	Date	Project Title
James Neece	present	Muscarinic Receptors in Fugu: Isolation and Sequencing of the m2 and m5 Genes from <i>Takifugu rubripes</i>
Margaux Salas	present	Isolation and Sequencing of the m2 Gene from Bluegill Genomic DNA and Localization of the Same by <i>in Situ</i> Hybridization in Retina
Eduardo Cen	12/02	(1) Organization of Intermediate Filaments during Pigment Granule Movement in Bluegill RPE (2) Cloning of Muscarinic Receptors from Bluegill Genomic DNA
Anne Bowen	Summer 2002	Fluctuations in Cyclic AMP Levels in the Retina during Dark Adaptation
Adriana Guerra	12/01	A Research-Oriented Bridges to the Baccalaureate Program
Naomi Woods	8/00	Molecular Characterization of Muscarinic Receptors in Bluegill RPE
Nicolas Andrews	5/00	Role of Pertussis Toxin-sensitive G-proteins in Carbachol-induced Pigment Granule Dispersion in Bluegill RPE
Sarah Hicks	5/00	Characterization of Carbachol-induced Pigment Granule Aggregation

Jeff Squires	12/99	Pigment Granule Aggregation in Bluegill RPE
Christine Testa	12/99	Synthesis of Fluoresceinated cAMP by Teleost RPE
Gus Menger	12/98	Development of an in vitro model for teleost retinomotor movements
Bart Spencer	8/98	Cyclic AMP-induced Pigment Granule Movement in Isolated Dissociated RPE Cells
Chris Cravey	12/97	Teleost Eyecup Cultures
Chandra Davis	12/97	Immunogold Localization of Intermediate Filaments in Teleost RPE
Kenneth Scott	12/96	Functional Characterization of the G.3.5 Antigen using Circumferential Microfilament Bundles from RPE as a Model System
Mark Thomas	12/96	Characterization of the Cytoskeleton of Isolated, Dissociated RPE Cells
Sabitha Prabhakaran	8/96	Immunogold Localization of the G.3.5 Antigen in Bluegill RPE
Jennifer Blanton	5/96	Cholinergic Mechanisms in the Retina
Jennifer Stangle	5/96	Retinomotor Movements in Eye-cups Isolated from Bluegill Sunfish
Annie LeMaster	12/95	Uptake of ³ H-cAMP by Isolated Teleost RPE
Steve Moredock	12/95	Kinetics of Uptake of ³ H-cAMP by Isolated Teleost RPE
Juan Herrera	8/95	Dose Response Analysis of 8-N ₃ -cAMP-induced Pigment Granule Aggregation
Casey Hanna	5/95	Retinomotor Movements in Eye-cups Isolated from Bluegill Sunfish
Kathy Bennett	8/94	Fractionation of Fish RPE Cells

COMMITTEE ASSIGNMENTS

Committees Chaired

Biomedical Science, Biotechnology, Bioengineering Steering Committee	Developmental Biology Search Committee
Budget Committee	Seminar Committee
Institutional Animal Care and Use Committee	Biology Ph. D. Curriculum Committee
Bioengineering Curriculum Subcommittee	Restricted Chemicals Committee
Annual Review Committee	Service Component Evaluation Committee

Other Committees

Safety Committee	Sally Karnau Scholarship Committee
Developmental Biology Search Committee	Suspension Appeals Committee
Clinical Laboratory Scientist Search Committee	Steering Committee for the Aquatic Resources Ph. D.
Animal Scientist Search Committee	Departmental Post-tenure Review Committee
President's Council for Women	Dean of General Studies Search Committee
Public Relations Committee	Physiologist Search Committee
Scholarship Component Evaluation Committee	Morning Student Commencement Speaker Committee
JAMP Committee	Premed-Preudent Committee
Biology Lecturer Search Committee	Colene Drace Scholarship Committee
Howard D. Schultz Scholarship Committee	Nutrition Science Search Committee
Committee on Institutes and Centers	Engineering Committee
Biology Chair Search Committee	B ³ I Liaison Committee
