

Nigel C. Noriega Ph.D.

Positions

- 2016- **Chief Financial Officer:**
Latin American and Caribbean Section of the Society for Conservation Biology
- 2012- **Founder & Director:**
Sustainable Innovation Initiatives, Inc. A 501(c)(3) nonprofit corporation. www.sii-inc.org
- 2009-12 **Project Scientist:**
Center for Neuroscience and Dept. of Neurobiology Physiology and Behavior. University of California at Davis. Laboratory of Dr. Mitchell Sutter
- 2005-09 **Postdoctoral Fellow:**
Division of Neuroscience. Oregon National Primate Research Center, Oregon Health & Science University. Laboratory of Dr. Henryk Urbanski
- 2002-05 **Biologist:**
Endocrine Branch, National Health & Environmental Effects Research Laboratory, United States Environmental Protection Agency. Laboratory of Dr. L. E. Gray
- 1998-99 **Study Director:**
Contract between Novartis Corporation and the Laboratory for Integrative Studies in Amphibian Biology (University of California at Berkeley)
- 1996-2001 **Doctoral student:**
Dept. of Integrative Biology. University of California at Berkeley. Laboratory of Dr. Tyrone Hayes
- 1994-96 **Doctoral student:** (note: position transferred because advisor became dean)
Dept. of Integrative Biology. University of California at Berkeley. Laboratory of Dr. Paul Licht

Education

- 2001 **Ph.D. Integrative Biology.** University of California at Berkeley.
Dissertation: "Steroid-mimics in Anurans: Comparative Assessments of the 'Endocrine Disruptor' Hypothesis"
- 1994 **B.S. Zoology with honors.** University of Florida

Publications

- 2012 **Noriega NC.** Evolutionary Perspectives on Sex Steroids in the Vertebrates, Sex Steroids, Scott M. Kahn (Ed.), ISBN: 978-953-307-857-1, InTech, Available from:
<http://www.intechopen.com/articles/show/title/evolutionary-perspectives-on-sex-steroids-in-the-vertebrates>.
- 2011 O'Connor KN, Johnson JS, Niwa M, **Noriega NC**, Marshall EA and Sutter ML. Amplitude modulation detection as a function of modulation frequency and stimulus duration: Comparisons between macaques and humans. *Hearing Research* 277(1-2): 37-43.

- 2010 **Noriega NC**, Kohama SG and Urbanski HF. Microarray analysis of relative gene expression stability for selection of internal reference genes in the rhesus macaque brain. *BMC Molecular Biology* 2010, 11:47.
- 2010 Eghlidi DH, Haley GE, **Noriega NC**, Kohama SG, Urbanski HF. Influence of Age and 17 β -Estradiol on Kisspeptin, Neurokinin B, and Prodynorphin Gene Expression in the Arcuate-Median Eminence of Female Rhesus Macaques. *Endocrinology* 151 (8): 3783
- 2010 **Noriega NC**, Eghlidi DH, Garyfallou VT, Kohama SG, Kryger SG, and Urbanski HF. Influence of 17 β -estradiol and progesterone on GABAergic gene expression in the arcuate nucleus, amygdala and hippocampus of the rhesus macaque. *Brain Research* 1307:28-42.
- 2009 **Noriega NC**, Howdeshell KL, Furr J, Lambright CR, Wilson VS, and Gray LE Jr. Pubertal administration of DEHP delays puberty and suppresses testosterone production and reproductive tract development in male Sprague-Dawley and Long-Evans Rats. *Toxicological Sciences* 111(1):163-178.
- 2009 Urbanski HF, **Noriega NC**, Lemos DR, and Kohama SG. Gene expression profiling in the rhesus macaque: experimental design considerations. *Methods* 49:26-31.
- 2009 **Noriega NC**, Kohama SG, and Urbanski HF. Gene expression profiling in the rhesus macaque: methodology, annotation and data interpretation. *Methods*. 49:42-49.
- 2007 **Noriega NC**, Garyfallou VT, Kohama SG and Urbanski HF. Glutamate receptor subunit expression in the rhesus macaque locus coeruleus. *Brain Research* 1173:53-65.
- 2006 Gray LE Jr, Wilson VS, Stoker T, Lambright CR, Furr J, **Noriega N**, Howdeshell K, Ankley GT and Guillette L. Adverse effects of environmental antiandrogens and androgens on reproductive development in mammals. *Int J Androl*. 29, 96-104; discussion 105-108.
- 2006 Hayes TB, Stuart AA, Mendoza M, Collins A, **Noriega N**, Vonk A, Johnston G, Liu R and Kpodzo D. Characterization of atrazine-induced gonadal malformations in African clawed frogs (*Xenopus laevis*) and comparisons with effects of an androgen antagonist (cyproterone acetate) and exogenous estrogen (17beta-estradiol): Support for the demasculinization/feminization hypothesis. *Environ Health Perspect*. 114 Suppl 1:134-41.
- 2005 **Noriega NC**, Ostby J, Lambright C, Wilson VS, Gray LE, Jr. Late gestational exposure to the fungicide prochloraz delays the onset of parturition and causes reproductive malformations in male but not female rat offspring. *Biol Reprod* 72(6):1324-1335.
- 2005 Gray LE, Jr., Wilson V, Stoker T, Lambright C, Furr J, **Noriega N**, Hartig P, Cardon M, Rosen M, Ankley G, Hotchkiss A, Orlando EF, Guillette L, Kelce W. Environmental Antiandrogens: An Expanding Chemical Universe. In: Naz RK (ed.) *Endocrine Disruptors: Effects on Male and Female Reproductive Systems*. Second Edition. Boca Raton, London, New York, Washington, D.C.: CRC Press: 313-343.
- 2004 Gray LE, Jr., Wilson V, **Noriega N**, Lambright C, Furr J, Stoker TE, Laws SC, Goldman J, Cooper RL, Foster PM. Use of the laboratory rat as a model in endocrine disruptor screening and testing. *Ilar J* 45(4):425-437.
- 2004 Gray LE, Jr., Ostby J, Furr J, Wolf C, Lambright C, Wilson V, **Noriega N**. Toxicant-induced hypospadias in the male rat. *Adv Exp Med Biol* 545: 217-241.
- 2002 Hayes TB, Collins A, Lee M, Mendoza M, **Noriega N**, Stuart AA, Vonk A. Hermaphroditic, demasculinized frogs after exposure to the herbicide atrazine at low ecologically relevant doses. *Proceedings of the National Academy of Sciences* 99(8):5476-5480.

- 2000 **Noriega NC** and Hayes TB. DDT congener effects on secondary sex coloration in the reed frog *Hyperolius argus*: A partial evaluation of the *Hyperolius argus* Endocrine Screen. *Comparative Biochemistry and Physiology B* 126B (2): 231-237.
- 1998 Crain DA, **Noriega N**, Vonier PM, Arnold SF, McLachlan JA and Guillette LJ Jr. Cellular Bioavailability of Natural Hormones and Environmental Contaminants as a Function of Serum and Cytosolic Binding Factors. *Toxicology and Industrial Health* 14: 261-273.

Teaching Experience

Courses

- 1997 **Current Topics in Biological Sciences: Course co-coordinator and Graduate Student Instructor.** Lower-division Undergraduate Course. Dept. of Molecular and Cell Biology. University of California at Berkeley. MCB 15, 2 credits
- 1996 **Human Endocrinology: Graduate student instructor.** Upper-division Undergraduate Course. Dept. of Integrative Biology. University of California at Berkeley. IB 137, 4 credits

Training, mentorship & outreach

- 2005-09 **Laboratory Training:** Assisted in the training of doctoral students, a master's student, and laboratory technicians, as well as participants in the OHSU "Partners-in-science" summer education program for high-school teachers.
- 1997-2011 **Community Outreach:** OHSU Partners in Science (2006-2008); HHMI "Ask a scientist" program (2000-2007); Body Worlds 3 (2007); OHSU/OMSI/UC Davis Brain awareness outreach programs (2005, 2006, 2011); UC Berkeley Biology Scholars Program (1999-2008); Team Outreach for Academic Development (1997-2001).

In the media

- 2013 Jeremy Hance. mongabay.com (August 26, 2013). "Trinidad and Tobago: a biodiversity hotspot overlooked". <http://news.mongabay.com/2013/0826-hance-trinidad-tobago-interview.html>

Forums

- 2013 "Let's Talk Eco-Action": Conservation and sustainability coalition. Trinidad and Tobago

Talks

- 2015 J. Weber*, J. Arkle, **Noriega, N.**, Northern Range, Trinidad: the guppy-geomorphology connection. 20th Caribbean Geological Conference, Port of Spain, Trinidad
- 2015 **Noriega, N.**, Tropical forest restoration. University of the South, Sewanee, TN
- 2015 **Noriega, N.**, How is value assigned to tropical forests? University of the South, Sewanee, TN
- 2013 **Noriega, N.**, The natural laboratory: Value-assignment and the ecology of Trinidad. Grand Valley State University, Grand Valley MI
- 2013 **Noriega, N.**, The natural laboratory: Value-assignment and biology studies in Trinidad. University of Cincinnati Biology Department Seminar. Cincinnati, OH
- 2008 **Noriega, N.**, S. Kohama, H. Urbanski. GABA on steroids: possible mechanisms of regulation. Oregon National Primate Research Center. Neuroscience Division Seminar. Beaverton, OR

- 2008 **Noriega, N.**, V. Garyfallou, M. Rizzi, S. Kryger, S. Kohama, H. Urbanski. Potential neuroendocrine action of an evolutionarily conserved peptide (GnRH-II) in primates. Society for Neuroscience, Oregon Chapter. Troutdale, OR
- 2008 **Noriega, N.**, V. Garyfallou, M. Rizzi, S. Kryger, S. Kohama, H. Urbanski. Revisiting GnRH mechanisms of action in primates. Northwest Reproductive Sciences Symposium. Corvallis, OR
- 2007 **Noriega, N.** The GnRH web: An evolutionary biologist's path to neuroscience. Oregon National Primate Research Center. Neuroscience Division Seminar. Beaverton, OR
- 2005 **Noriega, N.**, G. Dissen, H. Urbanski. Visualizing inputs for GnRH neurons in primates: a proposed lentiviral gene delivery method. Oregon National Primate Research Center. Neuroscience Division Seminar. Beaverton, OR
- 2005 **Noriega, N.**, J. Furr, C. Lambright, V.S. Wilson, L. E. Gray Jr. Peripubertal DEHP exposure Inhibits Androgen Sensitive Tissue Development and Delays Puberty in Male Sprague-Dawley Rats. Annual meeting of the Society for the Study of Toxicology, New Orleans LA
- 2004 **Noriega, N.**, J. Furr, C. Lambright, V.S. Wilson, L. E. Gray Jr. Peripubertal DEHP exposure Inhibits Androgen Sensitive Tissue Development and Delays Puberty in Male Sprague-Dawley Rats. Annual meeting of the Society for the Study of Reproduction, Vancouver B.C. Canada
- 2004 **Noriega, N.**, J. Furr, C. Lambright, V.S. Wilson, L. E. Gray Jr. Conflicting Predictions of DEHP Effects on Pubertal Timing in the Rat. U.S. EPA Reproductive Toxicology Division EDC Forum Seminar. RTP, NC
- 2004 **Noriega, N.**, J. Ostby, C. Lambright, V.S. Wilson, L. E. Gray Jr. Effects of Gestational Prochloraz Administration on Male Reproductive Development in Rats. Gordon Research Conference for Environmental Endocrine Disruptors. New London, NH USA
- 2004 **Noriega, N.**, J. Ostby, C. Lambright, V.S. Wilson, L. E. Gray Jr. Effects of Gestational Prochloraz Administration on Male Reproductive Development in Rats: In Vivo Assessments of a Fungicide with multiple In Vitro effects. Annual meeting of the Society for of Toxicology. Baltimore, MD USA
- 2004 **Noriega, N.**, J. Ostby, C. Lambright, V.S. Wilson, L. E. Gray Jr. The Fungicide Prochloraz: In vitro Androgen Antagonism, Parturition Delays, and Male Reproductive Malformations in Rats. Annual meeting of the Society for Integrative and Comparative Biology. New Orleans, LA USA
- 2003 **Noriega, N.**, L.E. Gray, J. Ostby, C. Lambright, V. Wilson. Late gestational exposure to the fungicide Prochloraz delays the onset of parturition and causes reproductive malformations in male rat offspring. Annual meeting of the Society for the Study of Reproduction. Cincinnati, OH
- 2003 **Noriega, N.**, J. Ostby, C. Lambright, V.S. Wilson, L. E. Gray Jr. Prenatal Exposure to the Fungicide Prochloraz alters the onset of Parturition in the Dam and Sexual Differentiation in Male Rat Offspring. Annual meeting of the Society of Toxicology. Salt Lake City, UT USA
- 2003 **Noriega, N.** and L. E. Gray. Effects of maternal prochloraz exposure on male reproductive development: Considerations for multiple simultaneous mechanisms of action via P-450 modulation. Research Triangle Park Endocrine Disrupting Chemicals Forum. RTP, NC USA
- 2000 **Noriega, N.** and T. B. Hayes. Application of in-vivo steroid assays to test hormone-mimic activity in frogs. Endocrinology seminar. National Institute for Basic Biology. Okazaki Japan
- 2000 **Noriega, N.** and T. B. Hayes. A comparative assessment of in vivo steroidal effects in anurans: Can we tell if hormone mimics affect amphibians? Annual meeting of the American Society of Ichthyologists and Herpetologists. La Paz, B.C.S. Mexico

- 2000 **Noriega, N.** Evaluating steroidal activity in anurans: a comparative approach. Integrative Biology Seminar in Comparative Endocrinology. Berkeley CA, USA
- 2000 **Noriega, N.** and T. B. Hayes. Influence of sex steroids on the development of the Pacific Treefrog *Hyla regilla* Western Regional Conference on Comparative Endocrinology. Corvallis, OR USA
- 2000 **Noriega, N.** and T. B. Hayes. The *Hyperolius argus* Estrogen Screen as a tool for evaluating estrogen effects in anurans. Society for Integrative and Comparative Biology. Atlanta, GA USA.
- 1999 **Noriega, N.** *In vivo* tests for estrogen effects in anurans. Integrative Biology Graduate Student Symposium. Berkeley, CA USA
- 1999 **Noriega, N.** Assessment of Assays for Xenoestrogen Effects in Anurans. Society for Integrative and Comparative Biology. Denver, CO USA
- 1998 **Noriega, N.** Applied Physiological Tests in Anurans. Integrative Biology Graduate Student Symposium. Berkeley, CA USA
- 1998 **Noriega, N.** Assessing effects of proposed hormone mimics: Trials and Errors. Integrative Biology Seminar in Comparative Endocrinology. Berkeley, CA USA
- 1998 **Noriega, N.,** K. P. Menendez and T. B. Hayes. Comparative Evaluation of Xenoestrogen Effects in Anurans. Society for Integrative and Comparative Biology. Boston, MA USA
- 1997 **Noriega, N.,** K. P. Menendez and T. B. Hayes. Comparative Evaluation of Xenoestrogen Effects in Anurans. Western Southwestern Regional Conference on Comparative Endocrinology. Denver, CO USA
- 1996 **Noriega, N** and P. Licht. Effects of thyroidal status on body growth and vitamin D binding in hatchling snapping turtles, *Chelydra serpentina*. Western Regional Conference on Comparative Endocrinology. Berkeley, CA USA

Posters

- 2010 O'Connor K. N., J. S. Johnson, M. Niwa, **N. C. Noriega**, E. A. Marshall, M. L. Sutter. Detection of amplitude modulation as a function of modulation frequency and stimulus duration: Comparisons between macaques and humans. Society for Neuroscience annual meeting. San Diego, CA
- 2009 **Noriega, N.,** D. Eghlidi, V. Garyfallou, S. Kohama, S. Kryger, H. Urbanski. Influence of 17 β -estradiol and progesterone on GABAergic gene expression in the arcuate nucleus, amygdala and hippocampus of the rhesus macaque. [Society for Neuroscience annual meeting. Chicago, IL](#)
- 2007 **Noriega N.C.,** V.T.Garyfallou, M. Rizzi, S.G. Kohama and H. F. Urbanski. Differential GnRH-I and GnRH-II gene expression in the rhesus macaque arcuate nucleus across the menstrual cycle or after steroid hormone replacement. Society for Neuroscience annual meeting. San Diego, CA
- 2006 **Noriega N.C.,** Dissen G, Urbanski H.F. Use of lentiviral gene delivery system to target GnRH neurons. Sixth International Congress of Neuroendocrinology. Pittsburgh, PA
- 2005 **Noriega, N.,** J. Ostby, C. Lambright, V.S. Wilson, L. E. Gray Jr. Effects of Gestational Prochloraz Administration on Male Reproductive Development in Rats: In Vivo Assessments of a Fungicide with multiple In Vitro effects. 7th Annual Northwest Reproductive Sciences Symposium, Seattle. WA
- 2004 **Noriega, N.,** J. Ostby, C. Lambright, V.S. Wilson, L. E. Gray Jr. Effects of Gestational Prochloraz Administration on Male Reproductive Development in Rats. Gordon Research Conference for Environmental Endocrine Disruptors. New London, NH USA

- 2003 **Noriega, N.**, J. Ostby, C. Lambright, V.S. Wilson, L. E. Gray Jr. Effects of Gestational Prochloraz Administration on Male Reproductive Development in Rats. In Vivo Assessments of a Fungicide with multiple In Vitro effects. Duke University Postdoctoral Research Day. Durham, NC
- 1999 **Noriega, N.** Application of an *in vivo* test for estrogen effects in the reed frog *Hyperolius argus*. Environmental Hormones Symposium, New Orleans, LA USA

Abstracts

- 2013 Verhein J, Downer J, O'Connor K, **Noriega N**, Johnson J, and Sutter M. Auditory Feature-Selective Attention in Humans and Rhesus Macaques. *J Cognitive Neurosci* 121-122
- 2008 Urbanski H.F., **Noriega N.C.**, Garyfallou V.T., Kryger S.G., Kohama S.G. Positive feedback action of estradiol on GnRH gene expression in the medial basal hypothalamus of female rhesus macaques (*Macaca mulatta*). *Society for Reproduction and Fertility* P. 40: 1
- 2006 **Noriega N.C.**, Dissen G, Urbanski H.F. Use of a lentiviral gene delivery system to target GnRH neurons. *Frontiers in Neuroendocrinology* 27: 1. pp 118-119
- 2006 Urbanski, H. F., **N. C. Noriega**, V. T. Garyfallou, J. L. Downs and S. G. Kohama. Changes in GnRH Gene Expression in the Medial Basal Hypothalamus of Rhesus Macaques across the Menstrual Cycle. *Proceedings of the 8th European Congress of Endocrinology*. P.678
- 1999 **Noriega, N. C.** and T. B. Hayes. Preliminary evaluations of the *Hyperolius argus* estrogen screen. *American Zoologist* 39: 5. pp 64A
- 1998 **Noriega, N. C.** and T. B. Hayes. Assessment of Assays for Xenoestrogen Effects in Anurans. *American Zoologist* 38: 5. pp 206A
- 1998 **Noriega, N. C.**, K. P. Menendez, and T. B. Hayes. Comparative Evaluation of Xenoestrogen Effects in Anurans. *American Zoologist* 37: 5. pp 117A.

Funding

- 2006-09 NCRR Supplement to Oregon National Primate Research Center core grant
- 2005-06 NIH Reproductive Biology Training Grant-Oregon Health & Science University
- 2002-05 NHEERL Postdoctoral Fellowship
- 1999 National Science Foundation Doctoral Dissertation Improvement Grant
- 1999 University of California Dissertation Year Fellowship
- 1997 Integrative Biology Summer Research Grant
- 1996 Integrative Biology Graduate Student Research Funds
- 1994-98 Howard Hughes Predoctoral Fellowship in Biological Sciences

Service and Awards

- 2010 2009 Toxicological Sciences Best Paper Award from the Society of Toxicology Reproductive and Developmental Toxicology Specialty Section
- 2004 Session co-chair and moderator for "Toxicology" platform session. Annual meeting of the Society for the Study of Reproduction. Vancouver, British Columbia Canada
- 2004 Best Poster Presentation. Gordon Research Conference on Environmental Endocrine Disruptors
- 2004 EPA Special accomplishment recognition award
- 2003 NHEERL achievement award
- 2003 Session co-chair and moderator for platform session "Comparative Toxicology and Endocrinology". Annual meeting of the Society for the Study of Reproduction. Cincinnati, Ohio.

- 2002 Session chair and moderator for “Mechanisms of Action”. Endocrine Disruptors Program Review. RTP, NC.
- 1994 University of Florida Undergraduate Research Achievement Award
- 1994 Marlin Perkins Scholarship
- 1992 Phi Beta Kappa Honor Society
- 1993 Golden Key National Honor Society
- 1990 National Achievement Scholarship

Invited Symposia

- 2008 "Revisiting GnRH mechanisms of action in primates". Northwest Reproductive Sciences Symposium. Corvallis, OR
- 2005 “Environmental influences on steroid-regulated sex differentiation.” North Carolina Agricultural and Technical State University: Biology department seminar series. Greensboro, NC
- 1996 “Exogenous Mediation of Steroid Effects in Anurans.” NIH CCSF/SFSU Bridges to the Baccalaureate. San Francisco, CA

GLP training

- 1998 Good Laboratory Practice (GLP) certification. GLP guidelines reflect national research regulations for non-clinical studies.

Field collections

Date	Location	Animals captured
2001-2002	USA: NC: Pamlico Co	water snakes (<i>Nerodia</i>)
1995-2001	USA: CA: Colusa Co, Sutter Co, Trinity Co, San Joaquin Co, San Diego Co, (Sonora Pass, Deep Springs Valley, Death Valley, Darwin Falls, Surprise Canyon, Salinas, Clear Lake, El Centro, Alamo River)	Frogs (<i>Xenopus</i> , <i>Hyla</i> , <i>Bufo</i> , <i>Rana</i> , <i>Scaphiopus</i>), Soft-shell turtle (<i>Apalone</i>), Snakes (<i>Thamnophis</i>), Lizards (<i>Sceloporus</i> , <i>Urosaurus</i> , <i>Crotaphytus</i> , <i>Cnemidophorus</i>) Newts (<i>Taricha</i>), Salamanders (<i>Ambystoma</i> , <i>Aneides</i> , <i>Batrachoseps</i> , <i>Ensatina</i>)
1996	Africa: Kenya: Arabuko Sokoke Forest, Nakuru	Frogs (<i>Africalus</i> , <i>Hyperolius</i> , <i>Kassina</i> , <i>Ptychadena</i> , <i>Phrynomerus</i>)
1995	USA: FL: Apopka, Lake Griffin, Lake Woodruff	Ibis (<i>Eudocimus</i>), Soft-shell turtle (<i>Apalone</i>), Alligator (<i>Alligator</i>), Frogs (<i>Rana</i>)
1994	Africa: Uganda: Kibale Forest	Chimpanzees (<i>Pan</i> / tracking & survey only), Monkeys (<i>Colobus</i> , <i>Cercopithecus</i> /survey only) duiker (<i>Cephalophus</i> / tracking only), bats, birds, fish.
1993-1994	USA: FL: Alachua Co	Alligators (<i>Alligator</i>), Lizards (<i>Sceloporus</i>), Snapping turtles (<i>Macrolemys</i>)
1992	USA: MD: Patuxent	Voies (<i>Microtus</i>)
1992	USA: VA: Chincoteague island	wading birds, migratory shorebirds
1992	USA: CT: Faulkner Island	Terns (<i>Sterna</i>)
1992	USA: VA: Chesapeake Bay	Bivalves (<i>Bivalvia</i>)

Society Membership

1996- Society for Conservation Biology
2006- American Association for the Advancement of Science
2005-2012 Society for Neuroscience
1995-2006 Society for Integrative and Comparative Biology
2002-2006 Society for the Study of Reproduction
2002-2006 Society of Toxicology
2002-2005 Triangle Consortium for Research Biologists

Peer reviewer

2004 Toxicological Sciences
2008 Endocrinology
2008 Peptides