

Center for Reproductive Biology Spring 2012 Seminars

Room: BLS 402
4:10–5:00 pm

1/25/12 Dr. Heather Patisaul, North Carolina State University
2/15/12 Dr. Coleen Murphy, Princeton University
3/21/12 Dr. Terry Hassold, Washington State University
4/25/12 Dr. Norman Arnheim, University of Southern California

Fall 2012 seminars are a work in progress. If you have a speaker you would like to have brought to WSU/UI

please contact Carolyn Emerson-Farr (emersonc@vetmed.wsu.edu)

Grant Awards 2011

University of Idaho (June 1, 2011-September 30, 2011)

CRB faculty members Drs. Amin Ahmadzadeh, Gustavo Arrizabalaga, Kenneth Cain, Joseph Cloud, Lee Fortunato, Peter Fuerst, Ron Hardy, Jill Johnson, Mark McGuire, Gordon Murdoch, James Nagler and Deborah Stenkamp have been awarded a combined \$ 1,912,125.00 in extramural funding.

Washington State University (June 1, 2011-November 30, 2011)

CRB faculty members Drs. John Alderete, John Browse, Jeremiah Busch, Douglas Call, Weihang Chai, Erica Crespi, Min Du, Michael Griswold, Terry Hassold, Chengtao Her, Donna Holmes, Patricia Hunt, Mary Hunzicker-Dunn, Heiko Jansen, Laura Lavine, Sue Marsh, Derek McLean, John McNamara, Holly Neibergs, John Nilson, Jon Oatley, Joe Poovaiah, James Pru, Sue Ritter, Dan Rodgers, Hubert Schwabl, Walter Sheppard, Michael Skinner, Tom Spencer, John Stark, Andrew Storfer, Steven Sylvester, Ahmed Tibary, Diter von Wettstein, and Jennifer Watts have been awarded a combined \$9,167,329.00 in extramural funding.

Publications continued from page 4

Skinner, M. K. (2011). "Introduction and preface." *Molecular and Cellular Endocrinology*. (E-pub)

Skinner, M. K. (2011). "Environmental epigenomics and disease susceptibility." *EMBO reports* 12(7): 620-622.

Skinner, M. K. (2011). "Environmental epigenetic transgenerational inheritance and somatic epigenetic mitotic stability." *Epigenetics* 6(7): 838-842.

Skinner, M. K. (2011). "Role of epigenetics in developmental biology and transgenerational inheritance." *Birth Defects Research. Part C* 93(1): 51-55.

Larsen, D. A., P. Swanson, et al. (2011). "The pituitary-thyroid axis during the parr-smolt transformation of Coho salmon, *Oncorhynchus kisutch*: quantification of TSH beta mRNA, TSH, and thyroid hormones." *General and Comparative Endocrinology* 171(3): 367-372.

Spencer, T. E., K. A. Dunlap, et al. (2011). "Comparative developmental biology of the uterus: Insights into mechanisms and developmental disruption." *Molecular and Cellular Endocrinology*. (E-pub)

Miller, M. R., J. P. Brunelli, et al. (2011). "A conserved haplotype controls parallel adaptation in geographically distant salmonid populations." *Molecular Ecology*. (E-pub)

Morris, R. T., K. A. Doroshenko, et al. (2011). "RiceRBP: a database of experimentally identified RNA-binding proteins in *Oryza sativa* L." *Plant Science* 180(2): 204-211.

Su, Y., Y. Li, et al. (2011). "Mammalian meiosis is more conserved by sex than by species: conserved co-expression networks of meiotic prophase." *Reproduction* 142(5): 675-687.

Miura, C., Y. Shimizu, et al. (2011). "Gh is produced by the testis of Japanese eel and stimulates proliferation of spermatogonia." *Reproduction* 142(6): 869-877.

Upcoming Events

Keystone Symposia: Epigenomics, January 17-22, 2012, Keystone, Colorado

Keystone Symposia: Complex Traits: Genomics and Computational Approaches, February 20-25, 2012, Breckenridge, Colorado

2012 Workshop for Postdocs Transitioning to Independent Positions, National Institutes of Health, March 12-13, 2012, Bethesda, Maryland

Society for Endocrinology, BES 2012, March 19-22, 2012, Harrogate, North Yorkshire, UK

IVF-Worldwide Live 2012, Embracing the Digital Age, April 20-22, 2012, Berlin, Germany

American Society of Andrology 37th Annual Conference, April 21 - 24, 2012, Tucson, Arizona

2012 Annual Pacific Coast Reproductive Society Meeting, Creating a Patient Centric Environment, April 18-22, 2012, Rancho Mirage, CA

2nd SKLRB Symposium on Frontiers in Reproductive Biology State Key Laboratory of Reproductive Biology, May 6-11, 2012, Beijing, China

Northwest Reproductive Sciences Symposium, May 2012, exact date and location to be announced

CRB Retreat, May 17, 2012, Banyan's on the Ridge, Pullman, WA

32nd Annual Meeting of the American Society for Reproductive Immunology, May 30-June 2, 2012, Hamburg, Germany

Gordon Research Conference: Meiosis, June 3-8, 2012, New London, NH

49th Annual Meeting of the Society for Cryobiology, June 3-6, 2012, Rosario, Argentina

ENDO 2012, June 23-26, 2012, Houston, Texas

European Society of Human Reproduction and Embryology, 28th Annual Meeting, July 1-4, 2012, Istanbul, Turkey

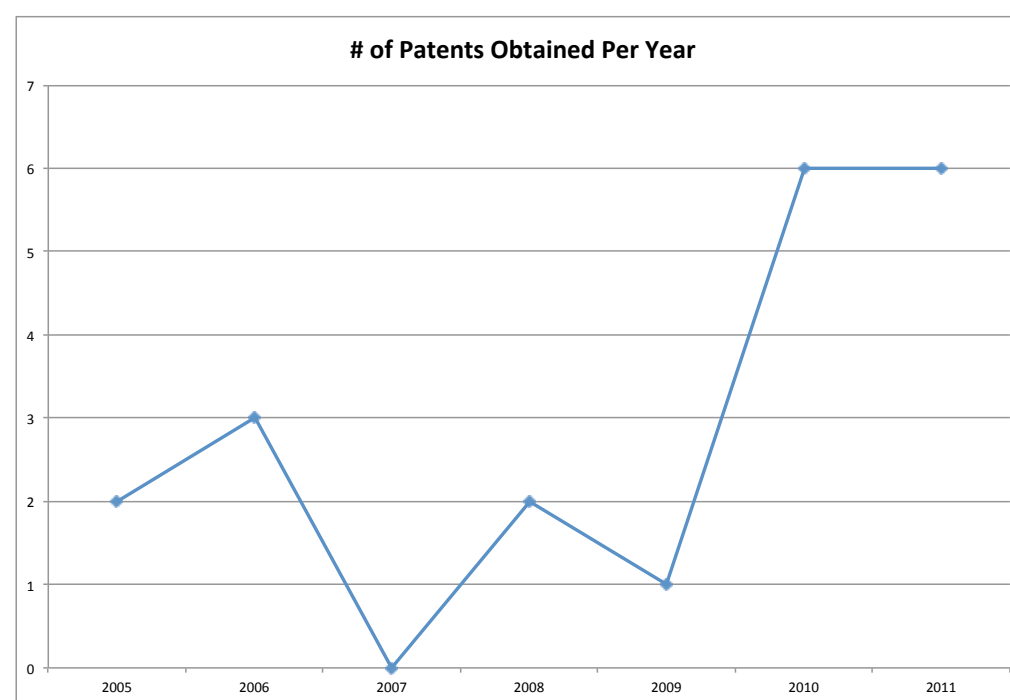
American Society of Animal Sciences and American Dairy Science Association combined meeting: July 15-19, Pheonix, AZ 2012

71st Annual Meeting for the Society for Developmental Biology, July 19-23, 2012, Montreal, Canada

ICAR 2012, 17th International Congress on Animal Reproduction, "Celebrating the Past and Embracing the Future", July 29-August 2, 2012, Vancouver, British Columbia, Canada

Society for the Study of Reproduction, 45th Annual Meeting, August 11-15, 2012, State College, Pennsylvania

WSU & UI Patents: 2005-2011



Center Report

Faculty, Student,
and Staff Newsletter
Fall 2011



Dr. Zhihua Jiang, Animal Sciences professor and CRB faculty member, works with students in the cattle pasture.



Director's Message

As we begin the new year, we are very excited about the Winter/Spring seminar series, which will focus on Aging and Reproduction. We have a wonderful group of outside speakers slated to come, including investigators working on model organisms from *C. elegans* (Coleen Murphy, Princeton) to mice (Heather Patisaul, N.C. State), as well as an investigator working on our own species! (Norm Arnheim, USC). We think it will be an exciting series of presentations and we encourage you to attend.

We are also looking forward to this year's retreat, which will again be held at Banyon's at the Palouse Ridge Golf Course in Pullman, and with the "main" events (trainee presentations and awards and presentations from new CRB members) continuing as usual. So please reserve Thursday, May 17 and plan on attending.

Best wishes from all of us at the CRB for a prosperous and productive 2012.

Terry Hassold, Director
Center for Reproductive Biology

New Developments in the CRB

Regional Collaborations

The Institute of Translational Health Sciences (ITHS), a partnership between the University of Washington, Fred Hutchinson Cancer Research Center, Seattle Children's Hospital and other regional institutions along with community and tribal groups, is a dynamic organization whose goal is to improve the health for people throughout Washington, Wyoming, Alaska, Montana and Idaho. As one of 60 Clinical and Translational Science Award sites nationwide, the ITHS provides expertise and access to training, equipment, pilot funding and clinical study resources to help translate discoveries into practice from basic science to clinical trials to outcomes evaluation. The Regional Collaborations Program coordinates access to ITHS resources throughout the five WWAMI states and facilitates clinical and translational research collaborations across academic and research programs. Contact Laurie Hassell, ITHS Regional Liaison at lhassell@uw.edu for more information.

MSS Team Mentoring program description:

The CRB has partnered with the WSU Office of Multicultural Student Services to recruit undergraduate students from under-represented groups into research experiences in the STEM disciplines. The TEAM mentoring program is sponsored by the Boeing Corporation and the Louis Stokes Alliance for Minority Participation. The focus of the program is to maximize the experience of science and engineering students in order to increase their retention, achievement and graduation. Please contact Derek McLean if you are interested in hosting and mentoring a student in your research laboratory. Students can also perform independent study projects to improve their understanding of science and research.

Please email any awards or recognition items to Carolyn Emerson-Farr at emersonc@wsu.edu

Contact Information

Center for Reproductive Biology | Coordinator: Carolyn M. Emerson-Farr
 Phone: 509-335-2473 | Fax: 509-335-8991 | crb@wsu.edu | www.crb.wsu.edu

Awards, Honors, and Accolades

Congratulations! **Dr. B.W. (Joe) Poovaiah** on being chosen as an AAAS (American Association for the Advancement of Science) Fellow! The honor was bestowed for his distinguished contributions to plant science, particularly for recognizing the significance of calcium/calmodulin-mediated signaling in plant growth, plant-microbe interactions and plant defense.

Congratulations to **Ross Rowsey**, trainee of Dr. Terry Hassold, on being one of the first STARS students to enter graduate school. STARS— Students Targeted toward Advanced Research Studies— gives select students a chance to accelerate learning and earn a doctorate in as little as seven years after leaving high school. Ross will be one of the first graduates of the STARS program when he finishes his Ph.D.

Congratulations to our trainees who are recipients of the 2011-12 Auvil Scholars Fellowships awarded to support undergraduate research. These Fellows will present their research at a symposium put on by the University College at WSU, scheduled this spring for April 2, 2012.

Hannah R. Balash, senior Spanish and basic medical science major mentored by **James Pru**

Megan M. Elsarelli, junior neuroscience and pre-vet major mentored by **Sue Ritter**

Fiorella C. Grandi, sophomore biochemistry major mentored by **Wenfeng An**

Emily Martin, junior biology and Spanish major mentored by **Jeb Owen**

Congratulations! Lisa Vrooman, trainee of **Pat Hunt**, for being a category 1 poster awardee at the 13th Annual Student Research Symposium

Congratulations! Lauren Eberhart, trainee of **Doug Call**, for being a category 1 poster awardee at the 13th Annual Student Research Symposium

Trainee Spotlight: Dr. Anamaria Zavala

Current Trainee of Dr. Lee Fortunato

Dr. Anamaria Zavala has been fascinated by DNA since the age of 9. So fascinated that an elementary school science fair project was about looking at how damage occurred in DNA. The actual project involved a double helix composed of matchsticks and string. The matchstick where the damage occurred was broken. She continues her work with damaged DNA and repair as a postdoctoral researcher in the laboratory of Dr. Lee Fortunato.

Dr. Fortunato has been a CRB faculty member since 2002. She received her doctorate from the University of California, San Diego in Biology then continued her research in virology/cell biology as a postdoc. She joined the faculty at the University of Idaho in 2000 and continues her research while mentoring graduate students and postdoctoral students such as Anamaria.

Dr. Fortunato calls Anamaria a "terrific example of a success story of the NIH re-entry program" and credits her experience with assay techniques as a major contributing factor in jump-starting a project that had been a struggle to finish. That project has led to submission of a paper to a high tier journal. Anamaria's success with this specific assay technique has allowed her to refine the process and she is now able to allow for dual color labeling of different DNAs within one single cell. In addition to the success Anamaria has brought to the laboratory project Dr. Fortunato says, "She has a terrific personality and an infectious laugh."

When asked about any new and exciting developments in her current research focus Anamaria indicated she has developed a new protocol for looking at UV-induced DNA adduct repair in viral and host genomes. "This technique will be valuable in studying how HCMV affects cellular repair of DNA damage that may lead to birth defects."

The CRB seminar series has been a benefit to all trainees in the Fortunato lab. Dr. Fortunato says, "...having access to all the expertise in the CRB is a real plus for any trainee we have, whether graduate student or postdoc."



New Developments in the CRB continued

The CRB has initiated a development program to raise funds to support key activities including the seminar program and the retreat. We are working with the WSU Foundation to target companies and foundations that have close interactions with the CRB or reproduction related interests. If you are currently working with a company or have worked with a company in the past, please send this information to Carolyn Emerson to advance to the WSU Foundation. We appreciate the assistance of CRB members and any suggestions to further our efforts in this area.

Faculty Publications (May 2011-December 2011)

All publications listed below have cited the Center for Reproductive Biology. If you would like to see your future publications cited please remember to include the center as your affiliate.

Busch, J. W., S. Joly, et al. (2011). "Demographic signatures accompanying the evolution of selfing in *Leavenworthia alabamica*." *Molecular Biology and Evolution* 28(5): 1717-1729.

Kulkarni, A. S. and E. A. Fortunato (2011). "Stimulation of homology-directed repair at I-SceI-induced DNA breaks during the permissive life cycle of human cytomegalovirus." *Journal of Virology* 85(12): 6049-6054.

Schwabl, H., D. Holmes, et al. (2011). "Embryonic exposure to maternal testosterone influences age-specific mortality patterns in a captive passerine bird." *Age*. (E-pub)

Nagaoka, S. I., C. A. Hodges, et al. (2011). "Oocyte-specific differences in cell-cycle control create an innate susceptibility to meiotic errors." *Current Biology* : CB 21(8): 651-657.

Yamamoto, Y., J. Adam Luckenbach, et al. (2011). "Disruption of the salmon reproductive endocrine axis through prolonged nutritional stress: changes in circulating hormone levels and transcripts for ovarian genes involved in steroidogenesis and apoptosis." *General and Comparative Endocrinology* 172(3): 331-343.

Luckenbach, J. A., J. T. Dickey, et al. (2011). "Follicle-stimulating hormone regulation of ovarian transcripts for steroidogenesis-related proteins and cell survival, growth and differentiation factors in vitro during early secondary oocyte growth in coho salmon." *General and Comparative Endocrinology* 171(1): 52-63.

Yamamoto, Y., J. A. Luckenbach, et al. (2011). "The spatiotemporal expression of multiple coho salmon ovarian connexin genes and their hormonal regulation in vitro during oogenesis." *Reproductive Biology and Endocrinology* 9: 52.

Caires, K. C., J. M. de Avila, et al. (2011). "VEGFA Family Isoforms Regulate Spermatogonial Stem Cell Homeostasis in Vivo." *Endocrinology*. (E-pub)

Czaja, W., K. Y. Miller, et al. (2011). "Complex Mechanisms Regulate Developmental Expression of the matA (HMG) Mating Type Gene in Homothallic *Aspergillus nidulans*." *Genetics* 189(3): 795-808.

Nagler, J. J., T. Cavilee, et al. (2011). "Non-sex specific genes associated with the secondary mitotic period of primordial germ cell proliferation in the gonads of embryonic rainbow trout (*Oncorhynchus mykiss*)." *Molecular Reproduction and Development* 78(3): 181-187.

Lindsay, W. R., M. S. Webster, et al. (2011). "Sexually selected male plumage color is testosterone dependent in a tropical passerine bird, the red-backed fairy-wren (*Malurus melanocephalus*)." *PLoS One* 6(10): e26067.

Bhandari, R. K., I. Sadler-Riggleman, et al. (2011). "Basic helix-loop-helix transcription factor TCF21 is a downstream target of the male sex determining gene SRY." *PLoS One* 6(5): e19935.

Clement, T. M., R. K. Bhandari, et al. (2011). "SRY directly regulates the neurotrophin 3 promoter during male sex determination and testis development in rats." *Biology of Reproduction* 85(2): 277-284.

Guerrero-Bosagna, C. and M. K. Skinner (2011). "Environmentally induced epigenetic transgenerational inheritance of phenotype and disease." *Molecular and Cellular Endocrinology*. (E-pub)

Nilsson, E. E., R. Schindler, et al. (2011). "Inhibitory actions of Anti-Mullerian Hormone (AMH) on ovarian primordial follicle assembly." *PLoS One* 6(5): e20087.

Continued on Page 5

Center Faculty

Amin Ahmadzadeh, UI	Chengtao Her, WSU	Ruth Phillips, WSU Vancouver	Jeffrey Ullman, WSU
John Alderete, WSU	Donna Holmes, WSU	Andrew Pierce, UI	Diter von Wettstein, WSU
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Gustavo Arrizabalaga, UI	Patricia Hunt, WSU	James Pru, WSU	Jennifer Watts, WSU
Robert Bogden, Amplicon Express	Mary Hunzicker-Dunn, WSU	Ray Reeves, WSU	John Wyrick, WSU
Laurence Brewer, WSU	Heiko Jansen, WSU	Sue Ritter, WSU	Ping Ye, WSU
John Brown, WSU	Zhihua Jiang, WSU	Andy Roberts, USDA-ARS	Bill Young, UI
John Browse, WSU	Jill Johnson, UI	Ken Roberts, WSU Spokane	Graham Young, UW
Jeremiah Busch, WSU	William Kabasenche, WSU	Barrie Robison, UI	
Ken Cain, UI	Ram Kasimanickam, WSU	Ram Rodgers, WSU	ASSOCIATE MEMBERS
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Weihang Chai, WSU Spokane	Adam Luckenbach, NMFS	Eric Shelden, WSU	Paul Verrell, WSU
Joe Cloud, UI	Susan Marsh, WSU Spokane	Steven Sheppard, WSU	
Doug Cole, UI	Andrew McCubbin, WSU	Milan Shipka, University of Alaska	EMERITUS MEMBERS
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William C. Davis, WSU	Kathryn Meier, WSU	Deborah Stenkamp, UI	R. Garth Sasser, UI
Andy Dittman, NMFS	Mushtaq Memon, WSU	Andrew Storfer, WSU	Paul Schroeder, WSU
Min Du, WSU	Bruce Miller, UI	Mark Strom, NMFS	Phillip Senger, WSU
Lee Fortunato, UI	Tanya Miura, UI	Penny Swanson, NMFS	Raymond Wright, WSU
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Michael Griswold, WSU	Gordon Murdoch, UI	Mechthild Tegeeder, WSU	
Ron Hardy, UI	James Nagler, UI	Gary Thorgaard, WSU	
Terry Hassold, WSU	Holly Neibergs, WSU	Ahmed Tibary, WSU	
Hanjo Hellman, WSU	John Nilson, WSU		
	Jeb Owen, WSU		