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World of Reproductive Biology

Charlotte Schubert
Protecting Males with Pachytene piRNAs
Biol Reprod September 2015 93 (3) 53, 1-1; published ahead of printJune 3, 2015, doi:10.1095/biolreprod.115.132266
Full Text **Full Text (PDF)**

Charlotte Schubert
Mitochondrial DNA, Age, and the "Good" Embryo
Biol Reprod September 2015 93 (3) 54, 1-1; published ahead of printJune 10, 2015, doi:10.1095/biolreprod.115.132449
Full Text **Full Text (PDF)**

Charlotte Schubert
Powering Pluripotency
Biol Reprod September 2015 93 (3) 55, 1-1; published ahead of printJune 17, 2015, doi:10.1095/biolreprod.115.132746
Full Text **Full Text (PDF)**

Minireview

Kutluk Oktay, Volkan Turan, Shiny Titus, Robert Stobezki, and Lin Liu
BRCA Mutations, DNA Repair Deficiency, and Ovarian Aging
Biol Reprod September 2015 93 (3) 67, 1-10; published ahead of printJuly 29, 2015, doi:10.1095/biolreprod.115.132290
Abstract **Full Text** **Full Text (PDF)** **Author Biosketches**

Summary: We found strong evidence supporting the role of BRCA gene function and DNA repair deficiency in reproductive aging.

Mylene Da Silva, Stéphane Beauclercq, Grégoire Harichaux,Valérie Labas, Nicolas Guyot, Joel Gautron, Yves Nys,and Sophie Rehault-Godbert
The Family Secrets of Avian Egg-Specific Ovalbumin and Its Related Proteins Y and X
Biol Reprod September 2015 93 (3) 71, 1-7; published ahead of printJuly 8, 2015, doi:10.1095/biolreprod.115.130856
Abstract **Full Text** **Full Text (PDF)** **Author Biosketches**

Summary: Egg-specific ovalbumin and its related proteins Y and X have evolved by duplication from a common ancestral gene to acquire new properties and functions, which underlines the unique status of avian eggs in the evolution of vertebrate reproduction.

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Research Articles

Embryo

Rodrigo Camponogara Bohrer, Ana Rita S. Coutinho, Raj Duggavathi,and Vilceu Bordignon
The Incidence of DNA Double-Strand Breaks Is Higher in Late-Cleaving and Less Developmentally Competent Porcine Embryos
Biol Reprod September 2015 93 (3) 59, 1-8; published ahead of printJuly 1, 2015, doi:10.1095/biolreprod.115.130542
Abstract **Full Text** **Full Text (PDF)**

Summary: Early-cleaving embryos have fewer DNA double-strand breaks, lower transcript levels for genes encoding DNA repair and cell cycle checkpoint proteins, and more cells than late-cleaving embryos.

James I. Raeside, Heather L. Christie, and Keith J. Betteridge
5Alpha-Reduced Steroids Are Major Metabolites in the Early Equine Embryo Proper and Its Membranes
Biol Reprod September 2015 93 (3) 77, 1-8; published ahead of printJuly 29, 2015, doi:10.1095/biolreprod.115.131680
Abstract **Full Text** **Full Text (PDF)**

Summary: Five 5alpha-reduced steroids were identified as metabolites of progesterone and androgens formed by early equine embryos, suggesting their potential significance in the early stages of development in the horse and other mammalian species.

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Female Reproductive Tract

Saara M. Rawn, Carol Huang, Martha Hughes, Rustem Shaykhutdinov,Hans J. Vogel, and James C. Cross
Pregnancy Hyperglycemia in Prolactin Receptor Mutant, but Not Prolactin Mutant, Mice and Feeding-Responsive Regulation of Placental Lactogen Genes Implies Placental Control of Maternal Glucose Homeostasis

Biol Reprod September 2015 93 (3) 75, 1-12; published ahead of printAugust 12, 2015, doi:10.1095/biolreprod.115.132431
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Our current data indicate that feto-placental hormones, and not maternal prolactin, stimulate the increase in pancreatic beta cells during pregnancy.

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Gamete Biology

Shinya Shikina, Yi-Ling Chiu, Yan-Horn Lee, and Ching-Fong Chang
From Somatic Cells to Oocytes: A Novel Yolk Protein Produced by Ovarian Somatic Cells in a Stony Coral, *Euphyllia ancora*
Biol Reprod September 2015 93 (3) 57, 1-10; published ahead of printJuly 15, 2015, doi:10.1095/biolreprod.115.129643
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Identification of a novel yolk protein which is produced by ovarian somatic cells in a stony coral, *Euphyllia ancora*.

Maximiliano Tourmente, Pilar Villar-Moya, María Varea-Sánchez,Juan J. Luque-Larena, Eduardo Rial, and Eduardo R. S. Roldan
Performance of Rodent Spermatozoa Over Time Is Enhanced by Increased ATP Concentrations: The Role of Sperm Competition
Biol Reprod September 2015 93 (3) 64, 1-13; published ahead of printJuly 8, 2015, doi:10.1095/biolreprod.114.127621
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Sperm of rodent species with high levels of sperm competition sustain high levels of sperm performance over time by maintaining high concentrations of intracellular ATP.

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Immunology

John E. Schjenken, Danielle J. Glynn, David J. Sharkey,and Sarah A. Robertson
TLR4 Signaling Is a Major Mediator of the Female Tract Response to Seminal Fluid in Mice
Biol Reprod September 2015 93 (3) 68, 1-13; published ahead of printJuly 8, 2015, doi:10.1095/biolreprod.114.125740
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**
OPEN ACCESS ARTICLE

Summary: Toll-like receptor 4 signaling is implicated as a key pathway activated by seminal fluid to induce immune response genes in the mouse endometrium after mating.

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Male Reproductive Tract

Heejin Choi, Cecil Han, Sora Jin, Jun Tae Kwon, Jihye Kim, Juri Jeong,Jaehwan Kim, Sera Ham, Suyeon Jeon, Yung Joon Yoo,and Chunghee Cho
Reduced Fertility and Altered Epididymal and Sperm Integrity in Mice Lacking ADAM7
Biol Reprod September 2015 93 (3) 70, 1-11; published ahead of printAugust 5, 2015, doi:10.1095/biolreprod.115.130252
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: ADAM7 is required for normal fertility and is involved in maintaining the integrity of the epididymal structure, sperm morphology, and sperm membrane proteins.

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Neuroendocrinology

Alexander S. Kauffman, Varykina G. Thackray, Genevieve E. Ryan,Kristen P. Tolson, Christine A. Glidewell-Kenney, Sheila J. Semaan,Matthew C. Poling, N
A Novel Letrozole Model Recapitulates Both the Reproductive and Metabolic Phenotypes of Polycystic Ovary Syndrome in Female Mice
Biol Reprod September 2015 93 (3) 69, 1-12; published ahead of printJuly 22, 2015, doi:10.1095/biolreprod.115.131631
Abstract **Full Text** **Full Text (PDF)** **Supplemental Table**

Summary: Postnatal letrozole treatment in female mice is a novel model which recapitulates both the reproductive and metabolic phenotypes observed in PCOS women.

Nilli Zmora, John David Stubblefield, Ten-Tsao Wong,Berta Levavi-Sivan, Robert Peter Millar, and Yonathan Zohar
Kisspeptin Antagonists Reveal Kisspeptin 1 and Kisspeptin 2 Differential Regulation of Reproduction in the Teleost, *Morone saxatilis*
Biol Reprod September 2015 93 (3) 76, 1-12; published ahead of printAugust 5, 2015, doi:10.1095/biolreprod.115.131870
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Two selected kisspeptin antagonists were used to

substantiate the differential roles of kisspeptin actions at the brain and pituitary levels in specific reproductive events.

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Ovary

Hugo Héctor Ortega, Almudena Veiga-Lopez, Shilpa Sreedharan,Melisa María del Luján Velázquez, Natalia Raquel Salvetti,and Vasantha Padmanabhan
Developmental Programming: Does Prenatal Steroid Excess Disrupt the Ovarian VEGF System in Sheep?
Biol Reprod September 2015 93 (3) 58, 1-11; published ahead of printJuly 15, 2015, doi:10.1095/biolreprod.115.131607
Abstract **Full Text** **Full Text (PDF)**

Summary: Prenatal testosterone excess affects ovarian arterial differentiation in the absence of changes in VEGF system.

Carolina Sueldo, Xiufang Liu, and John J. Peluso
Progestin and AdipoQ Receptor 7, Progesterone Membrane Receptor Component 1 (PGRMC1), and PGRMC2 and Their Role in Regulating Progesterone's Ability to Suppress Human Granulosa/Luteal Cells from Entering into the Cell Cycle
Biol Reprod September 2015 93 (3) 63, 1-11; published ahead of printJuly 22, 2015, doi:10.1095/biolreprod.115.131508
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Progesterone's ability to suppress cell cycle entry is dependent on progestin and adipoQ receptor 7 (PAQR7), progesterone membrane receptor component 1 (PGRMC1), and PGRMC2, which form a complex within the cytoplasm.

Allison Light and Stephen R. Hammes
LH-Induced Steroidogenesis in the Mouse Ovary, but Not Testis, Requires Matrix Metalloproteinase 2- and 9-Mediated Cleavage of Upregulated EGF Receptor Ligands
Biol Reprod September 2015 93 (3) 65, 1-13; published ahead of printJuly 22, 2015, doi:10.1095/biolreprod.115.130971
Abstract **Full Text** **Full Text (PDF)**

Summary: MMP2 and MMP9 regulate LH-induced EGF-like ligand release uniquely in the ovary, but not the testes, to promote steroid production.

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Pregnancy

Elisabete Silva, Ana Isabel Soares, Filipe Costa, José Pedro Castro,Liliana Matos, and Henrique Almeida
Antioxidant Supplementation Modulates Age-Related Placental Bed Morphology and Reproductive Outcome in Mice
Biol Reprod September 2015 93 (3) 56, 1-11; published ahead of printJuly 15, 2015, doi:10.1095/biolreprod.114.127746
Abstract **Full Text** **Full Text (PDF)**

Summary: Age-related reduction of female reproductive capacity due to redox imbalance at the placental bed can be ameliorated by using specific antioxidant treatment.

Heather A. Anaya, Fu-Xian Yi, Derek S. Boeldt, Jennifer Krupp,Mary A. Grummer, Dinesh M. Shah, and Ian M. Bird
Changes in Ca^{2+} Signaling and Nitric Oxide Output by Human Umbilical Vein Endothelium in Diabetic and Gestational Diabetic Pregnancies
Biol Reprod September 2015 93 (3) 60, 1-11; published ahead of printJuly 22, 2015, doi:10.1095/biolreprod.115.128645
Abstract **Full Text** **Full Text (PDF)**

Summary: In both diabetic (DM) and gestational diabetic (GDM) pregnancy, impaired NO production by vascular endothelium is equally due to loss of NOS3 function and changes in Ca^{2+} burst signaling with DM > GDM.

Ruize Liu, Min Wang, Lijie Su, Xiaoping Li, Shuhong Zhao, and Mei Yu
The Expression Pattern of MicroRNAs and the Associated Pathways Involved in the Development of Porcine Placental Folds That Contribute to the Expansion of the Exchange Surface Area
Biol Reprod September 2015 93 (3) 62, 1-13; published ahead of printJuly 8, 2015, doi:10.1095/biolreprod.114.126540
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: The expression patterns of miRNAs in porcine placenta during the initiation and establishment of placental folds reveal important roles for miRNA-gene pairs related to extracellular matrix remodeling, cell junctions, and cell proliferation.

DaLiao Xiao, Xiaohui Huang, Yong Li, Chiranjib Dasgupta, Lei Wang,and Lubo Zhang
Antenatal Antioxidant Prevents Nicotine-Mediated Hypertensive Response in Rat Adult Offspring
Biol Reprod September 2015 93 (3) 66, 1-8; published ahead of

printJuly 29, 2015, doi:10.1095/biolreprod.115.132381
Abstract **Full Text** **Full Text (PDF)**

Summary: Antenatal antioxidant intervention improves vascular function and prevents the developmental programming of hypertension in adult offspring that has been prenatally exposed to nicotine, which may provide new leads in the development of preventive diagnosis and therapeutic strategies of fetal programming of hypertension and other cardiovascular dysfunction.

Ziyan Jiang, Yanfen Zou, Zhiping Ge, Qing Zuo, Shi Yun Huang,and Lizhou Sun
A Role of sFlt-1 in Oxidative Stress and Apoptosis in Human and Mouse Pre-Eclamptic Trophoblasts
Biol Reprod September 2015 93 (3) 73, 1-7; published ahead of printJuly 22, 2015, doi:10.1095/biolreprod.114.126227
Abstract **Full Text** **Full Text (PDF)**

Summary: The role of sFlt-1 in oxidative stress and apoptosis in human and mouse pre-eclamptic trophoblasts.

Shivali Patel, Brian Kilburn, Anthony Imudia, D. Randall Armant,and Debra F. Skafar
Estradiol Elicits Proapoptotic and Antiproliferative Effects in Human Trophoblast Cells
Biol Reprod September 2015 93 (3) 74, 1-10; published ahead of printAugust 5, 2015, doi:10.1095/biolreprod.115.129114
Abstract **Full Text** **Full Text (PDF)**

Summary: Elevated estradiol in the first trimester can increase apoptosis and decrease cell proliferation in the placenta, which may contribute to intrauterine growth restriction and small-for-gestational age fetuses.

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Testis

Ni Huang, Yang Wen, Xuejiang Guo, Zheng Li, Juncheng Dai, Bixian Ni,Jun Yu, Yuan Lin, Wen Zhou, Bing Yao, Yue Jiang, Jiahao Sha,Donald F. Conrad, and
A Screen for Genomic Disorders of Infertility Identifies MAST2 Duplications Associated with Nonobstructive Azoospermia in Humans
Biol Reprod September 2015 93 (3) 61, 1-10; published ahead of printJuly 22, 2015, doi:10.1095/biolreprod.115.131185
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Large, rare DNA copy number variants, including duplications of the gene *MAST2*, are risk factors for nonobstructive azoospermia in humans.

Johanna Selvaratnam, Catriona Paul, and Bernard Robaire
Male Rat Germ Cells Display Age-Dependent and Cell-Specific Susceptibility in Response to Oxidative Stress Challenges
Biol Reprod September 2015 93 (3) 72, 1-17; published ahead of printJuly 29, 2015, doi:10.1095/biolreprod.115.131318
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: The response of long-term cultured pachytene spermatocytes and round spermatids of young and aged Brown Norway rats is differentially affected by administered oxidative stress.

Ximena M. Bustamante-Marin, Matthew S. Cook, Jessica Gooding,Christopher Newgard, and Blanche Capel
Left-Biased Spermatogenic Failure in 129/SvJ *Dnd1*$^{Ter/+}$ Mice Correlates with Differences in Vascular Architecture, Oxygen Availability, and Metabolites
Biol Reprod September 2015 93 (3) 78, 1-13; published ahead of printJuly 29, 2015, doi:10.1095/biolreprod.115.128850
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Spermatogenic failure biased to the left testis in 129/SvJ*Dnd1*$^{Ter/+}$ mice is due to physiological differences that arise from the asymmetry of the body axis.