November 1, 2014; 91 (5)

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Charlotte Schubert
WORLD OF REPRODUCTIVE BIOLOGY / At the Ready to Repair the Ovary / Tightening Up the Maternal-Fetal Interface / Microbe-Fighting Mobility Shield Coats Human Sperm / Overcoming Age in the Ovary
Biol Reprod November 2014 91 (5) 102, 1-3;doi:10.1095/biolreprod.114.125393
Full Text **Full Text (PDF)**

Minireview

Anthony M. DeAngelis, Meaghan Roy-O'Reilly, and Annabelle Rodriguez
Genetic Alterations Affecting Cholesterol Metabolism and Human Fertility
Biol Reprod November 2014 91 (5) 117, 1-10; published ahead of printAugust 13, 2014, doi:10.1095/biolreprod.114.119883
Abstract **Full Text** **Full Text (PDF)**

Summary: This minireview is focused on summarizing the functional impact of genetic mutations involved in cholesterol uptake, mobilization, and de novo cholesterol synthesis and how these alterations can affect cholesterol metabolism and human fertility.

Maria M. Szwarc, Ramakrishna Kommagani, Bruce A. Lessey,and John P. Lydon
The p160/Steroid Receptor Coactivator Family: Potent Arbiters of Uterine Physiology and Dysfunction
Biol Reprod November 2014 91 (5) 122, 1-11; published ahead of printOctober 8, 2014, doi:10.1095/biolreprod.114.125021
Abstract **Full Text** **Full Text (PDF)** **Author Biosketches**

Summary: A summary of the role of SRC family members in uterine biology and pathobiology as well as the next critical questions that need to be addressed to ensure continued advances in our knowledge of this underexplored field of uterine biology.

Maurício M. Franco, Adam R. Prickett, and Rebecca J. Oakey
The Role of CCCTC-Binding Factor (CTCF) in Genomic Imprinting, Development, and Reproduction
Biol Reprod November 2014 91 (5) 125, 1-9; published ahead of printOctober 8, 2014, doi:10.1095/biolreprod.114.122945
Abstract **Full Text** **Full Text (PDF)** **Author Biosketches**

Summary: CTCF, the major protein involved in insulator activity and global chromatin organization in vertebrates is essential for epigenetic establishment during gametogenesis and initial embryo development.

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Research Articles

Female Reproductive Tract

Wipawee Winuthayanon, Sylvia C. Hewitt, and Kenneth S. Korach
Uterine Epithelial Cell Estrogen Receptor Alpha-Dependent and -Independent Genomic Profiles That Underlie Estrogen Responses in Mice
Biol Reprod November 2014 91 (5) 110, 1-10; published ahead of printSeptember 10, 2014, doi:10.1095/biolreprod.114.120170
Abstract **Full Text** **Full Text (PDF)** **Supplemental Tables**

Summary: Estrogen receptor alpha in uterine epithelial cells is a key mediator of gene products involved in cell cycle regulation, which are pivotal for maintaining estrogen-induced uterine proliferative responses.

Sarah Jacca, Valentina Franceschi, Mattia Agosti, Sandro Cavirani,Federico Mistretta, and Gaetano Donofrio
Interferon Gamma-Mediated BoHV-4 Replication Restriction in Bovine Endometrial Stromal Cells Is Host *IDO1* Gene Expression Independent and BoHV-4 *IE2* Gene Expression Dependent
Biol Reprod November 2014 91 (5) 112, 1-14; published ahead of printOctober 1, 2014, doi:10.1095/biolreprod.114.123000
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: BoHV-4 replication in bovine endometrial stromal cells is restricted by IFN-gamma via BoHV-4 *IE2* down-regulation.

Zhifeng Yu, Jaeyeon Kim, Lin He, Chad J. Creighton,Preethi H. Gunaratne, Shannon M. Hawkins, and Martin M. Matzuk
Functional Analysis of *miR-34c* as a Putative Tumor Suppressor in High-Grade Serous Ovarian Cancer
Biol Reprod November 2014 91 (5) 113, 1-12; published ahead of printOctober 1, 2014, doi:10.1095/biolreprod.114.121988

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: *miR-34c* inhibits *Dicer*/*Pten* double-knockout mouse serous epithelial cancer cell proliferation by inducing cell cycle arrest and apoptosis.

Guangfeng Zhao, Xue Zhou, Ting Fang, Yayi Hou, and Yali Hu
Hyaluronic Acid Promotes the Expression of Progesterone Receptor Membrane Component 1 via Epigenetic Silencing of miR-139-5p in Human and Rat Granulosa Cells
Biol Reprod November 2014 91 (5) 116, 1-9; published ahead of printSeptember 17, 2014, doi:10.1095/biolreprod.114.120295
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Hyaluronic acid, which is thought to inhibit the apoptosis of granulosa cells, is reduced in serum of patients with primary ovarian insufficiency and promotes PGRMC1 expression through epigenetic silencing miR139-5p in granulosa cells.

Hao Lai, Xiao Jia, Qiuxiao Yu, Chenglu Zhang, Jie Qiao, Youfei Guan,and Jihong Kang
High-Fat Diet Induces Significant Metabolic Disorders in a Mouse Model of Polycystic Ovary Syndrome
Biol Reprod November 2014 91 (5) 127, 1-11; published ahead of printAugust 6, 2014, doi:10.1095/biolreprod.114.120063
Abstract **Full Text** **Full Text (PDF)** **Supplemental Figure**

Summary: A 60% high-fat diet causes significant metabolic disorders in DHEA-induced PCOS mice, particularly dyslipidemia and hepatic steatosis.

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Gamete Biology

Shunsuke Nishio, Yoshinori Kohno, Yuki Iwata, Mayumi Arai,Hiroki Okumura, Kenzi Oshima, Daita Nadano, and Tsukasa Matsuda
Glycosylated Chicken ZP2 Accumulates in the Egg Coat of Immature Oocytes and Remains Localized to the Germinal Disc Region of Mature Eggs
Biol Reprod November 2014 91 (5) 107, 1-10; published ahead of printSeptember 24, 2014, doi:10.1095/biolreprod.114.119826
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Chicken egg zona pellucida-glycoprotein 2, ZP2, is expressed predominantly in the granulosa cells of immature follicles and remains locally in the egg coat around germinal disc region of mature eggs, where sperm penetrate preferentially.

Mark J. Modelski, Gladys Menlah, Yipei Wang, Soma Dash, Kathie Wu,Deni S. Galileo, and Patricia A. Martin-DeLeon
Hyaluronidase 2: A Novel Germ Cell Hyaluronidase with Epididymal Expression and Functional Roles in Mammalian Sperm
Biol Reprod November 2014 91 (5) 109, 1-11; published ahead of printSeptember 17, 2014, doi:10.1095/biolreprod.113.115857
Abstract **Full Text** **Full Text (PDF)**

Summary: A novel sperm hyaluronidase with similar biphasic kinetics and functional roles in fertilization as SPAM1 may explain fertility in*Spam1* nulls.

Marta F. Riesco, David G. Valcarce, Javier Alfonso, M. Paz Herráez,and Vanesa Robles
In Vitro Generation of Zebrafish PGC-Like Cells
Biol Reprod November 2014 91 (5) 114, 1-11; published ahead of printSeptember 24, 2014, doi:10.1095/biolreprod.114.121491
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: The combination of three factors, BMP4, retinoic acid, and epidermal growth factor, allows PGC in vitro generation in zebrafish.

Thi Mong Diep Nguyen, Sabine Alves, Isabelle Grasseau,Sonia Métayer-Coustard, Christophe Praud, Pascal Froment,and Elisabeth Blesbois
Central Role of 5′-AMP-Activated Protein Kinase in Chicken Sperm Functions
Biol Reprod November 2014 91 (5) 121, 1-15; published ahead of printOctober 8, 2014, doi:10.1095/biolreprod.114.121855
Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: The 5′-AMP-activated protein kinase (AMPK) plays a key role in the regulation of chicken sperm functions.

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Immunology

Damián O. Muzzio, Rocío Soldati, Jens Ehrhardt, Kirsten Utpatel,Matthias Evert, Ana C. Zenclussen, Marek Zygmunt,and Federico Jensen
B Cell Development Undergoes Profound Modifications and Adaptations During Pregnancy in Mice
Biol Reprod November 2014 91 (5) 115, 1-11; published ahead of printSeptember 10, 2014, doi:10.1095/biolreprod.114.122366
Abstract **Full Text** **Full Text (PDF)** **Supplemental Figures**

Summary: A diversity of B cell subsets is altered during pregnancy, a possible attempt of physiological adaptation to the new challenges affecting this period.

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Male Reproductive Tract

Mariola Słowińska, Ewa Liszewska, Joanna Nynca, Joanna Bukowska,Anna Hejmej, Barbara Bilińska, Jarosław Szubstarski,Krzysztof Kozłowski, Jan Jankows

Isolation and Characterization of an Ovoinhibitor, a Multidomain Kazal-Like Inhibitor from Turkey (*Meleagris gallopavo*) Seminal Plasma

Biol Reprod November 2014 91 (5) 108, 1-15; published ahead of printSeptember 24, 2014, doi:10.1095/biolreprod.114.118836

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Turkey seminal plasma contains a six-tandem homologous Kazal-type domain serine proteinase inhibitor, which was secreted within the reproductive tract and possessed antibacterial activity against *Bacillus subtilis* and *Staphylococcus aureus*.

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Ovary

John J. Peluso, Daniel Griffin, Xiufang Liu, and Meghan Horne

Progesterone Receptor Membrane Component-1 (PGRMC1) and PGRMC-2 Interact to Suppress Entry into the Cell Cycle in Spontaneously Immortalized Rat Granulosa Cells

Biol Reprod November 2014 91 (5) 104, 1-12; published ahead of printSeptember 24, 2014, doi:10.1095/biolreprod.114.122986

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Depletion of PGRMC1 and PGRMC2 by siRNA reveals that the interaction between PGRMC1, PGRMC2, and G3BP2 plays an important role in regulating the rate that spontaneously immortalized granulosa cells enter into the cell cycle.

F. Xavier Donadeu, Somayyeh Fahiminiya, Cristina L. Esteves,Javad Nadaf, Katarzyna Miedzinska, Alan S. McNeilly,David Waddington, and Nadine Gérard

Transcriptome Profiling of Granulosa and Theca Cells During Dominant Follicle Development in the Horse

Biol Reprod November 2014 91 (5) 111, 1-12; published ahead of printSeptember 24, 2014, doi:10.1095/biolreprod.114.118943

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: In the equine ovary, growth and preovulatory maturation of the dominant follicle are associated with distinct gene expression profiles, particularly between granulosa and theca cells, and many of the differentially expressed genes involved have not been reported previously during follicle development in other species.

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Pregnancy

Casie E. Horgan, Hailey Roumimper, Richard Tucker,and Beatrice E. Lechner

Altered Decorin and Smad Expression in Human Fetal Membranes in PPROM

Biol Reprod November 2014 91 (5) 105, 1-7; published ahead of printSeptember 17, 2014, doi:10.1095/biolreprod.114.121236

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Decorin and p-Smad-2 are dysregulated in human fetal membranes in abnormal pregnancies.

Xiangfeng Kong, Xiaoqiu Wang, Yulong Yin, Xilong Li, Haijun Gao,Fuller W. Bazer, and Guoyao Wu

Putrescine Stimulates the mTOR Signaling Pathway and Protein Synthesis in Porcine Trophectoderm Cells

Biol Reprod November 2014 91 (5) 106, 1-10; published ahead of printSeptember 24, 2014, doi:10.1095/biolreprod.113.113977

Abstract **Full Text** **Full Text (PDF)**

Summary: Putrescience, a metabolite of L-arginine, increases the abundance of phosphorylated mTOR and its downstream targets 4EBP1 and p70 S6K1 proteins, thereby stimulating protein synthesis in porcine trophectoderm cells.

Hadia Moindjie, Esther Dos Santos, Laurence Loeuillet, Héloise Gronier,Philippe de Mazancourt, Eytan R. Barnea, François Vialard,and Marie-Noëlle Dieudor

Preimplantation Factor (PIF) Promotes Human Trophoblast Invasion

Biol Reprod November 2014 91 (5) 118, 1-10; published ahead of printSeptember 17, 2014, doi:10.1095/biolreprod.114.119156

Abstract **Full Text** **Full Text (PDF)**

Summary: Preimplantation factor promotes human trophoblast invasion by modulating of MMP/TIMP balance and integrin expression.

Varkha Agrawal, Mukesh Kumar Jaiswal, Vladimir Ilievski,Kenneth D. Beaman, Tamas Jilling, and Emmet Hirsch

Platelet-Activating Factor: a Role in Preterm Delivery and an Essential Interaction with Toll-Like Receptor Signaling in Mice

Biol Reprod November 2014 91 (5) 119, 1-11; published ahead of printSeptember 24, 2014, doi:10.1095/biolreprod.113.116012

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: PAF signaling plays an important role in bacterially induced preterm delivery and requires TLR-4, MyD88, and TRIF in macrophages.

Jing Li, Christine Korteweg, Yamei Qiu, Jin Luo, Zhengshan Chen,Guowei Huang, Weiqiu Li, and Jiang Gu

Two Ultrastructural Distribution Patterns of Immunoglobulin G in Human Placenta and Functional Implications

Biol Reprod November 2014 91 (5) 128, 1-11; published ahead of printOctober 1, 2014, doi:10.1095/biolreprod.114.122614

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Immunoglobulin G was found to be aggregated in two different types of electron-dense structures in syncytiotrophoblast of human placenta.

Saori Kambe, Hiroshi Yoshitake, Kazuya Yuge, Yoichi Ishida,Md. Moksed Ali, Takami Takizawa, Tomoyuki Kuwata, Akihide Ohkuchi,Shigeki Matsubara, Mits

Human Exosomal Placenta-Associated *miR-517a-3p* Modulates the Expression of *PRKG1* mRNA in Jurkat Cells

Biol Reprod November 2014 91 (5) 129, 1-11; published ahead of printOctober 1, 2014, doi:10.1095/biolreprod.114.121616

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

Summary: Placenta-associated *miR-517a-3p* is transferred from BeWo cells into Jurkat cells via exosomes and modulates its target *PRKG1*gene expression in the recipient cells.

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Reproductive Technology

Satoshi Kamimura, Yuki Hatanaka, Ryutaro Hirasawa,Kazuya Matsumoto, Mami Oikawa, Jiyoung Lee, Shogo Matoba,Eiji Mizutani, Narumi Ogonuki, Kimiko I

Establishment of Paternal Genomic Imprinting in Mouse Prospermatogonia Analyzed by Nuclear Transfer

Biol Reprod November 2014 91 (5) 120, 1-12; published ahead of printSeptember 17, 2014, doi:10.1095/biolreprod.114.120451

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

OPEN ACCESS ARTICLE

Summary: Nuclear transfer using mouse prospermatogonia provided systematic information on paternal genomic imprinting.

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Testis

Sophie Chocu, Bertrand Evrard, Régis Lavigne, Antoine D. Rolland,Florence Aubry, Bernard Jégou, Frédéric Chalmel, and Charles Pineau

Forty-Four Novel Protein-Coding Loci Discovered Using a Proteomics Informed by Transcriptomics (PIT) Approach in Rat Male Germ Cells

Biol Reprod November 2014 91 (5) 123, 1-14; published ahead of printSeptember 10, 2014, doi:10.1095/biolreprod.114.122416

Abstract **Full Text** **Full Text (PDF)** **Supplemental Data**

OPEN ACCESS ARTICLE

Summary: Proteomics informed by transcriptomics (PIT) identified novel protein-coding genes expressed in rat testicular germ cells.

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Toxicology

Kristina Pogrmic-Majkic, Dragana Samardzija, Svetlana Fa,Jelena Hrubik, Branka Glisic, Sonja Kaisarevic, and Nebojsa Andric

Atrazine Enhances Progesterone Production Through Activation of Multiple Signaling Pathways in FSH-Stimulated Rat Granulosa Cells: Evidence for Premature Luteinization

Biol Reprod November 2014 91 (5) 124, 1-10; published ahead of printSeptember 24, 2014, doi:10.1095/biolreprod.114.122606

Abstract **Full Text** **Full Text (PDF)**

Summary: Atrazine potentiates the FSH-induced progesterone biosynthetic pathway by functioning as an enhancer of CREB, AKT, and CEBPB signaling and promotes a premature luteinization phenotype in granulosa cells.

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Additions and Corrections

ADDITIONS AND CORRECTIONS

Biol Reprod November 2014 91 (5) 103, 1-1; published ahead of printSeptember 24, 2014, doi:10.1095/biolreprod.114.125310

Full Text **Full Text (PDF)**

ADDITIONS AND CORRECTIONS

Biol Reprod November 2014 91 (5) 126, 1-1; published ahead of printSeptember 10, 2014, doi:10.1095/biolreprod.114.125070

Full Text **Full Text (PDF)**