

May 1, 2014; 90 (5)

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Charlotte Schubert

**WORLD OF REPRODUCTIVE BIOLOGY**

Biol Reprod May 2014 90 (5) 89, 1-2; doi:10.1095/biolreprod.114.118885

[Full Text](#) [Full Text \(PDF\)](#)**Minireview**

- Mariano G. Buffone, Noritaka Hirohashi, and George L. Gerton  
**Unresolved Questions Concerning Mammalian Sperm Acrosomal Exocytosis**  
 Biol Reprod May 2014 90 (5) 112, 1-8; published ahead of print March 26, 2014, doi:10.1095/biolreprod.114.117911  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Author Biosketches](#)

**Summary:** Unresolved questions concerning acrosomal exocytosis are highlighted; advanced technologies are anticipated to lead to a more complete understanding of the molecular mechanisms governing the fertilization process in mammals.

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- Peng Fang, Piao Zeng, Zhaoxia Wang, Miao Liu, Wangjie Xu, Jingbo Dai, Xianglong Zhao, Dong Zhang, Dongli Liang, Xiaohui Chen, Shi Shi, Meixing Zhang, I  
**Estimated Diversity of Messenger RNAs in Each Murine Spermatozoa and Their Potential Function During Early Zygotic Development**  
 Biol Reprod May 2014 90 (5) 94, 1-11; published ahead of print March 26, 2014, doi:10.1095/biolreprod.114.117788  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)
- Summary:** The number of transcripts reserved in each mouse sperm is estimated, and evidence of paternal effect on zygotic development is evidenced by translation of sperm-delivered *Wnt4* mRNA in the zygote.
- Andrew D. Cutting, Katie Ayers, Nadia Davidson, Alicia Oshlack, Tim Doran, Andrew H. Sinclair, Mark Tizard, and Craig A. Smith  
**Identification, Expression, and Regulation of Anti-Müllerian Hormone Type-II Receptor in the Embryonic Chicken Gonad**  
 Biol Reprod May 2014 90 (5) 106, 1-12; published ahead of print March 12, 2014, doi:10.1095/biolreprod.113.116491  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)
- Summary:** The AMH type-II receptor is expressed in male and female embryonic chicken gonads and is regulated by DMRT1 and inhibited by aromatase during gonadal sex differentiation.
- Seung-Bin Yoon, Seon-A Choi, Bo-Woong Sim, Ji-Su Kim, Seong-Eun Mun, Pil-Soo Jeong, Hae-Jun Yang, Youngjeon Lee, Young-Ho Park, Bong-Seok Song, Yi  
**Developmental Competence of Bovine Early Embryos Depends on the Coupled Response Between Oxidative and Endoplasmic Reticulum Stress**  
 Biol Reprod May 2014 90 (5) 104, 1-10; published ahead of print April 2, 2014, doi:10.1095/biolreprod.113.113480  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)
- Summary:** The reduction of oxidative stress enhances in vitro developmental competence of bovine early embryos through amelioration of endoplasmic reticulum stress.

[Clear](#) [Get All Checked Abstracts](#)**Female Reproductive Tract**

- Danielle J. Glynn, Mark R. Hutchinson, and Wendy V. Ingman  
**Toll-Like Receptor 4 Regulates Lipopolysaccharide-Induced Inflammation and Lactation Insufficiency in a Mouse Model of Mastitis**  
 Biol Reprod May 2014 90 (5) 91, 1-11; published ahead of print March 26, 2014, doi:10.1095/biolreprod.114.117663  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)
- Summary:** Null mutation in toll-like receptor 4 affects local and systemic inflammation and lactation in a mouse model of lactation mastitis.
- Subramanian Muthukumar, Ramalingam Rajkumar, Kandasamy Karthikeyan, Chen-Chung Liao, Dheer Singh, Mohammad Abdulkader Akbarsha, and Govindar  
**Buffalo Cervico-Vaginal Fluid Proteomics with Special Reference to Estrous Cycle: Heat Shock Protein (Hsp)-70 Appears to Be an**

**Estrus Indicator**

Biol Reprod May 2014 90 (5) 97, 1-8; published ahead of print March 12, 2014, doi:10.1095/biolreprod.113.113852

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)

**Summary:** The proteins in the buffalo cervico-vaginal fluid have been identified during estrous cycle with heat shock protein-70, in particular, as an indicator of estrus.

- Heewon Seo, Yohan Choi, Jangsoo Shim, Inkyu Yoo, and Hakhyun Ka  
**Comprehensive Analysis of Prostaglandin Metabolic Enzyme Expression During Pregnancy and the Characterization of AKR1B1 as a Prostaglandin F Synthase at the Maternal-Conceptus Interface in Pigs**

Biol Reprod May 2014 90 (5) 99, 1-13; published ahead of print April 2, 2014, doi:10.1095/biolreprod.113.114926

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)

**Summary:** Prostaglandin metabolic enzymes dynamically expressed in the uterine endometrium during pregnancy regulate prostaglandin synthesis at the maternal-conceptus interface, and AKR1B1 acts as a prostaglandin F synthase during early pregnancy in pigs.

- Heewon Seo, Yohan Choi, Jangsoo Shim, Inkyu Yoo, and Hakhyun Ka  
**Prostaglandin Transporters ABCC4 and SLCO2A1 in the Uterine Endometrium and Conceptus During Pregnancy in Pigs**

Biol Reprod May 2014 90 (5) 100, 1-10; published ahead of print April 2, 2014, doi:10.1095/biolreprod.113.114934

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)

**Summary:** Prostaglandin transporters, ABCC4 and SLCO2A1, are expressed in the uterus during pregnancy in pigs.

- Koryu Kin, Jamie Maziarz, and Günter P. Wagner  
**Immunohistological Study of the Endometrial Stromal Fibroblasts in the Opossum, *Monodelphis domestica*: Evidence for Homology with Eutherian Stromal Fibroblasts**

Biol Reprod May 2014 90 (5) 111, 1-12; published ahead of print April 16, 2014, doi:10.1095/biolreprod.113.115139

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)

**Summary:** Fibroblasts in the marsupial endometrial stroma are homologous to eutherian stromal fibroblasts, while decidual stromal cells represent a true eutherian evolutionary novelty.

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**Gamete Biology**

- Rita Reig-Viader, Marta Vila-Cejudo, Valerio Vitelli, Rafael Buscà, Montserrat Sabaté, Elena Giulotto, Montserrat Garcia Caldés, and Aurora Ruiz-Herrera  
**Telomeric Repeat-Containing RNA (TERRA) and Telomerase Are Components of Telomeres During Mammalian Gametogenesis**

Biol Reprod May 2014 90 (5) 103, 1-13; published ahead of print April 9, 2014, doi:10.1095/biolreprod.113.116954

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)

**Summary:** TERRA and telomerase are integral elements of germ cell telomeres and contribute to maintain the stability of the telomeric structure during gametogenesis.

- Wenxian Tan and Peter Thomas  
**Activation of the Pi3k/Akt Pathway and Modulation of Phosphodiesterase Activity via Membrane Progesterin Receptor-Alpha (mPRalpha) Regulate Progesterin-Initiated Sperm Hypermotility in Atlantic Croaker**

Biol Reprod May 2014 90 (5) 105, 1-11; published ahead of print April 2, 2014, doi:10.1095/biolreprod.113.112896

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)

**Summary:** Progesterin signaling through membrane progesterin receptor-alpha initiates sperm hypermotility in the Atlantic croaker by activating the Pi3k/Akt pathway and modulating phosphodiesterase activity.

- Alberto Vicens and Eduardo R.S. Roldan  
**Coevolution of Positively Selected IZUMO1 and CD9 in Rodents: Evidence of Interaction Between Gamete Fusion Proteins?**

Biol Reprod May 2014 90 (5) 113, 1-9; published ahead of print March 26, 2014, doi:10.1095/biolreprod.113.116871

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)

**Summary:** Correlated evolution between extracellular domains of IZUMO1 and CD9 has been found, suggesting that they could undergo specific molecular interactions.

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**Male Reproductive Tract**

- Winnie W. Shum, Tegan B. Smith, Virna Cortez-Retamozo, Lubov S. Grigoryeva, Jeremy W. Roy, Eric Hill, Mikael J. Pittet, Sylvie Breton, and Nicolas Da Silv  
**Epithelial Basal Cells Are Distinct from Dendritic Cells and Macrophages in the Mouse Epididymis**  
 Biol Reprod May 2014 90 (5) 90, 1-10; published ahead of print March 19, 2014, doi:10.1095/biolreprod.113.116681  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)
- Summary:** The basal region of the murine epididymal duct is heavily populated by basal cells, macrophages, and dendritic cells, which are morphologically and phenotypically distinct.
- Shasha Zou, Zheng Li, Yanan Wang, Tingting Chen, Pingping Song, Jianhua Chen, XiaoJin He, Peng Xu, Ming Liang, Kailing Luo, Xiaobin Zhu, Erpo Tian, Qiar  
**Association Study Between Polymorphisms of PRMT6, PEX10, SOX5, and Nonobstructive Azoospermia in the Han Chinese Population**  
 Biol Reprod May 2014 90 (5) 96, 1-4; published ahead of print March 19, 2014, doi:10.1095/biolreprod.113.116541  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)
- Summary:** Association studies support the *SOX5* polymorphism rs10842262 but not rs12097821 and rs2477686 as associated with nonobstructive azoospermia in the Han Chinese population.

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#### Ovary

- Maxime Reverchon, Michael J. Bertoldo, Christelle Ramé, Pascal Froment, and Joëlle Dupont  
**CHEMERIN (RARRES2) Decreases In Vitro Granulosa Cell Steroidogenesis and Blocks Oocyte Meiotic Progression in Bovine Species**  
 Biol Reprod May 2014 90 (5) 102, 1-15; published ahead of print March 26, 2014, doi:10.1095/biolreprod.113.117044  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Figures S1-S2](#)
- Summary:** The chemerin adipokine is produced by ovarian follicular cells, it decreases in vitro bovine granulosa cell steroidogenesis and de novo cholesterol synthesis, and arrests at germinal vesicle stage bovine oocyte during in vitro maturation.

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#### Pregnancy

- Kohzoh Mitsuya, Natasha Singh, Suren R. Sooranna, Mark R. Johnson, and Leslie Myatt  
**Epigenetics of Human Myometrium: DNA Methylation of Genes Encoding Contraction-Associated Proteins in Term and Preterm Labor**  
 Biol Reprod May 2014 90 (5) 98, 1-8; published ahead of print February 26, 2014, doi:10.1095/biolreprod.113.113209  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)
- Summary:** Differential DNA methylation was found in the 5'-regions of contraction-associated genes between women with term labor versus preterm labor.
- Katarzyna Biadasiewicz, Valerie Fock, Sabine Dekan, Katharina Proestling, Philipp Velicky, Sandra Haider, Martin Knöfler, Camilla Fröhlich, and Jürgen Pollhe  
**Extravillous Trophoblast-Associated ADAM12 Exerts Pro-Invasive Properties, Including Induction of Integrin Beta 1-Mediated Cellular Spreading**  
 Biol Reprod May 2014 90 (5) 101, 1-10; published ahead of print April 2, 2014, doi:10.1095/biolreprod.113.115279  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Figures S1-S6](#)
- Summary:** ADAM12, which is expressed by invasive extravillous trophoblasts, processes insulin-like growth factor binding protein 3 and impacts on trophoblast invasion, as well as integrin beta 1-mediated cellular spreading.
- Meghan E. Bushway, Scott A. Gerber, Bruce M. Fenton, Richard K. Miller, Edith M. Lord, and Shawn P. Murphy  
**Morphological and Phenotypic Analyses of the Human Placenta Using Whole Mount Immunofluorescence**  
 Biol Reprod May 2014 90 (5) 110, 1-10; published ahead of print March 19, 2014, doi:10.1095/biolreprod.113.115915  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)
- Summary:** Early human placental blood vessels express high levels of the pro-angiogenic receptors VEGFR2 and VEGFR3, and the activated transcription factor pSTAT3, which suggests that these molecules play a role in regulation of placental vascular development.

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#### Reproductive Technology

- Zicong Li, Fang Zeng, Fanming Meng, Zhiqian Xu, Xianwei Zhang, Xiaoling Huang, Fei Tang, Wenchao Gao, Junsong Shi, Xiaoyan He, Dewu Liu, Chong Wang

**Generation of Transgenic Pigs by Cytoplasmic Injection of *pfpiggyBac* Transposase-Based pmGENIE-3 Plasmids**

Biol Reprod May 2014 90 (5) 93, 1-10; published ahead of print March 26, 2014, doi:10.1095/biolreprod.113.116905

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)

**Summary:** The production of transgenic pigs by cytoplasmic injection of *pfpiggyBac*-based pmGENIE-3 plasmids into in vivo-produced one cell zygotes results in efficient transgenesis rates; at least one transgenic piglet was born every time a sow farrowed.

- Li Wang, Xiaohong Wang, Jianguang Zhang, Zhuo Song, Shufang Wang, Yang Gao, Jun Wang, Yaning Luo, Ziru Niu, Xiaojing Yue, Genming Xu, David S. Crai  
**Detection of Chromosomal Aneuploidy in Human Preimplantation Embryos by Next-Generation Sequencing**

Biol Reprod May 2014 90 (5) 95, 1-6; published ahead of print March 19, 2014, doi:10.1095/biolreprod.113.116459

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)

**Summary:** Next-generation sequencing is highly sensitive and specific for detecting clinically significant aneuploidy in preimplantation embryos.

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**Testis**

- Jessie M. Sutherland, Barbara A. Fraser, Alexander P. Sobinoff, Victoria J. Pye, Tara-Lynne Davidson, Nicole A. Siddall, Peter Koopman, Gary R. Hime, and E  
**Developmental Expression of Musashi-1 and Musashi-2 RNA-Binding Proteins During Spermatogenesis: Analysis of the Deleterious Effects of Dysregulated Expression**

Biol Reprod May 2014 90 (5) 92, 1-12; published ahead of print March 26, 2014, doi:10.1095/biolreprod.113.115261

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)

**Summary:** Regulated expression of the Musashi family of RNA-binding proteins is essential for the appropriate differentiation and progression of spermatogenic cells during spermatogenesis.

- Vicente Seco-Rovira, Esther Beltrán-Frutos, Concepción Ferrer, Francisco José Sáez, Juan Francisco Madrid, and Luis Miguel Pastor  
**The Death of Sertoli Cells and the Capacity to Phagocytize Elongated Spermatids During Testicular Regression due to Short Photoperiod in Syrian Hamster (*Mesocricetus auratus*)**

Biol Reprod May 2014 90 (5) 107, 1-10; published ahead of print April 9, 2014, doi:10.1095/biolreprod.113.112649

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)

**Summary:** Death of Sertoli cells and elongated spermatids by Sertoli cells occurs during seminiferous tubule regression due to short photoperiod in the Syrian hamster.

- Elizabeth Evans, Cathryn Hogarth, Debra Mitchell, and Michael Griswold  
**Riding the Spermatogenic Wave: Profiling Gene Expression Within Neonatal Germ and Sertoli Cells During a Synchronized Initial Wave of Spermatogenesis in Mice**

Biol Reprod May 2014 90 (5) 108, 1-12; published ahead of print April 9, 2014, doi:10.1095/biolreprod.114.118034

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Tables S1-S5](#)

**Summary:** WIN 18,446/RA treatment of neonatal mice was used to synchronize the initial wave of spermatogenesis and identify novel messages expressed within either germ or Sertoli cells as spermatogonia enter meiosis.

- Gurvinder Kaur, Lea Ann Thompson, Mithun Pasham, Kim Tessanne, Charles R. Long, and Jannette M. Dufour  
**Sustained Expression of Insulin by a Genetically Engineered Sertoli Cell Line after Allotransplantation in Diabetic BALB/c Mice**

Biol Reprod May 2014 90 (5) 109, 1-8; published ahead of print April 2, 2014, doi:10.1095/biolreprod.113.115600

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)

**Summary:** A mouse Sertoli cell line (MSC-1) genetically engineered using a lentiviral construct carrying furin-modified human proinsulin cDNA stably expresses insulin mRNA and protein and survives allotransplantation into diabetic BALB/c mice.

- Trish Berger and Alan Conley  
**Reduced Endogenous Estrogen and Hemicastration Interact Synergistically to Increase Porcine Sertoli Cell Proliferation**

Biol Reprod May 2014 90 (5) 114, 1-8; published ahead of print April 16, 2014, doi:10.1095/biolreprod.114.117770

[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)

**Summary:** Increased Sertoli cell proliferation following reduced endogenous estradiol and following hemicastration have different time scales and likely involve different mechanisms.