

September 1, 2013; 89 (3)

Charlotte Schubert

WORLD OF REPRODUCTIVE BIOLOGY

Biol Reprod September 2013 89 (3) 49, 1-2; doi:10.1095/biolreprod.113.111997

[Full Text](#)
[Full Text \(PDF\)](#)
Letter to the Editor

Geraldine Canny

Cell Line Contamination and Misidentification

Biol Reprod September 2013 89 (3) 76, 1-1; doi:10.1095/biolreprod.113.113423

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

Summary: This Letter to the Editors sheds light on the important topic of cell line misidentification and contamination.

Commentary

Mellissa R.W. Mann and Andrew J. Watson

Endogenous Folate Accumulation in Oocytes and Preimplantation Embryos and Its Epigenetic Implications

Biol Reprod September 2013 89 (3) 62, 1-2; published ahead of print August 14, 2013, doi:10.1095/biolreprod.113.113027

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

Summary: This month in *Biology of Reproduction*, Kooistra et al. use gene expression studies to show that mouse cumulus-oocyte complexes and oocytes harbor transcripts for folate carrier SLC19A1, an anion exchanger.

Awoniyi O. Awonuga, Yu Yang, and Daniel A. Rappolee

When Stresses Collide

Biol Reprod September 2013 89 (3) 74, 1-2; published ahead of print August 14, 2013, doi:10.1095/biolreprod.113.113084

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

Summary: In this issue of *Biology of Reproduction*, Wale and Gardner present evidence on the inability of embryos cultured at 20% oxygen to detoxify ammonium.

Minireview
 Katie Howe and Greg FitzHarris
Recent Insights into Spindle Function in Mammalian Oocytes and Early Embryos

Biol Reprod September 2013 89 (3) 71, 1-9; published ahead of print August 21, 2013, doi:10.1095/biolreprod.113.112151

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

Summary: An examination of recent advances in our understanding of how chromosome segregation occurs in the mammalian oocyte and early embryo, and what we have learned about the causes of aneuploidy.

Research Articles**Embryo**
 Megan Kooistra, Jacquetta M. Trasler, and Jay M. Baltz
Folate Transport in Mouse Cumulus-Oocyte Complexes and Preimplantation Embryos

Biol Reprod September 2013 89 (3) 63, 1-9; published ahead of print July 31, 2013, doi:10.1095/biolreprod.113.111146

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

Summary: Cumulus-oocyte complexes transport folates by the reduced folate carrier, while preimplantation embryos instead employ folate receptor endocytosis.

 Sarah D. Cochran, John B. Cole, Daniel J. Null, and Peter J. Hansen
Single Nucleotide Polymorphisms in Candidate Genes Associated with Fertilizing Ability of Sperm and Subsequent Embryonic Development in Cattle

Biol Reprod September 2013 89 (3) 69, 1-7; published ahead of print July 31, 2013, doi:10.1095/biolreprod.113.111260

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

Summary: SNPs in a total of 19 candidate genes related to cleavage and blastocyst development rate were identified.

Petra L. Wale and David K. Gardner

Oxygen Affects the Ability of Mouse Blastocysts to Regulate Ammonium

Biol Reprod September 2013 89 (3) 75, 1-10; published ahead of print June 26, 2013, doi:10.1095/biolreprod.113.109256

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

Summary: Ammonium and oxygen independently alter amino acid turnover; mouse blastocysts can alleviate ammonium stress by its transamination to both glutamine and alanine, but only under physiological conditions.

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Female Reproductive Tract

Shuai Chen, Ralf Einspanier, and Jennifer Schoen

In Vitro Mimicking of Estrous Cycle Stages in Porcine Oviduct Epithelium Cells: Estradiol and Progesterone Regulate Differentiation, Gene Expression, and Cellular Function

Biol Reprod September 2013 89 (3) 54, 1-12; published ahead of print July 31, 2013, doi:10.1095/biolreprod.113.108829

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

Summary: In vitro simulation of estrous cycle stages in mammalian oviduct epithelial cells illustrate the effect of ovarian steroids on cellular differentiation, expression of marker genes, and cellular functions, including sperm binding capacity.

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Gamete Biology

Ying-Hua Li, Hyeon Kang, Yong-Nan Xu, Young-Tae Heo, Xiang-Shun Cui, Nam-Hyung Kim, and Jeong Su Oh

Greatwall Kinase Is Required for Meiotic Maturation in Porcine Oocytes

Biol Reprod September 2013 89 (3) 53, 1-7; published ahead of print July 10, 2013, doi:10.1095/biolreprod.113.109850

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

Summary: Greatwall kinase is required not only for meiotic maturation, but also for maintenance of MII arrest in porcine oocytes.

Masato Higuchi, Chiemi Miura, Toshiharu Iwai, and Takeshi Miura

Trypsin Regulates Meiotic Initiation in the Japanese Eel (*Anguilla japonica*) by Promoting the Uptake of Taurine into Germ Cells During Spermatogenesis

Biol Reprod September 2013 89 (3) 58, 1-9; published ahead of print August 7, 2013, doi:10.1095/biolreprod.113.109777

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

Summary: Taurine signaling is promoted by trypsin and is required for meiotic initiation in eel spermatogonia.

Vesna A. Chappell, Jonathan T. Busada, Brett D. Keiper, and Christopher B. Geyer

Translational Activation of Developmental Messenger RNAs During Neonatal Mouse Testis Development

Biol Reprod September 2013 89 (3) 61, 1-10; published ahead of print August 7, 2013, doi:10.1095/biolreprod.113.109819

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

Summary: A developmental increase in cap-dependent translation in neonatal male germ cells accompanies enhanced translation of specific mRNAs.

Irene Mondéjar, Irene Martínez-Martínez, Manuel Avilés, and Pilar Coy
Identification of Potential Oviductal Factors Responsible for Zona Pellucida Hardening and Monospermy During Fertilization in Mammals

Biol Reprod September 2013 89 (3) 67, 1-8; published ahead of print July 17, 2013, doi:10.1095/biolreprod.113.111385

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

Summary: Variations in protein composition of oviductal fluid affect the level of polyspermy after fertilization; OVGPI and members of the HSP and PDI families seem to be involved in this effect.

Cecilia Dieci, Valentina Lodde, Federica Franciosi, Irina Lagutina, Irene Tessaro, Silvia C. Modena, David F. Albertini, Giovanna Lazzari, Cesare Galli, and Albi

The Effect of Cilostamide on Gap Junction Communication Dynamics, Chromatin Remodeling, and Competence Acquisition in Pig Oocytes Following Parthenogenetic Activation and Nuclear Transfer

Biol Reprod September 2013 89 (3) 68, 1-11; published ahead of print August 7, 2013, doi:10.1095/biolreprod.113.110577

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

Summary: Cilostamide administration sustains functional coupling, progressive chromatin condensation, and enhanced porcine oocyte developmental competence, as reflected in higher blastocyst quality and improved SCNT efficiency.

- Victoria Burruel, Katie L. Klooster, James Chitwood, Pablo J. Ross, and Stuart A. Meyers

Oxidative Damage to Rhesus Macaque Spermatozoa Results in Mitotic Arrest and Transcript Abundance Changes in Early Embryos

Biol Reprod September 2013 89 (3) 72, 1-11; published ahead of print July 31, 2013, doi:10.1095/biolreprod.113.110981

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

Summary: Oxidative damage to rhesus monkey sperm results in mitotic arrest and abnormal gene expression during the oocyte-to-zygotic transition.

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Immunology

- Leigh J. Hodson, Angela C.L. Chua, Andreas Evdokiou, Sarah A. Robertson, and Wendy V. Ingman

Macrophage Phenotype in the Mammary Gland Fluctuates over the Course of the Estrous Cycle and Is Regulated by Ovarian Steroid Hormones

Biol Reprod September 2013 89 (3) 65, 1-8; published ahead of print August 7, 2013, doi:10.1095/biolreprod.113.109561

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

Summary: Macrophage phenotype in the mouse mammary gland is regulated by estradiol and progesterone, and the phenotype fluctuates over the course of the ovarian cycle.

- Kotaro Kitaya and Tadahiro Yasuo

Regulatory Role of Membrane-Bound Form Interleukin-15 on Human Uterine Microvascular Endothelial Cells in Circulating CD16(–) Natural Killer Cell Extravasation into Human Endometrium

Biol Reprod September 2013 89 (3) 70, 1-7; published ahead of print July 31, 2013, doi:10.1095/biolreprod.113.111138

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

Summary: Human uterine microvascular endothelial cells secrete less soluble interleukin-15 but bear the membrane-bound form of interleukin-15 under the influence of ovarian steroids, which facilitates their initial contact with peripheral blood CD16(–) natural killer cells mediated through CD62L.

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Male Reproductive Tract

- Tali Lang, Maria Dechant, Victoria Sanchez, Joachim Wistuba, Michele Boiani, Adrian Pilatz, Angelika Stammer, Ralf Middendorff, Gerhard Schuler, Sudhanst

Structural and Functional Integrity of Spermatozoa Is Compromised as a Consequence of Acute Uropathogenic *E. coli*-Associated Epididymitis

Biol Reprod September 2013 89 (3) 59, 1-10; published ahead of print July 10, 2013, doi:10.1095/biolreprod.113.110379

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

Summary: Uropathogenic *Escherichia coli* secrete virulence factors that disrupt the structural and functional integrity of the epididymis and spermatozoa.

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Mechanisms of Hormone Action

- Shannon Whirlledge, Xiaojiang Xu, and John A. Cidlowski

Global Gene Expression Analysis in Human Uterine Epithelial Cells Defines New Targets of Glucocorticoid and Estradiol Antagonism

Biol Reprod September 2013 89 (3) 66, 1-17; published ahead of print July 10, 2013, doi:10.1095/biolreprod.113.111054

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

Summary: Whole genome microarray analysis of the human uterine epithelial-like cell line ECC1 reveals widespread transcriptional regulation by glucocorticoids and estradiol and identifies many genes that are targets for both of these steroid hormones.

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Neuroendocrinology

- Bo Liang, De-Li Wei, Ya-Nan Cheng, Hong-Jie Yuan, Juan Lin, Xiang-Zhong Cui, Ming-Jiu Luo, and Jing-He Tan

Restraint Stress Impairs Oocyte Developmental Potential in Mice: Role of CRH-Induced Apoptosis of Ovarian Cells

Biol Reprod September 2013 89 (3) 64, 1-12; published ahead of print July 24, 2013, doi:10.1095/biolreprod.113.110619

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

Summary: Restraint stress impairs oocyte competence by increasing CRH, but not glucocorticoids; increased CRH initiates a latent apoptotic program in cumulus cells and oocytes during their intraovarian development, which is executed later during in vitro maturation to impair oocyte competence.

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Ovary

- Cheuk Wun Li and Wei Ge

Regulation of the Activin-Inhibin-Follistatin System by Bone Morphogenetic Proteins in the Zebrafish Ovary

Biol Reprod September 2013 89 (3) 55, 1-10; published ahead of print July 10, 2013, doi:10.1095/biolreprod.113.110643

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

Summary: A novel coculture system involving CHO cells producing BMPs and zebrafish ovarian follicle cells is used to investigate the effects of oocyte-derived bone morphogenetic proteins on the expression of the activin-inhibin-follistatin system in follicle cells.

- Xian-Long Wang, Kun Wang, Shuan Zhao, Yi Wu, Hui Gao, and Shen-Ming Zeng

Oocyte-Secreted Growth Differentiation Factor 9 Inhibits BCL-2-Interacting Mediator of Cell Death-Extra Long Expression in Porcine Cumulus Cell

Biol Reprod September 2013 89 (3) 56, 1-9; published ahead of print July 10, 2013, doi:10.1095/biolreprod.113.108365

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

Summary: Oocyte-secreted growth differentiation factor 9 maintains the low level of BCL-2-interacting mediator of cell death-extra long expression in cumulus cells through activation of the PI3K/FOXO3a pathway.

- Linah F. Al-Alem, Lauren A. McCord, R. Chase Southard, Michael W. Kilgore, and Thomas E. Curry, Jr.

Activation of the PKC Pathway Stimulates Ovarian Cancer Cell Proliferation, Migration, and Expression of MMP7 and MMP10

Biol Reprod September 2013 89 (3) 73, 1-7; published ahead of print July 10, 2013, doi:10.1095/biolreprod.112.102327

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

Summary: Activation of the PKC pathway increases ovarian cancer migration that is associated with an increase in MMP7 and MMP10.

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Pregnancy

- Clint Gray, Sophie Long, Charlotte Green, Sheila M. Gardiner, Jim Craigon, and David S. Gardner

Maternal Fructose and/or Salt Intake and Reproductive Outcome in the Rat: Effects on Growth, Fertility, Sex Ratio, and Birth Order

Biol Reprod September 2013 89 (3) 51, 1-8; published ahead of print June 12, 2013, doi:10.1095/biolreprod.113.109595

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

Summary: Maternal intake of a diet high in fructose and salt reduces fertility and skews the offspring sex ratio toward males.

- Tomomi Kotani, Akira Iwase, Hiroyuki Tsuda, Yukio Mano, Eiko Yamamoto, Tomoko Nakano, Yumi Hasegawa, Hua Li, Seiji Sumigama, Atsuo Itakura, and Fur

Altered Expression of Enzymes Regulating the Activity of Endothelin-1 in the Lower Segment of the Human Amnion During Labor

Biol Reprod September 2013 89 (3) 52, 1-7; published ahead of print July 17, 2013, doi:10.1095/biolreprod.113.108480

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

Summary: The expression pattern of enzymes that synthesize or degrade endothelin-1 differs between amnion obtained before and after term labor and is affected by proinflammatory cytokines.

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Reproductive Technology

- Cristina Camprubí, Isabel Iglesias-Platas, Alex Martín-Trujillo, Cristina Salvador-Alarcon, Maria Angeles Rodriguez, Dalia Rodriguez Barredo, Franck Court, an

Stability of Genomic Imprinting and Gestational-Age Dynamic Methylation in Complicated Pregnancies Conceived Following Assisted Reproductive Technologies

Biol Reprod September 2013 89 (3) 50, 1-9; published ahead of print July 24, 2013, doi:10.1095/biolreprod.113.108456

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

Summary: Children born as a result of assisted reproductive

technologies (ART) have a higher risk of obstetric complications and diseases with epigenetic etiologies, including imprinting disorders; genome-wide imprinting and dynamic epigenetic events are normal in ART children with and without intrauterine growth restriction.

- Yuji Hirao, Kenji Naruse, Masahiro Kaneda, Tamas Somfai, Kosuke Iga, Manabu Shimizu, Satoshi Akagi, Feng Cao, Tomohiro Kono, Takashi Nagai, and Naok **Production of Fertile Offspring from Oocytes Grown In Vitro by Nuclear Transfer in Cattle**

Biol Reprod September 2013 89 (3) 57, 1-11; published ahead of print July 24, 2013, doi:10.1095/biolreprod.113.109439

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

Summary: Bovine oocytes grown in vitro can be as capable as the in vivo-grown oocytes, including in the ability to perform highly specialized activities, such as nuclear reprogramming.

Testis

- Barbara Muciaccia, Carla Boitani, B. Pasquale Berloco, Francesco Nudo, Gustavo Spadetta, Mario Stefanini, Dirk G. de Rooij, and Elena Vicini **Novel Stage Classification of Human Spermatogenesis Based on Acrosome Development**

Biol Reprod September 2013 89 (3) 60, 1-10; published ahead of print August 14, 2013, doi:10.1095/biolreprod.113.111682

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

Summary: Subdivision of the human seminiferous epithelium cycle into 12 stages according to acrosome developmental steps, and determination of their duration now enables a direct comparison between human and laboratory animal spermatogenesis.