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## World of Reproductive Biology

Charlotte Schubert

### **Sperm Seem to Sense What You Eat**

Biol Reprod April 2016 94 (4) 72, 1-1; published ahead of print January 6, 2016, doi:10.1095/biolreprod.116.138420

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

Charlotte Schubert

### **Small RNAs in Sperm, Affected by Diet, Transmit Information to Offspring**

Biol Reprod April 2016 94 (4) 73, 1-1; published ahead of print January 13, 2016, doi:10.1095/biolreprod.116.138669

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

Charlotte Schubert

### **A Bouquet for Oocyte Polarity**

Biol Reprod April 2016 94 (4) 74, 1-1; published ahead of print January 27, 2016, doi:10.1095/biolreprod.116.139105

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

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## Commentary

Erin C. Macaulay and Frank H. Bloomfield

### **Unravelling the Link Between the Placental Epigenome and Pregnancy Outcomes**

Biol Reprod April 2016 94 (4) 82, 1-2; published ahead of print March 9, 2016, doi:10.1095/biolreprod.116.139915

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

**Summary:** Placental epigenetic changes associated with poor fetal growth are not present in early pregnancy, indicating that these may be a consequence of the underlying pathology rather than causally associated with the fetal outcome.

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## Minireview

- Melanie J. Ceko, Sean O'Leary, Hugh H. Harris, Katja Hummitzsch, and Raymond J. Rodgers

### **Trace Elements in Ovaries: Measurement and Physiology**

Biol Reprod April 2016 94 (4) 86, 1-14; published ahead of print February 10, 2016, doi:10.1095/biolreprod.115.137240

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

**Summary:** We review newer approaches to the study of trace elements in tissues that use synchrotron light to quantify and localize trace elements; using the ovary as an example, we put these new results into a biological context.

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## Research Articles

### Embryo

- Maimouna Coura Koné, Renaud Fleurot, Martine Chebrou, Pascale Debey, Nathalie Beaujean, and Amélie Bonnet-Garnier

### **Three-Dimensional Distribution of UBF and Nopp140 in Relationship to Ribosomal DNA Transcription During Mouse Preimplantation Development**

Biol Reprod April 2016 94 (4) 95, 1-12; published ahead of print March 16, 2016, doi:10.1095/biolreprod.115.136366

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

**Summary:** Dynamic redistribution of UBF and Nopp140 occurs in preimplantation embryos, underlying nucleogenesis and rDNA transcriptional activity.

- Eduardo S. Ribeiro, Leandro F. Greco, Rafael S. Bisinotto, Fábio S. Lima, William W. Thatcher, and José E. Santos

### **Biology of Preimplantation Conceptus at the Onset of Elongation in Dairy Cows**

Biol Reprod April 2016 94 (4) 97, 1-18; published ahead of print March 2, 2016, doi:10.1095/biolreprod.115.134908

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

**Summary:** Changes in transcriptome of bovine conceptus cells and histotroph composition during onset of elongation contribute to development in cattle during a critical stage of development.

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### Female Reproductive Tract

- Yuko Muro, Hidetoshi Hasuwa, Ayako Isotani, Haruhiko Miyata, Kazuo Yamagata, Masahito Ikawa, Ryuzo Yanagimachi, and Masaru Okabe

### **Behavior of Mouse Spermatozoa in the Female Reproductive Tract from Soon after Mating to the Beginning of Fertilization**

Biol Reprod April 2016 94 (4) 80, 1-7; published ahead of print March 9, 2016, doi:10.1095/biolreprod.115.135368

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

**Summary:** The migration and acrosomal status of mouse spermatozoa in the female reproductive tract was clarified by visualization of spermatozoa using double fluorescent protein tags.

- Ye Zheng, Zaraq Khan, Valentina Zanfagnin, Luiz F. Correa, Abigail A. Delaney, and Gaurang S. Daftary

**Epigenetic Modulation of Collagen 1A1: Therapeutic Implications in Fibrosis and Endometriosis**

Biol Reprod April 2016 94 (4) 87, 1-10; published ahead of print March 2, 2016, doi:10.1095/biolreprod.115.138115

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

[OPEN ACCESS ARTICLE](#)

**Summary:** KLF11 mediated epigenetic modulation of Collagen1 expression has translational relevance as a novel antifibrotic treatment in endometriosis, a therapeutically recalcitrant disease.

- Yu Ishikawa, Tomoyuki Usui, Misuzu Yamashita, Yoshinori Kanemori, and Tadashi Baba

**Surfing and Swimming of Ejaculated Sperm in the Mouse Oviduct**

Biol Reprod April 2016 94 (4) 89, 1-9; published ahead of print March 9, 2016, doi:10.1095/biolreprod.115.135418

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

**Summary:** Myosalpinx contractions play important roles in the formation of sperm assemblage in the isthmus, and in the transport of the assemblage to the middle region of oviduct.

- Xiyin Wang, Shikha Khatri, Russell Broadus, Zhong Wang, and Shannon M. Hawkins

**Deletion of *Arid1a* in Reproductive Tract Mesenchymal Cells Reduces Fertility in Female Mice**

Biol Reprod April 2016 94 (4) 93, 1-14; published ahead of print March 9, 2016, doi:10.1095/biolreprod.115.133637

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

**Summary:** Conditional deletion of *Arid1a*, a putative tumor suppressor implicated in cancer, in the female mouse reproductive tract reduces fertility via abnormal placentation.

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**Gamete Biology**

- Stewart J. Russell, Leanne Stalker, Graham Gilchrist, Alanna Backx, Gonzalo Molledo, Robert A. Foster, and Jonathan LaMarre

**Identification of *PIWIL1* Isoforms and Their Expression in Bovine Testes, Oocytes, and Early Embryos**

Biol Reprod April 2016 94 (4) 75, 1-11; published ahead of print February 24, 2016, doi:10.1095/biolreprod.115.136721

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

**Summary:** This study profiles the expression of *PIWIL1* and two previously uncharacterized isoforms in bovine testis, oocytes, and early embryos.

- Marvin J.S. Ferrer, Wei Xu, Jagathpala Shetty, John Herr, and Richard Oko

**Plasminogen Improves Mouse IVF by Interactions with Inner Acrosomal Membrane-Bound MMP2 and SAMP14**

Biol Reprod April 2016 94 (4) 88, 1-11; published ahead of print March 2, 2016, doi:10.1095/biolreprod.115.133496

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

[OPEN ACCESS ARTICLE](#)

**Summary:** Plasminogen, on its own via SAMP14 and through MMP2-related mechanisms, improves fertilization in sperm-scarce conditions resembling an in vivo setting.

- Ana Izabel Silva Balbin Villaverde, Louise Hetherington, and Mark A. Baker

**Quantitative Glycopeptide Changes in Rat Sperm During Epididymal Transit**

Biol Reprod April 2016 94 (4) 91, 1-13; published ahead of print March 9, 2016, doi:10.1095/biolreprod.115.134114

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

**Summary:** Regulation of *N*-linked sialylated glycoproteins is one of the major events involved in maturation of rat spermatozoa during epididymal transit.

- Lokesh Kumar, Santosh K. Yadav, Bhavana Kushwaha, Aastha Pandey, Vikas Sharma, Vikas Verma, Jagdamba P. Maikhuri, Singh Rajender, Vishnu L. Sharma, ;

**Energy Utilization for Survival and Fertilization—Parsimonious Quiescent Sperm Turn Extravagant on Motility Activation in Rat**

Biol Reprod April 2016 94 (4) 96, 1-9; published ahead of print March 16, 2016, doi:10.1095/biolreprod.115.137752

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

**Summary:** Quiescent sperm utilize efficient oxidative phosphorylation to survive for long duration in cauda epididymis with limited energy

substrate but switch to glycolysis on motility activation at ejaculation with unlimited energy substrate for quick energy.

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## Ovary

- Shufen Wang, Jiali Liu, Xinqiang Li, Xiaowen Ji, Jianfang Zhang, Yue Wang, and Sheng Cui  
**MiR-125b Regulates Primordial Follicle Assembly by Targeting Activin Receptor Type 2a in Neonatal Mouse Ovary**  
Biol Reprod April 2016 94 (4) 83, 1-12; published ahead of print March 9, 2016, doi:10.1095/biolreprod.115.131128  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)  
**Summary:** MiR-125b, which is highly expressed in the perinatal mouse ovary, targets activin receptor type 2a and regulates activin/Smad2 signaling, thus ensuring a proper size of the primordial follicle pool formed during the first few days after birth.
  
- Li Meng, Eddy Rijntjes, Hans Swarts, Annelies Bunschoten, Inge van der Stelt, Jaap Keijer, and Katja Teerds  
**Dietary-Induced Chronic Hypothyroidism Negatively Affects Rat Follicular Development and Ovulation Rate and Is Associated with Oxidative Stress**  
Biol Reprod April 2016 94 (4) 90, 1-11; published ahead of print March 9, 2016, doi:10.1095/biolreprod.115.136515  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)  
**Summary:** Chronic hypothyroidism leads to elevated follicular atresia and reduced follicle numbers and ovulation rate in adult rats, and is associated with increased ovarian oxidative damage.
  
- Michael W. Tsoulis, Pauline E. Chang, Caroline J. Moore, Kaitlyn A. Chan, Wajiha Gohir, James J. Petrik, Mark H. Vickers, Kristin L. Connor, and Deborah M. Slo  
**Maternal High-Fat Diet-Induced Loss of Fetal Oocytes Is Associated with Compromised Follicle Growth in Adult Rat Offspring**  
Biol Reprod April 2016 94 (4) 94, 1-11; published ahead of print March 9, 2016, doi:10.1095/biolreprod.115.135004  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)  
**Summary:** Prenatal exposure to an obesogenic maternal diet induces fetal oocyte loss and impaired follicle growth in postnatal offspring ovaries.

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## Reproductive Technology

- Nathan R. Treff, Rebecca L. Krisher, Xin Tao, Heather Garnsey, Chelsea Bohrer, Elena Silva, Jessica Landis, Deanne Taylor, Richard T. Scott, Teresa K. Wood  
**Next Generation Sequencing-Based Comprehensive Chromosome Screening in Mouse Polar Bodies, Oocytes, and Embryos**  
Biol Reprod April 2016 94 (4) 76, 1-11; published ahead of print February 24, 2016, doi:10.1095/biolreprod.115.135483  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)  
**Summary:** Low pass whole-genome sequencing is an effective method to comprehensively screen chromosome aneuploidy in individual mouse gametes and blastocysts.
  
- Naoto Katayama, Sachi Kume, Shoko Hattori-Ihara, Sakiko Sadaie, Makoto Hayashi, and Goro Yoshizaki  
**Germ Cell-Specific Excision of loxP-Flanked Transgenes in Rainbow Trout *Oncorhynchus mykiss***  
Biol Reprod April 2016 94 (4) 79, 1-11; published ahead of print February 24, 2016, doi:10.1095/biolreprod.115.136929  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)  
**Summary:** Germ cell-specific in vivo DNA excision was demonstrated in rainbow trout by using Cre/loxP system.
  
- Rachel Weinerman, Rui Feng, Teri S. Ord, Richard M. Schultz, Marisa S. Bartolomei, Christos Coutifaris, and Monica Mainigi  
**Morphokinetic Evaluation of Embryo Development in a Mouse Model: Functional and Molecular Correlates**  
Biol Reprod April 2016 94 (4) 84, 1-7; published ahead of print February 24, 2016, doi:10.1095/biolreprod.115.134080  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)  
**Summary:** Morphokinetic evaluation of embryo cleavage in a mouse model predicts a blastocyst's potential to establish pregnancy.
  
- Vianney M. Salmon, Pierre Leclerc, and Janice L. Bailey  
**Cholesterol-Loaded Cyclodextrin Increases the Cholesterol Content of Goat Sperm to Improve Cold and Osmotic Resistance and Maintain Sperm Function after Cryopreservation**  
Biol Reprod April 2016 94 (4) 85, 1-12; published ahead of print February 17, 2016, doi:10.1095/biolreprod.115.128553  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)

**Summary:** Methyl- $\beta$ -cyclodextrin protects the quality and fertility of goat sperm after cryopreservation by, effectively, delivering exogenous cholesterol to sperm membranes.

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#### Testis

- Maoliang Ran, Bin Chen, Zhi Li, Maisheng Wu, Xiaochun Liu, Changqing He, Shanwen Zhang, and Zhaohui Li  
**Systematic Identification of Long Noncoding RNAs in Immature and Mature Porcine Testes**  
Biol Reprod April 2016 94 (4) 77, 1-9; published ahead of print March 2, 2016, doi:10.1095/biolreprod.115.136911  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)
- Summary:** This study provides a useful resource for future studies on the regulation roles of lncRNAs in pig testis development and spermatogenesis.
- Chenling Meng, Wenjing Liu, Huihui Huang, Yang Wang, Binbin Chen, Gordon J. Freeman, Alan Schneyer, Herbert Y. Lin, and Yin Xia  
**Repulsive Guidance Molecule b (RGMb) Is Dispensable for Normal Gonadal Function in Mice**  
Biol Reprod April 2016 94 (4) 78, 1-10; published ahead of print February 24, 2016, doi:10.1095/biolreprod.115.135921  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#)
- Summary:** RGMb, which is expressed in spermatocytes in the testis and in oocytes in the ovary, is not essential for spermatogenesis and follicle development.
- Manabu Ozawa, Tsuyoshi Fukuda, Reiko Sakamoto, Hiroaki Honda, and Nobuaki Yoshida  
**The Histone Demethylase FBXL10 Regulates the Proliferation of Spermatogonia and Ensures Long-Term Sustainable Spermatogenesis in Mice**  
Biol Reprod April 2016 94 (4) 92, 1-11; published ahead of print March 16, 2016, doi:10.1095/biolreprod.115.135988  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)  
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- Summary:** Gene knockout mice lacking histone demethylase FBXL10 showed an age-dependent increase of degeneration of spermatogenesis accompanied with slower proliferation in spermatogonia.

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#### Toxicology

- Negar Bagheri-Sereshki, Barbara F. Hales, and Bernard Robaire  
**The Effects of Chemotherapeutic Agents, Bleomycin, Etoposide, and Cisplatin, on Chromatin Remodeling in Male Rat Germ Cells**  
Biol Reprod April 2016 94 (4) 81, 1-9; published ahead of print February 24, 2016, doi:10.1095/biolreprod.115.137802  
[Abstract](#) [Full Text](#) [Full Text \(PDF\)](#) [Supplemental Data](#)
- Summary:** BEP treatment perturbs epigenetic histone marks involved in chromatin remodeling in rat spermatogenesis, leading to less compacted sperm chromatin structure.