

BIOLOGY *of* REPRODUCTION

Official Journal of the Society for
the Study of Reproduction

MAY 2007

VOLUME 76 NUMBER 5

Biology of Reproduction Highlights	737
Interleukin 10 Regulates Inflammatory Cytokine Synthesis to Protect Against Lipopolysaccharide-Induced Abortion and Fetal Growth Restriction in Mice	738
<i>Sarah A. Robertson, Alison S. Care, and Rebecca J. Skinner</i> The anti-inflammatory cytokine interleukin 10 (IL10) acts in pregnancy to prevent abortion and fetal growth restriction induced by proinflammatory cytokines in the implantation site.	
Expression Pattern of Prokineticin 1 and Its Receptors in Bovine Ovaries During the Estrous Cycle: Involvement in Corpus Luteum Regression and Follicular Atresia	749
<i>Tatiana Kisliouk, Aharon Friedman, Eyal Klipper, Qun-Yong Zhou, Dieter Schams, Nadia Alfaidy, and Rina Meidan</i> PROK1 plays a role in follicular atresia and CL regression by enhancing the recruitment and activation of leukocytes.	
Constitutive Expression of Prostaglandin-Endoperoxide Synthase 2 by Somatic and Spermatogenic Cells Is Responsible for Prostaglandin E₂ Production in the Adult Rat Testis	759
<i>Wendy R. Winnall, Ugur Ali, Moira K. O'Bryan, Jon J. Hirst, Penelope A.F. Whiley, Julie A. Muir, and Mark P. Hedger</i> In the adult rat testis, prostaglandin production is due to constitutive expression and activity of prostaglandin-endoperoxide synthase 2 in somatic and spermatogenic cells; inflammation induces marginal effects on enzyme expression or prostaglandin levels in the adult rat testis.	
Inflammation of Choriodecidual Induces Tumor Necrosis Factor Alpha-Mediated Apoptosis of Human Myometrial Cells	769
<i>Marie-Josèphe Leroy, Emmanuelle Dallot, Isabelle Czerkiewicz, Thomas Schmitz, and Michelle Breuiller-Fouché</i> TNF secreted by choriodecidual during inflammation is an important component of a paracrine system for inducing myometrial cell apoptosis.	
Autocrine Prolactin Inhibits Human Uterine Decidualization: A Novel Role for Prolactin	777
<i>Ori Eyal, Jean-Baptiste Jomain, Cherie Kessler, Vincent Goffin, and Stuart Handwerger</i> hPRL acts via an autocrine mechanism to regulate negatively the extent of differentiation (decidualization) of human uterine cells.	
2-Methoxyestradiol Induces Spindle Aberrations, Chromosome Congression Failure, and Nondisjunction in Mouse Oocytes	784
<i>Ursula Eichenlaub-Ritter, Ulrike Winterscheidt, Edgar Vogt, Ying Shen, Hans-Rudolf Tinneberg, and Ralph Sorensen</i> 2-Methoxyestradiol, a metabolite of 17 β -estradiol, dose-dependently induces spindle aberrations, chromosome congression failure, and the spindle checkpoint; aneuploidy is dramatically increased in oocytes that escape meiotic arrest.	
Expression of the cAMP-Phosphodiesterase PDE4D Isoforms and Age-Related Changes in Follicle-Stimulating Hormone-Stimulated PDE4 Activities in Immature Rat Sertoli Cells	794
<i>Guénaëlle Levallet, Jérôme Levallet, Hélène Bouraïma-Lelong, and Pierre-Jacques Bonnamy</i> Age-related changes in FSH-stimulated PDE4 activities occur in rat Sertoli cells during the early postnatal period.	
Proliferation of Adult Sertoli Cells Following Conditional Knockout of the Gap Junctional Protein GJA1 (Connexin 43) in Mice	804
<i>Santhi Sridharan, Liz Simon, Daryl D. Meling, Daniel G. Cyr, David E. Gutstein, Glenn I. Fishman, Florian Guillou, and Paul S. Cooke</i> Sertoli cell-specific connexin 43 (GJA1) knockout mice possess proliferating Sertoli cells even in adulthood, suggesting that connexin 43 plays a critical role in Sertoli cell maturation.	
The Cathepsin L First Intron Stimulates Gene Expression in Rat Sertoli Cells	813
<i>Martin Charron, Jing-Yi Chern, and William W. Wright</i> The splicing of the first intron of the rat cathepsin L gene stimulates reporter gene activity by ~5-fold in primary Sertoli cell cultures and in the TM4 Sertoli cell line by increasing the amounts of total RNA and transcript polyadenylation.	
Activation of an SP Binding Site Is Crucial for the Expression of Claudin 1 in Rat Epididymal Principal Cells . . .	825
<i>Julie Dufresne and Daniel G. Cyr</i> The expression of Claudin 1 in the rat epididymis is regulated by SP1 and SP3 transcription factors that interact with one of two SP binding sites on the 5' flanking region of the gene.	

Cycle Length of Spermatogenesis in Shrews (Mammalia: Soricidae) with High and Low Metabolic Rates and Different Mating Systems	833
<i>Roumen Parapanov, Sébastien Nusslé, and Peter Vogel</i>	
Shrews with high and low metabolic rates and different mating systems might represent a model to perform comparative studies related to the duration of spermatogenesis.	
Male Germ Line Stem Cells Have an Altered Potential to Proliferate and Differentiate During Postnatal Development in Mice	841
<i>Kevin T. Ebata, Xiangfan Zhang, and Makoto C. Nagano</i>	
Spermatogonial stem cells derived from immature mouse testes exhibit a different proliferation pattern after transplantation, compared to those from adult intact testes.	
Oocyte-Secreted Factor Activation of SMAD 2/3 Signaling Enables Initiation of Mouse Cumulus Cell Expansion	848
<i>Rebecca A. Dragovic, Lesley J. Ritter, Samantha J. Schulz, Fred Amato, Jeremy G. Thompson, David T. Armstrong, and Robert B. Gilchrist</i>	
Initiation of mouse cumulus cell expansion requires activation of the cumulus cell SMAD 2/3 signaling pathway by oocyte-secreted factors.	
Toward a Feline-Optimized Culture Medium: Impact of Ions, Carbohydrates, Essential Amino Acids, Vitamins, and Serum on Development and Metabolism of In Vitro Fertilization-Derived Feline Embryos Relative to Embryos Grown In Vivo	858
<i>Jason R. Herrick, Jennifer B. Bond, Genevieve M. Magarey, Helen L. Bateman, Rebecca L. Krisher, Susan A. Dunford, and William F. Swanson</i>	
Approximately 70% of IVF-derived feline embryos develop into blastocysts with similar developmental kinetics and metabolic activity as in vivo embryos when cultured in an optimized medium based on the physiological needs of the feline embryo.	
Quantitative Cellular and Molecular Analysis of the Effect of Progesterone Withdrawal in a Murine Model of Decidualization	871
<i>Ching-wen Cheng, Holli Bielby, Di Licence, Stephen K. Smith, Cristin G. Print, and D. Stephen Charnock-Jones</i>	
Immune cells are recruited into decidualizing and menstruating endometrium, and immune-related genes are regulated in the uterus throughout menstruation.	
Heat Shock Protein 1 and the Mitogen-Activated Protein Kinase 14 Pathway Are Important for Mouse Trophoblast Stem Cell Differentiation.	884
<i>Quinton A. Winger, Jillian Guttormsen, Heather Gavin, and Frances Bhushan</i>	
HSPB1 and MAPKAPK2 are identified as proteins with increased phosphorylation during TS cell differentiation and the inhibition of MAPK14 results in decreased cell viability supporting a role for the MAPK14 pathway during TS cell differentiation.	
Calcitonin Gene-Related Peptide (CALCA) Is a Proangiogenic Growth Factor in the Human Placental Development	892
<i>Yuan-Lin Dong, Deepti M. Reddy, Kortney E. Green, Madhu S. Chauhan, Hui-Qun Wang, Manubai Nagamani, Gary D.V. Hankins, and Chandra Yallampalli</i>	
CALCA induces angiogenesis in vitro by stimulating endothelial cell proliferation, migration, and capillary-like tube formation.	
Production of Live Piglets Following Cryopreservation of Embryos Derived from In Vitro-Matured Oocytes	900
<i>Hiroshi Nagashima, Katsumi Hiruma, Hitoshi Saito, Ryo Tomii, Satoshi Ueno, Naoki Nakayama, Hitomi Matsunari, and Mayuko Kurome</i>	
Live pigs can be produced following vitrification at early cleavage stage of embryos derived from oocytes matured and fertilized in vitro.	
Cyclosporin A Improves Pregnancy Outcome by Promoting Functions of Trophoblasts and Inducing Maternal Tolerance to the Allogeneic Fetus in Abortion-Prone Matings in the Mouse	906
<i>Mei-Rong Du, Lin Dong, Wen-Hui Zhou, Feng-Ting Yan, and Da-Jin Li</i>	
Cyclosporin A, an immunosuppressant, can regulate materno-fetal relationships and be useful in treatment of spontaneous pregnancy wastage and other pregnancy complications.	
Long-Term Continuous Treatment with Sildenafil Ameliorates Aging-Related Erectile Dysfunction and the Underlying Corporal Fibrosis in the Rat	915
<i>M.G. Ferrini, I. Kovanecz, S. Sanchez, D. Vernet, H.H. Davila, J. Rajfer, and N.F. Gonzalez-Cadavid</i>	
Long-term treatment with PDE5A inhibitors corrects CVD and partially reverses the aging-related fibrosis and loss of corporal cavernosa smooth muscle in the aged rat.	
Additions and Corrections	924

Contents by Category

Embryo

- 858 Toward a Feline-Optimized Culture Medium: Impact of Ions, Carbohydrates, Essential Amino Acids, Vitamins, and Serum on Development and Metabolism of In Vitro Fertilization-Derived Feline Embryos Relative to Embryos Grown In Vivo. *Jason R. Herrick, Jennifer B. Bond, Genevieve M. Magarey, Helen L. Bateman, Rebecca L. Krisher, Susan A. Dunford, and William F. Swanson*
- 900 Production of Live Piglets Following Cryopreservation of Embryos Derived from In Vitro-Matured Oocytes. *Hiroshi Nagashima, Katsumi Hiruma, Hitoshi Saito, Ryo Tomii, Satoshi Ueno, Naoki Nakayama, Hitomi Matsunari, and Mayuko Kurome*
- 906 Cyclosporin A Improves Pregnancy Outcome by Promoting Functions of Trophoblasts and Inducing Maternal Tolerance to the Allogeneic Fetus in Abortion-Prone Matings in the Mouse. *Mei-Rong Du, Lin Dong, Wen-Hui Zhou, Feng-Ting Yan, and Da-Jin Li*

Female Reproductive Tract

- 871 Quantitative Cellular and Molecular Analysis of the Effect of Progesterone Withdrawal in a Murine Model of Decidualization. *Ching-wen Cheng, Holli Bielby, Di Licence, Stephen K. Smith, Cristin G. Print, and D. Stephen Charnock-Jones*

Gamete Biology

- 848 Oocyte-Secreted Factor Activation of SMAD 2/3 Signaling Enables Initiation of Mouse Cumulus Cell Expansion. *Rebecca A. Dragovic, Lesley J. Ritter, Samantha J. Schulz, Fred Amato, Jeremy G. Thompson, David T. Armstrong, and Robert B. Gilchrist*

Immunology

- 738 Interleukin 10 Regulates Inflammatory Cytokine Synthesis to Protect Against Lipopolysaccharide-Induced Abortion and Fetal Growth Restriction in Mice. *Sarah A. Robertson, Alison S. Care, and Rebecca J. Skinner*

Male Reproductive Tract

- 825 Activation of an SP Binding Site Is Crucial for the Expression of Claudin 1 in Rat Epididymal Principal Cells. *Julie Dufresne, and Daniel G. Cyr*
- 833 Cycle Length of Spermatogenesis in Shrews (Mammalia: Soricidae) with High and Low Metabolic Rates and Different Mating Systems. *Roumen Parapanov, Sébastien Nusslé, and Peter Vogel*
- 915 Long-Term Continuous Treatment with Sildenafil Ameliorates Aging-Related Erectile Dysfunction and the Underlying Corporal Fibrosis in the Rat. *M.G. Ferrini, I. Kovanecz, S. Sanchez, D. Vernet, H.H. Davila, J. Rajfer, and N.F. Gonzalez-Cadavid*

Mechanisms of Hormone Action

- 777 Autocrine Prolactin Inhibits Human Uterine Decidualization: A Novel Role for Prolactin. *Ori Eyal, Jean-Baptiste Jomain, Cherie Kessler, Vincent Goffin, and Stuart Handwerker*

- 794 Expression of the cAMP-Phosphodiesterase PDE4D Isoforms and Age-Related Changes in Follicle-Stimulating Hormone-Stimulated PDE4 Activities in Immature Rat Sertoli Cells. *Guénaëlle Levallet, Jérôme Levallet, Hélène Bouraïma-Lelong, and Pierre-Jacques Bonnamy*

Ovary

- 749 Expression Pattern of Prokineticin 1 and Its Receptors in Bovine Ovaries During the Estrous Cycle: Involvement in Corpus Luteum Regression and Follicular Atresia. *Tatiana Kisliouk, Aharon Friedman, Eyal Klipper, Qun-Yong Zhou, Dieter Schams, Nadia Alfaidy, and Rina Meidan*

Pregnancy

- 769 Inflammation of Choriodecidua Induces Tumor Necrosis Factor Alpha-Mediated Apoptosis of Human Myometrial Cells. *Marie-Josèphe Leroy, Emmanuelle Dallot, Isabelle Czerkiewicz, Thomas Schmitz, and Michelle Breuille-Fouché*
- 884 Heat Shock Protein 1 and the Mitogen-Activated Protein Kinase 14 Pathway Are Important for Mouse Trophoblast Stem Cell Differentiation. *Quinton A. Winger, Jillian Guttormsen, Heather Gavin, and Frances Bhushan*
- 892 Calcitonin Gene-Related Peptide (CALCA) Is a Proangiogenic Growth Factor in the Human Placental Development. *Yuan-Lin Dong, Deepti M. Reddy, Kortney E. Green, Madhu S. Chauhan, Hui-Qun Wang, Manubai Nagamani, Gary D.V. Hankins, and Chandra Yallampalli*

Testis

- 759 Constitutive Expression of Prostaglandin-Endoperoxide Synthase 2 by Somatic and Spermatogenic Cells Is Responsible for Prostaglandin E₂ Production in the Adult Rat Testis. *Wendy R. Winnall, Ugur Ali, Moira K. O'Bryan, Jon J. Hirst, Penelope A.F. Whiley, Julie A. Muir, and Mark P. Hedger*
- 804 Proliferation of Adult Sertoli Cells Following Conditional Knockout of the Gap Junctional Protein GJA1 (Connexin 43) in Mice. *Santhi Sridharan, Liz Simon, Daryl D. Meling, Daniel G. Cyr, David E. Gutstein, Glenn I. Fishman, Florian Guillou, and Paul S. Cooke*
- 813 The Cathepsin L First Intron Stimulates Gene Expression in Rat Sertoli Cells. *Martin Charron, Jing-Yi Chern, and William W. Wright*
- 841 Male Germ Line Stem Cells Have an Altered Potential to Proliferate and Differentiate During Postnatal Development in Mice. *Kevin T. Ebata, Xiangfan Zhang, and Makoto C. Nagano*

Toxicology

- 784 2-Methoxyestradiol Induces Spindle Aberrations, Chromosome Congression Failure, and Nondisjunction in Mouse Oocytes. *Ursula Eichenlaub-Ritter, Ulrike Winterscheidt, Edgar Vogt, Ying Shen, Hans-Rudolf Tinneberg, and Ralph Sorensen*