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WORLD OF REPRODUCTIVE BIOLOGY . . . . . Article 1

Charlotte Schubert, Ph.D., Science Writer

Female Reproductive Tract

Biosynthesis and Degradation of Canine Placental Prostaglandins: Prepartum Changes in Expression and Function of Prostaglandin F2alpha-Synthase (PGFS, AKR1C3) and 15-Hydroxyprostaglandin Dehydrogenase (HPGD) . . . . . Article 2

Aykut Gram, Urs Büchler, Alois Boos, Bernd Hoffmann, and Mariusz P. Kowalewski

Utero/placental expression and activity of PGFS (AKR1C3) and HPGD vary during placental development and prepartum luteolysis in dogs, with HPGD serving as a local regulator of amounts of uterine prostaglandin available for prepartum release.

Experimental Evidence for Bone Marrow as a Source of Nonhematopoietic Endometrial Stromal and Epithelial Compartment Cells in a Murine Model . . . . . Article 7

Sara S. Morelli, Pranela Rameshwar, and Laura T. Goldsmith

The bone marrow is an important source of nonhematopoietic murine endometrial stromal compartment cells and contributes to a lesser extent to the endometrial epithelial compartment.

Loss of *Cdh1* and *Pten* Accelerates Cellular Invasiveness and Angiogenesis in the Mouse Uterus . . . . . Article 8

Mallory E. Lindberg, Genna R. Stodden, Mandy L. King, James A. MacLean II, Jordan L. Mann, Francesco J. DeMayo, John P. Lydon, and Kanako Hayashi

Ablation of *Cdh1* with *Pten* in the mouse uterus accelerates cellular invasiveness and angiogenesis, and is fatal during early life.

FOXC1 Is Enriched in the Mammary Luminal Progenitor Population, but Is Not Necessary for Mouse Mammary Ductal Morphogenesis . . . . . Article 10

Gina M. Sizemore, Steven T. Sizemore, Bhupinder Pal, Christine N. Booth, Darcie D. Seachrist, Fadi W. Abdul-Karim, Tsutomu Kume, and Ruth A. Keri

FOXC1 is enriched in the normal mammary luminal progenitor population and in the differentiated basal/myoepithelium, but is not necessary for mammary ductal outgrowth, alveologenesis, or lineage specification.

Changes in Mouse Uterine Transcriptome in Estrus and Proestrus . . . . . Article 13

Kerri Stanley Yip, Alexander Suvorov, Jeannette Connerney, Nicholas J. Lodato, and David J. Waxman

Around 10% of genes are regulated in proestrus/estrus in mouse uterus including genes responsible for remodeling of the extracellular matrix, for mitosis, for Wnt and hedgehog signaling, for the coagulation cascade as well as keratins, adhesion molecules, complement, and P450s.

Glucosamine Inhibits Decidualization of Human Endometrial Stromal Cells and Decreases Litter Sizes in Mice . . . . . Article 16

Jui-He Tsai, Maureen Schulte, Kathleen O'Neill, Maggie M.-Y. Chi, Antonina I. Frolova, and Kelle H. Moley

Glucosamine is a nonhormonal inhibitor of decidualization of both human and mouse endometrial stromal cells and of pregnancy in mice.

Gamete Biology

Mitochondrial Hydrogen Peroxide and Defective Cholesterol Efflux Prevent In Vitro Fertilization by Cryopreserved Inbred Mouse Sperm . . . . . Article 17

Jeffrey E. Gray, Joshua Starmer, Vivian S. Lin, Bryan C. Dickinson, and Terry Magnuson

Mitochondrial hydrogen peroxide and defective cholesterol efflux prevent in vitro fertilization by mouse sperm after cryopreservation in a strain-dependent manner.

Male Reproductive Tract

Plasma Membrane Ca^{2+}-ATPase 4 in Murine Epididymis: Secretion of Splice Variants in the Luminal Fluid and a Role in Sperm Maturation . . . . . Article 6

Ramkrishna Patel, Amal A. Al-Dossary, Deborah L. Stabley, Carol Barone, Deni S. Galileo, Emanuel E. Strehler, and Patricia A. Martin-DeLeon

PMCA4a and -4b regulate Ca^{2+} homeostasis and fertility, are expressed in the epididymis, and secreted in the luminal fluid, where they are acquired by sperm during epididymal maturation.

Mechanisms of Hormone Action

Insulin Enhances Leptin Expression in Human Trophoblastic Cells . . . . . Article 20

Antonio Pérez-Pérez, Julieta Maymó, Yesica Gambino, Pilar Guadix, José L. Dueñas, Cecilia Varone, and Víctor Sánchez-Margalet

Insulin enhances leptin expression in human trophoblasts via both PI3K and MAPK pathways, and the leptin gene promoter region between -1951 and -1546 bp is necessary to achieve this effect.

Ovary

Effects of an Inhibitor of the Gamma-Secretase Complex on Proliferation and Apoptotic Parameters in a FOXL2-Mutated Granulosa Tumor Cell Line (KGN) . . . . . Article 9

Griselda Irusta, Camila Pazos Maidana, Dalhia Abramovich, Ignacio De Zúñiga, Fernanda Parborell, and Marta Tesone

The Notch pathway is involved in granulosa tumor cell proliferation and cell death via interactions with the PI3K/AKT signaling pathway.

Gene Expression During Early Folliculogenesis in Goats Using Microarray Analysis . . . . . Article 19

D.M. Magalhães-Padilha, J. Geisler-Lee, A. Wischral, M.O. Gastal, G.R. Fonseca, Y.R.G. Eloy, M. Geisler, J.R. Figueiredo, and E.L. Gastal

The gene expression profile differs between secondary and tertiary ovarian follicles, and microarray analysis identifies genes and pathways involved in this transition..

Pregnancy

NOD1 and NOD2 Regulate Proinflammatory and Prolabor Mediators in Human Fetal Membranes and Myometrium via Nuclear Factor-Kappa B . . . . . Article 14

Martha Lappas

NOD1 and NOD2 are increased in laboring fetal membranes and myometrium and NOD activation by bacterial ligands induces the expression of proinflammatory and prolabor mediators.

Enhanced Uterine Artery Stiffness in Aged Pregnant Relaxin Mutant Mice Is Reversed with Exogenous Relaxin Treatment . . . . . Article 18

Jonathan H. Gooi, Meghan L. Richardson, Maria Jelinic, Jane E. Girling, Mary E. Wlodek, Marianne Tare, and Laura J. Parry

Relaxin deficiency in older mice results in structural modifications and increased rigidity in the uterine artery.

Reproductive Technology

Laparoscopic Oviductal Artificial Insemination Improves Pregnancy Success in Exogenous Gonadotropin-Treated Domestic Cats as a Model for Endangered Felids . . . . . Article 4

Valéria A. Conforti, Helen L. Bateman, Mandi W. Schook, Jackie Newsom, Leslie A. Lyons, Robert A. Grahn, James A. Deddens, and William F. Swanson

Laparoscopic artificial insemination in exogenous gonadotropin-treated cats using low sperm numbers shows improved fertilization success when semen is deposited into the oviduct versus the uterus.

Testis

Mice Stage-Specific Claudin 3 Expression Regulates Progression of Meiosis in Early Stage Spermatocytes Article 3

Masataka Chihara, Ryoyo Ikebuchi, Saori Otsuka, Osamu Ichii, Yoshiharu Hashimoto, Atsushi Suzuki, Yumiko Saga, and Yasuhiro Kon

Claudin 3 is expressed in Sertoli cells and spermatocytes in a spermatogenic stage-specific manner, and its knockdown causes a delay in spermatocyte migration across the blood-testis barrier and affects spermatogenesis.

The Heat-Induced Reversible Change in the Blood-Testis Barrier (BTB) Is Regulated by the Androgen Receptor (AR) via the Partitioning-Defective Protein (Par) Polarity Complex in the Mouse . . . . . Article 12

Xi-Xia Li, Su-Ren Chen, Bin Shen, Jun-Ling Yang, Shao-Yang Ji, Qing Wen, Qiao-Song Zheng, Lei Li, Jun Zhang, Zhao-Yuan Hu, Xing-Xu Huang, and Yi-Xun Liu

Overexpression and knockdown analyses, in combination with in vivo androgen receptor (AR) antagonist injections revealed that disruption and recovery of blood-testis barrier integrity induced by heat stress are regulated by the androgen receptor via the Par polarity complex.

In Vitro Reconstruction of Mouse Seminiferous Tubules Supporting Germ Cell Differentiation . . . . . Article 15

Tetsuhiro Yokonishi, Takuya Sato, Kumiko Katagiri, Mitsuru Komeya, Yoshinobu Kubota, and Takehiko Ogawa

Successful reconstruction of mouse seminiferous tubules in vitro, with spermatogenesis supported to the meiotic phase.

Toxicology

Cigarette Smoking Is Associated with Human Semen Quality in Synergy with Functional *NRF2* Polymorphisms . . . . . Article 5

Bolan Yu, Jingyi Chen, Dan Liu, Hua Zhou, Weiwei Xiao, Xuefeng Xia, and Zhaofeng Huang

There is an association between cigarette smoking in heavy smokers with the *NRF2* rs6721961 TT genotype and a decrease in semen quality; smoking and *NRF2* functional polymorphisms may have a synergetic effect on human spermatogenesis.

Bisphenol A Disposition in the Sheep Maternal-Placental-Fetal Unit: Mechanisms Determining Fetal Internal Exposure . . . . . Article 11

Tanguy Corbel, Véronique Gayrard, Catherine Viguié, Sylvie Puel, Marlène Z. Lacroix, Pierre-Louis Toutain, and Nicole Picard-Hagen

In a sheep model, the fetus exposed to bisphenol A efficiently metabolizes this compound into conjugates that remain trapped in amniotic fluid.

Special Paper

Androgen Receptor (AR) Physiological Roles in Male and Female Reproductive Systems: Lessons Learned from AR-Knockout Mice Lacking AR in Selective Cells . . . . . Article 21

Chawnshang Chang, Soo Ok Lee, Ruey-Sheng Wang, Shuyuan Yeh, and Ta-Min Chang

Exploration of androgen receptor (AR) cell type- or tissue-specific roles in male and female reproductive systems using ARKO mouse models provides indications of AR function in the reproductive system in humans.