Bench-to-bedside in Obstetrics, Gynecology and Reproduction

DENVER BOTANIC GARDENS

WEDNESDAY OCTOBER 4, 2017 | 8AM–5PM
FOLLOWED BY HAPPY HOUR AND DINNER
Welcome to the OB/GYN Research Retreat 2017!

IT SEEMS LIKE AN ETERNITY, but it is only two years since the previous OB/GYN Research Retreat at Red Rocks. Almost irrespective of which productivity readout we use (submitted grant applications, recently awarded grants, major grants under planning, meetings, retreats, research in progress events, journal clubs, seminars, published papers, visiting scientists, courses) research in our department is thriving, capitalizing on the recent recruitment of four outstanding investigators involving multiple divisions. Using the statistics of the established Blue Ridge Institute for Medical Research, our department increased its NIH funding from $1.8 million 2014 to $4.0 million 2016, moving us up from rank 20 to the 10th best funded OB/GYN Department in the nation. Our very ambitious goal for 2020 is to consolidate our department as a premier US OB/GYN research environment by moving up to 5th place in the national ranking.

Our research mission is based on teamwork, collaboration and integration with the long-term goal to eliminate barriers between basic scientists, clinical researchers and physicians caring for patients to achieve a seamless transition from bench to bedside. The 2017 OB/GYN Research Retreat at the Denver Botanic Gardens reflects this goal by showcasing the diversity of our research with a particular focus on junior investigators and highlighting ongoing efforts to work across divisions. We are extremely fortunate to have been able to attract three exceptional investigators, leaders in their respective fields, as keynote speakers.

The organization of this retreat has truly been a team effort with early input from the Retreat Task Force and the OB/GYN Research Advisory Board and hard work by a group established investigators, including Beth Bailey, Benjamin Bitler, Andy Bradford, T. Rajendra Kumar, Theresa L. Powell and Jeanelle Sheeder, who reviewed abstracts submitted by junior investigators. Finally, the tireless work of Melinda Thoma and Ashley McWilliams the past couple of months have made this retreat possible.

Thomas Jansson, MD, PhD
Session 1
MODERATORS: T. Rajendra Kumar, PhD and Lindsay Wheeler, MD

8:10–9:00 am  KEYNOTE SPEAKER
2017 Florence Crozier Cobb Keynote Lecture
Biology of Estrogen Receptor Beta
Jan-Åke Gustafsson, MD, PhD
Director, Center for Nuclear Receptors and Cell Signaling
Robert A. Welch Professor
University of Houston

9:00–9:15 am  JUNIOR INVESTIGATOR ORAL PRESENTATION 1
**Omega-3 Fatty Acid Supplementation Improves Luteal Function in Obese but Not Normal Weight Women**
Jessica Bauer, MD

9:15–9:30 am  JUNIOR INVESTIGATOR ORAL PRESENTATION 2
**LH / Testosterone-Regulated Transporters in the Mouse Testis**
Zhenghui Liu, PhD

9:30–10:00 am  Refreshments
Session 2
MODERATORS: Kathleen Connell, MD and Damian Guerra, PhD

10:00–10:40 am

**ESTABLISHED INVESTIGATOR ELEVATOR PRESENTATIONS**

*Be Fruitful and Multiply Like Fish: Can Omega-3 Fatty Acids Help Me Conceive?*
Alex Polotsky, MD

*Measuring Maternal and Fetal Marijuana Exposure*
Torri Metz, MD

*A Cluster Randomized Trial of a Home-Based Intervention to Increase Uptake of Postpartum Contraceptives and its Effect on Short-Interval Pregnancy Rates in a Postpartum Population of Rural Guatemalan Women*
Margo Harrison, MD

*Access to Reproductive Healthcare Services at Catholic-Affiliated Clinics*
Maryam Guiahi, MD

*Electronic Cigarette Use During Pregnancy—Safer Than Traditional Tobacco Cigarettes?*
Beth Bailey, PhD

*The Case for Postprandial Triglycerides Fueling Excess Baby Fat—Is it Time to Target Maternal Lipids?*
Linda Barbour, MD

*Identification of Therapeutic Targets in Ovarian Cancer*
Kian Behbakht, MD
10:40–10:55 am  JUNIOR INVESTIGATOR ORAL PRESENTATION 3
_Epigenetic Mechanisms of PARP Inhibitor Resistance in Epithelial Ovarian Cancer_
Zachary L. Watson, PhD

10:55–11:10 am  JUNIOR INVESTIGATOR ORAL PRESENTATION 4
_Anti-Tumor Effect of Adioponectin Receptor Agonist in Serous Ovarian Cancer_
Amin Ramzan, MD

11:10 am–12:00 pm  POSTER SESSION
*Poster session with Discussants for posters presented by junior investigators, PRA’s and administrators*

12:00–12:30 pm  Lunch

12:30–1:00 pm  PHOTOGRAPHY

1:00–1:45 pm  Free time: Stroll in the Botanic Gardens

**Session 3**

**MODERATORS:** Emily Su, MD and Owen Vaughan, PhD

1:45–2:35 pm  KEYNOTE SPEAKER
_Stillbirth Assessment, Management and Prevention_
Uma Reddy, MD, MPH
*NICHD Pregnancy and Perinatology Branch*
2:35–2:50 pm  JUNIOR INVESTIGATOR ORAL
PRESENTATION 5
Adverse Perinatal Outcomes Associated with
Marijuana Use in Young Mothers
Christina E. Rodriguez, MD

2:50–3:05 pm  JUNIOR INVESTIGATOR ORAL
PRESENTATION 6
Adiponectin Receptor Activation Mediates
Myometrial Tocolysis: A Repro-Metabolic
Signal for Uterine Quiescence in Preterm
Pregnancy
Vibhuti Vyas

3:05–3:40 pm  ESTABLISHED INVESTIGATOR ELEVATOR
PRESENTATIONS
Transdifferentiation of Granulosa Cells to
Sertoli Cells
T. Rajendra Kumar, PhD

Temporal Control of Primordial Follicle
Growth Activation
Joshua Johnson, PhD

PARP Inhibitor Maintenance Therapy for
Recurrent & Metastatic Endometrial Cancer
Bradley Corr, MD

Understanding the Multifactorial
Contributions to the Development of Pelvic
Organ Prolapse
Kathleen Connell, MD

Can Evolution Tell Us How To Prevent
Hypoxia-Associated Fetal Growth Restriction?
Lorna Moore, PhD

The Powerful Potential of the Placenta
Emily Su, MD
Session 4
MODERATORS: Andrew Bradford, PhD and Jessica Bauer, MD

4:00–4.15 pm  JUNIOR INVESTIGATOR ORAL PRESENTATION 7
Gut Microbes in Infants of Obese Mothers Promote Hepatic Inflammation and Pro-Inflammatory Liver Macrophage Polarization in Germ Free Mice
Taylor Soderborg

4:15–4:30 pm  JUNIOR INVESTIGATOR ORAL PRESENTATION 8
Loss of Perilipin-2 Alters Adipose Tissue and Leads to Profound Beiging in Mice
Andrew Libby

4:30–4.45 pm  JUNIOR INVESTIGATOR ORAL PRESENTATION 9
Placental Nutrient Transporter Protein Expression Across the First Half of Pregnancy and the Impact of Obesity
Laura James-Allan, PhD
4:45–5:00 pm  JUNIOR INVESTIGATOR ORAL PRESENTATION 10

Human Embryonic Stem Cell-Derived Trophoblasts Regulate Fetoplacental Endothelial Cell Function
Yingchun Li, MD, PhD

5:10–6:00 pm  HAPPY HOUR

SCIENTIFIC AND CAREER DEVELOPMENT SPEED DATING
Nine tables, each with a specific theme and hosted by expert; junior investigators rotate

6:15 pm  Dinner

KEYNOTE SPEAKER

A Journey to Ithaca
Christos Coutifaris, MD, PhD
Department of Obstetrics and Gynecology
University of Pennsylvania

Prizes to best poster presentations
### Scientific and Career Development Speed Dating for Junior Investigators*

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<td>How to Be a Good Mentee</td>
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<td>Aaron Lazorwitz, MD</td>
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<td>Jan-Åke Gustafsson, MD, PhD</td>
<td>How to Have More Great Scientific Ideas</td>
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<td>Theresa L. Powell, PhD</td>
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<td>Uma M. Reddy, MD, MPH</td>
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<td>Chanel Mansfield, CCRP</td>
<td>Developing Your IRB Application</td>
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<td>Beth Bailey, PhD</td>
<td>Designing a Clinical Research Project: A-Z</td>
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<td>Nanette Santoro, MD</td>
<td>Emergency Clinic: Get Your Research Career on Track in 10 Minutes</td>
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*Junior Investigators = 1. In-training investigators (residents, graduate students, clinical fellows, post doctoral fellows) and 2 Instructors. Others are welcome to participate if room is available.

**FORMAT:**
- Introduction (2 min)
- Nine discussants are positioned at round tables with 5-6 empty chairs
- 5 x 10 minute sessions with one minute in between, participants must change table during that minute.
Jan-Åke Gustafsson, MD, PhD

is a leading scientist within the field of steroid hormone receptors/nuclear receptors. He was first to show that a nuclear receptor, the glucocorticoid receptor, is composed of three separate structural and functional domains, a ligand binding domain, a DNA binding domain and a third domain identified by Gustafsson and coworkers by its immunogenic properties. Furthermore, the Gustafsson lab was first to purify a nuclear receptor, the glucocorticoid receptor, to homogeneity and thereby to show that it represents a single molecular species rather than a complex of multiple smaller subunits. Also, access to homogeneous nuclear receptor made it possible for Gustafsson to demonstrate specific DNA binding of glucocorticoid receptor to a glucocorticoid sensitive gene, the murine mammary tumour virus. This previously impossible achievement spurred a new, mechanistic era in nuclear receptor research.

During the recent twenty years, Gustafsson has continued to be responsible for paradigm shifts in the field of nuclear receptor research. Gustafsson discovered OR-1, later renamed LXRβ, an oxysterol activated nuclear receptor of paramount significance in e.g., regulation of cholesterol homeostasis and brain development. Finally, and most importantly, Gustafsson and colleagues made the completely unexpected discovery of estrogen receptor β, a second estrogen receptor, which has turned out to have functions far outside reproductive physiology and to be a very promising target in pharmaceutical development of novel drugs.
Uma M. Reddy, MD, MPH

Dr. Reddy is a board-certified Obstetrician-Gynecologist and Maternal-Fetal Medicine specialist at the Eunice Kennedy Shriver National Institute of Child Health and Human Development. After receiving her undergraduate and medical degrees from Brown University, Dr. Reddy completed her residency in Obstetrics and Gynecology at the Johns Hopkins Hospital. Dr. Reddy then obtained her Master of Public Health degree at the Johns Hopkins Bloomberg School of Public Health and was a Robert Wood Johnson Clinical Scholar. Dr. Reddy completed her Maternal-Fetal Medicine fellowship at Thomas Jefferson University in Philadelphia. She is currently a maternal-fetal medicine attending at Washington Hospital Center, Washington, DC and Professor of Obstetrics and Gynecology at Georgetown University.

As a medical officer in the Pregnancy and Perinatology Branch, NICHD Dr. Reddy manages diverse research studies focused on clinical obstetrics, reproductive epidemiology and prenatal diagnosis. Dr. Reddy's scientific responsibilities also include serving as the project scientist for the Maternal-Fetal Medicine Units Network. Dr. Reddy was also the program scientist for the Stillbirth Collaborative Research Network, which was established to examine the causes and epidemiology of stillbirth involving 59 hospitals throughout the U.S. Dr. Reddy has published extensively on the topic of stillbirth and preterm birth as well as presenting at numerous national and international meetings. Dr. Reddy has authored or been a co-author of 150 peer-reviewed papers, including those published in leading journals such as NEJM, JAMA and Lancet.
Christos Coutifaris, MD, PhD

is the Celso Ramon Garcia Professor of ObGyn, Chief of Reproductive Endocrinology and Infertility and Associate Director of the Center for the Study of Epigenetics in Reproduction at the University of Pennsylvania. He has directed research programs in reproduction under continuous NIH grant support for more than 25 years.

His current research focuses on understanding cellular and molecular processes of placentation linking adverse perinatal outcomes to ART treatments. Dr. Coutifaris has been a member of a number of Federal Advisory Committees including the NIH Reproductive Endocrinology Study Section and is currently the chair of the oversight committee for the Perinatal Research Branch of NICHD.

Dr. Coutifaris has served on the Division of Reproductive Endocrinology and Infertility of ABOG, was President of the Society for Reproductive Endocrinology and Infertility and was on the Executive Board of ACOG. He is currently the President-Elect of the American Society for Reproductive Medicine.
POSTERS

Handouts with abstracts will provided to all registered attendees at the day of the Retreat.

POSTER DISCUSSANTS:
Andrew Bradford, PhD  T. Rajendra Kumar, PhD
Christos Coutifaris, MD, PhD  James McManaman, PhD
Jan-Åke Gustafsson, MD, PhD  Lorna Moore, PhD
Terry Harper, MD  Theresa L. Powell, PhD
Joseph K Hurt MD, PhD  Uma M. Reddy, MD, MPH
Thomas Jansson, MD, PhD  Malgorzata Skaznik-Wikiel, MD
Joshua Johnson, PhD  Emily Su, MD

1  Morphometric Analysis Reveals Reduced Atresia in Ovaries of Pulsatile FSH-Expressing Mice
Elizabeth Petesch
T. Rajendra Kumar
Division of Reproductive Sciences and Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology

2  Cell Biology of Lactation: Docking and Stimulated Secretion of Milk Fat Globules
Jenifer Monks
Elise S Bales | Andrew E Libby | David J. Orlicky
James L. McManaman
Division of Reproductive Sciences, Department of Obstetrics and Gynecology

3  Activation of AMPK Reduces Contractile Response in Isolated Murine Uterine Artery
Sydney L. Coates
Ramon A. Lorca | Colleen G. Julian | Lorna G. Moore
Division of Reproductive Sciences, Department of Obstetrics and Gynecology and Department of Medicine
4  Enhanced Angiogenic Potential of the Human Placental Microvascular Niche  
Yingchun Li  
Shuhan Ji  |  Emily J. Su  
Division of Reproductive Sciences, Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology

5  Decreased Expression of Atresia Marker Genes in Ovaries of Pulsatile FSH-Expressing Mice  
Qin Zhou  
T. Rajendra Kumar  
Division of Reproductive Sciences and Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology

6  High Grade Serous Carcinoma Growth in Suspension Associated with Transcriptional Repression  
Lindsay J. Wheeler  
Zachary L. Watson  |  Tomomi M. Yamamoto  |  Benjamin G Bitler  
Division of Reproductive Sciences and Division of Gynecologic Oncology, Department of Obstetrics and Gynecology

7  Effects of High Fat Diet on the Mouse Hypothalamic-Pituitary-Ovarian (HPO) Axis: A Systematic Review  
Sara Babcock Gilbert  
T. Rajendra Kumar  
Division of Reproductive Sciences and Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology

8  The role of VEGFR-1 and VEGFR-2 in Mediating Human Fetoplacental Endothelial Cell Angiogenesis  
Shuhan Ji  
Yingchun Li  |  Hong Xin  |  Emily J. Su  
Division of Reproductive Sciences, Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology
9 Identification of the FSH-Regulated Metabolomic Profiles in Serum
Anushka Jayaraman
T. Rajendra Kumar
Division of Reproductive Sciences and Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology

10 High-Altitude Increases AMPK Activity in Myometrial Arteries from Pregnant Women
Ramón A. Lorca
Sydney Coates | Coleen G. Julian | Lorna G. Moore
Division of Reproductive Sciences, Department of Obstetrics and Gynecology and Department of Medicine

11 Histological Analysis of Bone in FSHB Null Mice Expressing Distinct FSH Glycoforms
Allyson Roof
David Orlicky | T. Rajendra Kumar
Division of Reproductive Sciences, Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology and Department of Pathology

12 nNOS Phosphorylatability Presages Nanc Inhibition: Investigation with a Novel Phosphorylation-Deficient nNOS Mutant Mouse
Damian Guerra
Rachael Bok | K. Joseph Hurt
Division of Reproductive Sciences, Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology
13  **Computational Analysis of CpG Island Methylation in Follicle-Stimulating Hormone Beta Subunit Gene**

*Nandana Das*
T. Rajendra Kumar

*Division of Reproductive Sciences and Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology*

14  **Glucocorticoid Regulation of System A Amino Acid Transport in Primary Human Trophoblast Cells**

*Owen R. Vaughan*
Theresa L. Powell  |  Thomas Jansson

*Division of Reproductive Sciences, Department of Obstetrics and Gynecology and Section of Neonatology, Department of Pediatrics*

15  **SMITTEN: Study Milk in Type Two Diabetes to Enhance Infant Nutrition**

*Rachel Rodel*
Bridget Young  |  Linda Barbour

*Division of Maternal Fetal Medicine, Department of Obstetrics and Gynecology, Section of Nutrition, Department of Pediatrics and Division of Endocrinology, Diabetes, and Metabolism, Department of Medicine*

16  **Gene-Environment Interactions Underlying Neurodevelopmental Disorders: Examining the Impact of Perinatal Hypoxia on Akt1, Brain Development and Function**

*Kristy R. Howell*
Amanda J. Law

*Division of Reproductive Sciences, Department of Obstetrics and Gynecology and Department of Psychiatry*
POSTERS

17  **Team Leadership Training for Medical Residents: Results of a Pilot Study**  
**Kelsey Jones**  
Eva Aagaard | Meredith Alston | Kirsten Broadfoot | David Colarossi  
Alison Heru | Elaine Landry | Rita Lee | Jane Limmer  
Bart McCoy | John J. Reilly | Nanette Santoro  
*Divisions of Reproductive Endocrinology and Infertility and General Obstetrics and Gynecology, Department of Obstetrics and Gynecology, Department of Medicine, Resnik Partners, Community and Behavioral Health School of Public Health and Department of Psychiatry*

18  **mTOR Complex 1 Decreases in the Early Gestation and is Not Impacted by Maternal Body Mass Index**  
**Elena Silva**  
Kate Erickson | Theresa L. Powell | Thomas Jansson  
*Division of Reproductive Sciences, Department of Obstetrics and Gynecology and Section of Neonatology, Department of Pediatrics*

19  **The Effect of Carbamazepine on Serum Estradiol and Progesterone Concentrations in Etonogestrel Contraceptive Implant Users**  
**Aaron Lazorwitz**  
Anne Davis | Maryke Swartz | Maryam Guiahi  
*Division of Family Planning, Department of Obstetrics and Gynecology and Columbia University Medical Center*

20  **Characterization of Insulin Sensitivity in Cultured Primary Human Trophoblast Cells from Gestational Diabetic and Healthy Mothers**  
**Marisol Castillo-Catrejon**  
Thomas Jansson | Theresa L. Powell  
*Division of Reproductive Sciences, Department of Obstetrics and Gynecology and Section of Neonatology, Department of Pediatrics*
21  *Late Pregnancy is Characterized by Poor Sleep Quality in Obese Women which may Affect Glucose Metabolism*

Sarah Farabi  
Linda Barbour  |  Teri Hernandez  
Division of Endocrinology, Metabolism and Diabetes,  
Department of Medicine

22  *Impaired Trophoblast Nutrient Transport and Pancreatic β Cell Defects in Intra Uterine Growth Restriction (IUGR) is Alleviated by Activation of Trophoblast mTOR Signaling*

Fredrick J. Rosario  
Theresa L. Powell  |  Thomas Jansson  
Division of Reproductive Sciences, Department of Obstetrics and Gynecology and Section of Neonatology, Department of Pediatrics

23  *Regulation of Amino Acid Transporter Trafficking by mTORC2 in Primary Human Trophoblast Cells is Mediated by the Rho Family of GTP Proteins Cdc42 and Rac1*

Fredrick J. Rosario  
Theresa L. Powell  |  Thomas Jansson  
Division of Reproductive Sciences, Department of Obstetrics and Gynecology and Section of Neonatology, Department of Pediatrics

24  *High-Fat Diet Exposure is Associated with Significant Changes in Ovarian Transcriptome Irrespective of the Induction of Obesity*

Natalie M. Hohos  
Kirstin J. Cho  |  Delaney C. Swindle  |  Malgorzata E. Skaznik-Wikiel  
Division of Reproductive Sciences and Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology
25  *Cortisol Responses to Stress are Blunted Among Infants Delivered by Cesarean Section*

**Camille Driver**  
Leticia D. Martinez  |  Curt A. Sandman  |  Laura A. Glynn  
Elysia P. Davis  
*Department of Obstetrics and Gynecology and Department of Psychology and Department of Psychiatry and Human Behavior, University of California Irvine, Orange, California*

26  *The Obstetrics Research Team*

**Jocelyn Phipers**  
*Division of Maternal Fetal Medicine, Department of Obstetrics and Gynecology*

27  *OB/GYN Administrative Research Core Team*

**Chanel Mansfield**  
Theresa Woelk  |  Alexandra Mackie  |  Peter Hahn  
*Department of Obstetrics and Gynecology*

28  *Reprometabolic Syndrome Mediates Subfertility in Obesity*

**Anahit Malkhasyan**  
Sarah Black  |  Irene Schauer  |  Amanda Allshouse  |  Andrew Bradford  
Katherine Kuhn  |  Nanette Santoro  
*Division of Reproductive Endocrinology and Infertility, Department of Obstetrics and Gynecology and Division of Endocrinology, Department of Medicine and Department of Biostatistics and Informatics, Colorado School of Public Health*
29  **Burning Fat for Peaks in Colorado, Not Just for 14ers: Targeted Lipidomic Analysis Using GC-MS**

Stefan Haugen

Division of Reproductive Sciences, Department of Obstetrics and Gynecology and Section of Neonatology, Department of Pediatrics

30  **Evaluation of One or Both Umbilical Arteries in Fetal Growth Restriction**

Diane Gumina

Teresa Harper | Brittany Driscoll | Allison Gillan | John Hobbins

Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology

31  **Assessment of the Global Sphericity Index and Cardiac Area as Indirect Indicators of Cardiac Dysfunction in Fetal Growth Restriction**

Brittany Driscoll

Michael Zaretsky | Greggory DeVore | Diane Gumina | John Hobbins

Division of Maternal-Fetal Medicine, Department of Obstetrics and Gynecology and David Geffen School of Medicine, University of California, Los Angeles

32  **Statistical Performance of Image Cytometry for Lipids, DNA, CD45, and Cytokeratin a Model System for Circulating Tumor Cell Identification**

Gregory L. Futia

Isabel R. Schlaepfer | Lubna Qamar | Kian Behbakht | Emily A. Gibson

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