

26th Annual Texas Forum for Reproductive Sciences



June 17-18, 2021

Reconnecting with colleagues and friends around Texas and sharing new discoveries that have taken place over the past 2 years.

Hosted By:

Baylor College of Medicine,

Texas A&M University,

and The University of Texas at San Antonio

<https://bcm.zoom.us/j/99237300206?pwd=cTUrN1E4VVlrek1FQ0pINzhtNTd6QT09>

Meeting ID: 992 3730 0206 Password: 661806

ACKNOWLEDGEMENTS

The Texas Forum for Reproductive Sciences (TFRS) was established in 1995 to encourage the exchange of scientific knowledge and collaborations among scientists in Texas in the area of female reproduction. Several years later, this cooperative group expanded to include male reproduction and began an all-inclusive Forum for Reproductive Sciences.

After a necessary cancellation of the meeting in April 2020, the 26th Annual TFRS meeting is being held virtually in June 2021, out of an abundance of caution for the wellbeing of trainees, faculty, and our communities. The primary objective of this meeting is to provide trainees an opportunity to share their outstanding science in a relevant forum. Hence, the program is exclusively comprised of platform talks and poster presentations from trainees and early-career faculty.

We sincerely thank the Center for Reproductive Medicine at Baylor College of Medicine for hosting the TFRS website for registration and abstract submission, logistical coordination to support planning and execution of this virtual meeting. We especially thank **Renée Elawar** for coordinating the TFRS website revisions and updates, receiving registration and abstract submissions, fielding countless emails and providing absolutely essential logistical support. Without her arduous hours of effort and attention to detail, this virtual meeting would not be possible.

We would like to thank Drs. **Chandra Yallampalli** and **Marie-Claude Hofmann** for their continued efforts as the chairs of the TFRS Steering Committee. We also thank the members of the TFRS Steering Committee for their time and effort in ensuring the continued success of the TFRS and in coordinating this year's meeting. These members include Drs. **Austin Cooney** (DMS), **Brian Hermann** (UTSA), **Greg Johnson** (TAMU), **Qinglei Li** (TAMU), **Mala Mahendroo** (UTSW), **John McCarrey** (UTSA), **Annie Newell-Fugate** (TAMU), **Gary Newton** (PVAMU), **Stephanie Pangas** (BCM), **Joanne Richards** (BCM), and **Ignatia Van den Veyver** (BCM).

A special thank you goes to our abstract reviewers and presentation judges.

We would also like to thank our Platform Moderators: **Ashley Solmonson** (UTSW), **Nicholes Candelaria** (BCM), **Avery C. Kramer** (TAMU), **Zahra Anvar** (BCM), **Rachel L. Washburn** (TTUHSC), **Kadden H. Kothmann** (TAMU), **Caitlin Myers** (TTUHSC), and **Katherine M. Halloran** (TAMU).

Special thanks go to those individuals who gifted financial support for the trainee awards in this year's TFRS.

Brian Hermann, Annie Newell-Fugate, and Stephanie Pangas,
2021 TFRS Meeting Chairpersons



26TH ANNUAL TEXAS FORUM FOR REPRODUCTIVE SCIENCES

June 17 – 18, 2021

Hosted by: Baylor College of Medicine, Texas A&M University,
and The University of Texas at San Antonio

<https://bcm.zoom.us/j/99237300206?pwd=cTUrN1E4VVlrek1FQ0pINzhtNTd6QT09>

Meeting ID: 992 3730 0206 Password: 661806

Thursday, June 17, 2021

1:00P.M. **Meeting Room Opens**

1:05 P.M. **Opening Remarks** – Brian Hermann, Annie Newell-Fugate, and Stephanie Pangas

1:15 P.M. **Platform Session I: Reproductive Disease & Translational Models**
Moderators: Ashley Solmonson (UTSW) and Nicholes Candelaria (BCM)

1:15 P.M. **“Vaginal healing research: from bench to bedside and beyond”**
Julie Hakim, MD
Department of Obstetrics and Gynecology, Baylor College of Medicine

1:30 P.M. **“Dietary coconut oil mitigates hyperandrogenemia in obese female pigs due to suppression of androgen steroidogenesis in the adrenal cortex and theca externa”**
Payal Shah
Department of Veterinary Physiology and Pharmacology, College of Veterinary Medicine and Biomedical Sciences, Texas A&M University

1:45 P.M. **“SARS CoV2 nonstructural proteins reprogram placental autophagy and also impair lipid metabolism”**
Deepak Kumar, PhD
Department of Obstetrics and Gynecology, Washington University School of Medicine

2:00 P.M. **“Cycle characteristics and treatment outcomes among BRCA mutation carriers undergoing in-vitro fertilization”**
Luwam Ghidei, MD
Department of Obstetrics and Gynecology, Baylor College of Medicine

2:15 P.M. **Break**

2:30 P.M. **Platform Session II: Female Reproductive Tract & Pregnancy**

Moderators: Avery C. Kramer (TAMU) and Zahra Anvar (BCM)

2:30 P.M. **“Placental NRF2 May Serve a Key Role in Maternal-Fetal Tolerance during Pregnancy”**

Kyunghee Hong, PhD

Departments of Biochemistry and Obstetrics & Gynecology, University of Texas Southwestern Medical Center

2:45 P.M. **“Novel concepts of oocyte dynamics during oviductal transport”**

Deirdre Scully, PhD

Department of Molecular Physiology and Biophysics, Baylor College of Medicine

3:00 P.M. **“Functional similarity between TGF-beta type 2 and type 1 receptors in the female reproductive tract”**

Nan Ni

Department of Veterinary Integrative Biosciences, Texas A&M University

3:15 P.M. **“Exogenous Progesterone in Early Pregnancy has Programming Effects on Phosphate, Calcium, and Vitamin D Signaling in the Ovine Endometrium and Placenta in Late Pregnancy”**

Claire Stenhouse, PhD

Departments of Animal Science, Veterinary Integrative Biosciences, and Veterinary Physiology and Pharmacology, Texas A&M University

3:30 P.M. **Break**

3:45 P.M. **Poster Session I – Breakout Rooms 1-10**

4:10 P.M. **Poster Session 2 – Breakout Rooms 11-20**

4:35 P.M. **Poster Session 3 – Breakout Rooms 21-32**

Friday, June 18, 2021

7:50 A.M. **Meeting Room Opens**

8:05 A.M. **Logistical Reminders** – Brian Hermann, Annie Newell-Fugate and Stephanie Pangas

8:15 A.M. **Platform Session III: Gonad Biology**

Moderators: Rachel L. Washburn (TTUHSC) and Kadden H. Kothmann (TAMU)

8:15 A.M. **“Oocyte-specific deletion of the SUMO E2 ligase, Ubc9, results in chromosome abnormalities and meiotic arrest”**

Shawn Briley

Departments of Pathology and Immunology, Baylor College of Medicine

8:30 A.M. **“Maternal nutrition and regulation of oocyte number and quality”**

Debabrata Das, PhD

Department of Genetics, University of Texas MD Anderson Cancer Center

8:45 A.M. **“Identifying pre-pubertal primate spermatogonial stem cells and their niche”**

Anukriti Singh

Department of Biology, The University of Texas at San Antonio

9:00 A.M. **“Sertoli cell induced Tregs: Guardians of foreign tissue”**

Taylor Hibler

Department of Cell Biology and Biochemistry, Texas Tech University Health Sciences Center

9:15 A.M. **Break**

9:30 A.M. **Platform Session IV: Translational Models for Infertility Research**

Moderators: Caitlyn Myers (TTUHSC) and Katherine M. Halloran (TAMU)

9:30 A.M. **“Emerging Roles of Melanoma Antigens in Male Germ Cells Stress Protection”**

Klementina Fon Tacer, DVM, PhD

School of Veterinary Medicine, Texas Tech University

9:45 A.M. **“Porcine conceptus IFNG is post-transcriptionally regulated and released from the trophoctoderm via extracellular vesicles to recruit metabolically activated T cells”**

Bryan A. McLendon

Departments of Veterinary Integrative Biosciences, and Animal Science, Texas A&M University

10:00 A.M. **“Tracking sperm movement toward the oocyte in vitro and in vivo”**

Kohei Umezu, PhD

Department of Molecular Physiology and Biophysics, Baylor College of Medicine

10:15 A.M. **“Nonrandom population of the nascent SSC pool by dividing fetal prospermatogonia”**

Lorena Roa-de la Cruz

Department of Biology, The University of Texas at San Antonio

10:30 A.M. **Break**

10:45 A.M. **Mentor-Mentee Round-Table Discussion – “From Trainee to Taking the Reins: How to Navigate the Transition From Training to Your First Job”**

Mentors:

- Dr. Jenna Haverfield, Assistant Director of Science Strategy, Canadian Institutes of Health Research – Institute of Gender and Health
- Dr. Anthony McNeel, Principle Scientist, Global Genetics Technical Services, Zoetis
- Dr. Diana Monsivais, Assistant Professor, Baylor College of Medicine
- Dr. Yasmin Vasquez, Staff Scientist, Baylor College of Medicine

11:45 A.M. **Presentation of Awards and Concluding Remarks** - Brian Hermann, Annie Newell-Fugate, and Stephanie Pangas

12:00 P.M. **Meeting Adjourns**

12:00 P.M. **TFRS Steering Committee Meeting**

POSTER SESSIONS

Posters will be presented in three separate 25 minute sessions. Each Poster Presenter has been pre-assigned to one of the sessions (1-3) and will be in a unique breakout room (see index, below).

Presenters will enter the assigned Breakout Room at the scheduled time and will present a one-slide PowerPoint (~3 minute) ‘flash talk’ that will be given as conference attendees and judges enter the breakroom. Conference attendees will have the freedom to switch between breakout rooms to listen to the presentations from multiple poster presenters.

Poster Session I – 3:45 – 4:10 P.M.

Breakout

Room

Presenter

Title

1

Anvar, Zahra

RNA-seq reveals transcriptome changes in Nlrp2 null mice oocytes

| | | |
|----|---------------------|--|
| 2 | Atkins, Georgia Rae | The Epididymal Amyloid Matrix Displays Key Properties of Bacterial Biofilms |
| 3 | Epperson, Kaitlin M | Effect of Pre and Post-AI Nutrition on Ovarian Dynamics, Steroidogenesis, and Expression of Estrus in Beef Heifers |
| 4 | Henry-Orth, Pearl | Immunohistological Profiling of Spermatogenic Cell Types in Testes from Men with Non-Obstructive Azoospermia |
| 5 | Myers, Caitlyn | Antimicrobial Functions of The Epididymal Amyloid Matrix |
| 6 | Patton, Bethany | SUMOylation Directly Modifies Transcription Factors Necessary for Early Folliculogenesis |
| 7 | Quail, Lacey K | Prenatal transportation stress does not impact ovarian follicle count in Brahman offspring |
| 8 | Washburn, Rachel L | Expression of CD46 and CD55 are critical to testicular Sertoli cell survival of hyperacute rejection |
| 9 | Xia, Tian | In vivo measurement of cilia function in mouse fallopian tube |
| 10 | Yao, Zheng-Chen | New in vivo functional imaging approach for analysis of sperm hyperactivation in the mouse oviduct |

Poster Session 2 – 4:10 – 4:35 P.M.

Breakout

| <u>Room</u> | <u>Presenter</u> | <u>Title</u> |
|-------------|--------------------------|--|
| 11 | Colon-Caraballo, Mariano | Investigation of collagen degradative pathways in the cervix during pregnancy |
| 12 | Halloran, Katherine M | Progesterone regulates the biosynthesis and interconversion of polyamines in the sheep endometrium during the pre-implantation period of pregnancy |
| 13 | McBeath, Elena | Generating a Phf21a-Floxed Mouse With a Novel DECAI CRISPR System to Study the Function of BHC80 in Development and Disease |
| 14 | Ketchum, Jaclyn | Increased Preovulatory Estradiol Improves Pregnancy Success of Embryo Transfer in Beef Cow |
| 15 | Kramer, AC | Porcine Conceptuses Utilize the Pentose Phosphate Pathway to Support Development during the Peri-Implantation Period of Pregnancy |
| 16 | Leon, Rachel L | Pathologic lesions in placentas of fetuses with left ventricular outflow tract obstruction(LVOTO) compared to non-LVOTO congenital heart disease |
| 17 | Maurya, Vineet Kumar | Absence of Steroid Receptor Coactivator 3 in the Murine Decidua Results in Pre-Placental Pregnancy Loss |
| 18 | Moses, Robyn M | Fructose metabolism by the sheep conceptus as a mechanism for adapting to hypoxia |
| 19 | Solmonson, Ashley | Compartmentalized glucose oxidation supports midgestation mammalian development |
| 20 | Tang, Suni | Epithelial-specific deletion ofSMAD1/5 in the mouse endometrium disrupts early pregnancy |

Poster Session 3 – 4:35 – 5:00 P.M.

Breakout

| <u>Room</u> | <u>Presenter</u> | <u>Title</u> |
|-------------|----------------------------|--|
| 21 | Candelaria, Nicholas | Impact of p53 gain-of-function mutants in ovarian cancer cell metastasis |
| 22 | Melo, GD | Real-time quantitative PCR versus Droplet Digital PCR for quantification of peripheral blood leukocytes interferon-tau stimulated genes in beef cattle |
| 23 | Gannon, Alexandra | Obese PCOS mouse model has increased body mass with fat mass greater than lean mass |
| 24 | Kothmann, KH | Validation of DAPI/Anti-lamin A/C Immunofluorescent Labeling Technique for Improved Classification of Meiotic Maturation Stage in Porcine Oocytes |
| 25 | Mishra, Akansha | A potential role for calcitonin gene related peptide in regulating mitochondrial function in endothelial cells |
| 26 | Filho, Ramiro Oliveira | Ovarian dynamics of Brahman cows submitted to five-day or twelve-day progesterone-based estrus synchronization protocol |
| 27 | Reguero-Cadilla, L | Choriocarcinoma Presenting as Lower Extremity Weakness: A Case Report and Literature Review of Spinal Cord Metastatic Disease |
| 28 | Sah, Nirvay | The Creatine Metabolic Pathway in Ovine Utero-Placental Tissues During the Peri-Implantation Period and in Late-Stage of Pregnancy |
| 29 | Vasquez, Yasmin | Identification of MASTL and TTK kinases as therapeutic targets for endometrial cancer |
| 30 | Verma, Sonam | SARS-CoV-2 colonization in human placenta: infection and impact on Renin Angiotensin System and Preeclampsia |
| 31 | Alukkal, Vipin | Sex dependent mitochondrial dysfunction in the skeletal muscle of low protein programmed lean type 2 diabetic rats |
| 32 | Madhukaran, ShanmugaPriyaa | Transcriptional heterogeneity of epithelial in non-pregnant and pregnant cervix |