

# Program Agenda

## Day 1 — Monday 12th June 2017 GAMETES AND EMBRYOS

### Plenary Session Monsanto Auditorium

- 8:00 – 8:15  
Introductions, Welcome, Housekeeping
- 8:15 – 9:00  
Prediction of Male Fertility Using Capacitation-Associated Proteins in Spermatozoa .....18  
Myung-Geol Pang, *Chung-Ang University, Republic of Korea*
- 9:00 – 9:45  
Rapid Conceptus Elongation in the Pig: Interleukin 1 Beta 2 and Estrogen Regulated Phenomena .....18  
Rod Geisert, *University of Missouri, USA*
- 9:45 – 10:15  
COFFEE BREAK
- 10:15 – 11:00  
In vitro Porcine Blastocyst Development in Three Dimensional Hydrogels .....19  
Jeremy Miles, *USDA Meat Animal Research Center, Clay Center, USA*
- 11:00 – 11:45  
Transcriptional Control of Genes Mediating Ovarian Follicular Growth, Differentiation and Steroidogenesis in Pigs .....19  
Holly LaVoie, *University of South Carolina, USA*
- 12:00 – 13:30  
LUNCH .....McQuinn Atrium

### Breakout Session 1: Applied Monsanto Auditorium

*Breakout Sessions 1 and 2: Run Simultaneously*

- 13:30 – 14:00  
Insemination Protocols for Frozen/Thawed Sperm .....20  
Marc Yeste, *Autonomous University of Barcelona, Spain*
- 14:00 – 14:30  
Developmental Competence of Porcine Genome Edited Zygotes .....20  
Maria A. Gil, *University of Murcia, Spain*
- 14:30 – 14:45  
Proteomics and Metabolomics of Porcine Follicular Fluid Reveal Differential Expression of Apolipoproteins, Plasminogen and Fatty Acids Associated with Pre-mating Diet and Fertility .....22  
Selene Jarrett, *University of Edinburgh, Scotland*
- 14:45 – 15:00  
Growing Evidence of Ubiquitin-Proteasome System (UPS) Involvement in Boar Sperm Capacitation .....24  
Michael Zigo, *Institute of Biotechnology, Czech Republic*
- 15:00 – 15:45  
General Discussion

### Breakout Session 2: Basic Science Reading Room

*Breakout Sessions 1 and 2: Run Simultaneously*

- 13:30 – 14:00  
Reproductive Tract Modifications of the Boar Sperm Surface .....21  
Bart Gedella, *Utrecht University, The Netherlands*
- 14:00 – 14:30  
Imaging Agents for Sperm Tracking, Sorting and Purification .....21  
Jean Feugang, *Mississippi State University, USA*

14:30 – 14:45

**Nullification of Xist Gene in Donor Cells and Addition of Kdm4A in Reconstructed Embryos Improve Developmental Capacity of Porcine Cloned Embryos.....26**  
Liangxue Lai, *Guangzhou Institute of Biomedicine and Health, People's Republic of China*

14:45 – 15:00

**Proteasomal Inhibitors and Zn-chelator Alter the Capacitation-Induced Changes of Zinc Signature in Boar Spermatozoa ..... 28**  
Karl Kerns, *University of Missouri, USA*

15:00 – 15:45

**General Discussion**

15:45 – 16:45

**POSTER SESSION WITH REFRESHMENTS..... McQuinn Atrium/ Mezzanine**

18:00 – 19:30

**BBQ DINNER..... Bond Life Sciences Center**



## Day 2 – Tuesday 13th June 2017 PREGNANCY/PARTURITION/NEONATE

### PLENARY SESSION Monsanto Auditorium

8:15 – 9:00

**Embryo-maternal Dialogue during Pregnancy Establishment and Implantation in the Pig.....52**  
Agnieszka Waclawik, *Institute of Animal Reproduction and Food Research of Polish Academy of Sciences, Poland*

9:00 – 9:45

**Pregnancy and Spontaneous Fetal Loss: A Pig Perspective.....52**  
Chandrakant Tayade, *Queen's University, Canada*

9:45 – 10:15

**COFFEE BREAK**

10:15 – 11:00

**Role of Functional Amino Acids in Development of the Pig Placenta .....53**  
Guoyao Wu, *Texas A&M University, USA*

11:00 – 11:45

**Controlling Lactation Estrus: The Final Frontier for Breeding Herd Management .....53**  
William van Wettere, *University of Adelaide, Australia*

12:00 – 13:30

**LUNCH ..... McQuinn Atrium**

### Breakout Session 1: Applied Monsanto Auditorium *Breakout Sessions 1 and 2: Run Simultaneously*

13:30 – 14:00

**Physiological Alterations Associated with Intrauterine Growth Restriction in Fetal Pigs: Causes and Insights for Nutritional Optimization .....54**  
Junjun Wang, *China Agricultural University, People's Republic of China*

14:00 – 14:30

**Group Housing Effects on Reproductive Performance of Pregnant Sows .....54**  
Janeen Salak-Johnson, *University of Illinois at Urbana-Champaign, USA*

14:30 – 14:45  
**Relation Between Ovulation Rate and Embryonic Survival and Development in Crossbred Gilts at 35 days of Pregnancy** .....56  
 Carolina Da Silva, *Wageningen University, The Netherlands*

14:45 – 15:00  
**A Clinical Approach to Auditing Semen Production Practices in a Swine Artificial Insemination Center Facing Reduced Sow Fertility Results** .....58  
 Ioannis Arsenakis, *Ghent University, Belgium*

15:00 – 15:45  
**General Discussion**

**Breakout Session 2: Basic Science**  
**Reading Room**  
*Breakout Sessions 1 and 2: Run Simultaneously*

13:30 – 14:00  
**Micro RNA Regulation of Immune Events at Conception** .....55  
 Sarah Robertson, *University of Adelaide, Australia*

14:00 – 14:30  
**Gene Editing as Applied to Prevention of Porcine Reproductive and Respiratory Syndrome**.....55  
 Kristin Whitworth, *University of Missouri, USA*

14:30 – 14:45  
**Use of Multiple sgRNAs to Use of Multiple sgRNAs to Induce Targeted Deletions in CD8A or IL2RG Gene During Embryogenesis** .....60  
 Junghyun Ryu, *Virginia Tech, USA*

14:45 – 15:00  
**Combined Large Scale Proteomic and Target Prediction Studies Show Direct and Indirect Effects of miR-26a and miR-125b on Porcine Luminal Epithelium Function During Early Pregnancy**.....62  
 Monika Kaczmarek, *Institute of Animal Reproduction and Food Research of Polish Academy of Sciences, Poland*

15:00 – 15:45  
**General Discussion**

15:45 – 16:45  
**POSTER SESSION WITH REFRESHMENTS** ..... McQuinn Atrium/ Mezzanine

**Day 3 – Wednesday 14th June 2017**  
**IMPACT OF THE ENVIRONMENT ON PIG REPRODUCTION**

**PLENARY SESSION**  
**Monsanto Auditorium**

8:15 – 9:00  
**Physiological Mechanisms through which Heat Stress Compromises Reproduction in Pigs**.....84  
 Jason Ross, *Iowa State University, USA*

9:00 – 9:45  
**Heat Stress in Pregnant Sows: Thermal Responses and Subsequent Performance of Sow and Offspring** .....84  
 Matt Lucy, *University of Missouri, USA*

9:45 – 10:15  
**COFFEE BREAK**

10:15 – 11:00  
**Maternal Lactocrine Programming of Porcine Reproductive Tract Development**.....85  
 Carol Bagnell, *Rutgers University, USA*

11:00 – 11:45  
**Scrotal Insulation and Sperm Production in the Boar**.....85  
 John Parrish, *University of Wisconsin Madison, USA*

12:00 – 13:30  
**LUNCH** .....McQuinn Atrium

**Breakout Session 1: Applied**  
**Monsanto Auditorium**  
*Breakout Sessions 1 and 2: Run Simultaneously*

13:30 – 14:00  
**Sow Housing Associated with Reproductive Performance in Breeding Herds** .....86  
 Yuzo Koketsu, *Meiji University, Japan*

14:00 – 14:30  
**Genomics and Metabolomics of Post-Weaning Return to Estrus**.....86  
 Lea Rempel, *USDA Meat Animal Research Center, Clay Center, USA*

**14:30 – 14:45**  
**Heat Stress from Weeks 4 to 8 of Gestation Causes Sex-specific Transgenerational Effects on Progeny Development in Gilts** .....89  
Cathy Bernhard, *University of Missouri, USA*

**14:45 – 15:00**  
**Allowing Sows to Farrow Unconfined Reduces Stillbirths and has No Negative Effect on Production Outcomes** .....90  
Tanya Nowland, *South Australian Research and Development Institute, Australia*

**15:00 – 15:45**  
**General Discussion**

**Breakout Session 2: Basic Science**  
**Reading Room**  
*Breakout Sessions 1 and 2: Run Simultaneously*

**13:30 – 14:00**  
**RFamide-Related Peptide 3 and Gonadotropin-Releasing Hormone-II are Autocrine-Paracrine Regulators of Testicular Function in the Boar** .....87  
Clay Lents, *USDA Meat Animal Research Center, Clay Center, USA*

**14:00 – 14:30**  
**Genetic Control of Complex Traits, with a Focus on Reproduction in Pigs** .....87  
Louisa Zak, *Topigs Norsvin, The Netherlands*

**14:30 – 15:00**  
**Genomic Editing Technologies to Improve Research, Reproduction and Production in Pigs** .....88  
Kevin Wells, *University of Missouri, USA*

**15:00 – 15:15**  
**Alternative Source of Cas9 RNA with Improved Efficiency of Modifications and Decreased Cost** .....92  
Bethany Redel, *University of Missouri, USA*

**15:15 – 15:30**  
**GnRHR-II Knockdown Swine have Constitutively Lower Serum Testosterone Concentrations, Impaired Sensitivity to GnRH Analogues and Reduced Semen Quality** .....94  
Amy Desaulniers, *University of Nebraska-Lincoln, USA*

**15:30 – 15:45**  
**General Discussion**

**15:45 – 16:45**  
**POSTER SESSION WITH REFRESHMENTS** ..... McQuinn Atrium/Mezzanine

**16:45 – 17:45**  
**KEYNOTE LECTURE: Pig Reproduction through the Ages and into the Future**..118  
Fuller Bazer, *Texas A&M University, USA*

**19:00 – 21:00**  
**BANQUET DINNER** ...Reynolds Alumni Center

