Program Book

51st Annual Conference of the International Embryo Technology Society

Emerging Technologies for Healthy Reproduction and Sustainability

Worthington Renaissance Fort Worth Hotel
Fort Worth, Texas, USA
January 18 - 22, 2025

Scientific Program Co-Chairs:
Paula Rodriguez-Villamil and Kiho Lee

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2025 IETS Annual Conference
Table of Contents

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Preface

Welcome to the 51st IETS Annual Conference! Over the past 51 years, we've grown from our first gathering of just 25 participants in Denver, Colorado, to a global community of nearly 800 members from 80 countries. While the science of embryo technologies has evolved tremendously, the spirit of camaraderie and collaboration at IETS remains as vibrant as ever.

During your visit to the IETS 2025 Conference, we encourage you to explore the unique attractions of Fort Worth, Texas. Discover the historic Stockyards National Historic District, dive into the history of the Texas cattle industry at the Cattle Raisers Museum, and don't miss the 2025 Fort Worth Stock Show & Rodeo for exciting rodeo events, livestock shows, and live music. Animal lovers will enjoy the renowned Fort Worth Zoo, while shoppers can explore Sundance Square, a lively district with charming boutiques and international brands. Fort Worth offers something for everyone. Make the most of your stay!

This year's theme, "Emerging Technologies for Healthy Reproduction and Sustainability," highlights innovative approaches and novel technologies that are poised to transform embryo production. These advancements will spark insightful discussions on addressing industry challenges and seizing opportunities to enhance reproductive efficiency and sustainability.

The program features five main sessions and the prestigious George E. Seidel Jr. Keynote Lecture. Topics include

- The current status of artificial gametes and embryos
- Stem cell and genome editing technologies
- Assessing embryo viability
- Improving embryo transfer outcomes
- Supporting environmental adaptation

Dr. Julie Kim will deliver the keynote lecture, "Organs on Chips to Understand Reproduction," offering groundbreaking insights into this emerging field.

Beyond the core sessions, the conference includes

- Two pre-conference symposia:
  - Equine embryo technologies
  - The DABE-hosted exploration of the CRISPR-Cas system
- A Practitioner's Forum on implementing IETS freeze codes
- The CANDES Forum, featuring reproductive technologies across species, including ocean species
- A post-conference symposium on bovine in vitro technologies and their industry impacts

We are also thrilled to host a Texas-sized closing party at Billy Bob's! Join us to celebrate another successful conference and enjoy the legendary charm of the world's largest honky tonk.

We hope you find inspiration, connections, and enjoyment throughout the IETS 2025 Conference. Welcome to Fort Worth!

Kiho Lee and Paula Rodriguez-Villamil, IETS 2025 program co-chairs

Acknowledgments

We would like to express our highest gratitude to everyone who generously gave their valuable time to organize this meeting.

Thank you to all invited speakers for accepting our invitation to share their valuable knowledge, and for dedicating their time to comply with the deadlines. We are also very thankful to all manuscript reviewers for providing constructive and insightful comments to the manuscripts submitted by the invited speakers.

Thank you to all abstract authors for sharing their high-quality scientific findings and practical updates. Abstract session chairs and abstract reviewers have worked intensively to evaluate abstracts and make decisions to invite the research as poster or oral presentations. We are truly thankful for your tremendous amount of work.

Thank you, all members of the DABE committee, Camilo Hernández-Avilés and John Gibbons, and Ky Pohler for organizing pre- and post-conferences. Special thank you to Matt Wheeler and Dragos Scarlet for organizing the forums. We also sincerely thank all colleagues who steered different committees to bring excitement to this Annual conference while keeping our core interests.

Thank you to our exhibitors and sponsors for their participation, continued generosity, and financial support.

We have been extremely honored to co-chair the program of the IETS 51st Annual Conference in Fort Worth, Texas. We thank the Executive Board, Rebecca Krisher, Marc-Andre Sirard, and Pierre Comizzoli, for extending the invitation to us, and all the support from the Board of Governors during the preparation of the conference program. Thank you for placing your trust in us with such an important responsibility!

Finally, we thank you all, IETS family members, for attending the 2025 IETS Annual Meeting!

Kiho Lee and Paula Rodriguez-Villamil,
IETS 2025 program co-chairs

Special Events

Welcome Reception
Sunday, January 19, 18:00–20:00
Brazos & Corridor

Welcome to IETS 2025! Join us on Sunday, January 19, in the Brazos & Corridor rooms at The Worthington Renaissance Hotel in Fort Worth, Texas, for a special Welcome Reception from 17:00–18:00. This is your chance to connect with 30 exhibitors, catch up with old friends, and make new ones. Light hors d'oeuvres will be served, and a cash bar will be available. This event is open to all registrants and guests. (Don't forget to bring your drink tickets!)

IETS Business Meeting
Monday, January 20, 11:30–12:00
Pecos

Stay informed and engaged by attending the IETS Business Meeting. This session will provide important updates on the IETS strategic plan and future programs. Don't miss this opportunity to learn about the direction and goals of our organization!

IETS Closing Party (ticketed event) *Sponsored by Vetoquinol*
Tuesday, January 21, 18:00–22:00
Billy Bob's Texas

Celebrate the conclusion of the IETS 2025 Annual Conference at Billy Bob's Texas, the "World's Largest Honky Tonk." Built in 1910, this historic venue has transformed from an open-air cattle barn for the Fort Worth Stock Show to a legendary entertainment center featuring pro bull riding, a Texas-sized dance floor, and rich history. Don't miss this unique opportunity to experience an iconic Texas landmark, complete with authentic Western charm and a chance to dance the night away with your fellow attendees!

Morulas Events

Morulas Mentors Luncheon (ticketed event) *Sponsored by CSIRO Publishing*
Sunday, January 19, 12:30–14:00
Post Oak

One of the main goals of the Morulas association is to provide trainees the opportunity to interact with the senior members of the IETS. The Morulas and Mentors Luncheon is designed to give trainees an opportunity to sit down with mentors in small groups, giving them a chance to interact and develop a connection with leaders in our field. Four amazing mentors will join the lunch and share their wisdom with the Morulas.

IETS Morulas Business Meeting
Sunday, January 19, 20:00–21:00
West Fork

Join the Morulas Business Meeting to celebrate the achievements of 2024 and help shape the future of our trainee association. This session will provide a summary of Morulas activities from the past year, plans for 2025, and live voting for the 2025 Morulas Board candidates. Make sure to come and learn how you can contribute to shaping the future of IETS. This is a great opportunity for all Morulas and young researchers to get involved, share ideas, and connect with the community!

Morulas Student Mixer (ticket required for Professional/Associate members)

Sunday, January 19, 21:00–22:00
West Fork

Join us for the Morulas Student Mixer, a relaxed and enjoyable social event for all trainees, happening right after the IETS Welcome Reception and Business Meeting. Hosted by IETS, this annual gathering is the perfect opportunity to connect with friends, meet new people, and build lasting relationships in a casual setting. Enjoy an exclusive time dedicated to trainee interaction, with drinks and snacks provided. Don't miss this chance to unwind and make meaningful connections.

Morulas Career Luncheon (ticketed event)

Monday, January 20, 12:00–13:30
Bur Oak

Discover insights and inspiration at the Morulas Career Luncheon! This special event offers trainees the unique opportunity to engage with three accomplished senior IETS members as they share their personal career journeys, pivotal decisions, and the lessons that guided their success in academia or industry. Don't miss this chance to connect, learn, and gain valuable perspectives to shape your own career path.

Award Presentations

Distinguished Practitioner Award

Monday, January 20, 15:30–16:00
Pecos

The Distinguished Practitioner Award recognizes an embryo transfer practitioner who has made an exceptional contribution to the field of embryo technology. These individuals have distinguished themselves with lifetime contributions to the embryo technology industry.

Pioneer Award

Tuesday, January 21, 14:00–14:30
Pecos

The Pioneer Award is bestowed by IETS to recognize individuals who have made seminal contributions to the development of embryo-based technologies.

IETS Foundation Awards

IETS Foundation Early Career Achievement Awards

Tuesday, January 21, 11:15–12:15
Pecos

This award recognizes two individuals—one scientist and one practicing professional—for their independent contributions toward advancing the field of embryo transfer and its associated technologies.

IETS Student Coemption Award & CSIRO Best Poster Award

Tuesday, January 21, 15:15–15:30
Pecos

The IETS Foundation supports the next generation of scientists in embryo transfer and related technologies through continuing education and opportunities like the undergraduate and graduate student poster competitions.

These competitions encourage students to present their research, engage with the IETS community, and explore careers in this dynamic field. Don't miss the chance to participate and take a step toward your future!

Poster Session Information
Exhibit Hall (Brazos I & II)

Poster Session Schedule

- **Session I**
  - **Date:** Sunday, January 19
  - **Time:** 16:00–18:00
  - **Presenters:** Odd-numbered abstracts (e.g., 7, 9, 11), student competition finalists, and undergraduate finalists
  - **Judging:** Odd-numbered posters in the CSIRO Best Poster competition
  - **Set up:** Sunday, January 19, 06:00
  - **Take down:** Monday, January 20, 11:00–13:00
- **Session II**
  - **Date:** Monday, January 20
  - **Time:** 18:00–20:00
  - **Presenters:** Even-numbered abstracts (e.g., 8, 10, 12)
  - **Judging:** Even-numbered posters in the CSIRO Best Poster competition
  - **Set up:** Monday, January 20, 13:00–15:00
  - **Take down:** Tuesday January 21, 13:00

Note: Graduate student and undergraduate posters will remain up for both Poster Sessions I and II.

Posters are numbered according to their abstract number in Reproduction, Fertility and Development 2025, 37:1, ranging from 1 to 216.

Registration Hours

Saturday, January 18, 7:00–18:00
Sunday, January 19, 7:00–18:00
Monday, January 20, 7:00–18:00
Tuesday, January 21, 8:00–16:00
Wednesday, January 22, 8:00–13:00

Recipient of the IETS 2025 Pioneer Award

Peter J. Hansen

Peter J. Hansen (Pete) was born November 23, 1956, in Oak Park, Illinois, a suburb of Chicago. Encouraged by his parents, Peter A., and Cathleen (née Forristal) Hansen, he developed an interest at an early age in both science and animal agriculture. A few summers on the farm of his cousin, John Joe Kavanaugh, in County Wexford, Ireland, cemented his love for all things related to livestock. He attended the University of Illinois Urbana-Champaign and received the BS in agricultural sciences in 1978. While at the University of Illinois, he was inspired by several professors, including P.J. Dziuk and F.C. Hinds, but particularly by C.N. Graves in the Department of Dairy Science. Graves gave him the opportunity to conduct a series of undergraduate research projects on topics as diverse as regulation of vaginal contractions in cows (with Asgi Fazleabas, who was an MS student at the time), advancing puberty in rats, and freezing mouse embryos. Freezing embryos was no problem; getting them to survive was another story.

By his sophomore year at the University of Illinois, Hansen knew he wanted to become a reproductive biologist. He entered the laboratory of E.R. Hauser in 1978 in the Department of Meat and Animal Sciences at the University of Wisconsin–Madison, where he obtained MS (1980) and PhD (1983) degrees in the endocrinology-reproductive physiology program. Hauser taught him how to be a scientist; some of the philosophy that he imparted is described by Hansen (2023a). While a graduate student, he conducted research on puberty and the postpartum anestrous period in beef cattle. His first refereed scientific publication as first author described how photoperiod altered regulation of LH and FSH secretion by estradiol in prepubertal heifers (Hansen et al., 1982). Hauser's laboratory was the first to delineate how photoperiod could modify reproductive function in the cow despite it not being a seasonally-breeding species (Hansen, 1985).

A dazzling guest seminar at Wisconsin by Fuller Bazer on embryo-maternal communication led Hansen to apply for a postdoctoral position at the University of Florida. He was accepted and spent 1.5 years in the laboratories of R.M. Roberts and F.W. Bazer. As a postdoc, Hansen conducted research on the function and steroidal regulation of uterine secretory proteins in sheep and pigs as well as on aspects of the biology of conceptus interferons. The atmosphere at Florida was heady in those days with faculty in animal science, dairy science, obstetrics and gynecology and veterinary medicine working closely together to elaborate principles of pregnancy biology and with scientists from around the world visiting to hear about the latest discoveries. Among other things, Hansen learned the importance of collaboration, camaraderie, and openness for success in science. It was while a postdoc that Hansen began a collaboration with W.W. Thatcher, a previous Pioneer Awardee. The relationship continues to this day.

In 1983, Hansen thought that he would probably return eventually to the midwestern United States. The allure of the academic atmosphere at Florida proved compelling, however, and he would go on to spend the bulk of his career at the University of Florida. His postdoc was cut short when he took an academic position in the Department of Reproduction in the College of Veterinary Medicine in the fall of 1984. There, he studied the reproductive immunology of the mare with A.C. Asbury and M.M. Le Blanc. He then seized a unique opportunity in the Department of Dairy Science when the position previously held by R.J. Collier became open. With encouragement from Collier, Thatcher, Hauser, and others, he applied for and obtained the post. He has been in that position ever since, as the department itself eventually merged with other departments to become the Department of Animal Sciences.

When starting in dairy science, there were two main areas of focus of Hansen's research. Following up on studies he conducted as a postdoc and faculty member in the College of Veterinary Medicine, and largely using the sheep as a model, Hansen identified some of the mechanisms by which progesterone regulates immune function in the uterus. A second area of research was infertility in cattle caused by heat stress. It was this focus that eventually led Hansen to develop a research program focused on the preimplantation embryo. Hansen showed that the preimplantation embryo is initially very sensitive to elevated temperature in the first few cleavage stages but then becomes resistant to elevated temperature as it advances in development. Based on this finding, Hansen and his colleagues

W.W. Thatcher and M. Drost demonstrated that effects of heat stress on fertility could be largely eliminated by embryo transfer.

The Hansen laboratory also demonstrated that there is genetic variation in embryonic resistance to heat shock. This finding set in motion a series of research projects to identify genetic variants that cause increased resistance to heat shock at the cellular level (for example, mutations in *HSPA1L*) and the whole animal level. Hansen and colleagues, including T.A. Olson and T.S. Sonstegard, have shown that a mutation in the prolactin receptor gene (i.e., the SLICK haplotype) identified in Senepol cattle can be incorporated into Holsteins to increase ability to regulate body temperature and decrease seasonal variation in milk yield. Hansen has produced registered Holstein bulls carrying the slick gene; slick Holstein bulls marketed around the world mostly derive from these founder animals. Gene-edited slick animals generated by Acceligen are now also being marketed.

The potential importance of embryo transfer for improving fertility during heat stress resulted in research directed toward enhancing the efficiency of in vitro production of embryos. See Hansen (2023b) for his views that the in vitro-produced embryo has the potential for becoming a common assisted reproductive technology in cattle production. Hansen's work with the bovine embryo was made possible by a sabbatical in 1993 in the laboratory of W.A. King at the University of Guelph. It was King and his laboratory members who taught him procedures for in vitro production of embryos.

Much effort has been spent identifying maternal cell-signaling molecules that act on the preimplantation embryo to enhance its potential for survival. Hansen coined the term "embryokines" to refer to these molecules (Hansen et al., 2014). One impediment to evaluate embryo competence for survival after embryo transfer is the large number of transfers required to conduct experiments with sufficient power to detect differences in survival. Recently, work with a group including P. Lonergan, M.B. Rabaglino, and M. Hoelker, has resulted in the identification of gene markers whose transcript abundance is predictive of an embryo's competence for survival.

Hansen is currently conducting research on molecules in the microenvironment of the preimplantation embryo that can program postnatal phenotype. He was one of the first to demonstrate that developmental programming can occur in the preimplantation period in cattle. The most important finding has been that addition of the methyl donor choline to culture medium of bovine embryos can result in birth of calves with increased weaning weight. Thus, the efficiency and sustainability of beef production can be enhanced by optimizing the environment of the early embryo.

Hansen often states that his accomplishments as a scientist have been dependent on the students, postdocs, and visiting scientists in his laboratory. A total of 33 PhD and 25 MS students have completed degrees in his laboratory. In addition, 16 postdoctoral scientists have worked in his group. He has hosted more than 50 visiting scientists. Many past members of his laboratory remain colleagues today. Collaboration with faculty at Florida and elsewhere has also enhanced his capacity for research. Hansen is kept grounded and supported by his wife Nancy, daughter Meghan, and son-in-law Kristian Nitsch.

References

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Hansen, P. J. 2023b. Review: Some challenges and unrealized opportunities toward widespread use of the in vitro-produced embryo in cattle production. Animal 17(Suppl 1):100745. https://doi.org/10.1016/j.animal.2023.100745.

Hansen, P. J., K. B. Dobbs, and A. C. Denicol. 2014. Programming of the preimplantation embryo by the embryokine colony stimulating factor 2. Anim. Reprod. Sci. 149:59–66. https://doi.org/10.1016/j.anireprosci.2014.05.017.

Hansen P. J., L. A. Kamwanja, and E. R. Hauser. 1982. The effect of photoperiod on serum concentrations of luteinizing and follicle stimulating hormones in prepubertal heifers following ovariectomy and estradiol injection. Theriogenology 18:551-559. https://doi.org/10.1016/0093-691x(82)90187-x.

Previous Recipients

E. L. Squires (2024)
E. Borges de Oliveira Filho (2023)
C. Keefer (2022)
Not Awarded (2021)
E. Palmer (2020)
B. Bavister (2019)
M.-A. Sirard (2018)
D. T. Armstrong (2018)
H. Niemann (2017)
C. E. Pope (2016)
K. H. S. Campbell (2015)
J.-P. Renard (2015)
W. W. Thatcher (2014)
J. Hahn (2013)
O. J. Ginther (2012)
I. Wilmut (2011)
R. J. Mapletoft (2010)
S. P. Leibo (2009)
G. Seidel Jr. (2008)
A. Iritani (2007)
D. Kraemer (2006)
S. Willadsen (2005)
B. Brackett (2004)
K. Betteridge (2003)
R. H. Foote (2002)
P. J. Dziuk (2001)
R. Yanagimachi (2000)
R. M. Moor (1999)
I. Gordon (1998)
S. Wintenberger-Torres (1997)
W. K. Whitten (1996)
C. R. Austin (1995)
N. W. Moore (1994)
R. G. Edwards (1993)
R. L. Brinster (1992)
A. K. Tarkowski (1991)
J. D. Biggers (1990)
C. Thibault (1989)
A. L. McLaren and D. Michie (1988)
E. J. C. Polge (1987)
T. M. Sugie (1986)
L. E. A. Rowson (1985)
L. E. Casida (1984)
M. C. Chang (1983)
R. O. Berry (1982)

Recipient of the 2025 Inaugural IETS Distinguished Practitioner Award

Dr. John F. Hasler

Dr. John F. Hasler has had a distinguished career in the field of reproductive physiology and embryo transfer. He earned his BA (1966) and MA (1969) degrees in zoology from the University of Missouri–Columbia. After being drafted in 1968, he spent two years of service in the US Army, including one year in Vietnam. He received a PhD in reproductive physiology from the University of Illinois in 1974. After his PhD, Dr. Hasler spent 3 years as a postdoctoral student/research associate at the Bovine Embryo Transfer Laboratory at Colorado State University, where he participated in many research projects concerning embryo transfer, including the relationship of blood progesterone concentrations and pregnancy rates in embryo transfer recipients. In 1977, he and his young family moved to Canada, where he worked in commercial embryo transfer.

In 1979, Dr. Hasler co-founded Em Tran Inc. in Pennsylvania with Dr. Alan McCauley. For the next 23 years, Em Tran was a dominant player in commercial embryo transfer in the United States, pioneering applications including splitting embryos, simplifying procedures for cryopreserving embryos, genotyping and sexing embryos, and especially *in vitro* fertilization, the latter resulting in the third most cited paper in the history of the journal Theriogenology. Em Tran was among the first organizations to establish a market for frozen embryos in several foreign countries and set industry standards for superovulation and pregnancy rate analyses. In fact, for 2 decades, the numerous publications from Em Tran were the benchmark for comprehensiveness, reliability, and sharing of information. Many veterinarians worked at Em Tran and Em Tran West, a California branch, and a number of them subsequently established their own successful embryo transfer practices.

In 2001, Em Tran Inc. was sold, and John and his wife, Marilyn, moved to Colorado where he was employed as director of research for the company XY Inc., which was developing practical procedures for sexing semen. In recent years, he has worked nearly full time as a technical consultant for Bioniche Inc., and he regularly wrote columns for the AETA and CETA newsletters.

Dr. Hasler was a founding member of the American Embryo Transfer Association and served as the first secretary/treasurer of the organization. Dr. Hasler also provided his services to IETS on numerous occasions. To date, he has never missed any of the 50 annual meetings. He served 2 terms on the Board of Governors, in each case as Secretary/Treasurer. He was chair or co-chair of 3 IETS meetings and was an invited speaker at 7 annual meetings. He similarly served the American Embryo Transfer Association in a number of capacities and received their Embryo Transfer Person of the Year Award in 1993. He also has represented the embryo transfer industry repeatedly by giving many dozens of talks at other meetings.

His accolades include the Army Commendation Medal (1970), the Schering-Plough Animal Health Embryo Transfer Person of the Year (1992), the International Embryo Technology Society Distinguished Service Award (2014), and the American Embryo Transfer Association Lifetime Achievement Award (2014).

Dr. Hasler has maintained active research collaborations with scientists at several universities and has published numerous papers involving embryo transfer, *in vitro* fertilization and related technologies. He also continues to assist with research projects at Colorado State University on a regular basis. Dr. Hasler has given lectures on these subjects in more than 20 foreign countries. Dr. Hasler now lives in Fort Collins, Colorado, and served as a technical consultant to Vetoquinol USA Inc., Fort Worth, Texas, before retiring on December 31, 2023.

Dr. Hasler's dedication to the embryo transfer industry and his support for young practitioners and emerging technologies make him a most deserving recipient of the Inaugural IETS Distinguished Practitioner Award for 2025.

IETS Foundation 2025 Early Career Achievement Award (Practicing Professional)

Dr. Jason Anton is a native of Lithia, Florida, and completed a BS in animal science from the University of Florida (2008). He received his MS in animal science from Clemson University (2010) and his DVM from Oklahoma State University (2015). Upon graduating veterinary school, Anton joined a busy bovine embryo transfer practice in Georgia. Shortly thereafter, Anton had the opportunity to join a veterinarian-owned livestock genetics company in Victoria, Australia, as center veterinarian. He spent two years abroad and was responsible for the successful implementation of assisted reproductive technologies (ART) in cattle, sheep, goats, and horses. Anton also provided veterinary oversight to the import and export of live animals and genetic material while with the company.

Anton is currently the owner/operator of Ovaflo Genetics, an embryo transfer practice established in the Fall of 2017. Ovaflo Genetics operates primarily on a mobile platform but also has a "brick and mortar" component to include a surgery suite, in vitro fertilization (IVF) lab, and client animal housing. The primary areas of practice focus include cattle and small ruminant artificial insemination, embryo recovery and transfer, IVF, and semen cryopreservation. Anton currently pursues research opportunities with other colleagues in the field of ART each year, with a present focus on in vitro technologies in small ruminants. Furthermore, he is an adjunct instructor for Oklahoma State University College of Veterinary Medicine and thoroughly enjoys mentoring students.

Anton lives with his family on a small farm in Stillwater, Oklahoma.

IETS Foundation 2025 Early Career Achievement Award (Scientist)

Dr. Brad Daigneault is an assistant professor in the Department of Animal Sciences at the University of Florida. Daigneault received a bachelor's degree in animal sciences from Texas A&M University and an MS in biomedical sciences from Colorado State University. He then obtained a PhD from the University of Illinois and received further training from a USDA Postdoctoral Fellowship followed by support as a NIH T32 Trainee. Daigneault's early research included optimizations to freezing stallion sperm for equine intracytoplasmic sperm injection and advancements to the adoption of frozen-thawed porcine sperm for artificial insemination through enhanced fertility prediction by identification of novel sperm traits related to fertility. His bovine work contributed to the adaptation of CRISPR technologies for efficient gene editing in bovine embryos through zygotic microinjection. Daigneault's current research is focused on paternal contributions to embryo origins of pregnancy with emphasis on gene-environment interactions that alter sperm function and embryo development. His research addresses a need to understand how environmental stressors alter the function and epigenome of postejaculatory sperm. He has developed an extender for prolonged incubation of bull sperm at ambient temperature to facilitate the adaptation of high-resolution respirometry assays to determine differences in mitochondrial bioenergetics of bull sperm. The Daigneault Lab has recently contributed to a gap of knowledge in stallion sperm capacitation by temporal characterization of sperm capacitation conditions to advance equine IVF. Human biomedical studies in the laboratory include utilization of the bovine model to understand effects of cannabis compounds on sperm function. Bovine embryology studies focus on identification of targets in the early embryo that are responsive to environmental stimuli as potential therapeutic and pharmacologic candidates to mitigate early embryo loss in cattle. Development of reproductive biotechnologies includes a novel delivery system for cell-lineage specific targeting of overexpression and knockout approaches in the preimplantation embryo.

Program

Friday, January 17

HASAC Research Subcommittee
Treaty Oak Boardroom
1:00 PM – 6:00 PM

IETS Board of Governors Meeting
Bur Oak
1:00 PM – 8:00 PM

Saturday, January 18

IETS Board of Governors Meeting
Bur Oak
8:00 AM – 5:00 PM

Registration Open
Bar Wired
8:00 AM – 6:00 PM

W4171 Meeting
Post Oak
8:00 AM – 6:00 PM

DABE Preconference Program

DABE Preconference | Exploring New Frontiers in CRISPR-Cas: Advancements Past Cas9

Chair: Paula Rodriguez-Villamil, DABE Committee Chair, Genus plc, US
Pecos I-II
9:00 AM – 6:00 PM

9:00 AM	Opening
9:15 AM	New Frontiers in CRISPR-Cas: Advancements past Cas9 *Miguel Angel Moreno, Andalusian Center of Developmental Biology, Spain*
10:45 AM	Break
11:00 AM	Delivery of genome editing components via oviduct to create genetically modified animals *Masato Ohtsuka, Tokai University, Japan*
12:30 PM	Lunch (on your own)
1:30 PM	Strategies to reduce off-targeting events while using CRISPR-Cas system *Kiho Lee, Missouri State University, USA*
3:00 PM	153 Cas9-expressing cattle using all-in-one CRISPR/Cas9 for bovine genome editing *D.-H. Kwon*[*1], G.-M. Gim[1,2], S.-Y. Yum[1,2], K.-H. Eom[1,2], S.-J. Lee[3], S.-E. Han[1], W.-S. Lee[3], W.-J. Choi[1], J.-H. Lee[2], D.-J. Jung[4], D.-H. Kim[5], J.-K. Yi[6], B. Moon[1], W.-Y. Lee[2], G. Jang[1,2], [1]Seoul National University, Department of Theriogenology, College of Veterinary Medicine and the Research Institute for Veterinary Science, Seoul National University, Seoul, Republic of Korea, [2]LARTBio, LARTBio Inc, Seoul, Republic of Korea, [3]Seoul Milk Coop, Embryo Research Center,*

Seoul Milk Coop, Gyeonggi-do, Republic of Korea, [4]Gyeongsangbukdo Livestock Research Institute, Gyeongsangbukdo Livestock Research Institute, Yeongju, GyeongSang Buk-Do, Republic of Korea, [5]Chonnam National University, Department of Animal Science, Chonnam National University, Gwangju, Republic of Korea, [6]Hankyong National University, School of Animal Life Convergence Science, Hankyong National University, Anseong, Republic of Korea

3:15 PM 155 Effect of *PAG7* ablation on matrix remodeling markers in the bovine endometrium
E. Moreno[*1], K. G. Pohler[2], and M. S. Ortega[1], [1]University of Wisconsin–Madison, Madison, WI, USA, [2]Texas A&M University, College Station, TX, USA*

3:30 PM Break

4:00 PM How to start a CRISPR-Cas project
Irina Polejaeva & Iuri Viotte Perisse, Utah State University, USA

5:00 PM Closing Remarks

IETS Preconference Symposium Program

IETS Preconference Symposium | Advanced Embryo Technologies in Equine: From Gamete Collection to Embryo Transfer

Chair: Camilo Hernandez Aviles, Texas A&M University, US
West Fork I-II
9:00 AM – 5:00 PM

9:00 AM Session I Opening & Welcome

9:15 AM Cryopreservation of equine semen, including epididymal sperm harvest
Camilo Hernandez Aviles, Texas A&M University, USA

9:45 AM Commercial applications of equine sex-sorted semen
Juan C. Samper, Texas A&M University, USA

10:15 AM Methods for cumulus-oocyte complexes (COCs) recovery, evaluation, packaging, and shipping to dedicated intracytoplasmic sperm injection (ICSI) laboratories
Luisa Ramirez-Agámez, Texas A&M University, USA

10:45 AM Break

11:00 AM In vitro production of equine embryos, including ICSI and conventional in vitro fertilization (IVF), embryo vitrification, and transfer
Luisa Ramirez-Agámez, Texas A&M University, USA

11:30 AM Session I Closing

11:45 AM Lunch (on your own)

1:00 PM Sperm processing for cooled storage and cryopreservation (including cushioned and single-layer colloid centrifugation techniques)
Juan C. Samper & Tessy Lozano, Texas A&M University, USA

2:00 PM Epididymal sperm harvest and processing for cryopreservation
Charles C. Love, Texas A&M University, USA

3:00 PM COCs recovery from post-mortem ovaries, COC evaluation, and packaging for shipping
Luisa Ramirez-Agamez & Alanoud Alshami, Texas A&M University, USA

4:00 PM Embryo vitrification and warming for transfer
Camilo Hernandez-Aviles, John Gibbons

5:00 PM Closing

OTHER EVENTS

HASAC Regulatory Meeting
Live Oak V
10:30 AM – 12:00 PM

HASAC Research Subcommittee
Treaty Oak Boardroom
10:30 AM – 12:00 PM

HASAC Manual Subcommittee
Treaty Oak Boardroom
2:30 PM – 6:00 PM

Poster Session I Set Up
Brazos I-II
5:00 PM – 6:00 PM

IETS Foundation Meeting
Brazos I-II and Corridor
6:00 PM – 8:30 PM

Sunday, January 19

Poster Session I Set Up
Brazos I-II
6:00 AM– 7:30 AM

Past Presidents Breakfast
Post Oak
7:00 AM – 8:00 AM

Registration Open
Bar Wired
7:00 AM – 6:00 PM

Student Competition Finalists Breakfast
Bur Oak
7:00 AM – 8:00 AM

IETS 2025 ANNUAL CONFERENCE PROGRAM

Opening & Welcome
Pecos I-II
8:00 AM – 8:15 AM

Morulas' Welcome
Pecos I-II
8:15 AM– 8:30 AM

Session I: Production of artificial gametes and embryos

Co-Chairs: Beatriz Fernandez-Fuertes & Eduardo Ribes Martinez, National Institute for Agricultural and Food Research and Technology (INIA) Madrid, Spain & Ludwig-Maximillian University, Germany

Pecos I-II
8:30 AM – 10:30 AM

8:30 AM In vitro gametogenesis in cattle: What we can learn from the bovine embryo and mouse models
Anna Denicol, University of California Davis, USA

9:15 AM Current status of artificial embryos
Ye Yuan, Colorado Center for Reproductive Medicine, USA

10:00 AM 166 Use of ECM-based three-dimensional scaffolds for stimulating bovine spermatogonia differentiation and meiotic division *in vitro*
F. Di Filippo[*1], G. Pennarossa[2], T. A. L. Brevini[2], and F. Gandolfi[1], [1]Università degli studi di Milano, Department of Agricultural and Environmental Sciences-Production, Landscape, Agroenergy, Milan, Italy, [2]Università degli studi di Milano, Department of Veterinary Medicine and Animal Sciences, Laboratory of Biomedical Embryology and Tissue Engineering, Lodi, Italy*

10:15 AM 147 Proteomic insights into the maturing follicle: A study of growing equine follicles
S. P. Marchio[*1], H. El-Sheikh Ali[2], K. E. Scoggin[2], C. B. Fernandes[3], A. Claes[4], and Y. L. Boakari[1], [1]Department of Large Animal Clinical Sciences, School of Veterinary Medicine & Biomedical Sciences, Texas A&M University, College Station, TX, USA, [2]Department of Veterinary Science, Gluck Equine Research Center, University of Kentucky, Lexington, KY, USA, [3]Department of Animal Reproduction and Veterinary Radiology, School of Veterinary Medicine and Animal Science, São Paulo University, São Paulo, SP, Brazil, [4]Department of Equine Sciences, Section of Reproduction, University of Utrecht, Utrecht, the Netherlands*

10:30 AM Break, Poster Viewing, and Exhibits

Break/Poster Viewing, & Exhibits
Brazos I-II and Corridor
10:30 AM – 11:00 AM

IETS Foundation Graduate Student Research Competition

Chair: Khoboso Lehloenya, IETS Foundation, University of Zululand
Pecos I-II
11:00 AM – 12:30 PM

11:00 AM 1 Development of field techniques for collection and disinfection of bison semen
S. E. Pezo[*1], T. Shury[1,2], K. Rajapaksha[3], R. Enns[1], M. Anzar[3], and G. P. Adams[1], [1]Veterinary Biomedical Sciences, Wester College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [2]Parks Canada Agency, Government of Canada, Gatineau, Quebec, Canada, [3]Agriculture and Agri-Food Canada, Saskatoon, Saskatchewan, Canada*

11:15 AM 2 Association between sperm metabolites and field fertility in beef bull
*S. R. Roberts**, *A. B. Lonas*, *E. A. Hessock*, *S. R. Campagna*, *S. E. Moorey*, *and S. M. Zoca*, *University of Tennessee Knoxville*, *Knoxville, TN, USA*

11:30 AM 3 ID2 is not required for bovine blastocyst formation
*I. Flores-Borobia**, *L. González-Brusi*, *P. Ramos-Ibeas*, and *P. Bermejo-Álvarez*, *Animal Reproduction Department, INIA, CSIC*, *Madrid, Madrid, Spain*

11:45 AM 4 Tetraploid complementation and embryo aggregation improve development and quality of heterospecific SCNT yak embryos
M. Yauri Felipe[*1], V. Alberio[1], V. Gorleri[1], C. Irala[1], and D. F. Salamone[2], [1]Laboratorio de Biotecnología Animal, FAUBA/INPA-CONICET, Argentina, [2]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina*

12:00 PM 5 Characterization of plasmatic extracellular vesicles during pregnancy in beef cattle
M. C. Lopez-Duarte[*1], D. Heredia[1], M. Venturini[1], J. Infante[1], B. L. Catussi[2], A. Maderal[1], F. Tarnonsky[1], and A. Gonella[1], [1]University of Florida, North Florida Research & Education Center, Marianna, FL, USA, [2]University of São Paulo, São Paulo, São Paulo, Brazil*

12:15 PM 6 Relationships of phototextural characteristics of ovine presumptive zygotes to their developmental potential *in vitro*
J. Bartlewski[*1], N. Zorzan Oliveira[1], S. Kakar[1], K. Fryc[2], M. Murawski[2], B. Ahmadi[3], and P. Bartlewski[1], [1]Department of Biomedical Sciences, Ontario Veterinary College, University of Guelph, Guelph, Ontario, Canada, [2]University of Agriculture in Kraków, Department of Animal Nutrition, Biotechnology and Fisheries, Kraków, Poland, [3]Rowan University, Shreiber School of Veterinary Medicine, Department of Anatomy and Physiology, Mullica Hill, NJ, USA*

12:30 PM Lunch (on your own)

HASAC Emerging Technology & Issues Subcommittee
Treaty Oak Boardroom
12:30 PM – 2:00 PM

IETS Partner Society & BOG Lunch
Post Oak
12:30 PM – 2:00 PM

Morulas Mentor Luncheon
Bur Oak
12:30 PM – 2:00 PM

Session II: Use of stem cells and genome editing technology in livestock

Co-Chairs: Cindy Tian & Meihong Shi, University of Connecticut & Cornell University
Pecos I-II
2:00 PM – 4:00 PM

2:00 PM Application of genome editing technology to improve agricultural traits
Bethany Redel, University of Missouri, USA

2:45 PM Use of stem cells for regenerative medicine or to understand cell biology
Fabiana Bressan, Universidade De São Paulo, Brazil

3:30 PM 167 A decellularized extracellular matrix hydrogel promotes the development of vascularized testicular spheroids
N. Grechi[*1,2], G. Ferronato[1,2], and M. Ferraz[1,2], [1]Clinic of Ruminants, Ludwig-Maximilians University of Munich, Munich, Germany, [2]Gene Center, Ludwig-Maximilians University of Munich, Oberschleißheim, Germany*

3:45 PM 71 Identifying PRDM family members potentially involved in epigenetic reprogramming after fertilization in porcine embryos
T. Montgomery[*1], K. Uh[2], R. Prather[1,3], and K. Lee[1,3], [1]Division of Animal Sciences, University of Missouri, Columbia, MO, USA, [2]Futuristic Animal Resource and Research Center, Korea Research Institute of Bioscience and Biotechnology, Cheongju-si, South Korea, [3]National Swine Resource and Research Center, University of Missouri, Columbia, MO, USA*

MEETINGS & SOCIAL EVENTS

HASAC Regulatory Meeting Speaker
Post Oak
4:00 PM – 6:00 PM

Poster Session I Sponsored by Pets
Brazos I-II
4:00 PM – 6:00 PM

Welcome Party
Brazos I-II and Corridor
6:00 PM – 8:00 PM

Morulas Forum/Biz Meeting
West Fork I-II
8:00 PM – 9:00 PM

Morulas Social
West Fork I-II
9:00 PM – 10:00 PM

Monday, January 20

IETS Foundation Organizational Breakfast
Bur Oak
7:00 AM – 8:30 AM

Registration Open
Bar Wired
7:30 AM – 6:00 PM

Exhibits Open
Brazos I-II and Corridor
8:00 AM – 8:00 PM

IETS 2025 ANNUAL CONFERENCE PROGRAM

Session III: Technological advancements in predicting embryo viability

Co-chairs: Sofia Ortega & Giovanna Nascimento Scatolin, University of Wisconsin–Madison & University of Florida
Pecos I-II
8:30 AM – 10:30 AM

8:30 AM Unravelling the complexity of embryonic and foetal development in cattle through machine learning
Maria Belen Rabaglino, Utrecht University, Europe

9:15 AM Morphokinetic based prediction of embryo viability in cattle
Satoshi Sugimura, Tokyo University, Japan

10:00 AM 118 Micro magnetic resonance spectroscopy for noninvasive metabolic assessment of individual bovine embryos
*G. Sivelli**, *S. Bitetti*, *G. Gruet*, *K. Marable*, *and M. Grisi*, *Annaida Technologies*, *Lausanne, Switzerland*

10:15 AM 70 Alterations in miRNA and tRNA-derived fragment expression during bovine conceptus elongation
G. L. Murphy[*1], A. K. Goldkamp[1], M. J. A. Lopes[1], N. F. F. Bonmann[1], M. C. Lucy[2], D. E. Hagen[1], and J. G. N. Moraes[1], [1]Department of Animal and Food Sciences, Oklahoma State University, Stillwater, OK, USA, [2]Division of Animal Sciences, University of Missouri, Columbia, MO, USA*

10:30 AM Break, Poster Viewing, and Exhibits, sponsored by IMV Technologies/IMV Imaging

Break/Poster Viewing, & Exhibits Sponsored by IMV Technologies/IMV Imaging
Brazos I-II and Corridor
10:30 AM – 11:00 AM

Peter Farin Trainee Award Presentations

Chair: Islam M. Saadeldin, King Faisal Specialist Hospital and Research Center Riyadh
Pecos I-II
11:00 AM – 12:30 PM

11:00 AM Introduction of Peter Farin Trainee Presentations

11:05 AM 72 Reconstructing bovine embryos following individual blastomere reduction
G. N. Scatolin[*1], A. E. Ynsaurralde-Rivolta[2], and Z. Jiang[1], [1]University of Florida, Gainesville, FL, USA, [2]Instituto Nacional de Tecnología Agropecuaria INTA, Buenos Aires, Argentina*

11:10 AM 89 Transcriptomic difference of *in vitro*-produced male and female early embryos in bovine
M. Shi[*1], G. Li[1], H. Araujo[1], A. Lee[1], J. Zhang[1], S. H. Cheong[2], and J. E. Duan[1], [1]Department of Animal Science, College of Agriculture and Life Science, Cornell University, Ithaca, NY, USA, [2]Department of Clinical Science, College of Veterinary Medicine, Cornell University, Ithaca, NY, USA*

11:15 AM 98 Interleukin-11 supplementation alters the composition of *in vitro*-produced bovine blastocysts
*A. B. Pollock**, *M. A. Oliver*, and *A. D. Ealy*, *Virginia Polytechnic Institute and State University, Blacksburg, VA, USA*

11:20 AM 101 Use of decellularized extracellular matrix as scaffold to create a three-dimensional endometrium
E. R. Martinez[*1,2], A. E. S. Viana[3], G. A. Ferronato[1,2], T. Oshiro[3], and M. A. M. Ferraz[1,2], [1]Gene Center, Ludwig-Maximilians University of Munich, Munich, Germany, [2]Clinic of Ruminants, Ludwig-Maximilians University of Munich, Oberschleißheim, Germany, [3]Department of Veterinary Medicine, Faculty of Zootechnic and Food Engineering, University of São Paulo, Pirassununga, São Paulo*

11:25 AM 133 Cleavage rates after bovine IVF are affected by relative abundance of sperm phospholipase C zeta 1
R. Gonzalez-Castro, C. Porflidt, J. Bartfield, and E. Carnevale, Colorado State University, Fort Collins, CO, USA*

11:30 AM IETS Business Meeting

12:00 PM Lunch (on your own)

Poster Session I Take Down & Poster Session II Set Up
Brazos I-II
11:00 AM – 1:00 PM

Data Retrieval Committee Meeting
Post Oak
12:00 PM – 1:30 PM

Morulas Career Luncheon
Bur Oak
12:00 PM – 1:30 PM

Poster Session II Set Up
Brazos I-II
1:00 PM – 3:00 PM

Session IV: New technology to improve embryo transfer programs

Co-Chairs: Jordan Thomas & Raul A Gonzalez-Castro, University of Missouri & Colorado State University
Pecos I-II
1:30 PM – 3:30 PM

1:30 PM	Advances in donor synchronization and superstimulation for OPU:-IVEP: Optimizing oocyte quantity and quality *Alvaro Garcia Guerra, Ohio State, USA*
2:15 PM	Current status on non-surgical embryo transfer in swine. *Maria A. Gil, University of Murcia, Spain*
3:00 PM	82 Advancing embryo evaluation: Generative artificial intelligence to assess embryos in routine embryo transfer practice *C. Wells*[*1], C. Hayden[1], M. Rea[1,2], and R. Killingsworth[1], [1]EmGenisys, Driftwood, TX, USA, [2]Yellowstone Genetics, Billings, MT, USA*
3:15 PM	78 Pregnancy association glycoproteins for assessment of pregnancy status in IVF embryo recipients *R. Paiva*[*1,3], P. Ross[2], and K. Pohler[3], [1]IDEXX Laboratories, Westbrook, ME, USA, [2]ST Genetics, Navasota, TX, USA, [3]Texas A&M University, College Station, TX, USA*
3:30 PM	Distinguished Practitioner Award Winner
4:00 PM	Break, Poster Viewing, and Exhibits

Award Presentation

Distinguished Practitioner Award
Pecos I-II
3:30 PM – 4:00 PM

Break/Exhibits
Brazos I-II and Corridor
4:00 PM – 4:30 PM

Concurrent Forums

CANDES Forum

Chair: Dragos Scarlet, Vetsuisse Faculty Zurich
West Fork I-II
4:30 PM – 6:30 PM

4:30 PM Developing assisted reproductive technologies for sharks & rays: Diving deep into conservation
James Gillis, USA

5:15 PM 31 Compounds enhancing American toad (*Anaxyrus americanus*) sperm activation: Beneficial effects of bovine serum albumin and caffeine
R. E. Naranjo[*1], A. J. Kouba[2], T. L. Roth[3], and C. K. Kouba[1], [1]Department of Biochemistry, Molecular Biology, Entomology, & Plant Pathology, Mississippi State University, Starkville, MS, USA, [2]Department Wildlife, Fisheries, & Aquaculture, Mississippi State University, Starkville, MS, USA, [3]Center for Conservation and Research of Endangered Wildlife, Cincinnati Zoo and Botanical Garden, Cincinnati, OH, USA*

5:30 PM 197 Influence of cumulus cell morphology on nuclear and cytoplasmic maturation markers of equine oocytes
S. B. Cousseau[*1], T. Adams[1], M. Mitchell[1], M. Sansineña[3], and C. Pinto[2], [1]Louisiana State University, School of Veterinary Medicine, Baton Rouge, Louisiana, USA, [2]Tufts University, Cummings School of Veterinary Medicine, North Grafton, Massachusetts, USA, [3]Universidad Catolica Argentina, Facultad de Ingeniería y Ciencias Agrarias, Buenos Aires, Buenos Aires, Argentina*

5:45 PM 28 Successful production of kangaroo ICSI embryos
P. D. Palacios[*1], R. J. Gurkin[1], Y. Campbell[2], J. Zhao[3], T. Pini[4], S. Johnston[1,2], and A. Gambini[1,4], [1]School of Agriculture and Food Sustainability, The University of Queensland, Gatton, Queensland, Australia, [2]School of the Environment, The University of Queensland, Brisbane, Queensland, Australia, [3]School of Chemistry and Molecular Biosciences, The University of Queensland, Brisbane, Queensland, Australia, [4]School of Veterinary Science, The University of Queensland, Gatton, Queensland, Australia*

6:00 PM 110 Corpus luteum characterization after embryo removal using the B mode and color Doppler ultrasound in alpaca (*Vicugna pacos*)
A. Yáñez[*1], A. I. Arrayás[1], U. H. Perez[2], A. M. López[3], E. Y. Torres[2], and J. M. Palomino[1], [1]Universidad Cientifica del Sur, Lima, Lima, Perú, [2]Universidad Nacional del Altiplano, Puno, Puno, Perú, [3]Universidad Nacional de San Martin, Tarapoto, San Martin, Perú*

6:15 PM Closing Remarks

Practitioners Forum | "Understanding and Implementing IETS Freeze Codes," Sponsored by Calier

Co-Chairs: Matt Wheeler, Barbara Durrant, & Brad Lindsey, University of Illinois, San Diego Zoo & Ovitra Biotechnology, Inc
Pecos I-II
4:30 PM – 6:30 PM

4:30 PM Introduction

4:35 PM The basics of freeze codes: An overview of their purpose, history, current standards, application process, and required documentation
Darrel DeGroft

4:55 PM Updates to freeze code usage guidelines: Overview of current labeling standards, recent changes, and their impact on practitioners and laboratories
Ashley Swenson

5:15 PM European regulation and practice: Key requirements for establishment approvals, traceability, germplasm movements, and the use of the EU's "TRACES" health certification platform
Hanna Grothmann

5:30 PM Round Table Discussion & Practitioner Feedback
Brad Lindsey, Clay Breiner, Ashley Swenson, Hanna Grothmann, Joao Viana, Gabriel Bo, Darrel DeGroft, Barbara Durrant

6:15 PM Closing Remarks

Poster Session II Reception/Exhibits
Brazos I-II
6:30 PM – 8:30 PM

Tuesday, January 21

IETS BOG Organizational Breakfast
Post Oak
7:00 AM – 8:30 AM

Registration Open
Bar Wired
7:30 AM – 5:00 PM

Exhibits Open
Brazos I-II and Corridor
8:30 AM – 1:00 PM

IETS 2025 Annual Conference Program

Session V: Environmental adaptation and sustainability

Chair: Co-Chairs: Goo Jang & Abigayle Pollock, Seoul National University & Virginia Polytechnic and State University
Pecos I-II
8:30 AM – 10:30 AM

8:30 AM Genome edited livestock to secure sustainability
Tad Sonstegard, Acceligen-Recombinetics, USA

9:15 AM Data-driven technologies and reproductive management practices for improving sustainability
Julio Giordano, Cornell University, USA

10:00 AM 177 Periparturient olive oil supplementation increases oocyte yield in dairy cows
F. Piscopo[1,2], B. Gasparrini[2], R. Van Halderen[1], J. F. Brouwers[3], J. Van den Broek[1], H. T. A. Van Tol[1], P. L. A. M. Vos[1], and H. Aardema[*1], [1]Farm Animal Health, department of Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands, [2]Department of Veterinary Medicine and Animal Production, University of Napoli Federico II, Naples, Italy, [3]Research Group Analysis Techniques in the Life Sciences, Centre of Expertise Perspective in Health, Breda, the Netherlands*

10:15 AM 173 Association between follicular characteristics and ovulatory response to the last GnRH of the Double Ovsynch and pregnancy per AI in first service Holstein multiparous cows
I. M. R. Leão, T. Valdes-Arciniega, E. Anta-Galvan, M. S. El Azzi, and J. P. N. Martins, School of Veterinary Medicine, University of Wisconsin–Madison, Madison, WI, USA*

10:30 AM Break/Poster Viewing, & Exhibits

Break & Exhibits
Brazos I-II and Corridor
10:30 AM – 11:15 AM

IETS Foundation Early Career Achievement Awards

Chair: Carol Hanna, Oregon National Primate Research Center
Pecos I-II

11:15 AM – 12:15 PM
11:15 AM Introduction Early Career Scientist Award
11:20 AM Early Career Scientist Presentation
Brad Daigneault, University of Florida, USA
11:45 AM Introduction Early Career Practicing Professional Award
11:50 AM Early Career Practicing Professional Presentation
Jason Anton, Ovaflo Genetics, USA
12:15 PM Lunch (on your own)

AETE & ICAR Announcements
Pecos I-II
12:15 PM – 12:30 PM

IETS Program Committee Lunch
Post Oak
12:30 PM – 2:00 PM

Poster Session II Take Down
Brazos I-II
1:00 PM – 3:00 PM

Pioneer Award

Pecos I-II
2:00 PM – 2:30 PM

Session VI: George E. Seidel Jr. Keynote Lecture

Chair: Carlos Pinzon, UT Southwestern Medical Center
Pecos I-II
2:30 PM – 3:15 PM

2:30 PM Organs on chip to understand reproduction
Julie Kim, Northwestern University, US

IETS Foundation Student Competition Awards

Pecos I-II
3:15 PM – 3:30 PM

3:15 PM CSIRO: Best Poster
Jennifer Kelly

3:20 PM Undergraduate Student Poster Competition.
Rolando Pasquariello

3:25 PM Graduate Student Competition Winner
Khoboso Lehloenya

HASAC Open Session
Pecos I-II
3:30 PM – 4:00 PM

Closing Ceremony #IETS2026 Invitation
Pecos I-II
4:00 PM – 4:30 PM

Closing Party Sponsored by Vetoquinol

Billy Bob's Fort Worth
6:00 PM – 10:00 PM

Wednesday, January 22

IETS Post-Conference Symposium | Oocytes to Ranch: Current State of Technology for In Vitro Production in Bovine

Chair: Ky Pohler, Texas A&M University

Pecos I-II
8:00 AM – 1:00 PM

8:00 AM Opening

8:15 AM Advancements in oocyte maturation in bovine
Bethany Bauer, USDA, USA

8:45 AM In vitro production of bovine embryos
Daniela Demetrio, DD Embryos, USA

9:15 AM The role of the paternal histone epigenome in preimplantation embryo development
Lacey Luense, Texas A&M University, USA

9:45 AM Break

10:15 AM Nutritional programming and pregnancy
Rodolfo Cardoso, Texas A&M University, USA

10:45 AM Pre- and post-breeding management for pregnancy success
George Perry, Texas A&M University, USA

11:15 AM Late embryonic development to weaning losses
Ky Pohler, Texas A&M University, USA

11:45 AM Panel Discussion and Closing

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Poster Session I

Sunday, January 20, 16:00–18:00

Brazos I-II

*Graduate Student Competition

Poster Session I: Graduate Student Competition

Chair: Khoboso Lehloenya, University of Zululand, Faculty of Science and Agriculture
Brazos I-II
16:00 – 18:00

1 Development of field techniques for collection and disinfection of bison semen
S. E. Pezo[*1], T. Shury[1,2], K. Rajapaksha[3], R. Enns[1], M. Anzar[3], and G. P. Adams[1], [1]Veterinary Biomedical Sciences, Wester College of Veterinary Medicine, University of Saskatchewan, Saskatoon, Saskatchewan, Canada, [2]Parks Canada Agency, Government of Canada, Gatineau, Quebec, Canada, [3]Agriculture and Agri-Food Canada, Saskatoon, Saskatchewan, Canada*

2 Association between sperm metabolites and field fertility in beef bulls
S. R. Roberts, A. B. Lonas, E. A. Hessock, S. R. Campagna, S. E. Moorey, and S. M. Zoca, University of Tennessee Knoxville, Knoxville, TN, USA*

3 ID2 is not required for bovine blastocyst formation
I. Flores-Borobia, L. González-Brusi, P. Ramos-Ibeas, and P. Bermejo-Álvarez, Animal Reproduction Department, INIA, CSIC, Madrid, Madrid, Spain*

4 Tetraploid complementation and embryo aggregation improve development and quality of hetero-specific SCNT yak embryos
M. Yauri Felipe[*1], V. Alberio[1], V. Gorleri[1], C. Irala[1], and D. F. Salamone[2], [1]Laboratorio de Biotecnología Animal, FAUBA-INPA-CONICET, Argentina, [2]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina*

5 Characterization of plasmatic extracellular vesicles during pregnancy in beef cattle
M. C. Lopez-Duarte[*1], D. Heredia[1], M. Venturini[1], J. Infante[1], B. L. Catussi[2], A. Maderal[1], F. Tarnonsky[1], and A. Gonella[1], [1]University of Florida, North Florida Research & Education Center, Marianna, Florida, USA, [2]University of São Paulo, São Paulo, São Paulo, Brazil*

6 Relationships of phototextural characteristics of ovine presumptive zygotes to their developmental potential *in vitro*
J. Bartlewski[*1], N. Zorzan Oliveira[1], S. Kakar[1], K. Fryc[2], M. Murawski[2], B. Ahmadi[3], and P. Bartlewski[1], [1]Department of Biomedical Sciences, Ontario Veterinary College, University of Guelph, Guelph, Ontario, Canada, [2]University of Agriculture in Kraków, Department of Animal Nutrition, Biotechnology and Fisheries, Kraków, Poland, [3]Rowan University, Shreiber School of Veterinary Medicine, Department of Anatomy and Physiology, Mullica Hill, NJ, USA*

Case Reports and Field Data

Poster Session I: Case Reports and Field Data

Chair: Andres Vera Cedeno, Instituto de Reproducción Animal Ecuador IRAE
Brazos I-II
16:00 – 18:00

7 Current status of embryo production in domestic farm animals in Mexico
S. Romo, FESC, UNAM, Cuautitlán, State of Mexico, Mexico*

9 First pregnancies from *in vitro*-produced sheep embryos at high altitude in the Peruvian highlands
C. Pantoja Aliaga[1], D. Ponce-Salazar[2], M. Miguel-Gonzales[2], W. Bermúdez[1], E. Morales[1], and C. R. Youngs[3], [1]Universidad Nacional Daniel Alcides Carrión, Cerro de Pasco, Pasco, Perú, [2]Michell y Cía S.A, Arequipa, Arequipa, Peru, [3]Iowa State University, Ames, IA, USA*

11 Does pregnancy status affect cumulus–oocyte complex recovery and embryo production in cycling Girolando heifers?
M. M. Soares[1,2], G. P. Cadima[1,2], N. S. Reis[1], L. S. Fernandes[2], A. M. Sousa[2], J. R. Santos[2], and R. M. Santos[1], [1]UFU, Uberlandia, Minas Gerais, Brasil, [2]Vale do Embrião, Uberlandia, Minas Gerais, Brasil*

13 Donor age effects on embryo morphokinetics in Holstein cattle: Insights into prepubertal embryo development
K. Johansen[1], R. Killingsworth[1], C. Hayden[1], M. Rea[1,2], and C. Wells[1], [1]EmGenisys, Driftwood, TX, USA, [2]Yellowstone Genetics, Billings, MT, USA*

15 Effect of superovulation protocol on number and oocyte quality retrieved by ovum pickup technique in alpacas (*Vicugna pacos*)
W. Huanca[1], V. Cornelio[1], L. Auqui[1], I. Huaman[1], N. Silva[1], N. Enrriquez[1], A. Sanchez[1], A. Cordero[2], and J. C. Villanueva[1], [1]Laboratory of Animal Reproduction, Faculty of Veterinary Medicine - Universidad Nacional Mayor de San Marcos, Lima, Peru, [2]Department of Nutrition, Faculty of Zootechnics, Universidad Nacional Agraria La Molina, La Molina, Lima, Peru*

Cloning/Nuclear Transfer

Poster Session I: Cloning/Nuclear Transfer

Chair: Vilceu Bordignon, McGill University
Brazos I-II
16:00 – 18:00

17 Identification of somatic cell populations in cryopreserved equine semen as a source of donor nuclei for somatic cloning: Preliminary results
B. Ramos[1], A. A. Rodríguez[1], A. M. Rosales[1], A. J. Montiel[2], and J. E. Hernández[1], [1]Universidad Autónoma Metropolitana Xochimilco, Delegación Coyoacán, Ciudad de México, Mexico; [2]Centro de Reproducción y Medicina Equina, Santa Tomas, Ajusco, Tlalpan, Ciudad de México, Mexico*

19 CRISPR/Cas9-based gene editing for generation of cloned goat embryos with enhanced pashmina fiber-producing potential
A. A. Malik, R. A. Shah, S. Magray, S. Hilal, M. Dar, N. Handoo, Y. Farooq, N. Assad, S. Nazir, and S. M. Andrabi, Division of Animal Biotechnology, Faculty of Veterinary Sciences, SKUAST-Kashmir, Srinagar, Jammu & Kashmir, India*

21 Functional and structural characterization of equine clone placentas with regards to foal outcome
E. Muñoz[1,2], M. Estrade[2], M. Soriano[1], J. Rivière[3], M. Vilotte[3], N. Mucci[1], and P. Chavatte-Palmer[4,5], [1]Clonargen Biotech, Equine Cloning Company, Luján, Buenos Aires, Argentina, [2]Unidad Académica Reproducción Animal, Facultad de Veterinaria, UDELAR, Montevideo, Uruguay, [3]Paris-Saclay University, INRAE, AgroParisTech, GABI, Jouy-en-Josas, France, [4]Paris-Saclay University, UVSQ, INRAE, BREED, Jouy-en-Josas, France, [5]Ecole Nationale Vétérinaire d'Alfort, BREED, Maisons-Alfort, France*

23 Improving SCNT development in pigs by blastomere exchange
F. A. Allegroni, M. Yauri Felipe, L. D. Ratner, R. Fernandez-Martin, and D. F. Salamone, Laboratorio de Biotecnología Animal, FAUBA/INPA-CONICET, CABA, Buenos Aires, Argentina*

Companion CANDES

Poster Session I: Companion CANDES

Chair: Dragos Scarlet, Vetsuisse Faculty Zurich

Brazos I-II

16:00 – 18:00

25 Comparative expression of specific microRNAs between domestic cat blastocysts cultured with and without the zona pellucida on days 8 and 10 of *in vitro* development
C. Zapata-Rojas[1], D. Saéz-Ruiz[1], F. Ovidio Castro[1], L. Rodríguez-Alvarez[1], and D. Veraguas-Dávila[1,2], [1]Departamento de Ciencia Animal, Facultad de Ciencias Veterinarias, Universidad de Concepción, Chillán, Ñuble, Chile, [2]Departamento de Fomento de la Producción Animal, Facultad de Ciencias Veterinarias y Pecuarias, Universidad de Chile, Santiago, Región Metropolitana, Chile*

27 Estrus synchronization in the southern white rhino (*Cetatotherium simum simum*)
B. Durrant, E. Ruggeri, C. Young, N. Ravida, S. Sandmaier, J. VanKempen, and J. Capiro, San Diego Zoo Wildlife Alliance, San Diego, CA, USA*

29 Application of assisted reproductive technologies for eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*) conservation
D. M. Chen[1], C. K. Kouba[2], S. S. Lampert[2], L. Chen[2], S. C. Mathes[2], and A. J. Kouba[1], [1]Department of Wildlife, Fisheries, & Aquaculture, Mississippi State University, Starkville, MS, USA, [2]Department of Biochemistry, Molecular Biology, Entomology, & Plant Pathology, Mississippi State University, Starkville, MS, USA*

31 Compounds enhancing American toad (*Anaxyrus americanus*) sperm activation: Beneficial effects of bovine serum albumin and caffeine
R. E. Naranjo[1], A. J. Kouba[2], T. L. Roth[3], and C. K. Kouba[1], [1]Department of Biochemistry, Molecular Biology, Entomology, & Plant Pathology, Mississippi State University, Starkville, MS, USA, [2]Department Wildlife, Fisheries, & Aquaculture, Mississippi State University, Starkville, MS, USA, [3]Center for Conservation and Research of Endangered Wildlife, Cincinnati Zoo and Botanical Garden, Cincinnati, OH, USA*

Cryopreservation/Cryobiology

Poster Session I: Cryopreservation/Cryobiology

Chair: Alina Ordonez, Viking Genetics

Brazos I-II

16:00 – 18:00

33 Post-thaw evaluation of *in vivo*- and *in vitro*-derived bovine embryos
S. Hickerson, J. Looman, and J. Gibbons, Texas Tech University School of Veterinary Medicine, Amarillo, TX, USA*

35 Impact of two-dimensional carbons on the viability of porcine cumulus–oocyte complexes during cryopreservation
P. Ferré-Pujol[1], I. Ortiz-Anaya[2], and Y. Nishina[3], [1]Tokyo University of Agriculture and Technology, Field Science Center, Tokyo, Japan; [2]Okayama University, Graduate School of Natural Science and Technology, Okayama, Japan; [3]Okayama University, Research Institute for Interdisciplinary Science, Okayama, Japan*

37 Investigation of semen collection and cryopreservation techniques in the caracal (*Caracal caracal*)

A. Miller, J. L. Barnes, and L. M. Vansandt, Cincinnati Zoo & Botanical Gardens, Cincinnati, OH, USA*

39 Role of antifreeze protein type I in feline ovarian tissue cryopreservation
L. F. L. Correia, N. O. Rocha, G. P. L. Lessa, R. F. Braga, and J. M. G. Souza-Fabjan, Universidade Federal Fluminense, Niterói, RJ, Brazil*

41 Effect of photobiomodulation in blastocysts post-vitrification
H. Culler, I. Zarzaca, V. Mueller, C. Elgarresta, M. J. Hersom, and C. M. Checura, Clemson University, Clemson, SC, USA*

43 Boosting boar fertility: The impact of glutathione on Kolbroek sperm parameters
L. D. Sehlabela[1,2], M. L. Mphaphathi[1], T. R. Netshirovha[3], and T. L. Nedambale[2], [1]Agricultural Research Council, Pretoria, Irene, South Africa; [2]Tshwane University of Technology, Pretoria, Pretoria West, South Africa; [3]University of South Africa, Pretoria, Florida, South Africa*

45 Ultra-rapid freezing yields a higher cryoresistance than conventional-slow freezing of epididymal guinea pig (*Cavia porcellus*) spermatozoa
D. A. Galarza[1,2], C. A. Hernández[1], A. J. Salinas[1], and J. M. Duma[1], [1]Laboratorio de Biotecnología de La Reproducción Animal, Facultad de Ciencias Agropecuarias, Universidad de Cuenca, Cuenca, Azuay, Ecuador; [2]Centro Latinoamericano de Formación de Especies Mayores y Menores, Cuenca, Azuay, Ecuador*

Developmental Biology

Poster Session I: Developmental Biology

Chair: Felipe Perecin, University of Sao Paulo

Brazos I-II

16:00 – 18:00

47 Comparative transcriptome analysis of embryos from beef oocyte donors fed endophyte-infected tall fescue
A. M. Sallam, J. M. G. Takashe, R. A. C. Rabel, M. B. Wheeler, and C. U. Braz, University of Illinois at Urbana-Champaign, Urbana, IL, USA*

49 Transcript profiles of blastocysts produced from oocytes matured in fluid from preovulatory follicles of varied maturity
E. A. Hessock, A. E. Stokes, H. M. Clark, J. L. Edwards, R. R. Payton, J. E. Beever, T. F. Freeman, F. N. Schrick, and S. E. Moorey, Department of Animal Science, University of Tennessee Institute of Agriculture and AgResearch, Knoxville, TN, USA*

51 Targeted PTPN11 deletion in mice granulosa cells revealed the importance of SHP2 for female fertility
M. Idrees[1,2], C. D. Perera[1], S. Ullah[1], Z. Haider[1], M. T. Khan[1], P. Song[1,2], and I.-K. Kong[1,2], [1]Institute of Agriculture and Life Science, Gyeongsang National University, Jinju, Gyeongnam, Republic of Korea; [2]Division of Applied Life Science (BK21 Four), Gyeongsang National University, Jinju, Gyeongnam, Republic of Korea; [3]The King Kong Corp Ltd, Gyeongsang National University, Jinju, Gyeongnam, Republic of Korea*

53 Investigating the improvement of bull *in vitro* fertility through seminal plasma extracellular vesicles
M. Nõmm, A. Viljaste-Seera, and Ü. Jaakma, Chair of Animal Breeding and Biotechnology, Institute of Veterinary Medicine and Animal Sciences Estonian University of Life Sciences, Tartu, Estonia*

55 Relationship between genomic estimated breeding values for single blastomeres and the corresponding calves derived from *in vitro*-produced embryos in Japanese Black cattle
H. Yoshioka, N. Sasago, K. Uchiyama, K. Yoshinari, S. Miyashita, Y. Yamamoto, C. Ota, S.*

Kanda, M. Takeda, K. Ichinoseki, T. Kojima, and S. Matoba, National Livestock Breeding Center, Nishigou, Fukushima, Japan

57 Nanoplastics are taken up by the oocyte and delay embryo development
J. Yang[1,2], J. H. Kamstra[1], J. Legler[1], and H. Aardema[2], [1]Institute for Risk Assessment Sciences, Department of Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands; [2]Farm Animal Health, Department of Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands*

59 The relationship between flush feeding on placenta characteristics and lamb birth and weaning weights in Dohne merino sheep
M. S. Mokoena[1], A. Maqhashu[1], K. M. Sibande[1], E. D. Cason[1], K. H. Salamane[2], B. N. L. Matayise[1], and L. P. Kruger[1], [1]Department of Animal Science, University of the Free State, Bloemfontein, South Africa; [2]Department of Sustainable Food Systems and Development, University of the Free State, Bloemfontein, South Africa*

61 The role of CIDEA and dynamics of lipid droplets in bovine embryo development
C. K. Wu and S. H. Cheong, Cornell University, Ithaca, NY, USA*

63 Use of noninvasive screening methods to estimate the developmental competence of bovine oocytes following *in vitro* fertilization
D. J. Smith[1], Z. H. Seekford[1], G. C. Lamb[1,2], and K. G. Pohler[1], [1]Texas A&M University Department of Animal Science, College Station, Texas, USA; [2]Texas A&M University AgriLife Research, College Station, TX, USA*

65 Deciphering the dialogue between the bovine blastocyst and the uterus: Comparison of extracellular vesicle proteins from an *ex vivo* model and an *in vivo* environment
R. Mazzarella[1], J. M. Sánchez[1], S. Guisado Egido[1], M. McDonald[2], A. Álvarez-Barrientos[3], E. González[4], J. M. Falcón-Pérez[4], M. Azkargorta[5], F. Elortza[5], M. Encina González[6], P. Lonergan[2], D. Rizos[1], and B. Fernandez-Fuertes[1], [1]Department of Animal Reproduction, INIA-CSIC, Madrid, Spain; [2]School of Agriculture and Food Science, University College Dublin, Belfield, Dublin, Ireland; [3]Servicio de Técnicas Aplicadas a la Biociencia, Universidad de Extremadura, Badajoz, Spain; [4]Exosomes Laboratory, Center for Cooperative Research in Biosciences (CIC bioGUNE), Basque Research and Technology Alliance (BRTA), Derio, Spain; [5]Proteomics Platform, Center for Cooperative Research in Biosciences (CIC bioGUNE), Basque Research and Technology Alliance (BRTA), Derio, Spain; [6]Department of Anatomy and Embryology, Veterinary Faculty, Complutense University of Madrid (UCM), Madrid, Spain*

67 Relationships of circulating and preovulatory follicular fluid hydrogen peroxide level with body condition score and metabolome profiles in lactating beef cows
K. S. Hill[1], J. L. Edwards[1], R. R. Payton[1], F. N. Schrick[1], S. R. Campagna[2], E. A. Hessock[1], and S. E. Moorey[1], [1]University of Tennessee Institute of Agriculture and AgResearch, Knoxville, TN, USA; [2]University of Tennessee, Department of Chemistry, Knoxville, TN, USA*

69 Cellular differentiation and apoptosis of *in vitro*-produced *Bos indicus* embryos is affected by oxidative stress
R. A. Reis, K. Annes, L. H. Silva, A. M. Oliveira, and M. J. Sudano, Federal University of São Carlos, São Paulo–SP, Brazil*

71 Identifying PRDM family members potentially involved in epigenetic reprogramming after fertilization in porcine embryos
T. Montgomery[1], K. Uh[2], R. Prather[1,3], and K. Lee[1,3], [1]Division of Animal Sciences, University of Missouri, Columbia, MO, USA; [2]Futuristic Animal Resource and Research Center, Korea Research Institute of Bioscience and Biotechnology, Cheongju-si, South Korea; [3]National Swine Resource and Research Center, University of Missouri, Columbia, MO, USA*

73 Comparative analysis of gene expression and transposable elements dynamics in bovine early embryos across different conditions.
G. Li and E. Duan, Department of Animal Science, College of Agriculture and Life Sciences, Cornell University, Ithaca, New York, USA*

Early Pregnancy

Poster Session I: Early Pregnancy

Chair: Angela Gonella, Universidade De Sao Paulo

Brazos I-II

16:00 - 18:00

75 Impact of microplastics on porcine endometrial barrier integrity, functional receptivity, and maternal-embryo interaction

S. Arcuri[*1], G. Pennarossa[1], E. Orini[1], F. Gandolfi[2], and T. A. L. Brevini[1], [1]Università degli Studi di Milano, Department of Veterinary Medicine and Animal Sciences, Laboratory of Biomedical Embryology and Tissue Engineering, Lodi, Italy, [2]Università degli studi di Milano, Department of Agricultural and Environmental Sciences – Production, Landscape, Agroenergy, Milan, Italy*

77 Essential amino acid supplementation on bovine trophectoderm: Potential strategies to mitigate pregnancy loss in dairy cattle

B. Castro, F. Sosa, S. I. Arriola Apelo, and M. S. Ortega, University of Wisconsin–Madison, Madison, WI, USA States*

79 A single intrauterine infusion of flunixin meglumine on gestational day 29 results in pregnancy loss in beef cows

B. D. Poliakiwski[*1], D. J. Smith[1], O. Polanco[1], M. Muntari[1], Z. K. Seekford[1], G. C. Lamb[2], and K. G. Pohler[1], [1]Texas A&M University, Department of Animal Science, College Station, TX, USA; [2]Texas A&M AgriLife Research, College Station, TX, USA*

Educational Tools

Poster Session I: Educational Tools

Chair: Pouya Dini, University of California, Davis

Brazos I-II

16:00 – 18:00

81 Swimming upstream: Teaching resilience and research skills through sperm biology and "fail forward" learning

H. Weiner, University of Maryland, College Park, MD, USA*

Embryo Culture

Poster Session I: Embryo Culture

Chair: Dimitrios Rizos, Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria (INIA-CSIC)

Brazos I-II

16:00 – 18:00

83 L-Carnitine improves the bioenergetic profile of bovine embryos regardless of the protein source

H. Habermann[1], J. P. Kurzella[2], F. Rings[2], E. Tholen[2], M. Hoelker[1], and E. Held-Hoelker[*1,2], [1]Department of Animal Science, Biotechnology & Reproduction of Farm Animals, University of Goettingen, Goettingen, Germany; [2]Institute of Animal Science, University of Bonn, Bonn, Germany*

85 Effects of WNT-inhibition and activin A on *in vitro* development and pluripotency markers of bovine haploid parthenogenetic embryos

L. Aguila[*1], *F. Perez*[1], *R. Castillo*[1], *M. E. Arias*[1,2], *and R. Felmer*[1,3], [1]*Laboratory of Reproduction*, *Centre of Reproductive Biotechnology (CEBIOR-BIOREN)*, *Faculty of Agriculture and Environmental Sciences*, *Universidad de La Frontera*, *Temuco, La Araucania, Chile,* [2]*Department of Agricultural Production*, *Faculty of Agriculture and Environmental Sciences*, *Universidad de La Frontera*, *Temuco, La Araucania, Chile,* [3]*Department of Agricultural Sciences and Natural Resources*, *Faculty of Agriculture and Environmental Sciences*, *Universidad de La Frontera*, *Temuco, La Araucania, Chile*

87 Pharmacological inhibition of the AKT pathway during the late stages of bovine embryo culture: Underlying mechanisms of actions

M. El-Sheikh[*1,2], *A. A. Mesalam*[3], *S. H. Lee*[2], *S. E. Lee*[2], *S.-Y. Hyeon*[2], *S. Park*[2,4], *and I.-K. Kong*[2,4], [1]*Department of Microbial Biotechnology*, *Biotechnology Research Institute*, *National Research Centre, Dokki, Cairo, Egypt,* [2]*Division of Applied Life Science (BK21 Four), Gyeongsang National University*, *Jinju, Republic of Korea,* [3]*Department of Therapeutic Chemistry*, *Pharmaceutical and Drug Research Institute*, *National Research Centre*, *Dokki, Cairo, Egypt,* [4]*The King Kong Corp*, *Gyeongsang National University*, *Jinju, Republic of Korea*

89 Transcriptomic difference of *in vitro*-produced male and female early embryos in bovine

M. Shi[*1], *G. Li*[1], *H. Araujo*[1], *A. Lee*[1], *J. Zhang*[1], *S. H. Cheong*[2], *and J. E. Duan*[1], [1]*Department of Animal Science*, *College of Agriculture and Life Science*, *Cornell University*, *Ithaca, NY, USA,* [2]*Department of Clinical Science*, *College of Veterinary Medicine*, *Cornell University*, *Ithaca, NY, USA*

91 Haptoglobin addition during *in vitro* culture influences gene expression related to oxidative stress and lipid metabolism in bovine embryos

K. Cañón-Beltrán[1,2], *Y. N. Cajas*[3], *A. Gutierrez-Adán*[4], *F. A. García-Vázquez*[5,6], *M. J. Izquierdo-Rico*[7,8], *and D. Rizos*[*4], [1]*Department of Biochemistry and Molecular Biology*, *Veterinary Faculty*, *Complutense University of Madrid (UCM), Madrid, Spain,* [2]*Programa de Medicina Veterinaria y Zootecnia*, *Grupo Kyron*, *Corporación Universitaria del Huila (CORHUILA)*, *Huila, Colombia,* [3]*Department Agrarian Production*, *Technical University of Madrid*, *UPM*, *Madrid, Spain,* [4]*Department of Animal Reproduction*, *National Institute for Agriculture and Food Research and Technology (INIA)*, *Madrid, Spain,* [5]*Departamento de Fisiología*, *Facultad de Veterinaria*, *Universidad de Murcia*, *Murcia, Spain,* [6]*Instituto Murciano de Investigación Biosanitaria Pascual Parrilla*, *Murcia, Spain,* [7]*CEIR Campus Mare Nostrum (CMN)*, *Murcia, Spain,* [8]*Departamento de Biología Celular e Histología*, *Facultad de Medicina*, *Universidad de Murcia*, *Murcia, Spain*

93 Supplementation of tauroursodeoxycholic acid to the *in vitro* culture medium—Effects on the development rate and cryopreservability of bovine embryos

M. Schreiber[*1], *J. Kurzella*[2], *F. Rings*[2], *E. Held-Hoelker*[2], *and M. Hoelker*[1], [1]*Department of Animal Science, Biotechnology & Reproduction in Farm Animals, University of Goettingen*, *Goettingen, Lower Saxony, Germany,* [2]*Institute of Animal Science*, *Animal Breeding*, *Bonn, North Rhine Westphalia, Germany*

95 Impact of reducing *in vitro* fertilization period on cleavage and blastocyst development rates

S. S. Layek[*1], *S. Doultani*[2], *K. B. Raval*[1], *S. P. Patil*[1], *S. Raj*[3], *K. Karuppanasamy*[1], *and K. R. Jaiswar*[1], [1]*National Dairy Development Board*, *Anand, Gujarat, India;* [2]*Department of Zoology*, *Gujarat University*, *Navrangpura, Ahmedabad, India;* [3]*Sabarmati Asharam Gaushala*, *Kheda, Gujarat, India*

97 Interleukin-6 and leukemia inhibitory factor modify embryonic disc composition in post-hatching bovine blastocysts

M. A. Oliver and A. D. Ealy, School of Animal Science, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA*

99 Including extracellular vesicles from follicular fluid of competent oocytes during *in vitro* maturation improves blastocyst yield in cattle

R. Esposito[1], *F. Piscopo*[1], *L. Masiello*[1], *D. De Felice*[1], *A. L. Consiglio*[2], *E. Capra*[3], *M. Holker*[4], *and B. Gasparrini*[1], [1]*Department of Veterinary Medicine and Animal Production, University of Naples Federico II, Napoli, Italy;* [2]*Istituto di Scienze e Tecnologie Chimiche "Giulio Natta" Consiglio Nazionale delle Ricerche SCITEC-CNR, Milano, Italy;* [3]*Dipartimento di Medicina Veterinaria e Scienze Animali (DIVAS), Università degli Studi di Milano, Lodi, Italy;* [4]*Department of Animal Science, Biotechnology and Reproduction of Farm Animals, University of Göttingen, Göttingen, Germany*

101 Use of decellularized extracellular matrix as scaffold to create a three-dimensional endometrium
E. R. Martinez[1,2], *A. E. S. Viana*[3], *G. A. Ferronato*[1,2], *T. Oshiro*[3], *and M. A. M. M. Ferraz*[1,2], [1]*Gene Center, Ludwig-Maximilians University of Munich, Munich, Germany;* [2]*Clinic of Ruminants, Ludwig-Maximilians University of Munich, Oberschleißheim, Germany;* [3]*Department of Veterinary Medicine, Faculty of Zootechnic and Food Engineering, University of São Paulo, Pirassununga, São Paulo*

103 Evaluating the IFN-t content in extracellular vesicles released by bovine embryos produced *in vitro* in the blastocyst stage
I. Martinez-Hormaza, K. L. Barra, J. Cabezas, D. Camaano, L. Méndez, B. Ibáñez, F. O. Castro, and L. Rodriguez-Alvarez, Universidad de Concepcion, Chillan, Nuble, Chile*

105 Generation of bovine oviductal organoids with apical-out polarity
B. Dunn, M. Meyers, R. Thompson, D. Tesfaye, and F. Hollinshead, Colorado State University, Fort Collins, CO, USA*

107 Mitigation of bovine oocyte aging through NMN supplementation during *in vitro* maturation
A. C. Carrillo Gomez[1], *F. Correa Monsalve*[2], *J. Velásquez Vasquez*[2], *V. Torres*[3], *M. Duque Rodriguez*[1,2], *and R. Urrego*[1], [1]*Grupo INCA-CES, Facultad de Medicina Veterinaria y Zootecnia, Universidad CES, Medellín, Antioquia, Colombia;* [2]*Grupo de investigación en biotecnología animal (GIBA) Facultad de Ciencias Agrarias, Politécnico Colombiano Jaime Isaza Cadavid, Medellín, Antioquia, Colombia;* [3]*Grupo Ingennova, Universidad CES, Medellín, Antioquia, Colombia*

Embryo Manipulation

Poster Session I: Embryo Manipulation

Chair: Pat Lonergan, University College Dublin
Brazos I-II
16:00 - 18:00

109 Evaluating bovine embryo developmental competence to establish pregnancy using noninvasive RNA-seq and morphological analysis
S. A. Khan, N. Mtango, K. Jiang, J. Betthauser, S. Plummer, M. Campbell, B. Brett, G. Ricon, R. L. Krisher, and S. R. Rajput, Genus plc, DeForest, WI, USA*

Embryo Transfer

Poster Session I: Embryo Transfer

Chair: Jeremy Block, University of Wyoming
Brazos I-II
16:00 – 18:00

111 Effect of dominant follicle size on the form and function of the corpus luteum in alpacas (*Vicugna pacos*)
A. I. Arrayás[1], *A. Yáñez*[1], *U. H. Perez*[2], *A. M. López*[3], *E. Y. Torres*[2], *and J. M. Palomino*[1],

[1]*Universidad Cientifica del Sur, Lima, Lima, Perú;* [2]*Universidad Nacional del Altiplano, Puno, Puno, Perú;* [3]*Universidad Nacional de San Martin, Tarapoto, San Martin, Perú*

113 Embryo transfer using Inteli-Straws with a wireless cloud-based data acquisition and management tool

*M. E. Kjelland**[1,2], *H. Álvarez-Gallardo*[3], *V. A. Rubio-Santillanes*[4], *S. Romo*[5], *C. Peña*[6], *N. Eagon*[7], *T. Gray*[8], *and T. K. Stroud*[8], [1]*Conservation, Genetics & Biotech, LLC, Valley City, ND, USA;* [2]*Mayville State University, Mayville, ND, USA;* [3]*Centro Nacional de Recursos Genéticos - INIFAP, Tepatitlán, Jalisco, México;* [4]*Facultad de Zootecnia y Ecología, Universidad Autónoma de Chihuahua, Chihuahua, Chihuahua, México;* [5]*Facultad de Estudios Superiores Cuautitlán - UNAM, Cuautitlán, Estado de México, México;* [6]*Texas A&M University, College Station, TX, USA;* [7]*Eagon Ranch, Marmarth, North Dakota, USA;* [8]*Hoofstock Genetics, LLC, Ranger, TX, USA*

115 The use of an electronic cloud-based estrus detection device to determine estrus in Girolando cross-bred recipients

*R. Anderson-Bush**[1], *E. A. Bangert*[1], *D. Vandever*[2], *J. Jackson*[3], *W. Jackson*[3], *and M. B. Wheeler*[1], [1]*University of Illinois Urbana-Champaign, Urbana, IL, USA;* [2]*Innovative Veterinary Services, Franklin, WI, USA;* [3]*Microdyne, LLC, St. Joseph, MO, USA*

117 Did embryo transfer improve dairy fertility during the recent warming?

*H. Nabenishi**[1], *N. Nozaki*[2], *S. Ochi*[2], *and T. Sasaki*[2], [1]*Laboratory of Animal Feeding and Management, Department of Animal Science, School of Veterinary Medicine, Kitasato University, Higashi, Aomori, Japan;* [2]*Research & Development Center For Dairy Farming, Megmilk Snow Brand Co., Ltd, Higashi-ku, Sapporo City, Hokkaido, Japan*

119 Effect of GnRH treatment at the time of embryo transfer on pregnancy rate and embryo/fetal losses in recipient cows

*J. Sola**[1], *E. Ponte*[1], *M. Camaño*[1], *A. Tribulo*[1], *and G. Bó*[1,2], [1]*Instituto de Reproducción Animal Córdoba (IRAC), Córdoba, Argentina;* [2]*Instituto AP de Ciencias Basicas y Aplicadas, Universidad Nacional de Villa Maria (UNMV), Córdoba, Argentina*

121 Relationship between human and computer vision-based assessments of luteal blood perfusion in embryo transfer recipients

L. Melo Goncalves, G. Ragozoni Chiconato, S. Burato, A. Carvalho Alves, and P. L. P. Fontes, University of Georgia, Department of Animal and Dairy Sciences, Athens, GA, USA*

123 Pregnancy and calving rates in lactating *Bos indicus* × *Bos taurus* dairy recipient cows synchronized with two protocols with lengthened proestrus

A. V. Cedeño[1,2], *F. Paucar*[1], *L. Pinargote*[1], *G. Romero*[1], *and G. A. Bó**[2,3], [1]*IRAE, Instituto de Reproducción Animal de Ecuador, Guayaquil, Ecuador;* [2]*UNVM, Instituto A. P. de Ciencias Básicas y Aplicadas, Universidad Nacional de Villa María, Córdoba, Argentina;* [3]*IRAC, Instituto de Reproducción Animal de Córdoba, Córdoba, Argentina*

215 Preliminary assessment of embryo transfer in crossbred dairy cattle in Bangladesh

N. S. Juyena, Department of Surgery and Obstetrics, Bangladesh Agricultural University, Bangladesh*

Epidemiology/Diseases

Poster Session I: Epidemiology/Diseases

Chair: John Bromfield, University of Florida
Brazos I-II and Corridor
16:00 - 18:00

124 Seroprevalence characterization of porcine follicular fluid from adult sows and prepubertal gilts

*J. Romero-Aguirregomezcorta**[1,2], *A. Juan*[3], *A. M. Masegosa-Domínguez*[3], *L. Sarrias*[1], *A. A. Vreeman*[3], *G. Pastor*[3], *A. Martínez*[3], *R. Romar*[1,2], *and P. Coy*[1,2], [1]*Department of Physiology, Universidad de Murcia, International Excellence Campus for Higher Education and Research*

(Campus Mare Nostrum), Murcia, Spain; [2]Institute for Biomedical Research of Murcia (IMIB), Murcia, Spain; [3]EmbryoCloud SL, Murcia, Spain

125 Toward a new recategorization for pathogen risk transmission via *in vivo*-derived and *in vitro*-produced embryos: An international survey to facilitate the recategorization mission
H. de Mori[1], G. Perry[2,3], and L. Briand-Amirat[1,2], [1]Oniris, Nantes Atlantic Veterinary College, Nantes, France; [2]IETS Health and Safety Advisory Committee; [3]IETS, HASAC Chair, Jerrabomberra, NSW, Australia*

126 Uncovering the metabolomic fingerprint of metritis in dairy buffalo: Preliminary results
M. A. Kosior[1], M. T. Verde[2], A. Staropoli[3], F. Piscopo[1], R. Esposito[1], L. Masiello[1], D. De Felice[1], F. Vinale[3], and B. Gasparrini[1], [1]Department of Veterinary Medicine and Animal Production, University of Naples Federico II, Napoli, Italy; [2]Department of Electrical Engineering and Information Technology Federico II, Napoli, Italy; [3]Department of Agricultural Sciences, University of Naples Federico II, Napoli, Italy*

Fertilization/ICSI/Activation

Poster Session I: Fertilization/ICSI/Activation

Chair: Katrin Hinrichs, University of Pennsylvania
Brazos I-II
16:00 – 18:00

127 Extracellular vesicles from regions of turkeys' oviduct inhibit sperm motility without significant effect on sperm viability
M. Rubilar, D. Caamaño, L. Méndez, Y. S. Wong, I. Martínez, E. Inostrosa, L. L. Rodríguez-Alvarez, and F. O. Castro, Department of Animal Science, Faculty of Veterinary Sciences, Universidad de Concepción, Chillán, Chile*

129 *In vitro* embryo production using a sperm separation device: Effects of culture system and sperm concentration
M. Xavier[1,2], M. Peixer[1], L. Oliveira[1], L. Martins[3], O. Faria[3], R. Andrade[2], and J. Viana[3,4], [1]Bio Biotecnologia da Reproducao, Brasilia, DF, Brazil; [2]Universidade Catolica de Brasilia, Brasilia, DF, Brazil; [3]Universidade de Brasilia, Brasilia, DF, Brazil; [4]Embrapa Recursos Geneticos e Biotecnologia, Brasilia, DF, Brazil*

131 Embryo production after intracytoplasmic sperm injection using stallion semen refrozen in different extenders
L. F. C. Brito[1], M. R. Felix[1], E. V. M. Andino[2], and K. Hinrichs[1], [1]Department of Clinical Studies, New Bolton Center, University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA, USA; [2]Select Breeder Services, Chesapeake City, MD, USA*

133 Cleavage rates after bovine IVF are affected by relative abundance of sperm phospholipase C zeta 1
R. Gonzalez-Castro, C. Porflidt, J. Bartfield, and E. Carnevale, Colorado State University, Fort Collins, CO, USA*

135 Vortex-based thawing of pelleted frozen porcine semen prepared for IVF—A CASA and flow cytometry analysis
B. R. Susmilch and F. A. Diaz, School of Animal Sciences, Louisiana State University Agricultural Center, Baton Rouge, LA, USA*

Folliculogenesis/Oogenesis

Poster Session I: Folliculogenesis/Oogenesis

Chair: Hilde Aardema, Utrecht University
Brazos I-II
16:00 - 18:00

137 Effects of lysophosphatidic acid on follicle development in mouse ovaries
R. Kanazawa[1], N. Shomura[1], N. Shibuki[1], M. Hayakawa[1], K. Morii[1], K. Sato[1], M. Yamanaka[1], J. Watanabe[1], J. Kobayashi[2], K. Kawamura[3], and M. Yokoo[1], [1]Akita Prefectural University, Oogata, Akita, Japan; [2]Miyagi University, Sendai, Miyagi, Japan; [3]Juntendo University, Bunkyo-ku, Tokyo, Japan*

139 Transcriptome analysis of mouse embryos developed from *in vitro* follicle culture-derived oocytes provides insights into transcriptional dysregulation at the cleavage stage
A. Mohammadi-Sangcheshmeh[1], Q. Cao[1], M. Sharma[1], and E. J. Grow[1], [1]Cecil H. and Ida Green Center for Reproductive Biology Sciences, University of Texas Southwestern Medical Center, Dallas, TX, USA; [2]Department of Obstetrics and Gynecology, University of Texas Southwestern Medical Center, Dallas, TX, USA*

141 Antioxidant approach to mitigate the impact of thermal stress on bovine granulosa cell function
G. G. Ramirez, A. Gad, N. G. Menjivar, and D. Testaye, Department of Biomedical Sciences, Animal Reproduction and Biotechnology Laboratory, Colorado State University, Fort Collins, CO, USA*

143 Impact of higher estrus-associated temperatures and mounting activity on the periovulatory follicular fluid metabolome in beef heifers
P. Fioravanti, S. E. Moorey, I. E. Batey, M. D. Mills, K. S. Hill, A. Pollock, R. R. Payton, E. Hessock, F. N. Schrick, S. R. Campagna, M. A. O'Neil, and J. L. Edwards, University of Tennessee Institute of Agriculture, Knoxville, TN, USA*

145 Altered microRNA profiles in aged human follicular fluid extracellular vesicles reflect response to oxidative stress
H. M. Rogers[1,2], A. Gad[1,2], N. G. Menjivar[2], G. K. Cork[1], W. B. Schoolcraft[1], Y. Yuan[1], and D. Tesfaye[2], [1]Colorado Center for Reproductive Medicine, Lone Tree, Colorado, USA; [2]Department of Biomedical Sciences, Animal Reproduction and Biotechnology Laboratory, Colorado State University, Fort Collins, CO, USA*

147 Proteomic insights into the maturing follicle: A study of growing equine follicles
S. P. Marchio[1], H. El-Sheikh Ali[2], K. E. Scoggin[2], C. B. Fernandes[3], A. Claes[4], and Y. L. Boakari[1], [1]Department of Large Animal Clinical Sciences, School of Veterinary Medicine & Biomedical Sciences, Texas A&M University, College Station, TX, USA; [2]Department of Veterinary Science, Gluck Equine Research Center, University of Kentucky, Lexington, KY, USA; [3]Department of Animal Reproduction and Veterinary Radiology, School of Veterinary Medicine and Animal Science, São Paulo University, São Paulo, SP, Brazil; [4]Department of Equine Sciences, Section of Reproduction, University of Utrecht, Utrecht, the Netherlands*

149 Responses of bovine ovarian preantral follicles to FSH *in vitro* and *in vivo*
A. J. Morton[1], T. de Castro[2], L. F. Lanzon[3], M. S. El Azzi[4], M. C. Wiltbank[4], and A. C. Denicol[1], [1]Department of Animal Science, University of California Davis, Davis, CA, USA; [2]School of Veterinary Medicine, University of California Davis, Davis, CA, USA; [3]Embryo, Inc, Turlock, CA, USA; [4]Department of Animal and Dairy Sciences, University of Wisconsin–Madison, Madison, WI, USA*

Genetic Engineering

Poster Session I: Genetic Engineering

Chair: Olinda Briski, Universidad De Buenos Aires
Brazos I-II
16:00 – 18:00

151 Assessing the efficiency of cytosine base editors targeting *MYO7A* in bovine embryos
J. Ryu[*1], R. Tippner Hedges[1], C. Hanna[1], J. V. Brigande[2], M. Neuringer[3], and J. D. Henebold[1,4], [1]Division of Reproductive & Developmental Sciences, Oregon National Primate Research Center, Oregon Health & Science University, Beaverton, OR, USA; [2]Department of Otolaryngology, Oregon Hearing Research Center, Oregon Health & Science University, Portland, OR, USA; [3]Division of Neuroscience, Oregon National Primate Research Center, Oregon Health & Science University, Beaverton, OR, USA; [4]Department of Obstetrics & Gynecology, Oregon Health & Science University, Portland, OR, USA*

153 Cas9-expressing cattle using all-in-one CRISPR/Cas9 for bovine genome editing
D.-H. Kwon[*1], G.-M. Gim[1,2], S.-Y. Yum[1,2], K.-H. Eom[1,2], S.-J. Lee[3], S.-E. Han[1], W.-S. Lee[3], W.-J. Choi[1], J.-H. Lee[2], D.-J. Jung[4], D.-H. Kim[5], J.-K. Yi[6], B. Moon[1], W.-Y. Lee[2], G. Jang[1,2], [1]Seoul National University, Department of Theriogenology, College of Veterinary Medicine and the Research Institute for Veterinary Science, Seoul National University, Seoul, Republic of Korea; [2]LARTBio, LARTBio Inc, Seoul, Republic of Korea; [3]Seoul Milk Coop, Embryo Research Center, Seoul Milk Coop, Gyeonggi-do, Republic of Korea; [4]Gyeongsangbukdo Livestock Research Institute, Gyeongsangbukdo Livestock Research Institute, Yeongju, GyeongSang Buk-Do, Republic of Korea; [5]Chonnam National University, Department of Animal Science, Chonnam National University, Gwangju, Republic of Korea; [6]Hankyong National University, School of Animal Life Convergence Science, Hankyong National University, Anseong, Republic of Korea*

155 Effect of *PAG7* ablation on matrix remodeling markers in the bovine endometrium
E. Moreno[*1], K. G. Pohler[2], and M. S. Ortega[1], [1]University of Wisconsin–Madison, Madison, WI, USA; [2]Texas A&M University, College Station, TX, USA*

Male Physiology

Poster Session I: Male Physiology

Chair: Luis de Aguiar, University of Florida
Brazos I-II
16:00 - 18:00

157 Chemical profiling of testicular parenchyma in rams using an exploration of echointensity bands and a novel computer algorithm (r-Algo) increasing precision and accuracy of echotextural analyses: A sequel
P. M. Bartlewski[*1], J. Bartlewski[1], I. Farid[1], N. Hamid[1], and B. Ahmadi[2], [1]University of Guelph, Ontario Veterinary College, Department of Biomedical Sciences, Guelph, Ontario, Canada, [2]Rowan University, Shreiber School of Veterinary Medicine, Department of Anatomy and Physiology, Mullica Hill, New Jersey, USA*

159 Epididymal sperm and epididymosomes interaction before *in vitro* fertilization modulates sperm fertility potential in cattle
M. B. R. Alves[1,2], A. B. B. Moura[2], M. A. de Almeida[2], L. G. Haupenthal[2], R. B. Rangel[2], J. C. da Silveira[2], and F. Perecin[*2], [1]Faculdade de Ciências Agrárias e Veterinárias, FCAV-UNESP, Jaboticabal, SP, Brazil; [2]Faculdade de Zootecnia e Engenharia de Alimentos, FZEA-USP, Pirassununga, SP, Brazil*

161 Proteomics analysis of buffalo ejaculates having slow, normal, and fast nondirectional motile sperm
K. N. Bansal[*1], P. Kumar[2], D. Jhamb[1], and M. Gaur[1], [1]College of Veterinary and Animal Science, Navania, Udaipur, Rajasthan, India; [2]Central Institute of Research on Buffaloes, Hisar, Haryana, India*

163 Sperm small noncoding RNA biomarkers associated with ram fertility
M. Bodu[*1,3], M. Hitit[2,3], and E. Memili[3], [1]Department of Reproduction and Artificial Insemination, Faculty of Veterinary Medicine, Selcuk University, Konya, Türkiye; [2]Department of Genetics, Faculty of Veterinary Medicine, Kastamonu University, Kastamonu, Türkiye; [3]College of Agriculture, Food and Natural Resources, Cooperative Agricultural Research Center, Prairie View A&M University, Prairie View, TX, USA*

165 The effect of different extenders and storage period on sperm quality of Nguni bulls semen equilibrated at 5°C
M. R. Ledwaba[*1,2], M. L. Mphaphathi[1], M. A. Thema[1], M. D. Sebopela[1], N. C. Negota[3], M. M. Seshoka[4], T. C. Chokoe[5], and H. A. O'Neill[2], [1]Agricultural Research Council, Animal Production, Irene, South Africa; [2]University of the Free State, Department of Animal, Wildlife, and Grassland Sciences, Bloemfontein, South Africa; [3]University of Venda, Department of Animal Science, Reproduction, and Physiology, Thohoyandou, South Africa; [4]Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform, Vaalharts Research Station, Jan Kempdorp, South Africa; [5]Department of Agriculture, Land Reform and Rural Development, Pretoria, South Africa*

167 A decellularized extracellular matrix hydrogel promotes the development of vascularized testicular spheroids
N. Grechi[*1,2], G. Ferronato[1,2], and M. Ferraz[1,2], [1]Clinic of Ruminants, Ludwig-Maximilians University of Munich, Munich, Germany; [2]Gene Center, Ludwig-Maximilians University of Munich, Oberschleißheim, Germany*

169 L-Carnitine dietary supplementation improved the quality of dairy goat semen collected during the breeding season
C. Henry[*1], R. Narlagiri[1], R. Kolikapongu[1], A. Miller[1], B. Kouakou[1], M. Singh[1], A. M. Shahat[1], N. C. Whitley[1], I. A. Polejaeva[2], and A. R. Moawad[1], [1]Animal Science Program, College of Agriculture, Family Sciences and Technology, Fort Valley State University, Fort Valley, GA, USA; [2]Department of Animal, Dairy and Veterinary Sciences, College of Agriculture and Applied Sciences, Utah State University, Logan, UT, USA*

171 Association between Angus bulls breeding soundness exam classification and expected progeny differences
A. Lonas, S. Roberts, T. Rowan, L. Strickland, and S. Zoca, University of Tennessee, Knoxville, TN, USA*

Oestrus Synchronization/Artificial Insemination

Poster Session I: Oestrus Synchronization/Artificial Insemination

Chair: Pedro Monteiro, University of Florida
Brazos I-II
16:00 – 18:00

173 Association between follicular characteristics and ovulatory response to the last GnRH of the Double Ovsynch and pregnancy per AI in first service Holstein multiparous cows.
I. M. R. Leão, T. Valdes-Arciniega, E. Anta-Galvan, M. S. El Azzi, and J. P. N. Martins, School of Veterinary Medicine, University of Wisconsin–Madison, Madison, WI, USA*

175 The effect of cetrorelix on follicular dynamics and ovulation in beef cattle in high versus low progesterone milieu

D. R. Farmer[*1], G. P. Adams[1], C. E. P. Leonardi[2], K. V. Waeckerlin[1], and J. Singh[1], [1]University of Saskatchewan, Saskatoon, Saskatchewan, Canada; [2]Universidade Federal de Santa Maria, Santa Maria, RS, Brazil*

Oocyte Collection

Poster Session I: Oocyte Collection

Chair: Sofia Ortega, University of Wisconsin–Madison
Brazos I-II
16:00 – 18:00

177 Periparturient olive oil supplementation increases oocyte yield in dairy cows
F. Piscopo[1,2], B. Gasparrini[2], R. Van Halderen[1], J. F. Brouwers[3], J. Van den Broek[1], H. T. A. Van Tol[1], P. L. A. M. Vos[1], and H. Aardema[*1], [1]Farm Animal Health, department of Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands; [2]Department of Veterinary Medicine and Animal Production, University of Napoli Federico II, Naples, Italy; [3]Research Group Analysis Techniques in the Life Sciences, Centre of Expertise Perspective in Health, Breda, the Netherlands*

179 Oocyte recovery and maturation rates in Estonian sport horses
E. Tsopp[*1], A. Viljaste-Seera[1], A. Gambini[4,5], A. Kavak[2], and A. Reilent[3], [1]Chair of Animal Breeding and Biotechnology, Institute of Veterinary Medicine and Animal Sciences, Estonian University of Life Sciences, Tartu, Tartumaa, Estonia; [2]Chair of Clinical Veterinary Medicine, Institute of Veterinary Medicine and Animal Sciences, Estonian University of Life Sciences, Tartu, Tartumaa, Estonia; [3]Chair of Veterinary Biomedicine and Food Hygiene, Estonian University of Life Sciences, Tartu, Tartumaa, Estonia; [4]School of Agriculture and Food Sustainability, The University of Queensland, Brisbane, Australia; [5]School of Veterinary Science, The University of Queensland, Brisbane, Australia*

181 Age-related changes in oocyte yield and embryonic development in light horse mares
R. E. Martinez[*1], M. G. Souza[2], S. R. Teague[2], and R. L. Beck[2], [1]Tarleton State University, Stephenville, TX, USA; [2]In Foal Inc, Millsap, TX, USA*

183 Effects of feeding nonstructural carbohydrates on the metabolic function of oocytes and granulosa cells in older mares
G. D. Catandi[*1,2], K. J. Fresa[1], R. A. Gonzalez-Castro[1], M. Cheng[3], T. W. Chen[3], A. J. Chicco[1], and E. M. Carnevale[1], [1]Department of Biomedical Sciences, College of Veterinary Medicine and Biomedical Sciences, Colorado State University, Fort Collins, CO, USA; [2]Department of Veterinary Clinical Sciences, College of Veterinary Medicine, Oklahoma State University, Stillwater, OK, USA; [3]Department of Electrical and Computer Engineering, Walter Scott Jr College of Engineering, Colorado State University, Fort Collins, CO, USA*

Oocyte Maturation

Poster Session I: Oocyte Maturation

Chair: Christine Wrenzycki, Justus-Liebig-University Giessen
Brazos I-II
16:00 – 18:00

185 Ultrastructure of staghorn coral (*Acropora cervicornis*) oocytes following spawning and fertilization
L. Penfold[*1], P. M. Maya[2], J. Gillis[1], and K. Kelley[3], [1]South East Zoo Alliance for Reproduction & Conservation, Yulee, FL, USA; [2]Coral Restoration Foundation, Tavernier, FL, USA; [3]University of Florida, Gainesville, FL, USA*

187 Effect of *Lactobacillus*-conditioned medium supplemented during *in vitro* maturation of bovine COCs on mRNA expression patterns in cumulus cells

O. Granacher[1], B. Zimmer[1], B. Rabenau[1], A.-S. Fries[1], C. Gabler[2], and C. Wrenzycki[1], [1]Chair for Molecular Reproductive Medicine, Veterinary Clinic for Reproductive Medicine and Neonatology, Faculty of Veterinary Medicine, Justus-Liebig-University Giessen, Giessen, Germany; [2]Institute of Veterinary Biochemistry, Department of Veterinary Medicine, Free University of Berlin, Berlin, Germany*

189 *In vitro* prematuration of summer bovine cumulus–oocyte complexes in winter follicular fluid increases oocyte competence and changes cumulus cell microRNA profile

G. Etchandy[1], B. Barcelona[1], M. J. Benítez-Galeano[2], Z. Ramos[3], C. Viñoles[3], N. Rodríguez-Osorio[2], and F. Báez[1], [1]Instituto Superior de la Carne, Centro Universitario Regional Noreste, Universidad de la República, Tacuarembó, Uruguay; [2]Unidad de Genómica y Bioinformática, Departamento de Ciencias Biológicas, Centro Universitario Regional Litoral Norte, Universidad de la República, Salto, Uruguay; [3]Centro de Salud Reproductiva de Rumiantes en Sistemas Agroforestales, Centro Universitario Regional Noreste, Universidad de la República, Cerro Largo, Uruguay*

191 Effect of different concentrations of eugenol in maturation medium on the maturation, oxidative status, and developmental competence of porcine oocytes

Q. Lin, N. Torigoe, B. Liu, M. Nagahara, F. Tanihara, and T. Otoi, Bio-Innovation Research Center, Tokushima University, Tokushima, Japan*

193 Extracellular vesicles coupled miRNAs modulate bovine oocyte response to thermal stress

A. Gad, N. G. Menjivar, and D. Tesfaye, Animal Reproduction and Biotechnology Laboratory, Department of Biomedical Sciences, Colorado State University, Fort Collins, CO, USA*

195 Vasoconstriction induced by ergot alkaloids affects oocyte developmental capacity in pregnant sheep

C. Elgarresta[1], V. Mueller[1], I. Zarzaca[1], H. Culler[1], S. K. Duckett[1], J. L. Klotz[2], M. J. Hersom[1], and C. M. Checura[1], [1]Clemson University, Clemson, SC, USA; [2]USDA-ARS Forage-Animal Production Research Unit, Lexington, KY, USA*

197 Influence of cumulus cell morphology on nuclear and cytoplasmic maturation markers of equine oocytes

S. B. Cousseau[1], T. Adams[1], M. Mitchell[1], M. Sansineña[3], and C. Pinto[2], [1]Louisiana State University, School of Veterinary Medicine, Baton Rouge, Louisiana, USA; [2]Tufts University, Cummings School of Veterinary Medicine, North Grafton, Massachusetts, USA; [3]Universidad Catolica Argentina, Facultad de Ingeniería y Ciencias Agrarias, Buenos Aires, Buenos Aires, Argentina*

199 Effects of stem cell factor on the *in vitro* maturation of porcine oocytes and subsequent development following *in vitro* fertilization

J. D. Yoon[1,2], S. Mony[1], E. Kiesewetter[1], R. Sullivan[2], J. Kim[1], B. Redel[3], K. Uh[4], R. S. Prather[1,2], and K. Lee[1,2], [1]Division of Animal Science, College of Agriculture Food and Natural Resources, University of Missouri, Columbia, MO, USA; [2]National Swine Resource and Research Center, Columbia, Missouri, USA; [3]United States Department of Agriculture–Agriculture Research Service, Plant Genetics Research Unit, Columbia, MO, USA; [4]Futuristic Animal Resource & Research Center (FARRC), Cheongju, Chungcheongbuk-do, Republic of Korea*

201 Transcriptional profiling of cumulus cells from FGF, LIF, and IGF1 matured oocytes identifies junctional and structural pathways as key components in oocyte maturation

C. Green[1], A. Jaworski[1], K. Lee[1,2], R. S. Prather[1,2], and B. K. Redel[3], [1]Divison of Animal Sciences, College of Agriculture Food and Natural Resources, University of Missouri, Columbia, MO, USA; [2]National Swine Resource and Research Center, Columbia, MO, USA; [3]United States Deparment of Agriculture–Agriculture Research Service, Plant Genetics Research Unit, Columbia MO, USA*

Periconceptional/Fetal Programming

Poster Session I: Periconceptional/Fetal Programming

Chair: Alan Ealy, Virginia Polytechnic Institute and State University

Brazos I-II

16:00 – 18:00

203 Effects of prenatal heat stress on subsequent reproductive outcomes in replacement Holstein heifers up to the first lactation

I. Cuevas-Gómez[1], J. Lozano[2], D. Rizos[1], and J. M. Sánchez[3], [1]Departmento de Reproducción Animal, Instituto Nacional de Investigación y Tecnología Agraria y Alimentaria (INIA-CSIC), Madrid, Spain; [2]Explotación Agropecuaria "Las Rozuelas del Valle S.L." QQTorrecampo, Córdoba, Spain; [3]Instituto Andaluz de Investigación y Formación Agraria, Pesquera, Alimentaria y de la Producción Ecológica (IFAPA), Hinojosa del Duque, Córdoba, Spain*

Stem Cells

Poster Session I: Stem Cells

Chair: Jorge Piedrahita, North Carolina State University

Brazos I-II

16:00 – 18:00

205 Establishment of bovine extra-embryonic endoderm stem cells

H. Ming, G. N. Scatolin, R. Iyyappan, and Z. L. Jiang, University of Florida, Gainesville, Florida, USA*

207 One injection, one calf: Control of metritis using umbilical cord blood-derived mesenchymal stem cells in livestock

V. Verma, S. Ghai, S. Saini, P. Kumar, S. Chopra, P. Pilania, S. Kumar, S. Kumar, and D. Malakar, Animal Biotechnology Centre, National Dairy Research Institute, Karnal, Haryana, India*

Superstimulation

Poster Session I: Superstimulation

Chair: Roberto Sartori, University of São Paulo

Brazos I-II

16:00 – 18:00

209 Ovarian stimulation with FSH in low AMH heifers increases ovarian response and oocyte developmental competence in a dose-limited manner

J. C. L. Motta[1], R. V. Sala[2], V. A. Absalon-Medina[2,1], V. C. Fricke[2], P. J. Ross[3], J. F. Moreno[3], and A. Garcia-Guerra[*1], [1]Department of Animal Sciences, The Ohio State University, Columbus, OH, USA; [2]STgenetics, South Charleston, OH, USA; [3]STgenetics, Navasota, TX, USA*

211 Dose determination and distribution of a human recombinant FSH (rhFSH) to superovulate beef cattle in synthetic breeds (*Bos indicus* × *Bos taurus*)

E. Ponte[*1,2], J. Sola[1], A. Tribulo[1], P. Tribulo[3,4], D. Beltramo[5], J. Oviedo[1], R. Tribulo[1], H. Tribulo[1], and G. Bo[1,6], [1]Instituto de Reproduccion Animal de Cordoba, Pozo del Tigre, Cordoba, Argentina; [2]UNR, Facultad de Ciencias Veterinarias, Casilda, Santa Fe, Argentina; [3]UNC, FCA, Cordoba, Argentina; [4]Conicet, Argentina; [5]Ceprocor, Cordoba, Cordoba, Argentina; [6]Instituto A.P. de Ciencias Basicas y Aplicadas, Universidad de Villa Maria, Villa Maria, Cordoba, Argentina*

Undergraduate Poster Competition Finalists

Poster Session I: Undergraduate Poster Competition Finalists

Chair: Rolando Pasquariello, University of Milan
Brazos I-II
16:00 – 18:00

213 The efficacy of sericin in feline IVF and parthenogenesis and its potential in jaguar cloning
J. Velasquez Vasquez[*1], *F. Correa Monsalve*[1], *A. Carrillo Gomez*[2], *M. F. Yauri*[3], *F. Allegroni*[3], *O. H. Velasquez Arboleda*[1], *R. Urrego*[2], *A. J. Sestelo*[4], *R. Fernandez-Martín*[3], *D. F. Salamone*[3], *and M. Duque Rodriguez*[1,2], [1]*Grupo de Investigación en Biotecnología Animal*, *Facultad de Ciencias Agrarias*, *Politécnico Colombiano Jaime Isaza Cadavid*, *Medellín, Antioquia, Colombia;* [2]*Grupo INCA-CES*, *Facultad de Medicina Veterinaria y Zootecnia*, *Universidad CES*, *Medellín, Antioquia, Colombia;* [3]*Facultad de Agronomía*, *Universidad de Buenos Aires (FAUBA)*, *Capital Federal, Buenos Aires, Argentina;* [4]*Ecoparque Interactivo de Ciudad Autónoma de Buenos Aires*, *Capital Federal, Buenos Aires, Argentina*

212 Equine IVF and ICSI can benefit from microfluidics-based sperm selection
I. Tirado-Perez, S. Martin-Pelaez, A. Kartasheva, K. Takahashi, S. Meyers, P. Dini, and A. De la Fuente, School of Veterinary Medicine, University of California, Davis*, *Davis, California, USA*

214 Impact of bovine serum albumin concentrations on morphology of Fowler's toad (*Anaxyrus fowleri*) sperm during short-term storage
J. A. Dill[*1], *M. K. Roy*[2], *R. E. Naranjo*[2], *C. K. Kouba*[2], *and A. J. Kouba*[1], [1]*Wildlife*, *Fisheries and Aquaculture*, *Mississippi State University*, *Mississippi State, MS, USA;* [2]*Biochemistry and Molecular Biology*, *Entomology*, *and Plant Pathology*, *Mississippi State University*, *Mississippi State, MS, USA*

Poster Session II

Monday, January 20, 18:30 – 20:30

Brazos I-II

Case Reports and Field Data

Poster Session II: Case Reports and Field Data

Chair: Andres Vera Cedeno, Instituto de Reproducción Animal Ecuador IRAE
Brazos I-II
16:30 – 18:30

10 New insights to sire influence on embryo health: Evaluating embryo morphokinetic activity in top TPI Holstein bulls
R. Killingsworth[*1,2], C. Hayden[2], M. Rae[2,3], and C. Wells[2], [1]Shamrock Veterinary Hospital, Inc, Shamrock, TX, USA; [2]Emgenisys, Inc, Driftwood, TX, USA; [3]Yellowstone Genetics, Fort Morgan, CO, USA*

8 New techniques for small ruminant embryo evaluation and selection in routine practice
C. Hayden[*1], C. E. Wells[1], and R. Killingsworth[1,2], [1]EmGenisys, Inc, Houston, TX, USA; [2]Shamrock Veterinary Clinic, Shamrock, TX, USA*

12 A paradoxical response to different presentations of progesterone in buffaloes in fixed-time insemination programs
C. Navarro[1], A. Bandeo[1,2], J. A. Berdugo[*1,3], W. Cardona-Maya[4], P. Ponce[1,2], N. Vallejos[1,5], G. A. Crudeli[6], P. Maldona-Vargas[1], and J. L. Konrad[1,2], [1]Instituto de Biotecnología de Reproducción Animal (IBRA), Facultad de Ciencias Veterinarias, Universidad Nacional del Nordeste (UNNE), Corrientes, Corrientes, Argentina; [2]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Buenos Aires, Argentina; [3]Grupo de Investigación BIOGEM, Universidad Nacional de Colombia, Colombia, Medellin, Antoquia, Colombia; [4]Grupo de Reproducción, Universidad de Antioquia, Medellín, Colombia; [5]Instituto Nacional de Tecnología Agropecuaria (INTA), Corrientes, Corrientes, Argentina; [6]Universidad Nacional del Chaco Austral (UNCAUS), Saenz Peña, Chaco, Argentina*

14 Multidimensional imaging of *in vitro*-produced bovine embryos—Preliminary data
A.-S. Fries and C. Wrenzycki, Veterinary Clinic of Reproduction Medicine and Neonatology, Justus-Liebig-University Giessen, Giessen, Germany*

16 Genetic contribution of the female to embryo development in dairy cattle
B. Chasi[*1], M. Schmitt[2], M. M. Herlihy[2], J. B. Cole[3,4], F. Peñagaricano[1], M. Wiltbank[1], and M. S. Ortega[1], [1]University of Wisconsin, Madison, WI, USA; [2]Peak Genetics, Shawano, WI, USA; [3]Council on Dairy Cattle Breeding, Bowie, MD, USA; [4]University of Florida, Gainesville, FL, USA*

Cloning/Nuclear Transfer

Poster Session II: Cloning/Nuclear Transfer

Chair: Vilceu Bordignon, McGill University
Brazos I-II
16:30 – 18:30

18 Epigenetic makeup of cloned buffalo (*Bubalus bubalis*) bull spermatozoa
T. Gupta, N. L. Selokar, and M. K. Singh, ICAR-National Dairy Research Institute, Karnal, Karnal (Haryana), India*

20 Comparative efficacy of conventional cloning and handmade cloning
R. Su[1], M. Sorgog[1], S. Bai[1], F. Ding[2], L. Li[2], and M. Herrid[1,3], [1]Grassland & Cattle Investment Co., Ltd, Hohhot, Inner Mongolia, China; [2]College of Biological Sciences, Chinese Agricultural University, Beijing, Beijing, China; [3]International Livestock Research Centre, Gold Coast, Queensland, Australia*

22 Lowered morphokinetic activity in early somatic cell nuclear transfer embryos derived from cytokine-supplemented oocytes
R. Blocher, T. Patrick, J. Jacobson, Y. Liu, and I. A. Polejaeva, Utah State University, Logan, UT, USA*

Companion CANDES

Poster Session II: Companion CANDES

Chair: Dragos Scarlet, Vetsuisse Faculty Zurich
Brazos I-II
16:30 – 18:30

24 Investigating pregnancy diagnosis methods in scimitar-horned oryx (*Oryx dammah*)
J. Gillis[1], P. Pennington[2], and L. Penfold[1], [1]South East Zoo Alliance for Reproduction & Conservation, Yulee, FL, USA; [2]Colossal Biosciences, Austin, TX, USA*

26 The role of granulosa cells and extracellular vesicles in the acquisition of oocyte competence in the southern white rhinoceros
E. Ruggeri[1], K. Klohonatz[2], N. G. Menjivar[3], A. Gad[3], and D. Tesfaye[3], [1]San Diego Zoo Wildlife Alliance, Beckman Center for Conservation Research, Escondido, CA, USA; [2]University of Pennsylvania, Center for Research on Reproduction and Women's Health, Philadelphia, PA, USA; [3]Colorado State University, Animal Reproduction and Biotechnology Laboratory, Fort Collins, CO, USA*

28 Successful production of kangaroo ICSI embryos
P. D. Palacios[1], R. J. Gurkin[1], Y. Campbell[2], J. Zhao[3], T. Pini[4], S. Johnston[1,2], and A. Gambini[1,4], [1]School of Agriculture and Food Sustainability, The University of Queensland, Gatton, Queensland, Australia; [2]School of the Environment, The University of Queensland, Brisbane, Queensland, Australia; [3]School of Chemistry and Molecular Biosciences, The University of Queensland, Brisbane, Queensland, Australia; [4]School of Veterinary Science, The University of Queensland, Gatton, Queensland, Australia*

30 Development of hormone therapy and cryopreservation techniques for the genetic management of spotted salamanders (*Ambystoma maculatum*)
D. M. Chen[1], C. K. Kouba[2], S. S. Lampert[2], L. Chen[2], S. A. Shablin[2], and A. J. Kouba[1], [1]Wildlife, Fisheries, and Aquaculture, Mississippi State University, Starkville, MS, USA; [2]Biochemistry and Molecular Biology, Mississippi State University, Starkville, MS, USA*

32 Bovine serum albumin improves anuran sperm motility and mitochondrial vesicle stability during cold storage
M. K. Roy, R. E. Naranjo, J. A. Dill, A. J. Kouba, and C. K. Kouba, Mississippi State University, Starkville, MS, USA*

Cryopreservation/Cryobiology

Poster Session II: Cryopreservation/Cryobiology

Chair: Alina Ordonez, Viking Genetics
Brazos I-II
16:30 – 18:30

34 The KVS direct transfer system for vitrified-warmed bovine embryos provides an effective alternative to the traditional slow-freeze method
K. Momozawa, H. Nabenishi, and M. Nagano, School of Veterinary Medicine, Kitasato University, Towada, Aomori, Japan*

36 Morphodynamics of isosmotic warming of vitrified *in vitro*-produced bovine embryos
I. Ionazzi[1], M. Barcelo-Fimbres[2], J. L. Altermatt[3], and L. F. Campos-Chillon[1,3], [1]California Polytechnic State University, San Luis Obispo, CA, USA; [2]Mid Valley Large Animal Service, Turlock, CA, USA; [3]Veterinary Reproduction Innovations APC, San Luis Obispo, CA, USA*

38 Novel method of vitrification and warming techniques for canine mature oocytes and early pregnancy confirmation
K. Ji[1], K. Park[2], H. Choi[1], D. Kim[1], J. Yoon[1], and M. Kim[1,2], [1]Division of Animal and Dairy Science, College of Agriculture and Life Science, Chungnam National University, Yuseong-gu, Daejeon, Republic of Korea; [2]MKbiotech Co., Ltd, Yuseong-gu, Daejeon, Republic of Korea*

40 Coenzyme Q10 supplementation enhanced dairy goat sperm motility, viability, and acrosome integrity after cooling and cryopreservation
A. R. Moawad[1], R. Narlagiri[1], R. Kolikapongu[1], C. Henry[1], S. Miller[1], B. Kouakou[1], M. Singh[1], A. M. Shahat[1], N. C. Whitley[1], and I. A. Polejaeva[2], [1]Animal Science Program, College of Agriculture, Family Sciences and Technology, Fort Valley State University, Fort Valley, GA, USA; [2]Department of Animal, Dairy and Veterinary Sciences, College of Agriculture and Applied Sciences, Utah State University, Logan, UT, USA*

42 Effect of vitamin D (cholecalciferol) on the cryosurvival of canine epididymal spermatozoa
J. Linn, P. Puri, T. Samuel, and G. Wirtu, Tuskegee University College of Veterinary Medicine, Tuskegee, AL, USA*

44 Boar epididymal semen variability in the sperm cryotolerance after cooling in 18°C at various holding times
M. A. Thema[1,2], M. L. Mphaphathi[1], M. D. Sebopela[1,2], M. R. Ledwaba[1], and N. R. Mkhize[2], [1]Agricultural Research Council, Animal Production, Irene, South Africa; [2]University of KwaZulu-Natal, College of Agriculture, Engineering and Science, Pietermaritzburg, South Africa*

46 Morphometric evaluation of cattle immature and matured oocytes pre- and post-cryopreservation
M. D. Sebopela[1,2], M. A. Thema[1,2], M. R. Ledwaba[1], G. Van der Horst[3], L. Maree[3], N. R. Mkhize[2], and M. L. Mphaphathi[1], [1]Agricultural Research Council, Germplasm Conservation & Reproduction Biotechnologies RSA; [2]University of KwaZulu-Natal, South Africa, School of Agricultural, Earth and Environmental Sciences, College of Agriculture, Engineering and Science, RSA; [3]University of the Western Cape, Department of Medical Bioscience, RSA*

Developmental Biology

Poster Session II: Developmental Biology

Chair: Felipe Perecin, University of Sao Paulo
Brazos I-II
16:30 – 18:30

48 Derivation and characterization of sheep endometrial organoids
I. M. Saadeldin, M. AlThubyani, M. Rajab, G. Matic, F. Almohanna, and A. M. Assiri, Comparative Medicine Department, King Faisal Specialist Hospital & Research Centre, Riyadh, Saudi Arabia*

50 Ploidy correction during pre-implantation development of bovine triploid embryos
A. Bakhtari, R. Zhao, J. Liu, Y. Su, K. Bielski, and X. Tian, University of Connecticut, Storrs, CT, USA*

52 Determining changes in blood transcriptome during pregnancy in the cow
P. G. van Helvoort, M. Duijn, and M. B. Rabaglino, Department of Population Health Science, Faculty of Veterinary Medicine, Utrecht University, Utrecht, Utrecht, the Netherlands*

54 Assessment of the viability of four morphokinetic categories of blastocysts: Preliminary results
A. de Paula Reis[1,2], D. Le Bourhis[3], V. Cotil[1,2], S. Lancelin[3], L. Le Berre[3], S. Lacaze[4], M. Verachten[5], G. Crozet[2], V. Duranthon[1,2], and P. Salvetti[3], [1]Université Paris-Saclay, UVSQ, BREED, Jouy-en-Josas, France; [2]Ecole Nationale Vétérinaire d'Alfort, Maisons Alfort, France; [3]Eliance, Paris, France; [4]Auriva, Denguin, France; [5]Elitest, Epinal, France*

56 Effects of fetal bovine serum-derived extracellular vesicles on expression of lipid metabolism-related miRNA in oocytes during *in vitro* maturation
P. Assis Ferraz[1], A. Bridi[2], F. Schneberger[1], J. R. Quirino Oliveira[1], L. Calixto Munhoz[1], L. C. Zoccal Janini[1], and C. L. Verde Leal[1], [1]Faculdade de Zootecnia e Engenharia de Alimentos da Universidade de São Paulo, FZEA USP-Pirassununga/SP; [2]Universidade do Oeste de Santa Catarina, UNOESC-Xanxerê/SC*

58 Effects of inhibition of endocytosis in cumulus cells viability, maturation rates, and embryo development of bovine oocytes
T. H. C. De Bem[1,2], M. A. Almeida[1], C. A. de Souza[1], H. F. Saraiva[1], M. B. R. Alves[2], F. V. Meirelles[1], and J. C. da Silveira[1], [1]University of São Paulo, Pirassununga, São Paulo, Brazil; [2]São Paulo State University, Jaboticabal, São Paulo, Brazil*

60 The RNA m6A landscape in bovine oocytes and pre-implantation embryo development
R. Iyyappan[1], Y. Niu[2], C. Zong[2], and Z. Jiang[1], [1]Department of Animal Sciences, Genetics Institute University of Florida, Gainesville, FL, USA; [2]Department of Molecular and Human Genetics, Baylor College of Medicine, Houston, TX, USA*

62 Triploid complementation: A potential alternative approach to its tetraploid counterpart
R. Zhao, A. Bakhtari, J. Liu, and X. Tian, University of Connecticut, Storrs, CT, USA*

64 Impact of cleavage morphokinetics on blastocyst development
G. Schettini[1], A. Walsh[1], M. Marrella[1], M. Kaps[2], J. Miles[2], M. Rhoads[1], A. Snider[2], and F. Biase[1], [1]Virginia Polytechnic Institute and State University, Blacksburg, VA, USA; [2]United States Department of Agriculture, Agricultural Research Service, U.S. Meat Animal Research Center, Clay Center, NE, USA*

66 Effect of sex in bovine twin production by blastomere separation and zona-free embryo culture
C. Irala[1], M. Yauri Felipe[1,2], V. Gorleri[1], G. La Motta[1], V. Alberio[1,2], F. Allegroni[1], R. Fernández-Martín[1,2], and D. F. Salamone[1,2], [1]Laboratorio de Biotecnología Animal (LaBba), Facultad de Agronomía, Universidad de Buenos Aires, Ciudad Autónoma de Buenos Aires, Argentina; [2]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Ciudad Autónoma de Buenos Aires, Argentina*

68 Lipopolysaccharide in follicular fluid of mares: Effects on progesterone levels, cytokine expression, and oocyte developmental competence
M. Hedia[*1,2], J. L. M. R. Leroy[3], D. Angel-Velez[1,4], A. Fernández-Montoro[1], K. Chiers[5], A. Van Soom[1], and K. Smits[1], [1]Department of Internal Medicine, Reproduction and Population Medicine, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium; [2]Theriogenology Department, Faculty of Veterinary Medicine, Cairo University, Giza, Egypt; [3]Gamete Research Centre, Department of Veterinary Sciences, University of Antwerp, Wilrijk, Belgium; [4]Research Group in Animal Sciences-INCA-CES, Universidad CES, Medellin, Colombia; [5]Department of Pathobiology, Pharmacology and Zoological Medicine, Faculty of Veterinary Medicine, Ghent University, Merelbeke, Belgium*

70 Alterations in miRNA and tRNA-derived fragment expression during bovine conceptus elongation
G. L. Murphy[*1], A. K. Goldkamp[1], M. J. A. Lopes[1], N. F. F. Bonmann[1], M. C. Lucy[2], D. E. Hagen[1], and J. G. N. Moraes[1], [1]Department of Animal and Food Sciences, Oklahoma State University, Stillwater, OK, USA; [2]Division of Animal Sciences, University of Missouri, Columbia, MO, USA*

72 Reconstructing bovine embryos following individual blastomere reduction
G. N. Scatolin*[1], A. E. Ynsaurralde-Rivolta[2], and Z. Jiang[1], [1]*University of Florida, Gainesville, FL, USA;* [2]*Instituto Nacional de Tecnología Agropecuaria INTA, Buenos Aires, Argentina*

74 Impact of tetraploid complementation on trophectoderm and inner cell mass in hybrid (*Bubalus bubalis* × *Bos taurus*) and bovine embryos
V. Gorleri, M. Felipe Yauri, C. I. Gil, V. Alberio, and D. F. Salamone, Laboratorio de Biotecnologia Animal, Facultad de Agronomia, Universidad de Buenos Aires (CONICET), Buenos Aires, Argentina*

Early Pregnancy

Poster Session II: Early Pregnancy

Chair: Angela Gonella, Universidade De Sao Paulo
Brazos I-II
16:30 – 18:30

76 Can serum pregnancy-specific protein B concentration be used to accurately diagnose early pregnancy in dairy cattle with a single sample from days 18 to 24 post-AI?
I. M. R. Leão[*1], F. P. J. da Silva[1], L. G. Wichman[1], D. Ponce-Aguilar[1,2], K. O. Skillin[1], L. J. Montiel-Olguin[2,3], J. Branen[4], and J. P. N. Martins[1], [1]School of Veterinary Medicine, University of Wisconsin–Madison, Madison, WI, USA; [2]Universidad Autónoma de Querétaro, Juriquilla, Querétaro, Mexico; [3]CENID Fisiología y Mejoramiento Animal-INIFAP, Colón, Querétaro, Mexico; [4]BioTracking Inc, Moscow, ID, USA.*

78 Pregnancy association glycoproteins for assessment of pregnancy status in IVF embryo recipients
R. Paiva[*1,3], P. Ross[2], and K. Pohler[3], [1]IDEXX Laboratories, Westbrook, ME, USA; [2]ST Genetics, Navasota, TX, USA; [3]Texas A&M University, College Station, TX, USA*

80 The role of maternal progesterone in embryonic attachment and pregnancy loss in cows
F. P. J. da Silva Junior[*1], E. G. Kidwell[1], C. G. Hubbard[1], A. C. Gaines[1], J. P. N. Andrade[2], and R. R. Domingues[1], [1]The Ohio State University, Columbus, OH, USA; [2]University of Wisconsin–Madison, Madison, WI, USA*

Educational Tools

Poster Session II: Educational Tools

Chair: Pouya Dini, University of California, Davis
Brazos I-II
16:30 – 18:30

82 Advancing embryo evaluation: Generative artificial intelligence to assess embryos in routine embryo transfer practice
C. Wells[*1], C. Hayden[1], M. Rea[1,2], and R. Killingsworth[1], [1]EmGenisys, Driftwood, TX, USA; [2]Yellowstone Genetics, Billings, MT, USA*

Embryo Culture

Poster Session II: Embryo Culture

Chair: Dimitrios Rizos, Instituto Nacional de Investigacion y Tecnologia Agraria y Alimentaria (INIA-CSIC)
Brazos I-II
16:30 – 18:30

84 Improvement in blastocyst formation *in vitro* following exposure to cell-penetrating antioxidants at the morula stage
M. Anzar[*1,2], R. Kosala[1], J. Singh[2], and F. Eudes[3], [1]Agriculture and Agri-Food Canada, Saskatoon, SK, Canada; [2]Veterinary Biomedical Sciences, University of Saskatchewan, Saskatoon, SK, Canada; [3]Agriculture and Agri-Food Canada, Lethbridge, AB, Canada*

86 Effects of growth factors in N2B27 basal medium on porcine embryonic development and lineage segregation
D. W. Kim[1], K. H. Choi[1,2], D. K. Lee[1,2], J. S. Jeong[1], Y. L. Ahn[1], S. J. Lee[1], J. M. Kang[1], B. S. Choo[1], and C. K. Lee[*1,3], [1]Department of Agricultural Biotechnology, Animal Biotechnology Major, and Research Institute for Agriculture and Life Science, Seoul National University, Seoul, Republic of Korea; [2]Current address: Research and Development Center, Space F corporation, Hwasung, Gyeonggi-do, Republic of Korea; [3]Institute of Green Bio Science and Technology, Seoul National University, Pyeongchang, Kangwon-do, Republic of Korea*

88 Effect of culture medium on the development of mouse and cattle embryos
D. Rieger[*1], K. Flynn[2], N. G. Menjivar[3], and D. Tesfaye[3], [1]Donald Rieger Consulting Ltd, Edmonton, AB, Canada; [2]CaseBioscience LLC, St. Petersburg, FL, USA; [3]Animal Reproduction and Biotechnology Laboratory, Colorado State University, Fort Collins, CO, USA*

90 Effect of sediment from spontaneously immortalized oviduct epithelial cells on the development and fertility of bovine OPU-IVF embryos
H. Tsukahara[*1], N. Miyashita[2], Y. Hirao[2], R. Obinata[1], K. Hazano[1], M. Tani[1], and A. Shirasawa[1], [1]Research and Development Group, Zen-noh Embryo Transfer Center, Kamishihoro, Hokkaido, Japan; [2]Institute of Livestock and Grassland Science, NARO, Tsukuba, Ibaraki, Japan*

92 Altering carbohydrates during embryo culture affects quality and gene expression of the resulting blastocysts
K. Lockhart, M. Rubessa, S. Gebremedhn, E. Natera, B. Krueger, R. L. Krisher, and P. Rodriguez-Villamil, Genus plc, Deforest, WI, USA*

94 Oleic acid dose-dependently compensates for the negative effect of saturated stearic acid on early bovine embryos
K. Nieuwland, B. M. Gadella, P. L. A. M. Vos, C. H. Y. Oei, and H. Aardema, Farm Animal Health, Department of Population Health Sciences, Faculty of Veterinary Medicine, Utrecht University, Utrecht, the Netherlands*

96 Hyaluronan in transfer medium: Is it able to support growth of bovine embryos while transported for field embryo transfer?
B. N. Saripadiya[2], S. Doultani[1,4], S. S. Layek[1], K. B. Raval[1], S. P. Patil[1], K. Karuppanasamy[1], K. K. Hadiya[2], M. F. Ali[3], and A. Praveen[3], [1]National Dairy Development Board, Anand, Gujarat, India; [2]College of Veterinary Sciences and Animal Husbandry, Kamdhenu University, Anand, Gujarat, India; [3]Indian Immunologicals Ltd, Hyderabad, Telangana, India; [4]Department of Zoology, Biomedical Technology, Human Genetics and Wildlife Biology & Conservation, University School of Sciences, Gujarat University, Ahmedabad, Gujarat, India*

98 Interleukin-11 supplementation alters the composition of *in vitro*-produced bovine blastocysts
A. B. Pollock, M. A. Oliver, and A. D. Ealy, Virginia Polytechnic Institute and State University, Blacksburg, VA, USA*

100 Morphokinetic features of *in vitro*-produced equine embryos during fertilization and in early development observed with time-lapse monitoring
M. Scaglia[1], M. Barandalla[1], S. Colleoni[1], A. Peri[1], G. Lazzari[1,2], and C. Galli[1,2], [1]Avantea Srl, Laboratory of Reproductive Technologies, Cremona, Italy; [2]Fondazione Avantea, Cremona, Italy*

102 Expression pattern of cytoplasmic polyadenylation element binding protein 1 in bovine oocytes and embryos
C. M. Marriott, T. Patrick, I. V. Perisse, I. A. Polejaeva, and Y. Liu, Department of Animal, Dairy, and Veterinary Science, Utah State University, Logan, UT, USA*

104 Differences in genes representation in extracellular vesicles according to bovine embryo quality
D. Caamaño, J. Cabezas, Y. S. Wong, I. Martinez, F. O. Castro, and L. l. Rodriguez-Álvarez, Universidad de Concepción, Chillán, Ñuble, Chile*

106 Efficiency of an in-house developed medium for bovine *in vitro* embryo production
S. Doultani[1,2], S. S. Layek[1], Y. Sjunnesson[4], K. Karuppanasamy[1], S. P. Patil[1], K. B. Raval[1], M. F. Ali[3], A. Praveen[3], and L. B. George[2], [1]National Dairy Development Board, Anand, Gujarat, India; [2]Department of Zoology, Gujarat University, Navrangpura, Ahmedabad, Gujarat, India; [3]Indian Immunologicals Ltd, Hyderabad, Telangana, India; [4]Swedish University of Agricultural Sciences (SLU), Uppsala, Sweden*

108 Developmental potential and morphokinetics of *in vitro*-produced bovine embryos generated from oocytes of varying quality
H. E. Braun, A. Gad, and J. P. Barfield, Colorado State University, Fort Collins, CO, USA*

Embryo Transfer

Poster Session II: Embryo Transfer

Chair: Jeremy Block, University of Wyoming
Brazos I-II
16:30 – 18:30

110 Corpus luteum characterization after embryo removal using the B mode and color Doppler ultrasound in alpaca (*Vicugna pacos*)
A. Yáñez[1], A. I. Arrayás[1], U. H. Perez[2], A. M. López[3], E. Y. Torres[2], and J. M. Palomino[1], [1]Universidad Cientifica del Sur, Lima, Lima, Perú; [2]Universidad Nacional del Altiplano, Puno, Puno, Perú; [3]Universidad Nacional de San Martin, Tarapoto, San Martin, Perú*

112 Effect of electrical field during thawing of *in vitro*-produced bovine embryos cryopreserved for direct transfer
H. Álvarez-Gallardo[1], D. Urbán-Duarte[1], A. Velázquez-Roque[2], M. E. Kjelland[3,4], and S. Romo-García[5], [1]Centro Nacional de Recursos Genéticos - INIFAP, Tepatitlán, Jalisco, México; [2]H&A Biotecnologías en Reproducción Animal, Tepatitlán, Jalisco, México; [3]Conservation, Genetics & Biotech, LLC, Valley City, North Dakota, USA; [4]Mayville State University, Mayville,*

North Dakota, USA; [5]*Facultad de Estudios Superiores Cuautitlán - UNAM, Cuautitlán, México, México*

114 Effects of *in vitro* embryo production on the epigenomic profiles of day 15 bovine conceptus
T. Behrens[1]*, J. Balasubramanian*[1]*, J. Secher*[2]*, M. Ivask*[3]*, H. Kadarmideen*[4]*, and M. Rabaglino**[1]*,* [1]*Utrecht University, Utrecht, The Netherlands;* [2]*University of Copenhagen, Copenhagen, Denmark;* [3]*Estonian University of Life Sciences, Tartu, Estonia;* [4]*Aarhus University, Tjele, Denmark*

116 Anti-Mullerian hormone in selecting donors for ovum pickup in cattle: Generating a cutoff using ROC analysis
*P. Sharma**[2]*, S. S. Layek*[1]*, K. K. Hadiya*[2]*, S. P. Patil*[1]*, S. Doultani*[1]*, K. B. Raval*[1]*, and K. Karuppanasamy*[1]*,* [1]*National Dairy Development Board, Anand, Gujarat, India;* [2]*College of Veterinary Sciences and Animal Husbandry, Kamdhenu University, Anand, Gujarat, India;* [3]*Department of Zoology, Biomedical Technology, Human Genetics and Wildlife Biology & Conservation, University School of Sciences, Gujarat University, Ahmedabad, Gujarat, India*

118 Micro magnetic resonance spectroscopy for noninvasive metabolic assessment of individual bovine embryos
G. Sivelli, S. Bitetti, G. Gruet, K. Marable, and M. Grisi, Annaida Technologies, Lausanne, Switzerland*

120 Juvenile *in vitro* fertilization embryo transfer in seasonal pasture-based dairy systems
*E. M. Murphy**[1,2]*, L. Thompson*[2]*, M. McDonald*[2]*, R. C. Doyle*[1]*, T. Silva*[3]*, L. Bell*[3]*, S. Chaubal*[3]*, M. Creek*[3]*, M. M. Herlihy*[4]*, E. Parra*[5]*, X. Torruella*[5]*, V. Huuskonen*[5]*, F. Randi*[6]*, P. Lonergan*[2]*, S. T. Butler*[1]*,* [1]*Teagasc, Animal and Grassland Research and Innovation Centre, Moorepark, Fermoy, Co. Cork, Ireland;* [2]*School of Agriculture and Food Science, University College Dublin, Ireland;* [3]*Trans Ova Genetics, Sioux Center, IA, USA;* [4]*PEAK Genetics, Watertown, WI, USA;* [5]*School of Veterinary Medicine, University College Dublin, Ireland;* [6]*CEVA Santé Animale, Libourne, Bordeaux, France*

122 Pregnancy rates, pregnancy losses, and calving rates in *Bos indicus* heifers used as embryo recipients and synchronized with a GnRH-based or an estradiol-based protocol
J. Pesantez[1]*, A. V. Cedeño*[2,3]*, L. Pinargote*[2]*, G. Romero*[2]*, and G. A. Bó**[1,3]*,* [1]*Instituto de Reproducción Animal Córdoba (IRAC), Córdoba, Argentina,* [2]*Instituto de Reproducción Animal de Ecuador, IRAE, Guayaquil, Ecuador;* [3]*Instituto A·P· de Ciencias Básicas y Aplicadas, Universidad Nacional de Villa María, Córdoba, Argentina*

Fertilization/ICSI/Activation

Poster Session II: Fertilization/ICSI/Activation

Chair: Katrin Hinrichs, University of Pennsylvania
Brazos I-II
16:30 – 18:30

128 Time of sperm pre-incubation affects fertilization rates after standard IVF with frozen-thawed semen in the horse
M. Felix and K. Hinrichs, Department of Clinical Studies, New Bolton Center, University of Pennsylvania School of Veterinary Medicine, Kennett Square, PA, USA*

130 Comparative analysis of fertilization success between intracytoplasmic sperm injection and conventional *in vitro* fertilization in equine reproduction
*M. G. Souza**[1]*, S. R. Teague*[1]*, M. L. Martin*[1]*, R. L. Beck*[1]*, and R. E. Martinez*[2]*,* [1]*In Foal Inc, Millsap, TX, USA;* [2]*Tarleton State University, Stephenville, TX, USA*

132 Activation of Toll-like receptor 2 in early bovine embryos promotes their developmental competence *in vitro*
*A. Miyamoto**[1]*, D. Ma*[1]*, M. A. Marey*[1,2]*, I. Akthar*[1]*, K. Kusama*[3]*, K. Imakawa*[4]*, and M. Shimada*[5]*,*

[1]*Global Agromedicine Research Center (GAMRC)*, *Obihiro University of Agriculture and Veterinary Medicine*, *Obihiro, Japan;* [2]*Department of Theriogenology*, *Faculty of Veterinary Medicine*, *Damanhour University*, *Behera, Egypt;* [3]*Department of Endocrine Pharmacology*, *Tokyo University of Pharmacy and Life Sciences*, *Tokyo, Japan;* [4]*Research Institute of Agriculture*, *Tokai University*, *Kumamoto, Japan;* [5]*Graduate School of Integrated Sciences for Life*, *Hiroshima University*, *Higashi-Hiroshima, Japan*

134 Consequences of two major mutations for Jersey bull fertility on fertilization and early embryo development

*F. Sosa**[1], *H. A. Pacheco*[2], *E. A. Galvan*[1], *B. Chasi*[1], *E. Moreno*[1], *B. Castro*[1], *F. Peñagaricano*[1], *and M. S. Ortega*[1], [1]*University of Wisconsin-Madison*, *Madison, WI, USA;* [2]*Purdue University*, *West Lafayette, IN, USA*

136 Effect of laser-induced sperm membrane damage on preimplantation development of horse ICSI embryo

*J. M. Smith**[1], *P. D. Palacios*[1], *R. J. Gurkin*[1], *Y. Alrauji*[1], *J. Zhao*[2], *and A. Gambini*[1,3], [1]*School of Agriculture and Food Sustainability*, *The University of Queensland*, *Gatton, Queensland, Australia;* [2]*School of Chemistry and Molecular Biosciences*, *The University of Queensland*, *St Lucia, Queensland, Australia;* [3]*School of Veterinary Science*, *The University of Queensland*, *Gatton, Queensland, Australia*

Folliculogenesis/Oogenesis

Poster Session II: Folliculogenesis/Oogenesis

Chair: Hilde Aardema, Utrecht University
Brazos I-II
16:30 – 18:30

138 Heat-induced hyperthermia affects the periovulatory follicular fluid metabolome in lactating dairy cows

*R. R. Payton**[1], *S. E. Moorey*[1], *S. R. Campagna*[2], *F. N. Schrick*[1], *K. G. Pohler*[3], *and J. L. Edwards*[1], [1]*Department of Animal Science*, *The University of Tennessee Institute of Agriculture and AgResearch*, *Knoxville, TN, USA;* [2]*Department of Chemistry*, *University of Tennessee*, *Knoxville*, *Knoxville, TN, USA;* [3]*Department of Animal Science*, *Texas A&M University*, *College Station, TX, USA*

140 Evaluation of the use of injectable progesterone for presynchronization of ovulation in fixed-time artificial insemination programs in water buffaloes

C. Navarro[1], *A. Bandeo**[1,2], *J. A. Berdugo*[4], *P. Ponce*[1,2], *N. Vallejos*[1,3], *G. A. Crudeli*[5], *P. Maldonado-Vargas*[1], *and J. L. Konrad*[1,2], [1]*Instituto de Biotecnología de Reproducción Animal (IBRA)*, *Facultad de Ciencias Veterinarias*, *Universidad Nacional del Nordeste (UNNE)*, *Corrientes, Corrientes, Argentina;* [2]*Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET)*, *Buenos Aires, Argentina;* [3]*Instituto Nacional de Tecnología Agropecuaria (INTA)*, *Corrientes, Corrientes, Argentina;* [4]*Grupo de Investigación BIOGEM*, *Universidad Nacional de Colombia*, *Colombia*, *Medellin, Antoquia, Colombia;* [5]*Universidad Nacional del Chaco Austral (UNCAUS)*, *Saenz Peña, Chaco, Argentina*

142 Effect of three ovulation inducers in alpacas (*Vicugna pacos*)

*A. I. Huaman**[1], *J. C. Villanueva*[1], *L. Auqui*[1], *N. Enrriquez*[1], *A. Sanchez*[1], *V. Cornelio*[1], *N. Silva*[1], *A. Cordero*[2], *and W. Huanca*[1], [1]*Universidad Nacional Mayor de San Marcos, Lima, Peru;* [2]*Universidad Nacional Agraria la Molina, Lima, Peru*

144 A decellularized extracellular matrix scaffold for creating an *in vitro* ovary

*Y. Franko**[1], *E. Ribes Martinez*[1], *and M. Ferraz*[1], [1]*Faculty of Veterinary Medicine*, *LMU, Munich, Bavaria, Germany;* [2]*Gene Center (Genzentrum)*, *LMU*, *Munich, Bavaria, Germany*

146 Relationship between preovulatory follicle maturity and the follicular fluid metabolome
M. A. Kuzniar[*1], *J. L. Edwards*[1], *R. R. Payton*[1], *S. M. Zoca*[1], *S. R. Campagna*[2], *Q. Sarumi*[2], *E. A. Hessock*[1], *F. N. Schrick*[1], *and S. E. Moorey*[1], [1]*University of Tennessee*, *Department of Animal Science, Knoxville, TN, USA;* [2]*University of Tennessee*, *Department of Chemistry*, *Knoxville, TN, USA*

148 Inhibin immunotherapy as a resource to increase affordability and embryo production in superovulation protocols
S. Romo-Domínguez[*1], *S. Romo-García*[2], *R. Alonso*[1], *A. Gayosso*[1], *and V. Ramírez*[1], [1]*Facultad de Medicina Veterinaria y Zootecnia*, *UNAM*, *Mexico City, Mexico;* [2]*Facultad de Estudios Superiores Cuautitlan*, *UNAM*, *Cuautitlan, State of Mexico, Mexico*

Genetic Engineering

Poster Session II: Genetic Engineering

Chair: Olinda Briski, Universidad De Buenos Aires
Brazos I-II
16:30 – 18:30

150 Enhancing specificity of gene editing outcomes by using Cas9 variants in swine embryos
J. Kim[*1], *J. Yoon*[1], *J. Chen*[1], *H. Lee*[1], *B. Redel*[2], *R. Prather*[1,3], *and K. Lee*[1,3], [1]*Division of Animal Science College of Agriculture Food and Natural Resources*, *University of Missouri*, *Columbia, MO, USA;* [2]*United States Department of Agriculture–Agriculture Research Service*, *Plant Genetics Research Unit*, *Columbia, MO, USA;* [3]*National Swine Resource and Research Center*, *Columbia, MO, USA*

152 Evaluation of different transfection methods for the generation of gene-edited bovine embryos
L. R. Porto-Neto, X. Du, and A. Quinn, Commonwealth Scientific and Industrial Research Organisation (CSIRO), Agriculture & Food*, *Brisbane, QLD, Australia*

154 Gene editing via CRISPR/Cas9 of *in vivo*- and *in vitro*-derived bovine zygotes by electroporation
M. Rahimi[*1], *D. Miskel*[2], *F. Rings*[2], *E. Held-Hoelker*[1,2], *V. Havlicek*[3], *U. Besenfelder*[3], *and M. Hoelker*[1], [1]*Department of Animal Science*, *University of Goettingen*, *Goettingen, Niedersachsen, Germany;* [2]*Institute of Animal Science*, *University Bonn*, *Bonn, North Rhine–Westphalia, Germany;* [3]*Reproduction Centre Wieselburg RCW*, *Institute for Animal Breeding and Genetics*, *University of Veterinary Medicine*, *Vienna, Austria*

Male Physiology

Poster Session II: Male Physiology

Chair: Luis de Aguiar, University of Florida
Brazos I-II
16:30 – 18:30

156 Somatic cell lysis influences protamine 1 mRNA abundance in stallion frozen-thawed sperm
V. Vigolo[*1], *R. Ertl*[2], *M. Kaps*[1], *and C. Aurich*[1], [1]*Center for Animal Reproduction*, *Vetmeduni*, *Vienna, Austria;* [2]*VetCore Facility for Research*, *Vetmeduni*, *Vienna, Austria*

158 Characterization of the extent and composition of the bull reproductive microbiome
S. Retherford, K. L. Woodruff, D. K. Dittoe, and J. Block, Department of Animal Science, University of Wyoming, Laramie, WY*

160 Sarda ram management throughout the reproductive season significantly affects their body condition score and metabolic status
F. D. Sotgiu[1], *C. Caporali*[*1,2], *A. Spezzigu*[2], *M. Sini*[1], *A. Mattu*[1], *V. Pasciu*[1], *F. Mossa*[1], *P. M.*

Bartlewski[3], and F. Berlinguer[1], [1]Department of Veterinary Medicine, University of Sassari, Sassari, Sardinia, Italy; [2]Embryosardegna, Tecnologia, Riproduzione e Fertilità, Perfugas, Sardinia, Italy; [3]Department of Biomedical Sciences, Ontario Veterinary College, University of Guelph, Guelph, Ontario, Canada

162 Effects of methionine supplementation on seminal plasma miRNAs and proteome in sheep
J. Townsend and H. Khatib, University of Wisconsin–Madison, Madison, WI, USA*

216 Evolutionary insights into genetically inherited male infertility across mammalian species
M. I. Patton[1], O. Patel[1], M. Ratcliffe[2,3], J. Schulz[3], P. Yao[4], A. B. Herrera[3], A. Kuklok[1], and M. I. Giassetti[1], [1]Department of Biology, College of Arts and Sciences, Baylor University, Waco, TX, USA, [2]Department of Chemistry & Biochemistry, College of Arts and Sciences, Baylor University, Waco, TX, USA, [3]Department of Health, Human Performance, & Recreation, College of Health & Human Sciences, Baylor University, Waco, TX, USA, [4]Department of Computer Science, School of Engineering & Computer Science, Baylor University, Waco, TX, USA*

164 Comparison of different concentrations of *Moringa oleifera* leaf extract and epididymis semen recovery period on post-slaughter bull sperm parameters after storage at 5°C for 120 h
N. C. Negota[1], M. R. Ledwaba[3], E. Bhebhe[1], T. L. Nedambale[2], and M. L. Mphaphathi[3], [1]University of Venda, Department of Animal Science, Reproduction, and Physiology, Centre of Excellence in Animal Assisted Reproduction, Faculty of Science, Engineering and Agriculture, Thohoyandou, Limpopo Province, South Africa; [2]Tshwane University of Technology, Department of Animal Science, Pretoria, South Africa, [3]Agricultural Research Council, Animal Production, Germplasm, Conservation & Reproductive Biotechnology, Irene, South Africa*

166 Use of ECM-based three-dimensional scaffolds for stimulating bovine spermatogonia differentiation and meiotic division *in vitro*
F. Di Filippo[1], G. Pennarossa[2], T. A. L. Brevini[2], and F. Gandolfi[1], [1]Università degli studi di Milano, Department of Agricultural and Environmental Sciences-Production, Landscape, Agroenergy, Milan, Italy; [2]Università degli studi di Milano, Department of Veterinary Medicine and Animal Sciences, Laboratory of Biomedical Embryology and Tissue Engineering, Lodi, Italy*

168 Proteomic profiling and functional annotation of indigenous Zulu ram seminal plasma
K. P. M. Lekola[1], M. H. Mapeka[2], and K. C. Lehloenya[1], [1]University of Zululand, Empangeni, KwaZulu Natal, South Africa; [2]Mangosuthu University of Technology, Umlazi, KwaZulu Natal, South Africa*

170 Impact of l-carnitine dietary supplementation on the quality of ram semen collected during the non-breeding season
J. Jordan[1], N. C. Whitley[1], J. Fareed[1], R. Narlagiri[1], R. Kolikapongu[1], T. Odom[1], D. Brown[1], T. Ramsey[1], A. M. Shahat[1], M. Singh[1], B. Kouakou[1], I. A. Polejaeva[2], and A. R. Moawad[1], [1]Fort Valley State University, Fort Valley, GA, USA; [2]Utah State University, Logan, UT, USA*

Oestrus Synchronization/Artificial Insemination

Poster Session II: Oestrus Synchronization/Artificial Insemination

Chair: Pedro Monteiro, University of Florida
Brazos I-II
16:30 – 18:30

172 Treatment with recombinant bovine somatotropin increases serum IGF-1 after timed artificial insemination but does not improve ovulation rate or subsequent pregnancy outcomes in Nelore cows
L. Bera[1], F. Souza[1], R. Goncalves[2], L. Siqueira[3], C. Fernandes[1], and J. Viana[1,4], [1]Universidade de Alfenas, Alfenas, MG, Brazil; [2]Universidade de Brasilia, Brasilia, DF, Brazil; [3]Embrapa Gado de Leite, Juiz de Fora, MG, Brazil; [4]Embrapa Recursos Geneticos e Biotecnologia, Brasilia, DF, Brazil*

174 Pregnancy per AI in grazing suckled beef cows subjected to estradiol salts- or GnRH-based fixed-time AI protocols
L. Ferré[*1], J. Jaeschke[2], N. Cerviño[3], B. Salom[4], N. Formia[5], R. Rearte[5], M. Kjelland[6], M. Colazo[7], J. Thomas[8], and L. de la Sota[5], [1]INTA-CEI Barrow, Tres Arroyos, Buenos Aires, Argentina; [2]Biogénesis Bagó SA, Garín, Buenos Aires, Argentina; [3]CONICET, CABA, Buenos Aires, Argentina; [4]Private Veterinarian Practice, Urdampilleta, Buenos Aires, Argentina; [5]INIRA, FCV-UNLP, La Plata, Buenos Aires, Argentina; [6]Mayville State University, Mayville, North Dakota, USA; [7]Leduc Farm Animal Hospital, Leduc, Alberta, Canada; [8]University of Missouri, Columbia, Missouri, USA*

Oocyte Collection

Poster Session I: Oocyte Collection

Chair: Sofia Ortega, University of Wisconsin–Madison
Brazos I-II
16:30 – 18:30

182 Comparison of blastocyst rates by month in a commercial equine TVA/ICSI program
E. A. Bradecamp[*1], M. R. Schnobrich[1], C. F. Scoggin[1], P. Sheerin[1], S. Walbornn[2], A. Barhorst[1], A. Buchanan[1], T. Ramsey[1], A. Sheerin[1], and C. Howard[1], [1]Rood and Riddle Equine Hospital, Lexington, KY, USA; [2]Rood and Riddle Equine Hospital, Wellington, FL, USA*

176 Oocyte quality assessed by brilliant cresyl blue (BCB) staining recovery by ovum pickup in alpacas (*Vicugna pacos*)
V. H. Cornelio, N. Silva, L. Auqui, I. Huaman, J. C. Villanueva, N. Enrriquez, and W. Huanca, Universidad Nacional Mayor de San Marcos, Lima, Lima, Perú*

178 The effects of heat stress on the number of ovarian follicles in the dairy cow.
S. Kanzawa[*1], E. O'Meara[1], B. J. Funnell[2], C. U. Braz[1], E. A. Bangert[1], F. C. Cardoso[1], and M. B. Wheeler[1], [1]University of Illinois, Urbana, IL, USA; [2]Purdue University, West Lafayette, IN, USA*

180 Ovarian response to FSH and eCG at super-stimulation treatment for retrieval oocytes by laparoscopic ovum pickup in alpacas
J. A. Landinez-Aponte, R. Stott, N. Merril, J. Cisneros, S. Pierce, Y. Liu, M. Joo, and Z. Wang, Utah State University, Logan, UT, USA*

Oocyte Collection

Poster Session II: Oocyte Maturation

Chair: Christine Wrenzycki, Justus-Liebig-University Giessen
Brazos I-II
16:30 – 18:30

184 GDF9 mitigates LPS-induced negative effects during bovine oocyte maturation
D. Scarlet[*1,2], I. Serbetci[2], M. Kowalewski[1], and H. Bollwein[2], [1]Institute of Veterinary Anatomy, Vetsuisse Faculty, Zurich, Switzerland; [2]Clinic of Reproductive Medicine, Vetsuisse Faculty, Zurich, Switzerland*

186 A step toward understanding direct impacts of a higher estrus-associated temperature: Transcript-level changes in cumulus–oocyte complexes directly exposed to acute elevated temperature
J. L. Klabnik, J. E. Beever, R. R. Payton, K. H. Lamour, F. N. Schrick, and J. L. Edwards, The University of Tennessee, Institute of Agriculture, Knoxville, TN, USA*

188 Influence of duration of *in vitro* maturation in relation to COC morphology on nuclear and cytoplasmic maturation of wood bison oocytes
E. M. Pioltine[*1], *G. P. Adams*[1], *G. F. Mastromonaco*[2], *K. Rajapaksha*[3], *and J. Singh*[1], [1]*Veterinary Biomedical Sciences*, *University of Saskatchewan*, *Saskatoon, Saskatchewan, Canada;* [2]*Toronto Zoo*, *Toronto, Ontario, Canada;* [3]*Agriculture and AgriFood Canada*, *Saskatoon, Saskatchewan, Canada*

190 Evaluation of the toxicity of different concentrations of dimethyl sulfoxide and ethylene glycol cryoprotectants on immature cattle oocytes selected by Brilliant cresyl blue stain and subsequent to polar body extrusion
M. L. Mphaphathi[*1], *M. R. Ledwaba*[1,2], *M. D. Sebopela*[1], *M. A. Thema*[1], *T. L. Mashilo*[2,3], *H. A. O'Neill*[2], *and T. L. Nedambale*[4], [1]*Agricultural Research Council*, *Animal Production*, *Germplasm Conservation & Reproduction Biotechnologies*, *Pretoria, RSA;* [2]*University of the Free State*, *Department of Animal*, *Wildlife and Grassland Sciences*, *Bloemfontein, RSA;* [3]*Department of Agriculture*, *Land Reform*, *and Rural Development*, *Directorate: Animal Production*, *Sub-Directorate: Animal Improvement*, *Arcadia, Pretoria, RSA;* [4]*Tshwane University of Technology*, *Department of Animal Science*, *Pretoria, RSA*

192 Effect of l-carnitine and resveratrol supplementation to the maturation medium on *in vitro* bovine embryo production
D. A. Galarza, A. Quezada-Capelo, L. Amay-Zatama, and J. X. Samaniego, Laboratorio de Biotecnología de la Reproducción Animal, Facultad de Ciencias Agropecuarias, Universidad de Cuenca*, *Cuenca, Azuay, Ecuador*

194 Methionine and guanidinoacetic acid supplementation influence bovine oocyte quality during *in vitro* maturation
A. P. Snider, L. A. Rempel, J. R. Miles, R. A. Cushman, and M. S. Crouse, USDA, Agricultural Research Service U.S. Meat Animal Research Center*, *Clay Center, NE, USA*

196 The association of dibutyryl cAMP and sildenafil on meiotic arrest of bovine oocytes
P. H. dos Santos, F. S. dos Santos, P. A. Ferraz, J. R. Q. Oliveira, H. F. R. A. Saraiva, F. V. Meirelles, L. C. Smith, and C. L. V. Leal, FZEA USP - Faculdade de Zootecnia e Engenharia de Alimentos da Universidade de São Paulo, Pirassununga, São Paulo, Brazil*

198 Assessment of biphasic CAPA-IVM for improving equine oocyte quality and developmental potential
M. Fakhar-I-Adil[*1], *D. A. Velez*[2], *Q. A. Amin*[2], *M. Hedia*[2], *B. Menten*[3], *A. Van Soom*[2], *K. Smits*[2], *and B. Heindryckx*[1], [1]*Ghent Fertility and Stem Cell Team (G-FaST)*, *Department for Reproductive Medicine*, *Ghent University Hospital*, *Ghent University*, *Ghent, Belgium;* [2]*Department of Internal Medicine*, *Reproduction and Population Medicine*, *Ghent University*, *Merelbeke, Belgium;* [3]*Center for Medical Genetics*, *Ghent University Hospital*, *Ghent, Belgium*

200 Effect of coenzyme Q10 supplementation on bovine oocyte maturation and embryo development
D. Beal[*1,2], *L. Watkins*[1,2], *M. Williams*[1,2], *Y. Liu*[1], *R. Blocher*[1], *T. Patrick*[1], *I. Bunderson*[1], *A. R. Moawad*[2], *and I. A. Polejaeva*[1], [1]*Department of Animal*, *Dairy and Veterinary Sciences*, *Utah State University*, *Logan, UT, USA;* [2]*College of Agriculture*, *Family Sciences and Technology*, *Fort Valley State University*, *Fort Valley, GA, USA*

202 Effects of fatty acid binding protein in the maturation medium of bovine oocytes on *in vitro* development
J. Looman, S. Hickerson, and J. Gibbons, Texas Tech University School of Veterinary Medicine*, *Amarillo, TX, USA*

Periconceptional/Fetal Programming

Poster Session I: Periconceptional/Fetal Programming

Chair: Alan Ealy, Virginia Polytechnic Institute and State University
Brazos I-II
16:30 – 18:30

204 Rumen-protected methionine modulates plasma and follicular fluid metabolites of beef cows
D. Heredia[*1], *J. C. Dias Zucoloto*[2,3], *W. Teixeira Zucoloto*[2,3], *T. Dias Zucoloto*[3], *J. L. Infante Cangrejo*[1], *D. Luchini*[4], *A. Gonella-Diaza*[1], *and C. M. Bertam Membrive*[2], [1]*North Florida Research and Education Center*, *University of Florida, Marianna, FL, USA;* [2]*São Paulo State University (UNESP-FCAT), Dracena, São Paulo, Brazil;* [3]*Laboratório de Fertilização Central Senepol Ltda*, *Marilia, São Paulo, Brazil;* [4]*Adisseo USA Inc*, *Alpharetta, GA, USA*

Stem Cells

Poster Session II: Stem Cells

Chair: Jorge Piedrahita, North Carolina State University
Brazos I-II
16:30 – 18:30

206 Evaluation of two *in vitro* models as a possible platform for research on mare endometrosis
S. Rodriguez[1], *L. Mendez*[1], *Y. S. Wong*[1], *B. Ibañez*[1], *F. Navarrete*[1], *F. Saravia*[1], *D. Rojas*[1], *C. Escudero*[2], *L. L. Rodríguez-Alvarez*[1], *and F. O. Castro**[1], [1]*Department of Animal Science*, *Faculty of Veterinary Sciences*, *Universidad de Concepción*, *Chillán, Chile;* [2]*Vascular Physiology Laboratory*, *Department of Basic Sciences*, *Universidad del Bío-Bío*, *Chillán, Chile*

208 Preliminary evaluation in equine endometrial explants with grade IIA and IIB endometrosis of the antifibrotic effect of adipose or endometrial stem cells pre-conditioned with PGE2
L. Mendez, S. Rodriguez, B. Ibañez, F. Navarrete, F. Saravia, Y. S. Wong, J. Cabezas, L. L. Rodríguez, and F. O. Castro, Department of Animal Science, Faculty of Veterinary Sciences, Universidad de Concepcion*, *Chillan, Chile*

Superstimulation

Poster Session II: Superstimulation

Chair: Roberto Sartori, University of São Paulo
Brazos I-II
16:30 – 18:30

210 Potential predictors of ovarian responses and embryo yields in lactating Sarda ewes superovulated in a 4-day declining-dose PLUSET protocol
*C. Caporali**[1,3], *A. Spezzigu*[3], *M. Sini*[1], *F. Sotgiu*[1], *V. Pasciu*[1], *A. Mattu*[1], *C. Costantino*[1], *S. Succu*[1], *F. Mossa*[1], *P. M. Bartlewski*[2], *and F. Berlinguer*[1], [1]*Department of Veterinary Medicine*, *University of Sassari, Sassari, Sardegna, Italy;* [2]*Department of Biomedical Sciences*, *Ontario Veterinary College*, *University of Guelph*, *Guelph, Ontario, Canada;* [3]*Embryosardegna*, *Tecnologia, Riproduzione e Fertilità*, *Perfugas, Sassari, Italy*

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Session Speakers and Keynote Biographies

Anna Denicol

Anna Denicol is an associate professor at the University of California–Davis (UC–Davis) and a reproductive and developmental biologist. After receiving a DVM from the Federal University of Rio Grande do Sul, Brazil, Denicol earned a MPVM degree from the UC–Davis School of Veterinary Medicine under the supervision of Ricardo Chebel where she studied the effects of progesterone and the follicular wave on fertility of dairy cows. Denicol then obtained a PhD from the University of Florida under the mentorship of Peter Hansen, studying the roles of WNT signaling on cell fate decisions and competence of bovine embryos to establish a pregnancy. She has been on the faculty at UC–Davis since 2016, and during this time, she has mentored three PhD students, six MS students, and two postdoctoral scholars to completion. Using the cow as the model species, Denicol's laboratory at UC–Davis focuses on the biology of female gametes including the specification of primordial germ cells in the pre-implantation embryo, oogenesis, and the establishment of the ovarian reserve during fetal life, and folliculogenesis during reproductive life. One of the goals of this research is to develop methods to enable in vitro gametogenesis, for which the laboratory has been employing embryonic stem cells as a source for the differentiation of gametes. Between publications resulting from her graduate degrees and her independent research, Denicol has published 34 peer-reviewed articles, which collectively have been cited over 1,250 times.

Ye Yuan

Dr. Yuan is the research director at the Colorado Center for Reproductive Medicine (CCRM). He received his bachelor's and master's degrees at China Agricultural University and his PhD at the University of Illinois in animal science. He then completed his postdoctoral training at the University of Missouri with Dr. R. Michael Roberts and worked there as research faculty before joining CCRM. Dr. Yuan is a reproductive biologist and stem cell biologist who has broad research interests in oocyte physiology, embryo development, implantation, and stem cells. He has authored more than 30 peer-reviewed manuscripts and book chapters, holds two US patents, is an active member for ASRM, SSR, and IETS, and has served on numerous committees for these societies.

As the research director at CCRM, Dr. Yuan's role is to expand the knowledge from basic and translational research in reproductive biology and stem cell biology to improve assisted reproductive technologies, making assisted reproduction more efficient, more accessible, and more affordable to IVF patients. Outside his role at CCRM, Dr. Yuan is an adjunct faculty member at the College of Veterinary Medicine and Biomedical Sciences at Colorado State University; works as an ad hoc reviewer of grant proposals from NSF, USDA, and NIH; serves as the associate editor for the journal *Reproduction, Fertility and Development*; and is an ad hoc reviewer for many other journals.

Bethany Redel

Dr. Bethany Redel graduated from the University of Nebraska–Lincoln with a bachelor's degree in animal sciences. She then received her MS, PhD, and postdoctoral training from the University of Missouri. Her graduate work focused on improving porcine in vitro production systems to increase embryo development and competency. During her postgraduate training, Bethany became proficient in producing gene-edited pigs by using microinjection and somatic cell nuclear transfer (also known as the cloning procedure), as well as designing and creating gene-edited pigs for both agriculture and biomedical applications. Bethany recently was hired as a research physiologist with the USDA-ARS in Columbia, Missouri, in June 2021, and her research is focused on using genome-editing technology to produce pigs with improved health and agriculture production traits.

Fabiana Bressan

Fabiana Bressan is an associate professor at the Veterinary Medicine Department, FZEA/USP. Bressan graduated in veterinary medicine at the University of São Paulo in 2005. She obtained her MS degree in 2008 and PhD in 2013, working with genetic modification in animals, cell reprogramming by gene induction into pluripotency and nuclear transfer, and stem cells in human and animal models. She was awarded the CAPES Thesis Award in 2014 for the thesis titled "Generation of pluripotent cells through gene induction and nuclear transfer: The bovine model for pluripotency acquisition." Postdoctoral studies at the National Institute of Science and Technology in stem cells and cell therapy and FZEA/USP focused on the study of in vitro generation of primordial germ cells, gametes, and epigenetic reprogramming. She has served as a full adviser at the Postgraduate Program in Anatomy of Domestic and Wild Animals (CAPES 7) of FMVZ/USP. She is or was responsible for several research grants, including a Young Researcher (FAPESP) grant, Universal (CNPq), CAPES, and other nongovernmental institutions (e.g., GFI). She was a member of SBTE (Brazilian Society for Embryo Technology) organizing committee from 2018 to 2024. ResearcherID: C-6679-2012, fabianabressan@usp.br (source: Lattes Curriculum)

Maria Belen Rabaglino

Dr. Rabaglino currently serves as an assistant professor at Utrecht University, and her impressive academic journey, spanning across America and Europe, positions her as an exemplary candidate to contribute significantly to the foundation's mission.

Dr. Rabaglino's extensive academic background includes pursuing her graduate studies at the University of Florida and undertaking a postdoctoral fellowship in Denmark as part of the Elite Ova project at the Technical University of Denmark in 2019. Notably, in 2021, she received the prestigious Marie Curie Fellowship, which led her to the School of Agriculture and Food Sciences at University College Dublin, Ireland.

Dr. Rabaglino's research focus, centered on applying omics technologies to understand endometrial biology and embryonic and fetal development in ruminants, showcases her commitment to cutting-edge methodologies and innovation. Dr. Rabaglino's unique approach involves the integration of traditional and innovative methodologies, including predictive models based on machine learning algorithms, to generate meaningful results within the biological context of her experiments. It is noteworthy to highlight that Dr. Rabaglino's research aligns with a strong emerging area within IETS, and her industry connections make her well-positioned to garner support for new initiatives of the Foundation. Given her outstanding networking, international recognition, and dedication, Dr. Maria Belen Rabaglino will make valuable contributions to the Foundation of IETS.

Satoshi Sugimura

Dr. Satoshi Sugimura is a professor at Tokyo University of Agriculture and Technology. He obtained his PhD from Tohoku University in 2008 and subsequently worked as a postdoctoral researcher at Tohoku University, the National Livestock Breeding Center in Fukushima, and the University of Adelaide in Australia. In 2013, he established his team, which focuses on using cattle as a model to study oocyte and embryo developmental competence, early embryogenesis, and assisted reproductive technology (ART). His team is dedicated to developing new technologies that enhance understanding and applications in these areas.

Alvaro Garcia Guerra

Dr. Garcia Guerra grew up in Buenos Aires, Argentina, and developed his interest in cattle by helping on his nearby family farm. He obtained his veterinary degree (DVM) from the Universidad de Buenos Aires (Argentina) in 2009. While a veterinary student he worked in a cattle embryo transfer and artificial insemination practice where he developed his interest in cattle reproduction. In 2010 he moved to Canada to pursue a residency in Ruminant Field Service at the Western College of Veterinary Medicine, University of Saskatchewan, where he also obtained his MS degree in 2013. Following his passion for reproductive physiology he pursued his PhD in endocrinology and reproductive physiology from the University of Wisconsin–Madison, obtaining his degree in 2017.

Dr. Garcia Guerra's research interests focus on two main areas regarding cattle reproduction. The first area focuses on investigating strategies that improve reproductive efficiency, primarily in beef cattle. The study of follicle dynamics and the selection mechanism play a key role in the development of more efficient reproductive management techniques.

The second area is focused on furthering our understanding on the causes and mechanisms involved in pregnancy loss in cattle. This area combines both basic and applied research and utilizes recipients of in vitro-produced embryos as a model.

Maria A. Gil

Maria Antonia Gil obtained her degree in veterinary medicine in 1995 and her PhD in 2001 from the University of Murcia (UMU), Spain. She spent 9 months as PhD student and 6 months as a postdoc researcher at the Animal Science Center at the University of Columbia–Missouri (USA) under Prof. Billy N. Day. Subsequently, she obtained a collaboration fellowship at the UMU and a postdoctoral Torres Quevedo contract with the Spanish pig company Dalland Hybrid España until she obtained her first UMU professor position in 2005 to full professor in 2020.

Her research has primarily focused on porcine reproductive biotechnologies, including deep intrauterine insemination, cryopreservation of gametes and embryos, in vitro embryo production, embryo collection and non-surgical embryo transfer, and sperm sexing technology. Currently, her group is investigating the regulation of the oviductal and uterine maternal environment by gametes and embryos in vivo, as well as genome editing with CRISPR/Cas technology.

Her group has achieved several notable milestones, including

- Producing the first piglets worldwide born by non-surgical deep uterine embryo transfer using both in vivo fresh and vitrified embryos.
- Generating the first litters of pre-selected sex through minimally invasive procedures.
- Achieving the first litters born by combining a low number of frozen sperm with deep intrauterine insemination.

Other significant contributions include advancing the understanding of embryonic development, such as transcriptional profiling of blastocysts produced in vitro and in vivo and gene expression of vitrified embryos. Additionally, her group has generated the first pig-human chimeras, aiming to produce human organs in pigs through interspecies blastocyst complementation.

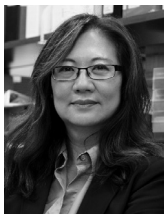
Tad Sonstegard

Dr. Tad Sonstegard serves as the chief executive officer of Acceligen, overseeing the commercialization of their groundbreaking genetic improvement breeding platform for food animals that combines genomics, gene editing, and advanced cell culture and reproductive methods. Under Dr. Sonstegard's leadership, Acceligen has moved from making proof-of-concept animals to achieving the first commercial use approvals in multiple countries with their innovative product lines for heat-tolerant beef and dairy cattle. Currently, Acceligen's focus is to develop climate-smart food animals, with additional flagship products for disease-tolerant cattle designed to reduce methane emissions and improve revenues for tropical farm operations. Prior to his role at Acceligen, Dr. Sonstegard directed a distinguished livestock molecular genetics research program at the USDA in Beltsville, Maryland. His team pioneered the first commercial agricultural-based SNP tool in 2007, enabling genomic selection in cattle breeding. Recognized with multiple tech transfer awards, this work transformed genetic improvement for progressive animal breeders and genetic companies. His academic journey began at Iowa State University for his undergraduate degree, followed by a PhD from the University of Minnesota after leaving his family's Red Angus cattle operation in West Central Minnesota.

Julio Giordano

Dr. Giordano holds a DVM degree from the Catholic University of Cordoba (Argentina), a MS in animal science from the University of Tennessee–Knoxville (USA), and a PhD in dairy science from the University of Wisconsin–Madison (USA). Dr. Giordano also completed a postdoctoral fellowship working in Dairy Herd Management at the University of Wisconsin–Madison. Currently, Dr. Giordano is the director of the Dairy Cattle Biology and Management Laboratory at Cornell University and a co-director of the Cornell Institute for Digital Agriculture (CIDA). Dr. Giordano's research focuses on the development, implementation, and evaluation of technology for dairy production systems. The overarching goal of his research program is to integrate concepts of animal biology, farm management, engineering, and data analytics for enhancing the reproductive performance, health, and profitability of dairy cattle. Dr. Giordano's group has pioneered research with dairy cattle reproductive biology and health, precision technologies, automation of management tasks, and development of data-driven solutions for dairy herd management. Ultimately, Dr. Giordano's research group strives to transform dairy production systems through a better understanding of cow biology and implementation of technology.

Julie Kim



Julie Kim, PhD, is the Susy Y. Hung Professor of Obstetrics and Gynecology in the Division of Reproductive Science in Medicine at Northwestern University. She is the co-director for the Center of Reproductive Science at Northwestern and the Director of the Cancer Biology Cluster at the Northwestern Graduate School. Her laboratory is interested in understanding the pleiotropic actions of sex hormones and their intersection with risk factors that promote development and growth of uterine diseases including endometrial cancer, uterine fibroids, and endometriosis.

Exhibit Schedule

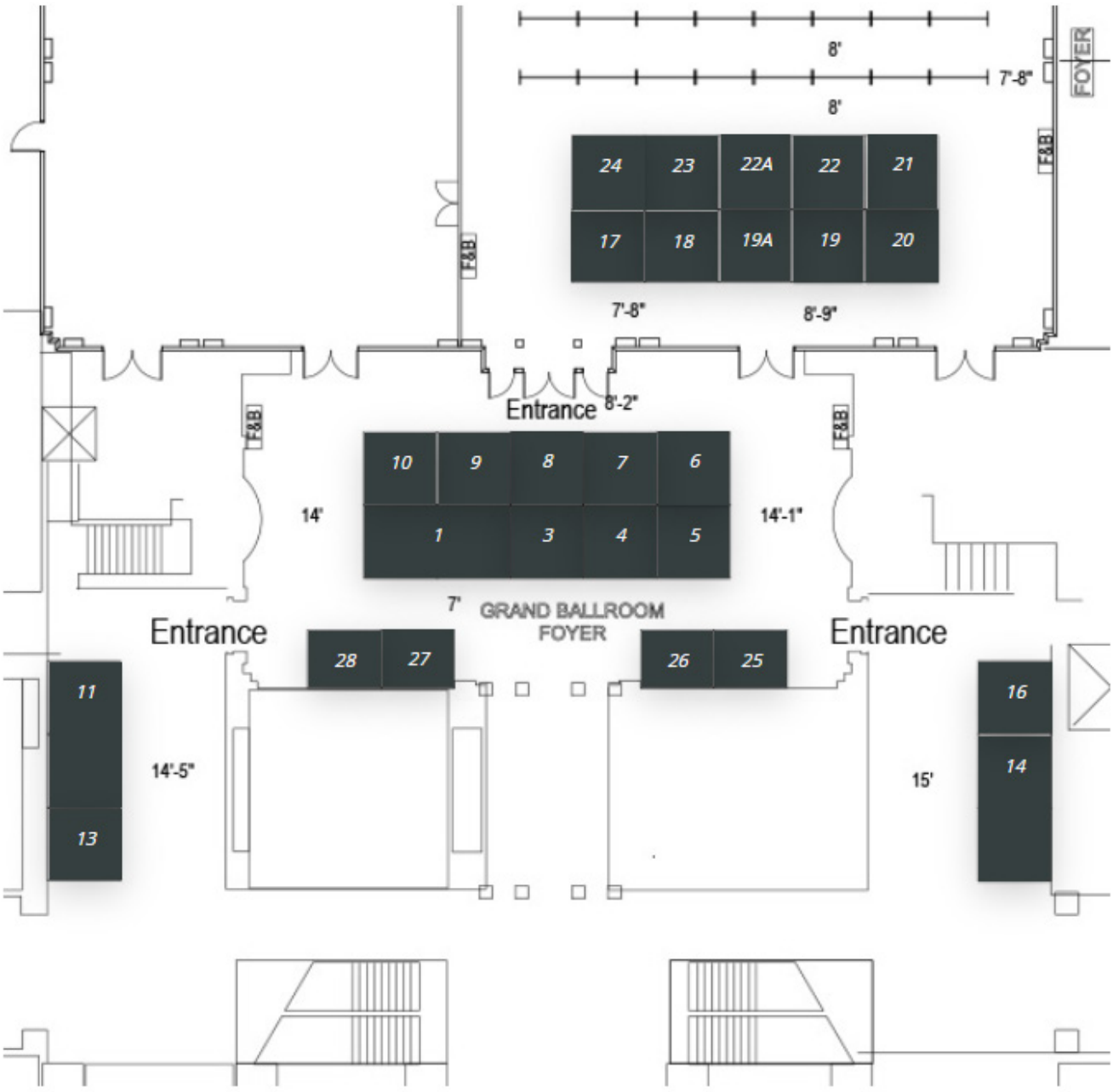
Saturday, January 18
Set Up Exhibits 13:00–17:00

Sunday, January 19
Exhibits Open 9:00–20:00

Monday, January 20
Exhibits Open 9:00–20:00

Tuesday, January 21
Exhibits Open 9:00–13:00

Exhibit Floor Plan



Exhibitors List

Company	Booth Number
ABT 360 LLC	19
Agtech Inc.	1
ART Lab Solutions Pty Ltd	17
Astec Bio	27
Calier	19A
Case Bioscience LLC	23
DRAMINSKI S.A.	18
E. I. Medical Imaging	22
Emgenisys	25
Esco Technologies Inc.	13
Genea Biomedx	28
Hamilton Thorne/IVFtech ApS	22A
Horizon Biochip Limited	21
IMV Technologies/IMV Imaging	16
IVF Bioscience	3
IVF Store	20
MAI Animal Health	4
Minitube USA Inc.	11
NextGen LifeLabs	6
Partnar Animal Health Inc.	8
Professional Embryo Transfer Supply Inc. (PETS)	5
Proterra Genetics	26
Simplot Animal Sciences	7
Stroebech Media	9
VetMotl Inc.	24
Vetoquinol USA Inc.	10
WTA Technologies LLC	14

AVANTEA®

"Morphokinetic features of vitro produced equine embryo post fertilization and during early events before the first cleavage observed with time-lapse monitoring"

Monday 20 January
18:00-20:00

Session: Poster Session II Reception/Exhibits, Brazos & Corridor

Avantea is a laboratory of advanced technologies for animal reproduction and biotechnology research.
Over 20 years of experience make Avantea a highly specialized center, European leader in the field of assisted reproduction of farm animals.

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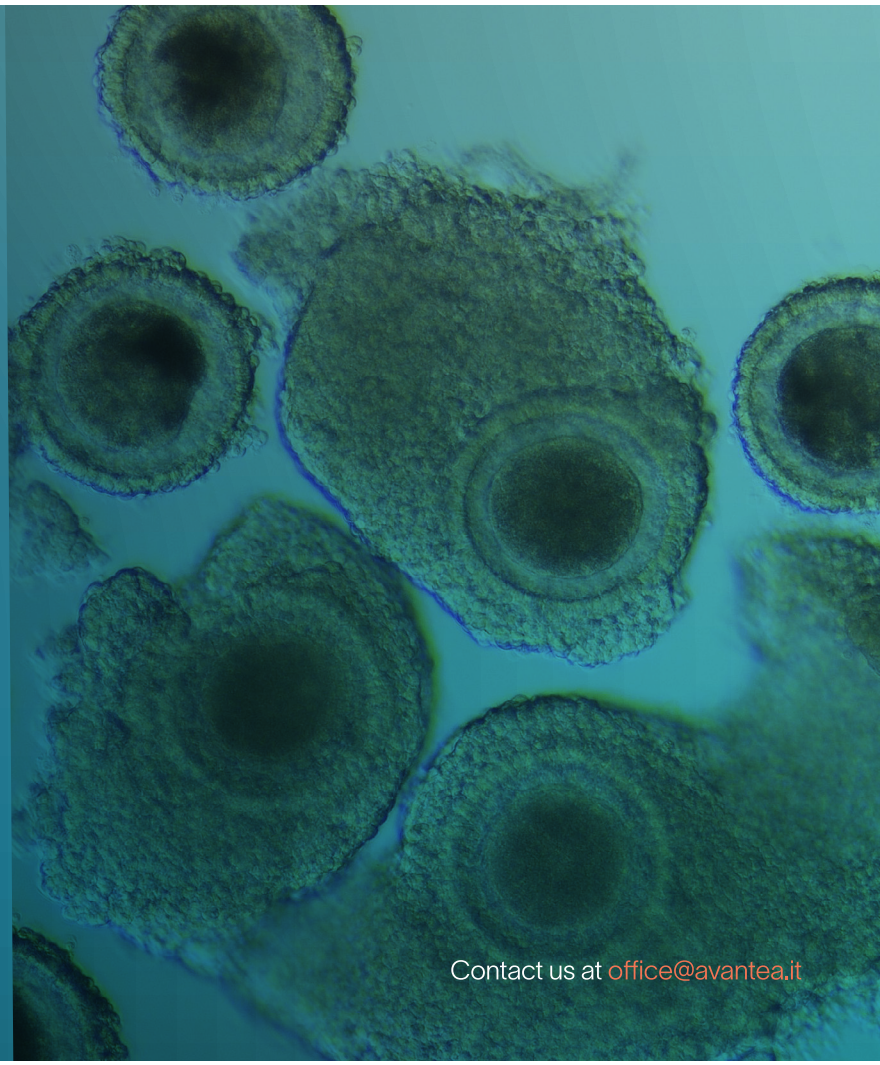

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Agtech Inc.
Booth 1

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ART Lab Solutions Pty Ltd
Booth 17

Through innovation and quality of service, we deliver reproductive technologies that make a positive impact to valuable animal breeding. We source our innovations through our own research and those we collaborate within both an academic and commercial environment, providing a means of translating research into industry sought-after innovation. We offer a complete serum-free in vitro embryo production media suite which is a result of over 35 years research by Professor Jeremy Thompson, the company's Founder. As leaders in IVF technology for cattle breeding, we're fostering rapid genetic improvement through the use of the best bull and the best cow genetics, improving the efficiency of cattle breeding programs worldwide. Additionally, we provide products for other livestock species and are developing new technologies to bring into our company pipeline. If you are looking to collaborate with an innovative and growing company, contact us.

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Astec Bio
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Avantea is a laboratory specializing in animal reproduction, biotechnology, and advanced techniques like OPU-ICSI. Founded in 1991 by Cesare Galli and Giovanna Lazzari, it became a European leader in assisted reproduction in 2008. Avantea combines experience, innovation, and 20 years of zootechnical and biomedical research to collaborate with international stakeholders.

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Booth 23

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Esco Medical
Booth 13

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MAI Animal Health/ICPbio Reproduction

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Booth 6

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Partnar Animal Health

Bronze Sponsor
Booth 8

Partnar Animal Health is a manufacturer of commercial media for embryo transfer and provides contract manufacturing of media for IVF laboratories. As well, we manufacture a range of consumable devices for both ET and OPU. One of the most notable products we distribute exclusively, on a global basis, is MicroQ devices for controlled temperature shipping and transport of oocytes and IVP embryo.

+1-866-690-4998
greg@partnaranimalhealth.com
www.partnaranimalhealth.com

Professional Embryo Transfer Supply Inc. (PETS)

Gold Sponsor
Booth 5

PETS has been a world leading embryo transfer supply company in the bovine and equine industries for over three decades. Our goal all this time has been your success, and we work every day to achieve this with quality service and E.T. supplies from ICPbio, MAI, Vetoquinol, ABT360, SPI, IMV, Wesco, and more. Come visit with us for more details.

+1-800-735-9215
+1-903-567-4536
sales@pets-inc.com
www.pets-inc.com
https://www.facebook.com/ProfEmbryoTransSupply
https://www.facebook.com/ProfEmbryoTransSupply

Proterra Genetics
Bronze Sponsor
Booth 26

Proterra Genetics redefines sustainable animal protein production with tailored solutions, combining elite bovine genetics and innovative reproductive technologies. We optimize dairy and beef herds for heat tolerance, climate resilience, and consumer needs, delivering superior, adaptable cattle at unmatched speed and scale to ensure a sustainable competitive edge.

Phone: +55 11 989 315 299
gustavo.scheibe@tropicaldairygenpr.com
http://proterragenetics.com/
https://www.facebook.com/share/18yEb6CmDA/?mibextid=LQQJ4d
https://www.linkedin.com/company/proterra-genetics/
https://www.instagram.com/proterragenetics?igsh=MTE2Nm8yZnJ0eWd6dw==

Reproduction Specialty Group Inc.
Reproduction Specialty Group (RSG) is a veterinary-based company specializing in small ruminant reproduction. They offer services in animal health, nutrition, genetics, and breeding, including LAI, IVF, and embryo transfer. Their innovative total program management approach has made them a leader in the small ruminant industry.

+1-317-978-0301
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www.reprospecialty.com
https://www.facebook.com/RSGIndiana
https://www.linkedin.com/company/72307558
https://www.youtube.com/channel/UCixJzV7uzDww0VsKLOylKFg
https://www.instagram.com/reprospecialtygroup/

Simplot Animal Sciences
Booth 7

Simplot's Animal Sciences team provides solutions for researchers, beef and dairy cattle producers. Combining extensive experience in agribusiness with the latest in reproductive solutions, the Animal Sciences team developed the innovative SimVitro® branded IVF Embryos for cattle producers. Additionally, they are a leader in providing oocytes and ovarian tissues to researchers focused on improving IVF and other Advanced Reproductive Technologies.

+1- 866-506-9488
animal.sciences@simplot.com
www.simplot.com
https://www.facebook.com/simplotanimalsciences

Stroebech Media
Booth 9

With 40+ years of media manufacturing in an ISO-certified facility for veterinary and human IVF, we provide an optimized range for IVF embryo production in bovine, equine, small ruminants, and wildlife. We provide step-by-step protocols, quality control tests, and transport stability test, demonstrating media maintain performance and 18 months shelf life when stored at 37 degrees for 14 days. Additionally we offer personalized technical support by professionals with actual IVF experience.

+45 53 53 87 43
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https://www.instagram.com/stroebechivf/profilecard/?igsh=ZW9vczVvdWRucTFi
https://www.facebook.com/lotte.stroebech
https://www.linkedin.com/in/lotte-stroebech-548476a/

Trans Ova Genetics
Silver Sponsor

Trans Ova Genetics is a leader in advanced reproductive technologies, offering services such as in vitro fertilization (IVF), embryo transfer, and genetic preservation for livestock producers. With a commitment to innovation and client success, Trans Ova empowers producers to enhance herd genetics, improve efficiency, and build a lasting legacy in the agricultural industry.

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www.facebook.com/TransOvaGenetics/
www.linkedin.com/company/trans-ova
www.instagram.com/transova_genetics/
www.youtube.com/user/TransOvaGenetics

VetMotl, Inc.
Silver Sponsor
Booth 24

VetMotl, Inc., a Delaware corporation established in December 2022, is commercializing worldwide the VetMotl™ Sperm Separation Devices, first-of-their-kind devices for use in veterinary assisted reproductive technology (ART) procedures. We are a Maryland, USA-based and globally recognized company who pioneered this innovative, game-changing laboratory tool for preparing high-quality, high-motility sperm samples for assisted reproduction.

Devices based on our technology have been commercialized worldwide for over 10 years for use in human fertility

clinics as ZyMōt® Sperm Separation Devices. VetMotl devices for veterinary application provide the cleanest, highest quality samples of optimally functional sperm in equine and bovine ART procedures, with demonstrated effectiveness in other animal species, as well (e.g., small ruminants [ovine, caprine], porcine, canine).

+1-678-836-8431 (Kristopher Scott)
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https://www.linkedin.com/company/vetmotl-inc/?viewAsMember=true
https://www.facebook.com/profile.php?id=61564204313884

Vetoquinol USA Inc.

Diamond Sponsor
Booth 10

Headquartered in Fort Worth, Texas, Vetoquinol USA is owned by Vetoquinol S.A., an independent, family-owned French pharmaceutical company founded in 1933. Dedicated exclusively to animal health, Vetoquinol USA is focused on the development, production, and marketing of FDA, EPA, NASC, and AAFCO-regulated pharmaceutical, nutritional, and dermatological products for small and large animals.

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Rob.leslie@vetoquinol.com
www.vetoquinolusa.com/

WTA Technologies LLC

Bronze Sponsor
Booth 14

WTA – Watanabe Tecnologia Aplicada is a Brazilian technology company specialized in the development and production of equipment and consumables used in all animal reproduction processes. With over 20 years of international operations and a branch in College Station TX, the company exports to over 62 countries.

Using its own technology, WTA offers the best solutions for egg collection (OPU), in vitro fertilization (IVF), embryo transfer (ET) and artificial insemination (AI) for cattle, horses and small ruminants, as well as meeting the needs of laboratories specialized in animal reproduction. WTA's equipment and products are durable, reliable and developed especially for breeders, veterinarians and professionals who provide the most diverse reproductive services – all at highly competitive prices.

WTA is proud to be a leading manufacturer of reliable reproductive equipment from South America to Asia and Europe. Our College Station location has been providing equipment and services to the U.S. reproductive industry, including many leading embryo production companies, for over 10 years.

Visit WTA booths (503 and 505) to see the full line of equipment and disposables that are revolutionizing the animal reproduction industry, bringing innovation, efficiency, and increased productivity to breeders and veterinarians.

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www.wta.vet
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https://www.instagram.com/wta.technologies/

Author Index

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