

44th Annual Conference

Shangri-La Hotel • Bangkok, Thailand • January 13-16, 2018

PROGRAM BOOK



INTERNATIONAL EMBRYO TECHNOLOGY SOCIETY

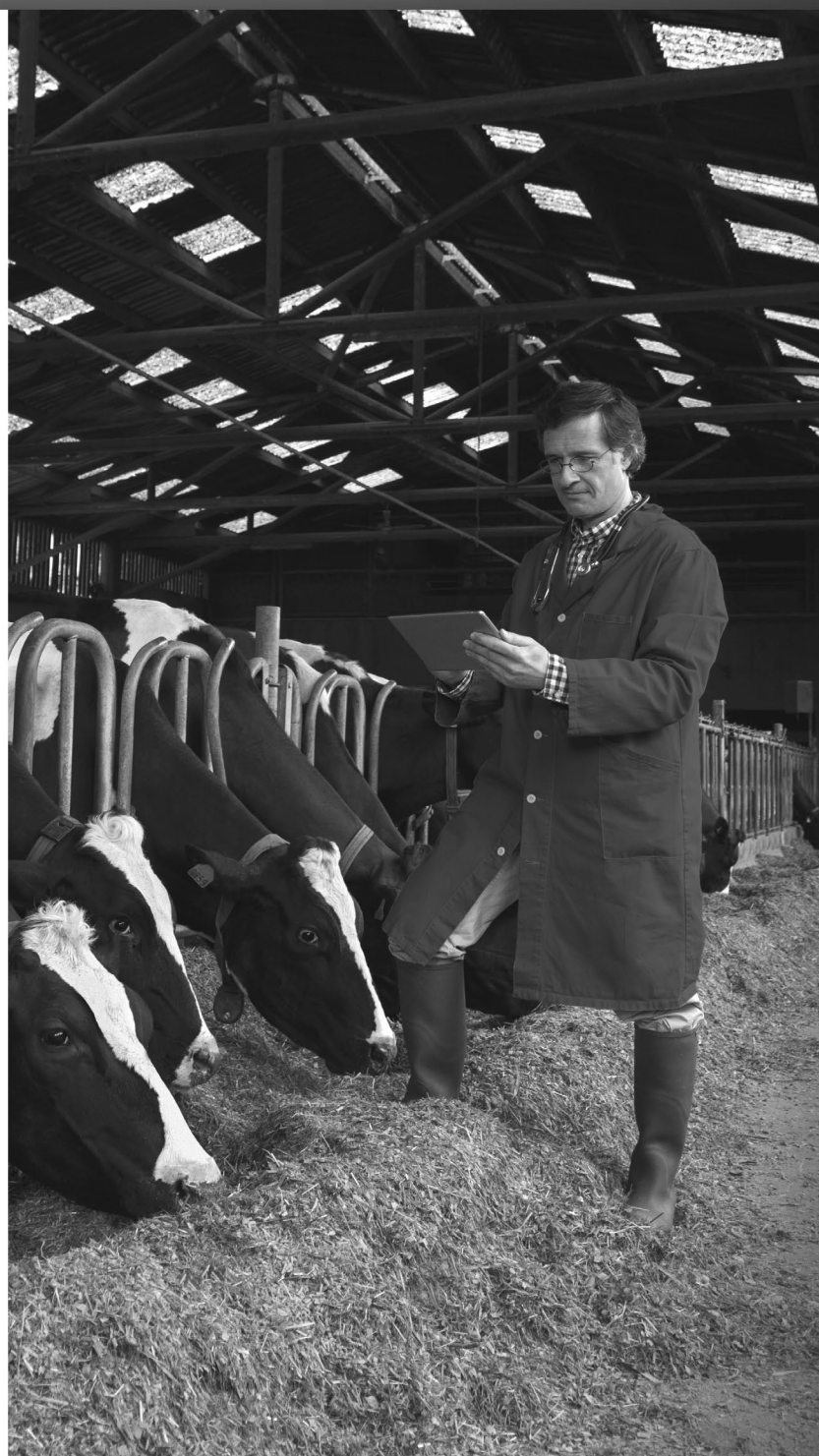


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Program Book

**44th Annual Conference of the
International Embryo Technology Society**

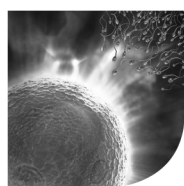
Building an Embryo: A Fertile Journey



**Shangri-La Hotel
Bangkok, Thailand
January 13–16, 2018**

**Scientific Program Co-Chairs:
Trudee Fair and Daniel F. Salamone**

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Preface and Acknowledgments

The 44th Annual Conference of the International Embryo Technology Society will be held at the Shangri-La Hotel, Bangkok, Thailand, from January 13 to 16, 2018. This year's program theme is "Building an Embryo: A Fertile Journey." We developed this theme to integrate applied research that focuses on advancing and improving male and female fertility in global livestock species with basic investigations that seek to identify and understand the molecular pathways and determinants of gamete acquisition of fertilizing and early developmental potential and complex embryonic tissue differentiation and conceptus development. To this end, we have secured the participation of leading researchers in these areas who have travelled from and across several continents to share their knowledge and expertise with our society.

The 44th Annual Conference of the IETS is organized with five plenary sessions featuring 10 invited speakers, who will provide in-depth overviews of various topics central to the main theme, and supplemented with complementary short oral presentations selected from the submitted abstracts. This year, the major topics include cloning and epigenetic regulation of gamete and embryo development and differentiation, in vivo and in vitro strategies to enhance fertility and reduce generation intervals, and the contrasting fates of mitochondria following fertilization in mammals. In this vein, Professor Justin St. John, Monash University, Australia, will give the keynote lecture presentation titled "The mitochondrial genome: How it drives fertility." In addition, poster sessions showcase the dynamics of our advances in animal biotechnology.

We are grateful to several people for their valuable contributions of time and effort in organizing this scientific meeting. In particular, we acknowledge the supreme efforts of our IETS president, Professor Fulvio Gandolfi, University of Milan, for selecting the conference location and arranging the venue, the closing party, and the social and domestic activities. We also thank Dr. Richard Fry for organizing the Practitioners' Forum, titled "Current and future status of reproductive technologies," Dr. Jorge Piedrahita for organizing the DABE Symposium, and Drs. Gabriela Mastromonaco and Pierre Comizzoli for organizing the preconference CANDES Forum, titled "Monitoring and controlling ovarian activity in CANDES." We thank the main session speakers and their co-authors, the authors of the abstracts, and the participants in the student competition for providing excellent scientific material. This year, 220 abstracts were submitted and 207 were accepted for publication in the conference proceedings. We are most grateful for the often-immediate assistance of the manuscript reviewers, and we are particularly thankful to all the section editors and abstract reviewers for their time and effort during the summer, when many were officially on vacation. We also thank Dr. Charles Rosenkrans for organizing the student competition and for selecting the student finalists. We would like to take this opportunity to mention Morulas and to thank them for developing an exciting program of activities for all students to attend and for their help with day-to-day duties during the conference. We also thank our session chairs and co-chairs.

We thank the IETS Board of Governors and Executive Board for their assistance in preparing for the 2018 Annual Conference. In particular, we are grateful for the sponsorship that they have brought on board and extend our deepest gratitude to the sponsors for their economic contributions that make IETS 2018 possible. We are indebted to Ms. Debi Seymour, the executive secretary of IETS, for her constant and immediate support of our efforts during the past year and to Dr. Graeme Martin, editor-in-chief, and Jenny Foster, publisher, of *Reproduction, Fertility and Development* for their help in the production of the conference booklets and proceedings.

Finally, we thank you all for attending and contributing to the conference. We hope that you have an exceptionally memorable experience at the 44th Annual Conference of the IETS, Bangkok.

Looking forward to seeing you all in Bangkok!

Trudee Fair and Daniel Salamone
2018 IETS Program Co-Chairs



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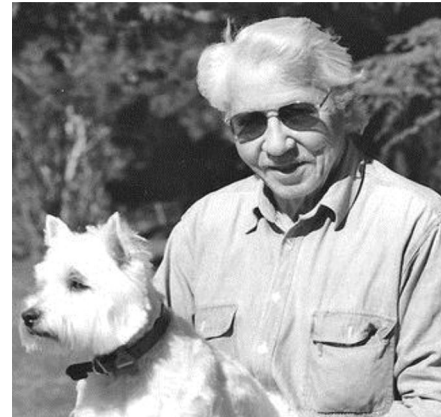
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2018 Recipients of the IETS Pioneer Award

Marc-André Sirard



David Thomas Armstrong



The Pioneer Award is bestowed by the International Embryo Technology Society (IETS) to recognize individuals who have made seminal contributions to the development of embryo-based technologies.

Award Presentation: Tuesday, January 16, at 14:15

Previous Recipients

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)

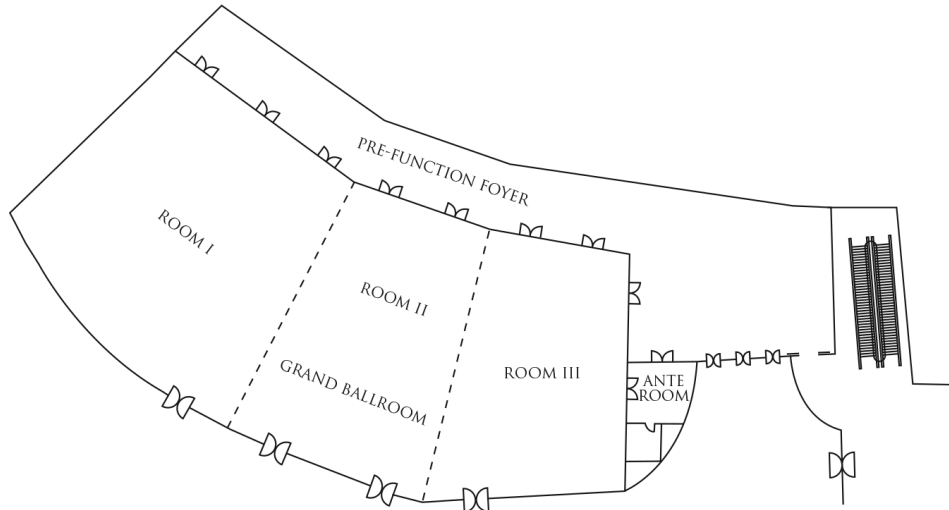
M. C. Chang (1983)

R. O. Berry (1982)

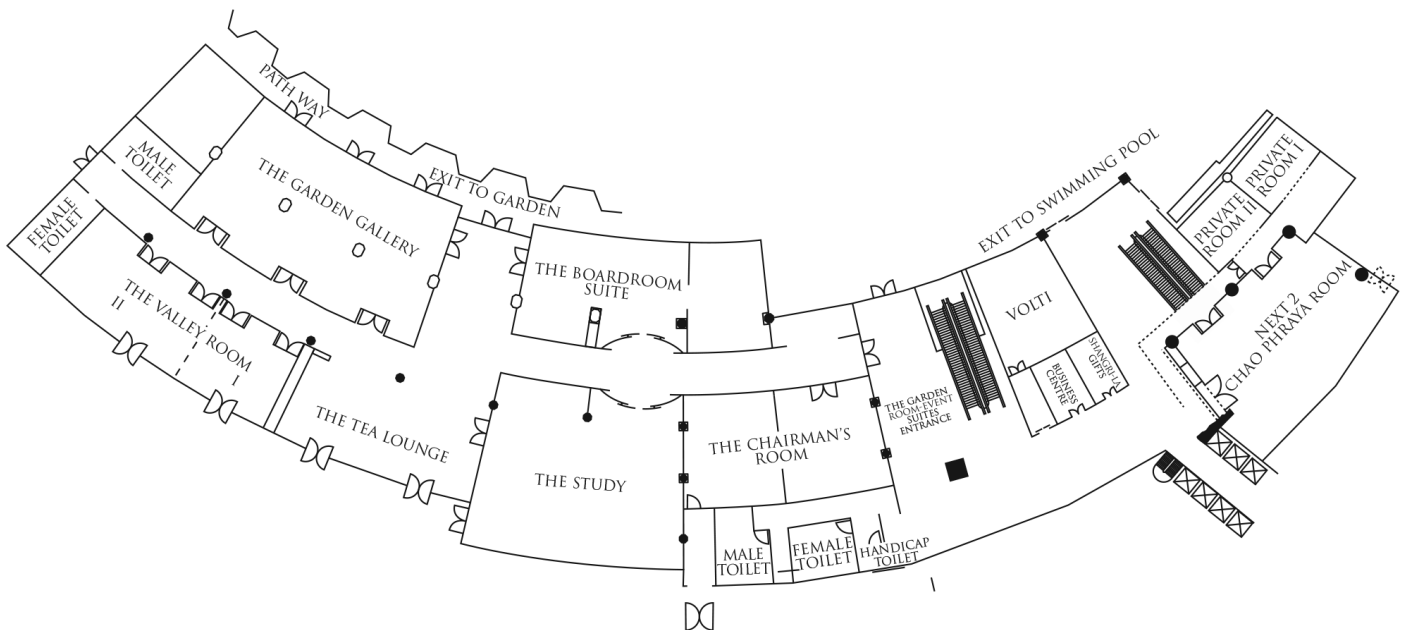
Map of the Venue

Shangri-La Hotel
89 Soi Wat Suan Plu Khwaeng Bang Rak,
Khet Bang Rak, Krung Thep Maha Nakhon 10500, Thailand

Shangri-La Wing (Lobby Level)



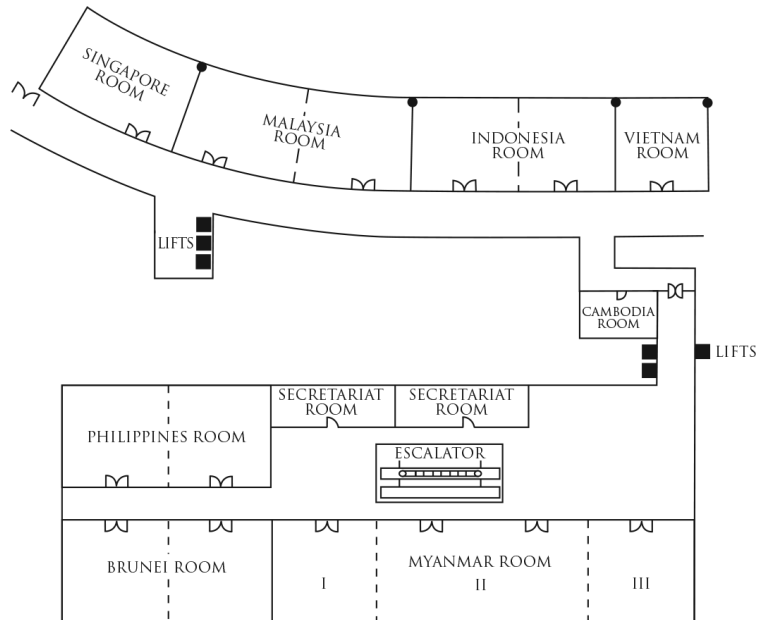
Shangri-La Wing (Level 1)



Map of the Venue

Shangri-La Hotel
89 Soi Wat Suan Plu Khwaeng Bang Rak,
Khet Bang Rak, Krung Thep Maha Nakhon 10500, Thailand

Krungthep Wing (Level 3)



General Information

Meeting Room Directory

Main conference sessions Ballroom II and III; concurrent sessions: Myanmar, Practitioners' Forum

Exhibits Ballroom I and Pre-function Foyer

Poster displays Ballroom I and Pre-function Foyer

Please see the Scientific Program for additional room assignments.

Registration Desk Hours

The registration desk is located outside Ballroom III.

Pick up of preregistration packets

Friday, January 12 16:00–19:00 (Board room)

On-site registration hours

Saturday, January 13 07:00–18:00

Sunday, January 14 07:00–18:00

Monday, January 15 07:30–16:00

Tuesday, January 16 08:00–15:00

Exhibit Information

Ballroom I

Setup

Saturday, January 13 09:00–17:00

Exhibits open

Sunday, January 14 09:00–19:00
18:00–19:00 (Reception)

Monday, January 15 09:00–17:00

Tuesday, January 16 08:30–13:00

Teardown

Tuesday, January 16 14:00–17:00

Details on the exhibitors can be found in the Exhibit Directory on page 49.

Badges

As a security requirement, we request that all participants wear their conference name badges to all sessions and social functions.

Certificates of Attendance and Presentation

A Certificate of Attendance will be included in your badge packet.

Currency

The official currency of Thailand is the Thai baht (pronounced *baht*). One baht is divided into 100 satang. Coins come in denominations of 1, 2, 5, and 10 baht as well as 25 and 50 satang. (You may get some 25 or 50 satang coins in change at a supermarket.) Banknotes come in denominations of 20, 50, 100, 500, and 1,000 baht. The most commonly used coin is the 10 baht, and the most commonly used note is the 100 baht. The notes of 20 and 50 baht have changed, with a slightly different portrait of the king.

- Travellers' cheques are generally accepted only at dedicated foreign exchange shops or banks.
- Automated teller machines (ATMs) are plentiful throughout Thailand, and most will accept cards issued by any of the major international banking networks (Plus, Cirrus, etc.).

Foreign debit and credit card withdrawals from Thai ATMs incur a 150 or 180 baht fee levied by the local ATM owner in addition to any fees added by your home financial institution.

- Major credit cards such as Visa, MasterCard, JCB, and American Express are readily accepted at most hotels, airlines, restaurants, and upscale merchants.
- To prevent your credit or debit card from being declined, it is important to advise your card issuer of your travel plans in advance.
- Some institutions routinely block or deny unexpected charges from Thai merchants for fear of possible fraudulent use.

Buying Thai Baht Outside Thailand

Thai baht is widely stocked by most currency suppliers outside Thailand. However, rates obtained in Thailand are higher and money can be exchanged on arrival at more advantageous rates.

Exchanging Cash in Thailand is Easy

FOREX (FOREign EXchange) booths are very common and clearly post their daily exchange rates on an electronic notice board.

- Cash exchanges in Thailand incur NO commissions or fees.
- Do not buy any Thai currency until you arrive in Thailand. The rates offered in Thailand are ALWAYS BETTER than you could get back home (for "mainstream" currencies).
- FOREX booths accept ALL MAJOR currencies.
- DO remember to bring ONLY bank notes in good overall condition. FOREX booths generally WILL NOT accept bank notes that are torn, ripped, damaged, or excessively marked or stamped.

Climate

In January, the sun shines for at least 9 hours per day, with on average 2 days of rainfall during the month. Around 10 mm of rain falls throughout January, with temperatures generally settling between 21°C (69°F) and 32°C (90°F).

Electricity

In Thailand the standard voltage is 220 V and the frequency is 50 Hz. You can use your electric appliances in Thailand if the standard voltage in your country is between 220 and 240 V (as in the United Kingdom, Europe, Australia, and most of Asia and Africa). Manufacturers take these small deviations into account. If the standard voltage in your country is in the range of 100 to 127 V (as in the United States, Canada, and most South American countries), you will need a voltage converter in Thailand.

Registration Fees

All registration fees will be paid in US dollars or credit card purchases.

Messages

Any messages received for conference delegates will be posted on the message board located near the registration desk.

Refreshments

Morning and afternoon refreshments and lunch are included in your registration fee this year and are provided during the scheduled break times in the exhibit area located in Ballroom I.

Dining and Entertainment

The restaurants at Shangri-La Hotel, Bangkok, offer a range of international culinary choices. Enjoy traditional Thai or Asian and cosmopolitan dishes or be tempted by an international buffet on board Horizon Cruise, their private river cruise ship. Dine at Volti Ristorante and Bar for authentic Italian dishes or at Shang Palace for Chinese favorites.

Sip on cocktails at NEXT2 Upper Deck, or enjoy light snacks and afternoon tea at the various lounges within the hotel's premises.

Services and Amenities

A riverside swimming pool, tennis courts, and a well-equipped fitness center with a range of classes are available.

The award-winning CHI, The Spa at Shangri-La, offers some of the largest private spa suites in Bangkok. The spa has a diverse menu of treatments drawn from the ancient healing traditions of Asia.

The conference hotel room rate includes a breakfast buffet and WiFi internet access in the hotel room and selected public areas of the hotel.



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Program

Thursday, January 11

09:00–17:00 IETS Board of Governors meeting (The Chairman's Room)

Friday, January 12

09:00–17:00 IETS Board of Governors meeting (The Chairman's Room)

09:00–13:00 HASAC Research Subcommittee meeting (Valley I)

14:00–18:00 HASAC Regulatory Subcommittee meeting (Valley I)

16:00–19:00 Registration (Board Room)

Saturday, January 13

07:00–18:00 Registration (Ballroom Foyer)

08:30–15:45 CANDES Preconference Symposium (Ballroom II)

Monitoring and Controlling Ovarian Activity in CANDES

12:00–17:00 Commercial exhibit setup and poster setup (Ballroom I and Foyer)

16:00–19:00 Morulas Workshop (The Study)

Assessment of Mammalian Embryo Quality: Invasive and Non-Invasive Techniques

Featured speakers: George Seidel, Colorado State University, USA; Heiner Niemann, Friedrich-Loeffler Institute, Germany; and Jeremy Thompson, University of Adelaide, Australia

16:00–20:00 IETS Foundation Board of Trustees meeting (Garden Gallery)

Sunday, January 14

07:00–18:00 Registration (Ballroom Foyer)

07:00–08:30 Poster setup (Ballroom I and Foyer)

07:00–08:30 Past Presidents' breakfast (Valley II)

07:00–08:30 Graduate and Undergraduate Student Competition Presenters' breakfast with IETS Foundation education chair (Valley I)

09:00–19:00 Commercial exhibits (Ballroom I and Foyer)

08:30–08:45 Opening and welcome: Trudee Fair and Daniel Salamone (Ballrooms II and III)

Session I: Clones and Lives Less Ordinary (Ballrooms II and III)

Session co-chairs: Cesare Galli, AVANTEA, Italy, and Pasqualino Loi, University of Teramo, Italy

08:45–09:30 The promise of dog cloning

Byeong Chun Lee, Seoul National University, South Korea

09:30–10:15 A journey through horse cloning

Andres Gambini, Universidad de Buenos Aires, Argentina

10:15–10:30 Recent advances in cloning by somatic cell nuclear transfer in camelids

N. A. Wani, V. S. Binoy, and S.-B. Hong (Abstract 34)

10:30–11:00 Refreshment break/poster viewing and exhibits

IETS Foundation Student Competition Presentations (Ballrooms II and III)

Session chair: Charles F. Rosenkrans, University of Arkansas

11:00–11:15 Microinjection of CPE-binding protein polyadenylated mRNA increases developmental competence of bovine oocytes *in vitro*

M. Yang, Z. Fan, and I. A. Polejaeva (Abstract 1)

11:15–11:30 Response to treatment with human chorionic gonadotropin on pregnancy rate of heat-stressed lactating cows: Interactions with parity and genotype

A. M. Zolini, W. Ortiz, E. Eliab, D. Serdal, and P. J. Hansen (Abstract 2)

- 11:30–11:45 Animal protein-free semen extender for fixed-time insemination of beef cows
S. X. Yang, E. M. Zwielfelhofer, G. P. Adams, and M. Anzar (Abstract 3)
- 11:45–12:00 Relationship between ovarian vascularity, cumulus-oocyte morphology, and luteal development in four-month-old calves after FSH stimulation
S. L. Caunce, A. R. T. Krause, F. C. F. Dias, G. P. Adams, and J. Singh (Abstract 4)
- 12:00–12:15 Live offspring produced from reproductive material recovered during the annual cull of bison from Yellowstone National Park
H. Benham, M. McCollum, P. Nol, B. Frey, J. Rhyan, and J. Barfield (Abstract 5)
- 12:15–12:30 CRISPR-generated ZP4 knockout rabbits exhibit impaired *in vivo* pre-implantation development
I. Lamas-Toranzo, N. F. Balvis, P. L. Lorenzo, P. G. Rebollar, M. Avilés, and P. Bermejo-Álvarez (Abstract 6)
- 12:30–14:00 Lunch break (located in Ballroom I and Foyer)
- 12:30–14:00 IETS Board luncheon with affiliate society representatives (Garden Gallery)
- 12:30–14:00 HASAC Manual and Certificates Subcommittee meeting (Valley I)
- 12:30–14:00 Morulas and Mentor luncheon (Valley II)

Session II: Ever-Decreasing Generation Intervals (Ballrooms II and III)

Session co-chairs: Dimitrios Rizos, National Institute for Agriculture and Food Research and Technology, Spain, and Beatriz Fernandez-Fuertes, University College Dublin, Ireland

- 14:00–14:45 Preantral follicle culture and oocyte quality
Ursula Eichenlaub-Ritter, Bielefeld University, Germany
- 14:45–15:30 Recent advances for spermatogonial stem cell transplantation in livestock
Jon M. Oatley, Washington State University, USA
- 15:30–16:00 Refreshment break/poster viewing and exhibits (Ballroom I and Foyer)

Selected Short Presentations (Ballrooms II and III)

- 16:00–16:15 *In vitro* generation and characterization of putative primordial germ cells derived from induced pluripotent stem cells in cattle
F. F. Bressan, M. A. Lima, L. S. Machado, N. C. G. Pieiri, P. Fantinato-Neto, J. Therrien, F. Perecin, L. C. Smith, and F. V. Meirelles (Abstract 183)
- 16:15–16:30 Culture conditions supporting long-term expansion of bovine spermatogonial stem cells isolated from adult and immature testes
Suyatno, Y. Kitamura, N. Minami, M. Yamada, and H. Imai (Abstract 192)
- 16:30–16:45 Directed differentiation of porcine induced pluripotent stem cells into all three germ layers via embryoid body formation
W. Chakritbudsabong, S. Pamonsupornvichit, L. Sariya, R. Pronarkngver, S. Chaiwattananarungruengpaisan, S. Klinsrithong, J. N. Ferreira, and S. Rungarunlert (Abstract 185)

16:45–17:15 Distinguished Service Award (Ballrooms II and III)

- 18:00–19:00 Welcome reception (Ballroom I and Foyer)

Monday, January 15

- 07:00–18:00 Registration (Ballroom Foyer)
- 08:00–17:00 Commercial exhibits (Ballroom I and Foyer)

Session III: Maternal–Paternal Interactions (Ballrooms II and III)

Session co-chairs: *Pat Lonergan, University College Dublin, Ireland, and Adriana Zolini, University of Florida, USA*

- 08:00–08:45 Paternal priming of maternal tissues to optimize pregnancy success
John J. Bromfield, University of Florida, USA
- 08:45–09:30 Post-fertilization sperm mitophagy: The tale of mitochondrial Eve and Steve
Peter Sutovsky, University of Missouri, USA

Selected Short Presentations (Ballrooms II and III)

Session co-chairs: *Rebecca Krisher, National Foundation for Fertility Research, and Kathryn Polkoff, University of Illinois*

- 09:30–09:45 Single-cell RNA sequencing reveals blastomere heterogeneity and early lineage specification events in bovine embryos during major embryonic genome activation
I. Lavagi, S. Krebs, K. Simmet, V. Zakhartchenko, E. Wolf, and H. Blum (Abstract 108)
- 09:45–10:00 Compensation of the growth and development of individually transferred bovine bisected embryos
E. I. Schild, A. E. Ynsaurralde-Rivolta, S. Lopez-Valiente, S. Maresca, C. Munar, A. M. Rodriguez, S. Munilla, D. Hernandez Maizon, N. Bosetti, M. Curti, J. I. Jaca, R. Bevacqua, A. Rogberg-Munoz, and D. F. Salamone (Abstract 82)
- 10:00–12:00 **Poster session I (Ballroom I and Foyer)**
All odd-numbered posters except those in the Student Competition and the Undergraduate Poster Competition need to be removed by 14:00 today. Even-numbered posters will be exhibited from Monday at 14:00 to Tuesday at 14:00
- 10:00–12:00 **Exhibits (Ballroom I and Foyer)**
- 12:00–13:30 Lunch break (located in Ballroom I and Foyer)
- 12:00–13:30 IETS Data Retrieval Committee meeting (Valley I)
- 12:00–13:30 IETS Exhibitors' luncheon with IETS Board of Governors (Garden Gallery)
- 12:00–13:30 Morulas career luncheon (Valley II)

Session IV: The Epigenetics of Building an Embryo and Stem Cell (Ballrooms II and III)

Session co-chairs: *Daniel F. Salamone, Universidad de Buenos Aires, and Hayley Benham, Colorado State University, USA*

- 13:30–14:15 Methylation mechanisms and biomechanical effectors controlling cell fate
Tiziana A. L. Brevini, Università degli Studi di Milano, Italy
- 14:15–15:00 Transcriptional and epigenetic control of cell fate decisions in early embryo
Ramiro Alberio, University of Nottingham, United Kingdom

15:00–15:30 Peter Farin Trainee Award Winners Presentations (Ballrooms II and III)

- 15:30–16:00 Refreshment break/poster viewing and exhibits (Ballroom I and Foyer)

Concurrent Forum

- 16:00–18:00 Practitioners' Forum (Myanmar)

Chair: *Richard Fry*

Current and Future Status of Reproductive Technologies

Topics: AI—

MOET—Rainer Saner, Swissgenetics

IVF—John Hepburn, Animal Breeding Services Ltd.

Cloning—Andres Gambini, Universidad de Buenos Aires

Concurrent Forum

16:00–18:00 Domestic Animal Biomedical Embryology Committee (DABE) (Ballrooms II and III)

Chair: Jorge Piedrahita, North Carolina State University

16:00–16:10 Welcome and introduction: Jorge Piedrahita, DABE chair

16:10–17:00 Imaging the molecular and cell dynamics that form the early mouse embryo
*Nicolas Plachta, Institute of Molecular and Cell Biology, A*STAR, Singapore*

Our goal is to reveal how mammalian cells resolve their fate, shape, and position in the body in real time. Understanding how these decisions are made is critical to realise how embryos form and what problems compromise human fertility, yet their real-time control *in vivo* remains unknown. Because fixed specimens cannot capture cell dynamics, we established imaging technologies to study cells directly in live mouse embryos. We recently showed how transcription factors search and bind to the DNA to determine the first cell fates of the embryo. We found that differences in the binding of the transcription factor Sox2 to DNA appear as early as the four-cell stage of development and predict cell fate. We also discovered that as cells choose their initial fates, they extend long filopodia protrusions to pull their neighbour cells closer, revealing a mechanism for embryo compaction and polarization. Finally, we established techniques to image how dynamic changes in the organisation of the actin and microtubule cytoskeletons regulate the first spatial segregation of inner and outer cells to form the future pluripotent inner mass and placental tissues of the embryo. Together, our findings reveal some of the key dynamic mechanisms that pattern the early mouse embryo.

Selected Short Presentations (Ballrooms II and III)

17:00–17:15 Rescue of the hematoendothelial phenotypes in the ETV2-null cloned pig via embryo complementation

G. Maeng, X. Pan, S. Das, K.-D. Choi, N. Koyano-Nakagawa, M. G. Garry, and D. J. Garry (Abstract 25)

17:15–17:30 Generation of immunoglobulin heavy constant Mu (IGHM) knockout goats using CRISPR/Cas9 and somatic cell nuclear transfer

Z. Fan, M. Regouski, A. J. Van Wettene, Z. Wang, E. Sullivan, and I. A. Polejaeva (Abstract 28)

17:30–17:45 Profile of microRNAs of equine amniotic mesenchymal cell-derived microvesicles in different time-span of *in vitro* culture

A. Lange-Consiglio, E. Capra, F. Pizzi, B. Lazzari, C. Perrini, A. Stella, and F. Cremonesi (Abstract 190)

17:45–18:00 Optimization of transfection efficiency for CRISPR/Cas9-induced genomic editing in porcine fibroblast cells

S. N. Lanjewar and K. R. Bondioli (Abstract 205)

18:00–18:30 IETS Business Meeting (Ballrooms II and III)

18:30–19:30 HASAC open meeting (Ballrooms II and III)

18:30–19:30 Morulas forum (The Study)

20:00–21:00 Morulas student mixer (TBD)

Tuesday, January 16

07:30–08:30 Organizational meeting of the IETS Board of Governors (The Chairman's Room)

08:00–15:00 Registration (Ballroom Foyer)

08:30–13:00 Commercial exhibits (Ballroom I and Foyer)

Session V: Survival of the Fittest Embryo (Ballrooms II and III)

Session co-chairs: Marcelo Seneda, University of Londrina, Brazil, and Camille C. Goblet, Texas A&M University, USA

08:30–09:15 Fertility and the transition dairy cow

John Roche, Ag Research, New Zealand

09:15–10:00 Early onset of puberty in cattle: Implications for gamete quality and embryo survival
David Kenny, Teagasc, Ireland

Selected Short Presentations (Ballrooms II and III)

10:00–10:15 Distribution of gonadotropin-releasing hormone and kisspeptin neurons in the preoptic area and hypothalamus during the estrous cycle in cows
C. E. P. Leonardi, R. Carrasco, F. F. C. Dias, G. P. Adams, and J. Singh (Abstract 104)

10:15–10:30 Selected reaction monitoring-based absolute quantification of developmentally relevant proteins in early bovine embryos reveals differences between *in vitro* and *in vivo* embryo culture and between different maternal metabolic stages
G. J. Arnold, K. Gegenfurtner, T. Frohlich, D. R. Deutsch, P. Salvetti, N. Forde, P. Lonergan, U. Besenfelder, and E. Wolf (Abstract 59)

10:30–12:30 Poster session II (Ballroom I and Foyer)

Even-numbered posters, along with the Student Competition and the Undergraduate Poster Competition, will be exhibited from Monday at 14:00 to Tuesday at 14:00

***All posters must be removed before 14:00 on Tuesday, January 16.**

12:30–14:00 Lunch break (located in Ballroom I and Foyer)

12:30–14:00 Organizational lunch meeting of the IETS Foundation (Valley I)

12:30–14:00 2018, 2019, and 2020, IETS Program Committee lunch (Valley II)

14:00–17:00 Commercial exhibit takedown (Ballroom I and Foyer)

14:15–15:30 Pioneer Award (Ballrooms II and III)

Session VI: Keynote Lecture (Ballrooms II and III)

Session chair: Fulvio Gandolfi, Università Degli Studi Di Milano, Italy

15:30–16:15 The mitochondrial genome: How it drives fertility
Justin St. John, Monash University, Australia

Awards Presentations and Updates (Ballrooms II and III)

16:15–16:45 IETS Foundation Early Career Achievement Award winner

16:45–17:30 IETS Foundation Student Competition Awards; CANDES, DABE, and HASAC updates

17:30–17:45 Closing ceremony

20:45–23:45 Closing party, Grand Chaopraya cruise



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The Program Co-Chairs Acknowledge and Thank the Following People

Section Editors

Charles Rosenkrans, *Student Competition*
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 Daniel Salamone, *Cloning/Nuclear Transfer*
 Pierre Comizzoli, *Cryopreservation/Cryobiology*
 Pete Hansen, *Developmental Biology*
 Pat Lonergan, *Early Pregnancy/Pregnancy Recognition*
 Alfonso Gutiérrez-Adán, *Embryo Culture*
 Marcelo Bertolini, *Embryo Manipulation*
 Jeremy Block, *Embryo Transfer*
 Ann Van Soom, *Epidemiology/Diseases*
 Barbara Durrant, *Exotic Species*
 Fulvio Gandolfi, *Folliculogenesis/Oogenesis*

Christine Wrenzycki, *Gene Expression*
 Hiroaki Funahashi, *IVF/IVP*
 John Kastelic, *Male Physiology*
 Trudee Fair, *Oocyte Activation*
 Rebecca Krisher, *Oocyte Maturation*
 Daniel Salamone, *Sexing*
 Katrin Hinrichs, *Sperm Injection*
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 Carol Keefer, *Transgenesis*
 Charles Rosenkrans, *Undergraduate Poster Competition*

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John Parrish	Charles Rosenkrans	K. Taya	Adriana Zolini
Rolando Pasquariello	Pablo Ross	Bhanu Telugu	

Poster Session Information

Location

Posters are located in Ballroom I and the Foyer of the Shangri-La Hotel on the lobby level (see map on page 4).

Poster Numbers

Posters are identified by the number corresponding to the abstract number in *Reproduction, Fertility and Development* 2018; 30 (1). Numbering of the posters begins at 1 and ends at 208.

Setup

Odd-numbered posters can be put up from 12:00 to 17:00 on Saturday, January 13, 2018, and from 06:30 to 08:00 on Sunday, January 14, 2018. They will remain up until 14:00 on Monday, January 15. *All odd-numbered posters must be removed by 14:00, Monday, January 15.*

Even-numbered posters can be put up on Monday at 14:00. They will remain up until 13:00 on Tuesday, January 16.

Poster Session I

Presentations by authors of odd-numbered abstracts (e.g., 7, 9, 11) in *Reproduction, Fertility and Development* 2018; 30 (1) as well as the Student Competition finalist and Undergraduate finalist poster presentations will take place Monday, January 15, 2018, from 10:00 to 12:00. Odd-numbered posters for the poster competition will also be judged on Monday, January 15, from 10:00 to 12:00.

Poster Session II

Presentations by authors of even-numbered abstracts (e.g., 8, 10, 12) in *Reproduction, Fertility and Development* 2018; 30 (1) will take place Tuesday, January 16, 2018, from 10:30 to 12:30. Even-numbered posters for the poster competition will be judged on Tuesday, January 16, from 10:30 to 12:30.

Teardown

Poster teardown for the even-numbered posters will take place from 12:30 to 14:00 Tuesday, January 16, 2018. Posters that are not taken down by 14:00 on Tuesday will be taken down and discarded.

Poster Session Order by Topic

Poster number = abstract number in *Reproduction, Fertility and Development* 2018; 30 (1)

Student Competition

- 1 Microinjection of CPE-binding protein polyadenylated mRNA increases developmental competence of bovine oocytes *in vitro*
M. Yang, Z. Fan, and I. A. Polejaeva
- 2 Response to treatment with human chorionic gonadotropin on pregnancy rate of heat-stressed lactating cows: Interactions with parity and genotype
A. M. Zolini, W. Ortiz, E. Eliab, D. Serdal, and P. J. Hansen
- 3 Animal protein-free semen extender for fixed-time insemination of beef cows
S. X. Yang, E. M. Zwiefelhofer, G. P. Adams, and M. Anzar
- 4 Relationship between ovarian vascularity, cumulus-oocyte morphology and luteal development in four-month-old calves after FSH stimulation
S. L. Caunce, A. R. T. Krause, F. C. F. Dias, G. P. Adams, and J. Singh
- 5 Live offspring produced from reproductive material recovered during the annual cull of bison from Yellowstone National Park
H. Benham, M. McCollum, P. Nol, B. Frey, J. Rhyan, and J. Barfield
- 6 CRISPR-generated ZP4 knockout rabbits exhibit impaired *in vivo* pre-implantation development
I. Lamas-Toranzo, N. F. Balvis, P. L. Lorenzo, P. G. Rebollar, M. Avilés, and P. Bermejo-Álvarez

Artificial Insemination

- 7 Ovarian follicular dynamics and conception rate in *Bos indicus* cows with different antral follicle counts subjected to timed artificial insemination
F. Morotti, R. Moretti, G. M. Gomes dos Santos, K. C. Silva-Santos, and M. M. Seneda
- 8 Effect of single layer centrifugation with Percoll Plus® of fresh bull semen on plasma membrane stability and lipid peroxidation after cryopreservation
T. E. Cruz, A. Martins Jr., F. N. Marqui, T. I. U. Berton, C. P. Freitas-Dell'Aqua, D. G. Souza, and S. H. V. Perri
- 9 Single layer centrifugation of bull semen through Percoll Plus® before cryopreservation
A. Martins Jr., F. N. Marqui, T. E. Cruz, T. I. H. Berton, D. G. Souza, and S. H. V. Perri
- 10 Evaluation of frozen sperm quality after single layer centrifugation with Percoll Plus® of fresh bull semen
F. N. Marqui, A. Martins Jr., T. E. Cruz, T. I. U. Berton, C. P. Freitas-Dell'Aqua, D. G. Souza, and S. H. V. Perri
- 11 Early induction of luteolysis in fixed-time artificial insemination protocols increases fertility in beef cows
J. B. Borges, A. B. Machado, E. Pradebon, M. Dias, M. Bernardi, and M. Wiltbank
- 12 Ovulation timing following an aromatase inhibitor-based synchronization protocol in beef heifers and cows
E. M. Zwiefelhofer, W. Lillico, and G. P. Adams
- 13 Pre-synchronization by induction of a dominant follicle using a progesterone device in a GnRH-based-ovulation synchronization protocol in lactating dairy cows
M. P. Bottino, L. A. C. L. DaSilva, L. M. S. Simoes, G. Santos, I. Y. H. Martinez, P. A. M. Barros, J. C. DeSouza, P. S. Baruzelli, and J. N. S. Sales

- 14 Composition of semen extenders and varying seminal plasma concentrations affects formation of neutrophil extracellular traps in the bovine system
T. Fichtner, F. Kotarski, L. Silva, C. Hermosilla, A. Taubert, and C. Wrenzycki
- 15 Effects of timed artificial insemination protocol using prostglandin F_{2α} and estradiol benzoate on conception rate in high-producing dairy cows
M. Yamaguchi, M. Takayama, and H. López
- 16 Evaluation of factors influencing timed artificial insemination in South African communal cows
Z. C. Raphalalani, T. L. Nedambale, M. L. Mphaphathi, M. M. Seshoka, M. Nkadimeng, M. A. Bopape, F. L. Seolwana, M. H. Mapeka, F. V. Ramukhithi, and K. A. Nephawe
- 17 Relationship between semen parameters and morphometric characteristics of Zulu rams
J. N. Ngcobo, A. Maqhashu, F. V. Ramukhithi, L. P. Kruger, K. A. Nephawe, and T. L. Nedambale
- 18 Wireless cloud-based data acquisition and management tool for use with Inteli-Straws and assisted reproductive techniques
M. E. Kjelland, S. Romo, and T. K. Stroud
- 19 An efficient noninvasive alternative recipient preparation in swamp buffalo using the Ovsynch protocol
T. Chaikhun-Marcou, W. Maitreejet, S. Majarune, K. Karnjanasirm, S. Rattanatabtimtong, and T. Raungprim
- 20 Assessment of motion and kinematic characteristics of semen from four cattle breeds using computer-aided sperm analysis
M. L. Mphaphathi, M. M. Seshoka, T. R. Netshirovha, Z. C. Raphalalani, N. Bovula, M. R. Thandavhathu, B. Raito, N. L. Kamuya, A. Maqhashu, and T. L. Nedambale
- 21 Comparative study on epididymal spermatozoa traits of Large White × Landrace and Kolbroek boars
T. R. Netshirovha, A. T. Kanengoni, M. B. Matabane, M. L. Mphaphathi, A. Maqhashu, N. Bovula, M. Nkadimeng, and M. Chimonyo
- 22 Comparing three extenders: Hashi, Green Buffer and INRA 96, for chilled storage of Bactrian camel semen
F. Panahi, A. Niasari-Naslaji, F. Seyedasgari, T. Ararooti, H. Adel, and A. Kalantari

Cloning/Nuclear Transfer

- 23 Production of genetically modified founder pigs as models for human diseases
H. Callesen, Y. Liu, H. S. Pedersen, C. B. Sørensen, and J. F. Bentzon
- 24 Evaluation of latrunculin A for the activation of hand-made cloning (HMC) porcine embryos
F. K. Castañeda, N. G. Canel, G. V. Landschoot, A. De Stéfano, R. J. Bevacqua, and D. F. Salamone
- 25 Rescue of the hematoendothelial phenotypes in the ETV2-null cloned pig via embryo complementation
G. Maeng, X. Pan, S. Das, K.-D. Choi, N. Koyano-Nakagawa, M. G. Garry, and D. J. Garry
- 26 Drugs that modify epigenetics... What do they do to porcine clones?
C. P. Buemo, A. Gambini, L. N. Moro, N. Canel, and D. F. Salamone
- 27 Quisinostat, a potent histone deacetylase inhibitor, regulates the expression of pluripotency- and reprogramming-related genes on somatic cell nuclear transferred porcine embryos
A. Taweechaipaisankul, J.-X. Jin, S. Lee, G. A. Kim, and B. C. Lee
- 28 Generation of immunoglobulin heavy constant mu (IGHM) knockout goats using CRISPR/Cas9 and somatic cell nuclear transfer
Z. Fan, M. Regouski, A. J. Van Wettene, Z. Wang, E. Sullivan, and I. A. Polejaeva

- 29 Co-incubation of equine cloned embryos with sialic acid: Effect on pregnancy rate
D. Vichera, R. Olivera, V. Arnold, J. Vergara, R. Jordan, and G. Vichera
- 30 Vitrification of equine embryos: Application in a commercial cloning program
G. Vichera, R. Jordan, V. Arnold, D. Dobler, and R. Olivera
- 31 Overall goat cloning efficiency under suboptimal conditions—A 6-year experience
L. H. Aguiar, C. E. Méndez-Calderón, F. L. Ongaratto, R. Rossetto, D. Rondina, J. L. Rodrigues, L. R. Bertolin, and M. Bertolini
- 32 MicroRNA-29b improves the quality and developmental potential of blastocysts derived from somatic cell nuclear transfer in cattle
W.-J. Zhou, S. Liang, and X.-S. Cui
- 33 Improved dog cloning efficiency using post-activation with Ro-3306, a Cdk1 inhibitor
M. J. Kim, H. J. Oh, E. M. N. Setyawan, S. H. Lee, and B. C. Lee
- 34 Recent advances in cloning by somatic cell nuclear transfer in camelids
N. A. Wani, V. S. Binoy, and S.-B. Hong
- 35 Interspecies somatic cell nuclear transfer embryos that form nucleoli do not always activate mitochondrial functional differentiation at the time of embryonic genome activation
I. Lagutina, G. Lazzari, and C. Galli
- 36 Transgenic somatic cell nuclear transfer blastocyst selection with embryo biopsy
M. Nömm, M. Ivask, P. Pärn, Ü. Jaakma, and S. Kõks
- 37 Healthy foals produced using bone marrow-mesenchymal stem cells as nuclear donors in horse cloning
R. Olivera, L. Moro, R. Jordan, C. Luzzani, S. Miriuka, and G. Vichera
- 38 Improved cloning efficiency and developmental potential in bovine somatic cell nuclear transfer with the new technology
L. Xu, M.-D. Joo, A. Mesalam, S.-H. Song, S. Zhang, and I.-K. Kong
- 39 Embryo development of Kazakh argali (*Ovis ammon collium*) by handmade cloning
Y. Toishibekov, E. Asanova, M. Yermekova, A. Seisenbayeva, D. Toishybek, and G. Vajta

Cryopreservation/Cryobiology

- 40 Gene expression profiling of *in vitro*-produced blastocysts derived from in vitro-matured bovine oocytes vitrified/warmed in media supplemented with a biopolymer produced by an Antarctic bacterium
N. Arcarons, M. Vendrell, M. Yeste, M. E. Mercadé, M. López-Béjar, and T. Mogas
- 41 Effects of dimethyl sulfoxide- or glycerol-based vitrification protocols on zona pellucida hardening in mature bovine oocytes
K. D. Rogers, B. A. Foster, E. J. Guiterrez, F. A. Diaz, and K. R. Bondioli
- 42 Glycerol dilution in the straw by mixing methanol and sucrose for bovine embryo cryopreservation
T. T. Takeda
- 43 Cryopreservation of bovine sperm using antifreeze polyamino-acid
T. Fujikawa, S. Imamura, M. Tokumaru, T. Ando, Y. Gen, S.-H. Hyon, and C. Kubota
- 44 Proliferation and antral formation of preantral follicle within cryopreserved cat ovarian tissue transplanted into nude mice
N. Tanpradit and K. Chatdarong
- 45 DNA fragmentation of epididymal freeze-dried ram spermatozoa impairs embryo development
L. Palazzese, D. A. Anzalone, J. Gosálve?, P. Loi, and J. Saragusty

- 46 Effect of Bioxcell® and Triladyl® extenders on washed semen of South African indigenous bucks
L. P. Nethenzheni, M. L. Mphaphathi, N. C. Negota, and T. L. Nedambale
- 47 A new device and method for successful vitrification of *in vitro*-produced ovine embryos
S. Ledda, J. M. Kelly, S. K. Walker, Y. Natan, and A. Arav
- 48 Effect of dimethyl sulfoxide- or glycerol-based vitrification protocols on meiotic spindle of *in vitro*-matured bovine oocytes
E. J. Gutierrez, F. A. Diaz, B. A. Foster, and K. R. Bondioli
- 49 Developmental potential of dromedary camel oocytes vitrified at the germinal vesicle stage: Effects of different cryoprotectant combinations and cryo-carriers
M. Fathi, A. R. Moawad, and M. R. Badr
- 50 Effects of cathepsin B inhibitor E64 on the survival rate of cryopreserved semen from Korean brindled bulls
S. W. Kim, M.-S. Kim, C.-L. Kim, and I. S. Jeon
- 51 Effect of cryoprotectant exposure time on development of vitrified-warmed immature equine oocytes
H. S. Canesin, J. G. Brom-de-Luna, Y.-H. Choi, A. M. Pereira, G. G. Macedo, and K. Hinrichs
- 52 Difference of seminal plasma proteins in good- and poor-freezability boar ejaculates
J. Rungruangsak, J. Suwimonteerabutr, S. Asawakarn, K. Buranaamnuay, N. Chantaravisoot, T. Pisitkun, and P. Tummaruk
- 53 Cryopreservation of sheep ovarian tissue using different cryoprotectants
S. Akerke and T. Yerzhan
- 54 Effect of different cryopreservation protocols for sheep embryonic stem cells
N. Ibraimova, A. Seisenbayeva, and Y. Toishibekov

Developmental Biology

- 55 The role of poly (ADP-ribose) polymerases in porcine cumulus–oocyte complex during *in vitro* maturation and embryonic development
D. H. Kim, S. T. Shin, and H. T. Lee
- 56 Sirtinol treatment influences preimplantation development of porcine embryos via regulation of autophagy and apoptosis
M. G. Kim, S. T. Shin, H. D. Shin, and H. T. Lee
- 57 Disruption of *TET1* leads to abnormal expression of pluripotency-related genes in porcine embryos
K. Uh, J. Ryu, and K. Lee
- 58 Evidence of metabolic compartmentalization or zonation in the bovine placenta: Significance for the regulation of placental function and fetal growth
E. Ticiani, C. R. Lazzarotto, R. P. C. Gerger, B. R. Wilhelm, V. H. V. Rodrigues, J. L. Rodrigues, M. A. Miglino, L. R. Bertolini, and M. Bertolini
- 59 Selected reaction monitoring-based absolute quantification of developmentally relevant proteins in early bovine embryos reveals differences between *in vitro* and *in vivo* embryo culture and between different maternal metabolic stages
G. J. Arnold, K. Gegenfurtner, T. Frohlich, D. R. Deutsch, P. Salvetti, N. Forde, P. Lonergan, U. Besenfelder, and E. Wolf
- 60 Reproductive performance after timed artificial insemination followed by timed embryo transfer of *in vitro*-produced embryos in beef cattle
G. Holguin-Sanabria, F. J. F. Collares, E. P. Silva, L. H. Aguiar, P. Rodriguez-Villamil, F. L. Ongaratto, P. V. Marchioretto, M. C. Silveira, J. L. Rodrigues, and M. Bertolini

- 61 Expression profiles and functional roles of H3.3 and HIRA in bovine early embryos
K. Zhang and H. Wang
- 62 Will gonadotropin-releasing hormone treatment hasten the onset of puberty in peripubertal heifers?
N. A. Castro, C. E. Leonardi, E. M. Zwiefelhofer, J. Singh, and G. P. Adams
- 63 Impact of endometrial biopsy on corpus luteum function
O. Ramirez-Garzon, N. Satake, J. Hill, M. K. Holland, and M. McGowan
- 64 Impaired post-implantation development following blastomere biopsy is associated with placental hypomethylation
F. Zacchini, M. Oghuska, R. Arena, and G. E. Ptak
- 65 Placental function at term is altered in broodmares fed with cereals from mid gestation
M. Robles, P. Peugeot, C. Dubois, F. Piumi, L. Jouneau, M.-C. Aubrière, M. Dahirel, L. Wimel, A. Couturier-Tarrade, and P. Chavatte-Palmer
- 66 Unexpected protein dynamics during the oocyte-to-embryo transition in mice: A mass spectrometry and RNA sequencing tandem study
S. Israel, M. Ernst, O. E. Psathaki, H. C. Drexler, E. Casser, Y. Suzuki, W. Makalowski, G. Fuellen, M. Boiani, and L. Taher

Early Pregnancy

- 67 Influence of metabolic status and genetic merit for fertility on proteomic composition of bovine uterine luminal fluid
K. Gegenfurtner, T. Fröhlich, M. Kösters, E. O. Riedel, S. Fritz, P. Salvetti, N. Forde, P. Lonergan, E. Wolf, and G. J. Arnold
- 69 Can bovine sperm interaction with the oviduct cells after artificial insemination affect the transcriptome profile of the oviduct?
J. O. Carvalho, R. Sartori, P. L. Monteiro, L. O. Leme, and M. A. N. Dode
- 70 Effect of ovulation stimulus on biochemical composition of the oviduct of alpaca (*Vicugna pacos*)
F. Y. Hilari, J. C. Villanueva, W. F. Huanca, B. Lira, and W. Huanca

Embryo Culture

- 71 The effect of two different *in vitro* culture media and mice embryo groupings on hatchability after 24 hours of culture
N. C. Negota, M. L. Mphaphathi, L. P. Nethenzheni, T. L. Rammutla, N. R. Serota, and T. L. Nedambale
- 72 Protective effects of C-phycoerythrin on the developmental competence of porcine parthenotes
Y.-J. Niu, N.-H. Kim, and X.-S. Cui
- 73 Fatty acid supplementation in culture medium with reduced nutrient concentrations improves bovine blastocyst development compared with standard culture medium
R. Pasquariello, J. R. Herrick, Y. Yuan, A. F. Ermisch, J. Becker, L. Yao, C. Broeckling, W. B. Schoolcraft, J. P. Barfield, and R. L. Krisher
- 74 Treatment with melatonin during *in vitro* culture enhances porcine parthenogenetically activated embryo development
G. A. Kim, J.-X. Jin, S. Lee, A. Taweetchaipaisankul, and B. C. Lee
- 75 Improvement of developmental competence of bovine *in vitro*-produced embryos by using charcoal:dextran-stripped fetal bovine serum on *in vitro* culture media
A. Mesalam, R. Kong, B.-H. Choi, K.-L. Lee, B.-Y. Park, M.-J. Son, J.-I. Jin, and I.-K. Kong

- 76 Tetrahydrofuran does not have embryo toxic effects on *in vitro*-produced bovine embryos
M. M. R. Chowdhury, I. Khan, A. Mesalam, K.-L. Lee, J.-Y. Hwang, F. Afrin, and I.-K. Kong
- 77 Monozygotic twin calves production by blastomere separation technique with commercial well-of-the-well culture dish
Y. Hashiyada, Y. Aikawa, H. Matsuda, T. Yamanouchi, Y. Goto, M. Ohtake, S. Sugimura, and K. Imai
- 78 Mito-TEMPO, a scavenger for mitochondria-derived reactive oxygen species, enhances porcine pre-implantation embryo development
S.-G. Yang, H.-J. Park, J.-W. Kim, J.-M. Jung, H.-G. Jegal, I.-S. Kim, P.-S. Jeong, and D.-B. Koo
- 79 Effect of polydatin on development and cryotolerance of *in vitro*-produced bovine embryos
C. M. Owen, M. Barceló-Fimbres, J. L. Altermatt, and L. F. Campos-Chillon
- 80 Cumulus cells reflect the success of IVF of porcine oocytes treated with dimethylthiourea
D. M. Lombardo, M. S. Lorenzo, P. R. Cruzans, G. M. Teplitz, A. Maruri, and M. F. Tello
- 81 Effects of Day 5 or 6 HEPES-buffered transportation culture medium on developmental competence of bovine *in vitro*-produced embryos
W. Choi, C. M. Owen, M. Barcelo-Fimbres, J. L. Altermatt, and L. F. Campos-Chillon

Embryo Manipulation

- 82 Compensation of the growth and development of individually transferred bovine bisected embryos
E. I. Schild, A. E. Ynsaurralde-Rivolta, S. López-Valiente, S. Maresca, C. Munar, N. Bosetti, M. Curti, J. I. Jaca, R. Bevacqua, A. Rogberg, and D. F. Salamone

Embryo Transfer

- 83 Effect of synchronization treatment and estrus expression on conception rates and pregnancy losses in recipients receiving *in vitro*-produced embryos
A. Cedeño, P. Tribulo, A. Tribulo, J. L. Barajas, J. Ortega, S. Andrada, D. Lozano, I. Monguillot, A. Brandan, R. Tribulo, H. Tribulo, and G. A. Bo
- 84 Effect of embryo stage and cryopreservation method on pregnancy rates obtained following the transfer of *in vivo*-derived ovine embryos on small-scale farms in Thailand
S. Khunmanee, J. Suwimonteerabutr, M. Techakumphu, and T. Swangchan-Uthai
- 85 Influence of short-term storage on gene expression of equine embryos
G. D. A. Gastal, D. Scarlet, R. Ertl, and C. Aurich
- 86 Difficulty of transfer of *in vivo*-derived bovine embryos and route of administration of flunixin meglumine at the time of transfer may affect pregnancy rate
J. Duran, D. Argudo, S. Bravo, C. Soria, G. Guevara, and R. Alberio
- 87 Effect of treatment with nonsteroidal anti-inflammatory drugs (NSAIDs) on pregnancy rates of recipient alpacas post-embryo transfer
H. W. Vivanco-Mackie, M. D. P. Salazar, M. Miguel-Gonzales, C. R. Youngs, and M. Asparrin
- 88 Effect of follicular ablation and GnRH on recipient synchrony in Holstein heifers
J. M. Palomino, F.-X. Grand, C. Vigneault, P. Blondin, and M.-A. Sirard
- 89 Comparative quantification of plasma progesterone through radioimmunoassay and enzyme-linked fluorescent assay techniques in cattle
J. M. R. Périco, C. Bianchi, C. Tapia, S. Raggio, and I. A. Marchetti

Epidemiology/Diseases

- 90 Risk of *Coxiella burnetii* transmission via embryo transfer using *in vitro* early caprine embryos
F. Fieni, A. Alsaleh, J. de Souza-Fabjan, P. Mermillod, E. Corbin, P. Nascimento, J.-F. Bruyas, and J.-L. Pellerin
- 91 Expression pattern of neuron-specific red fluorescence protein in nervous system of transgenic dog with human synapsin I promoter
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2018 Recipient of the IETS Distinguished Service Award



Henrik Callesen

Dr. Henrik Callesen is the IETS Distinguished Service Award recipient for 2018. Callesen received his DVM and PhD from the Royal Veterinary and Agricultural University (KVL, now part of the University of Copenhagen). He later earned a Doctor of Veterinary Science degree from the same university for his studies on superovulation, oocyte maturation, embryo quality assessment, and donor evaluation in cattle. He held research positions at KVL and the Danish Institute for Agricultural Science (Aarhus University), where he now serves as a professor in the Department of Animal Science. His research in cattle and pigs has centered around ovum development, superovulation, in vitro embryo production and cloning, embryo cryopreservation, and embryo transfer. He served on the board of the Association for Embryo Technologies in Europe, receiving that organization's Pioneer Award in 2016. He has been a long-standing active member of IETS, where he served on the Affiliate Society and Audit Committees and on the board as a governor and then treasurer for five years, followed by a term as vice president and then president in 2012.

This award was established by the Board of Governors in 1991. The primary purpose of this award is to provide recognition for those individuals who have provided outstanding leadership or service to the International Embryo Technology Society or who have contributed in a significant manner to the achievement of the stated purposes of the society as expressed in Article II of the IETS by-laws.

Article II—Purposes

Section 1. The society shall further the science of embryo production, development, and transfer by (1) promoting more effective research; (2) disseminating scientific and educational information; (3) fostering high standards of education; (4) maintaining high standards of ethics; (5) enhancing the international movement of animal genetics with embryos; (6) coordinating standardization of embryo handling and record procedures internationally; and (7) cooperating with other organizations having similar objectives.

Special Events

Morulas' Preconference Workshop

Assessment of Mammalian Embryo Quality: Invasive and Non-Invasive Techniques

Saturday, January 13

16:00–19:00

The Study

The featured talks include the following: Tips for morphological evaluation of oocytes and pre-implantation embryos, George Seidel, Colorado State University, USA; Transcriptional and epigenetic profiles of bovine embryos and their relationship with developmental capacity, Heiner Niemann, Friedrich Loeffler Institute, Germany; and Non-invasive methods for assessing the quality of embryos, Jeremy Thompson, the University of Adelaide, Australia.

Sponsored by CSIRO Publishing

(Registration required)

Morulas and Mentor Luncheon

Sunday, January 14

12:15–14:00

Valley II

One of the main goals of the Morulas is to provide trainees the opportunities to interact with leading scientists of the IETS. The Morulas and Mentors luncheon is designed to give trainees a chance to sit down with mentors in small groups to develop meaningful connections with these recognized leaders. Join a number of outstanding mentors at this annual event and choose from one of six mentors that you would like to dine with. Our confirmed mentors are Dr. Dimitrios Rizos, Dr. Peter Sutovsky, Dr. David Kenny, Dr. Justin John, Dr. Bianca Gasparini, and Dr. John Bromfield.

(Ticket required)

Welcome Reception

Sunday, January 14

18:00–19:00

Ballroom I and Pre-function Foyer

Sponsored by Professional Embryo Transfer Supple Inc. (PETS)

A welcome reception will be held in Ballroom I and the Foyer of the Shangri-La Hotel from 18:00 to 19:00. Meet the exhibitors and renew old friendships. Light hors d'oeuvres will be served with a cash bar.

Morulas Career Luncheon

Monday, January 15

12:00–13:30

Valley II

Sponsored by CSIRO Publishing

This year's Career Luncheon will feature a talk by two speakers, who will share unique perspectives from their own personal career paths. Hear from Dr. Anna Denicol from the University of California, Davis, and Dr. Alessio Valenza from CEVA Animal Health, Libourne. This forum provides a chance for trainees to gain perspective outside of their current work environment and meet others with similar aspirations.

(Ticket required)

Practitioners' Forum

Monday, January 15

16:00–18:00

Myanmar

Current and future status of reproductive technologies

DABES Forum

Monday, January 15

16:00–18:00

Ballrooms II and III

Imaging the molecular and cell dynamics that form the early mouse embryo

*Nicolas Plachta, Institute of Molecular and Cell Biology, A*STAR, Singapore*

Open Meeting of the Health and Safety Advisory Committee (HASAC)

Monday, January 15

18:30–19:30

Ballrooms II and III

Morulas' Trainee Forum

Monday, January 15

18:30–19:30

The Study

All trainees are invited and encouraged to attend the Morulas Trainee Forum. The Board of Governors will be updating the membership on activities and attending to business matters. In addition, we will welcome the new Morulas president and discuss important events and opportunities for all trainees. This is a great time to get involved and boost your international relations.

(Everyone is welcome)

Morulas' Student Mixer

Monday, January 15

19:30–20:30

After business comes fun! Shortly after the Morulas Trainee Forum, everyone is invited to gather with friends and drinks for a social event. Hosted by IETS, this annual event is a fun time for all trainees to relax and enjoy the atmosphere. Take advantage of meeting new people and establish connections that last a lifetime. The mixer will conveniently be located in the hotel.

(Registration and tickets are NOT required)

Closing Party

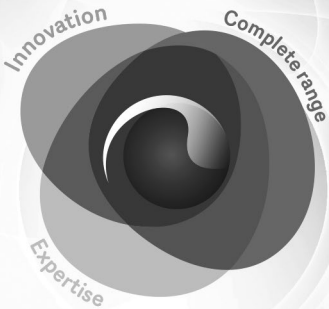
Tuesday, January 16

20:45–23:45


Grand Chaopraya Cruise

Come join us for the event of the week. The closing party will be a private dinner cruise aboard the Grand Chaopraya. There will be a Thai classical welcome dance, entertainment, dancing, buffet, and bar. The cruise will be 3 hours and will pick up at and return to the dock of the Shangri-La Hotel. Check-in for the cruise will begin at 20:15; the boat will leave at 20:45 *sharp* and return at 23:45.


(Tickets are required for this event.)



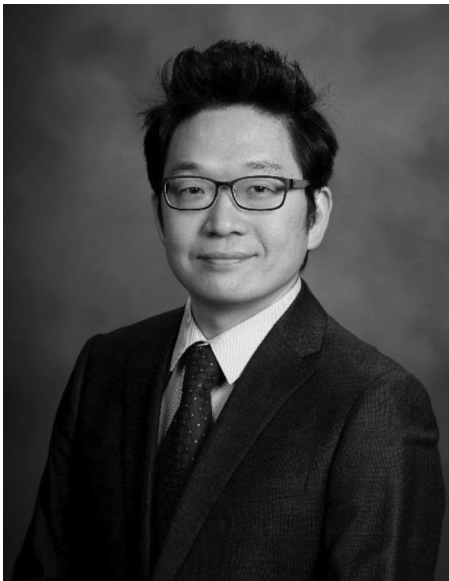
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IETS Foundation 2018 Early Career Achievement Award (Scientist)



Kiho Lee

Kiho Lee graduated from Seoul National University with a bachelor's degree in animal sciences. Then, he received his MS and PhD from Purdue University and postdoc training from University of Missouri–Columbia. While at University of Missouri, he generated the first immune-deficient pigs that could support growth and proliferation of human-induced pluripotent stem cells. He joined Virginia Tech in 2013 and is currently an assistant professor in the Department of Animal and Poultry Sciences. Lee's lab currently focuses on early embryonic development using the pig as a model. Understanding mechanisms underlying the dynamic changes that occur during embryonic development can lead us to develop more efficient ways to generate and manipulate embryos in vitro. One of his main research interests is to identify the mechanism of epigenetic reprogramming by oocytes after fertilization. Specifically, he is interested in how oocytes can modulate the status of DNA methylation during early embryo development. His group also focuses on developing optimal use of gene-editing systems to introduce targeted modifications during embryogenesis in pigs and

cattle. Using this approach, his group has generated various types of genetically engineered pigs for agriculture and medicine.

This award recognizes two active IETS members (one practitioner and one scientist) for their independent contributions toward advancing the field of embryo transfer and its associated technologies.

The objective of offering this award is to foster participation of young practitioners and scientists involved with our society and recognize their excellence at the annual meeting. Currently, the society offers recognition of undergraduate and graduate students in the form of the Undergraduate Poster Competition, Student Research Competition, and Peter W. Farin Student Travel Scholarship Award. It also recognizes long-time members, offering the Pioneer Award and Distinguished Service Award. This award (Early Career Achievement Award) is intended to fill the void in recognition between students and long-term established members.

Previous Recipients

Pablo J. Ross (Scientist) 2017

Todd Stroud (Practitioner) 2017

Session Speakers and Keynote Biographies

Byeong Chun Lee



Byeong Chun Lee obtained his PhD from the Seoul National University, South Korea, and received postdoctoral training at the University of Minnesota. He also worked at the Tokyo University of Japan, University of New Orleans, and Finch University of Health Science/Chicago Medical School, United States. Now he is a professor of theriogenology and biotechnology at Seoul National University. He produced the first cloned dog, Snuppy, using somatic cell nuclear transfer; the first transgenic cloned dog, Ruppy; and the cloned dog in which green fluorescent protein gene is conditionally expressed, Teton. The goal of Lee's research is directed toward producing and elucidating the characterization of the human disease model of large animal models in dogs and pigs. He has received numerous honours, including the Excellent Papers prize from the Korean Federation of Science and Technology Societies in 2004. His research project was awarded for excellent research outcome in 2010 and 2014.

Andrés Gambini



Andrés Gambini graduated in 2008 with honors from the University of Río Cuarto, Agronomy and Veterinary School in Argentina. After a short private practice, he spent five years at the University of Buenos Aires completing a PhD program and as a teacher in charge of assignments in Animal Physiology Chair in the animal production department at Agronomy School. There, he began his research on *in vitro* embryo production in horses, particularly studying new strategies to improve equine cloning. He was part of the team that produced the first cloned horses in South America, and their continued efforts have resulted in several scientific publications in prestigious journals. In 2015, he started his postdoctoral study at the National Institute of Environmental Health Sciences in North Carolina, United States, where he studied mechanisms controlling the embryonic genome activation in mammals. In 2017 Gambini joined, as a scientist visitor, the Melbourne University staff in Australia, where he is continuing his research in bovine and horse cloning, ICSI, and other reproductive biotechnologies. Currently, he is also a researcher for the National Scientific and Technical Research Council in Argentina.

Ursula Eichenlaub-Ritter



Ursula Eichenlaub-Ritter has performed studies in basic science of meiosis and germ cell formation with a focus on development, quality, and health of germ cells, especially cytogenetics, molecular genetics, and cell and developmental biology of mammalian oocytes. Her research also comprises studies on the safety of ART, including vitrification for fertility preservation; the oocyte's epigenome, proteome, cell cycle regulation, and mitochondrial activities, in particular the relevance of age, environment, and pathologic conditions; and *in vitro* growth and maturation of follicles and oocytes on oocyte and embryo quality and developmental potential.

Jon M. Oatley



Jon Oatley is the director of the Center for Reproductive Biology and an associate professor in the School of Molecular Biosciences at Washington State University. Oatley obtained his PhD from Washington State University in 2004, was a postdoctoral fellow in the laboratory of Ralph Brinster at the University of Pennsylvania, and began as an independent investigator in 2007. His research focuses on deciphering the mechanisms that regulate formation of the germline stem cell pool in mammalian testes during development and maintenance of the population in adulthood. Because the actions of the germline stem cell pool provide the foundation for continual spermatogenesis, Oatley's research is related directly to understanding fundamental processes that underpin male fertility. Another major interest is the development of advanced methodologies for improving food animal agriculture through reproductive processes. Oatley's lab is currently utilizing cutting-edge gene editing technologies to devise tools for advancing genetic gain in livestock populations that will improve the efficiency by which an expanding global population is fed in the coming decades. Oatley has authored more than 50 papers in top-tier journals in the fields of reproductive and developmental biology.

John J. Bromfield



John Bromfield is an assistant professor of reproductive physiology at the University of Florida's Department of Animal Sciences. Bromfield obtained his PhD at the University of Adelaide's Department of Obstetrics and Gynaecology (now the Robinson Institute) before participating in postdoctoral studies at the University of Kansas Medical Center, Swansea University, and the University of Missouri. Bromfield specializes in the field of reproductive immunology. Specifically, he is interested in the role the immune system plays in facilitating optimal, healthy pregnancy outcomes. The Bromfield laboratory has two main focus areas: (1) the role of semen in modulating early pregnancy success and (2) the impact of uterine infection on ovarian function. In both of these programmatic themes, Bromfield utilizes various bovine, rodent, and human in vitro and in vivo models.

Peter Sutovsky



Peter Sutovsky is professor of animal science in the College of Agriculture, Food, and Natural Resources, University of Missouri, and professor of Obstetrics, Gynecology, and Women's Health at the School of Medicine, University of Missouri Health System. Since the early 1990s, Sutovsky has studied mammalian gametogenesis, fertilization, and pre-implantation embryonic development with special emphasis on the gamete and zygotic ubiquitin-proteasome system (UPS). He was the first to describe the role of UPS in the regulation of mitochondrial inheritance and introduced a novel concept of extracellular UPS, which has been validated in reproduction and outside the reproductive biology field. In particular, Peter demonstrated the importance of sperm borne proteasomes for mammalian fertilization and the role of UPS in epididymal sperm quality control, a mechanism relevant to male fertility evaluation in livestock, and the diagnosis and treatment of human male fertility. Peter's collaborative research on the biogenesis and post-fertilization processing of sperm head perinuclear theca influenced the optimization and safeguarding of assisted reproductive technologies/therapies such as in vitro fertilization and intracytoplasmic sperm injection. Other notable collaborations include the development of transgenic pig model for the study of 26S proteasome and work on rodent model of human endometriosis. Recently, the Sutovsky laboratory has also been focusing on biomarker-based flow cytometric semen analysis and semen nanopurification aimed at improving conception rates in livestock artificial insemination. As of August 2017, Peter published 170 peer reviewed articles and monograph chapters; he has also edited two books and three journal special issues. He holds 14 US and foreign patents, reflecting his involvement in technology development and commercialization.

Tiziana A. L. Brevini



Tiziana A. L. Brevini graduated in 1989. She spent three years at the Department of Molecular Embryology, Cambridge (United Kingdom). She obtained a PhD in 1994 and then carried out research programs at Monash University, Melbourne, at the University of Adelaide, Australia, and at the University of Miami, United States. She presently serves as full professor of anatomy and embryology at the University of Milan, Italy. She is director of the Diabetes Research Institute—UniMi and Chair of the COST Action “CellFit—In vitro 3D total cell guidance and fitness.” Brevini is author of more than 300 publications. Her main area of research focuses on the understanding of cell differentiation and commitment, epigenetic control of cell fate, and pluripotency-related networks in mammalian somatic cells and embryos. She is married and has one daughter. She is a keen skier, a qualified sailor, and has a passion for navigation and meteorology.

Ramiro Alberio



Ramiro Alberio is an associate professor in developmental epigenetics at the School of Biosciences, University of Nottingham, United Kingdom. He graduated as a veterinarian from La Plata University (Argentina) and gained his PhD in Germany under the supervision of Eckhard Wolf (University of Munich). He did his first postdoctoral training with Keith Campbell (University of Nottingham, United Kingdom). Currently, his laboratory is interested in understanding how uncommitted cells in the early embryo respond to inducing signals and segregate into the different cell lineages that make up a fetus. His laboratory has studied the gene networks that determine the emergence of pluripotent cells during the formation of the bilaminar embryonic disc in large mammals and established the cross-talk between embryonic and extraembryonic lineages during the preimplantation period. He uses a combination of classical embryology and single cell transcriptomics to gain insight into cell fate decisions in early embryogenesis. His laboratory has also contributed to elucidating the transcriptional

and epigenetic program of primordial germ cells, the precursors of sperm and egg, in humans and pigs, demonstrating conserved developmental mechanisms.

John Roche



John Roche is principal scientist for animal science at DairyNZ and managing director and principal consultant for Down to Earth Advice Ltd. He has also held science appointments with the National Centre for Dairy Production Research at Moorepark in Ireland, the Department of Primary Industries in Australia, and the University of Tasmania. Roche leads a team of 12 scientists, developers, and post-graduate students and has published approximately 150 peer-reviewed science journal articles and book chapters. He is a regular contributor at international science and farming conferences and has been a section editor for *Journal of Dairy Science* since 2012.

Roche is one of the most recognized authorities on the nutrition of grazing dairy cows, with a keen focus on profitability. During the last two decades, his animal science programme has focused primarily on transition cow nutrition and the role of body condition score and energy balance in milk production, health, and reproduction. His review “Body condition score and its association with dairy cow productivity, health, and welfare” was the most cited article in the Physiology and Management section of *Journal of Dairy Science* in 2010–2011. Roche has also been involved in numerous genotype \times diet comparison studies, identifying physiological reasons for differences in body condition score change and reproductive efficiency in different genetic strains of Holstein-Friesian cows. His research work in intake regulation identified diurnal patterns in the endocrine profiles of grazing dairy cows that explain observed behavioral responses to feeding. Roche also has extensive publications in grazing management, with a particular focus on the responsiveness of temperate grasses to carbon depletion, and is well known for his expertise in grazing farm systems, having published some of the seminal applied studies in stocking rate and farm system profitability.

David Kenny



David Kenny is a principal research scientist in Ruminant Nutritional Physiology with Teagasc in Ireland and holds an adjunct professorship at University College Dublin. He has 20 years of research experience in the biological control of a range of traits that are economically important to ruminant livestock production systems. His work is based on in-depth study and the application of state-of-the-art physiological and molecular approaches to these complex, multidimensional traits. He has led a number of large multipartner research projects and has supervised the studies of 15 PhD and nine MSc students to completion as principal supervisor. His research has

resulted in the publication of 130 full-length internationally peer-reviewed scientific articles to date as well as many industry-targeted technical reports. He is currently leading a large Science Foundation Ireland research project examining the molecular physiology of puberty and semen quality of bulls.

Justin St. John



Justin St. John was awarded his PhD from the University of Birmingham in 1999. While in the United Kingdom, he was funded by the Medical Research Council and was appointed professor of reproductive biology at the University of Warwick (2007). Since 2009, he has been the director of the Centre for Genetic Diseases at the Hudson Institute of Medical Research. His research focuses on understanding how mitochondrial DNA is transmitted and replicated. Using a variety of assisted reproductive technologies and embryonic stem cell models, he has described mitochondrial DNA replication events in oocytes, embryos, and undifferentiated and differentiating

embryonic stem cells and why they are important to developmental outcome. He has also demonstrated why donor cell mitochondrial DNA is transmitted to embryos and offspring following nuclear transfer. Additionally, he has shown how mitochondrial DNA copy number is regulated in a cell-specific manner by DNA methylation of the nuclear-encoded mitochondrial DNA-specific polymerase and how mtDNA haplotypes influence chromosomal gene expression patterns. He is using these outcomes to develop mini-pig models of autologous mitochondrial supplementation to enhance developmental outcomes. He has published in *The Lancet*, *Nature Chemical Biology*, *Nature Cell Biology*, *Nucleic Acids Research*, *Stem Cells*, *Cell Death and Differentiation*, *Journal of Cell Science*, and *Genetics*. In 2013, he received the Society for Reproductive Biology's Award for Excellence in Reproductive Biology Research.

Exhibit Hall Layout

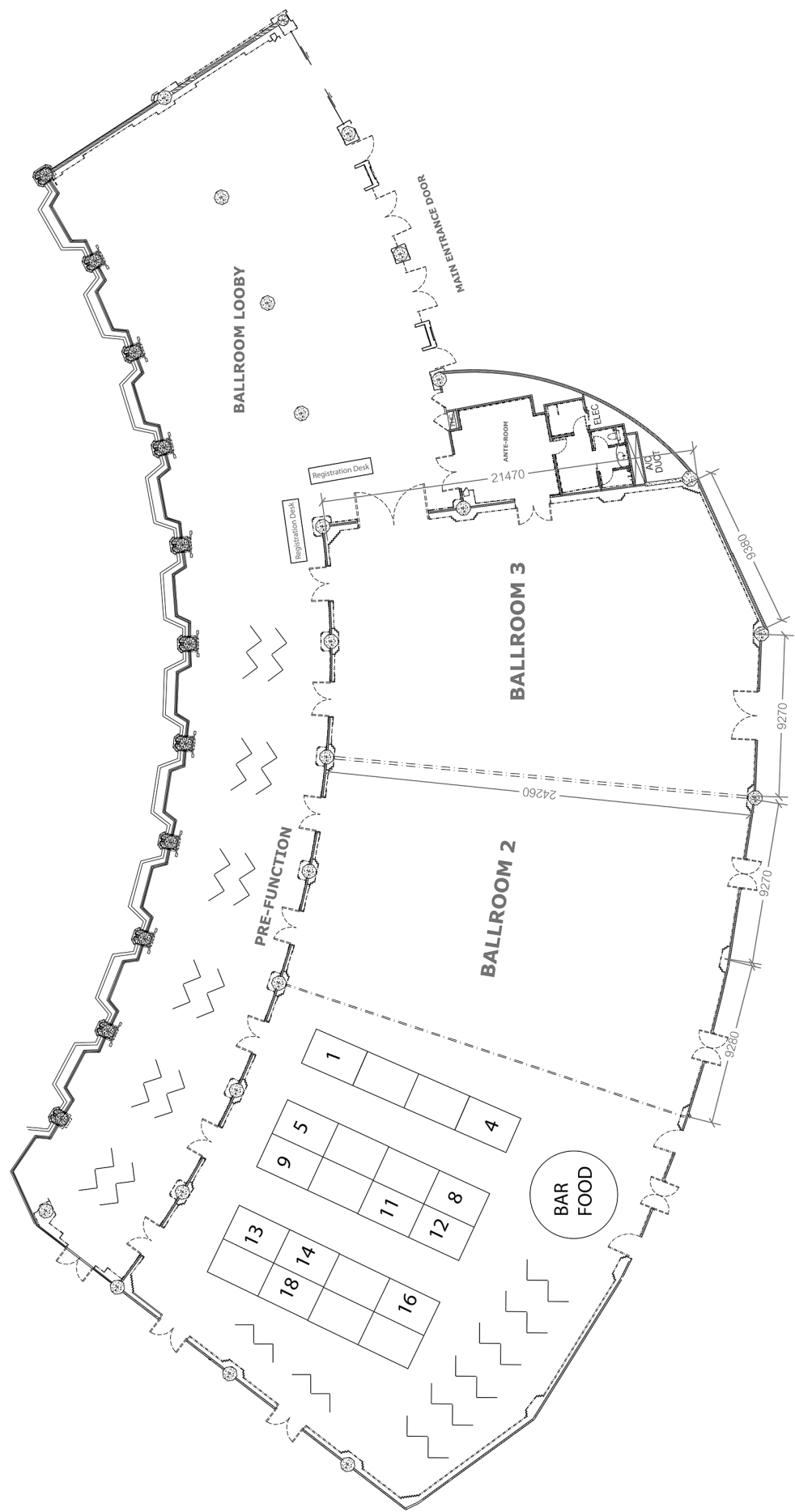


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5 and 9.....	Vetoquinol
8	Professional Embryo Transfer Supply Inc.
11	IVF Technologies
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13	ART Lab Solutions
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IMV Technologies offers a wide range of ET products, including collection and freezing media, filtration devices, laboratory equipment, embryo packaging, and transfer tools.

Our complete range can be found at www.imv-technologies.com.

IMV Technologies
ZI n 1
61300 L'Aigle
France
+33 (0) 233 34 64 64

Email: contact@imv-technologies.com
www.imv-technologies.com
Booth: 11

IVF Bioscience

IVF Bioscience manufactures high-quality, species-specific media for in vitro fertilisation (IVF). Our innovative suite of ready-to-use media is helping many customers around the world to achieve higher blastocyst rates and superior results. Our advanced, serum-free media system is provided in combination with an optimised IVF protocol and backed by continuous technical support, so you can be confident that you are in good hands. We work with you to ensure you get the best results possible.

With IVF Bioscience as your partner, establishing an IVF laboratory has never been easier.

Bickland Industrial Park
Falmouth, Cornwall TR11 4TA
United Kingdom
Phone: +44 1326 370642
<http://www.ivfbioscience.com>
Booth: 4

Professional Embryo Transfer Supply Inc. (PETS)

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

285 FM 16
Canton, TX 75103
United States
www.pets-inc.com
Booth: 8

Vetoquinol SA

Vetoquinol, the manufacturer of Folltropin®, is a family-owned, independent company devoted exclusively to animal health. Our product portfolio is

divided between livestock and companion animals and includes most therapeutic categories. Vetoquinol embraces the challenge of finding better ways to help animals and is committed to servicing the assisted reproduction industry with its long-lasting tradition of excellence. The company boasts one of the largest research facilities in the world, where 100 world-class researchers passionately work to develop new products and protocols.

Vetoquinol SA
BP 189
70200 Lure
Cedex
France
www.vetoquinol.com
Booth: 5 and 9

WTA Technologies LLC

WTA Technologies LLC is a Brazilian technology company with additional offices in Texas. We specialize in producing products for animal assisted reproduction, offering high added value solutions for ovum pick-up, in vitro fertilization, embryo transfer, and artificial insemination.

Our products are mainly for reproduction of cattle, horses, and small ruminants, but we also serve different laboratorial requirements.

WTA sells throughout Brazil, the United States, and Mexico as well as in many countries across five continents and is recognized as one of the leading companies in the market.

Each product is designed to provide the very best result and give a sense of security at an economical price while always being mindful of animal health. Every piece incorporates precise design, quality materials, and fine workmanship.

WTA Brazil: + 55 16 3951 8161
Sales USA: + (979) 324-6168
<http://www.wtavet.com.br>
Booth: 14 and 18

Thank You to Our Exhibitors

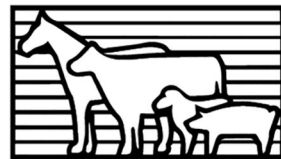


Solutions for Cattle Breeding





PETS



Professional Embryo Transfer Supply, Inc.



Soluções para reprodução animal



Morulas Preconference Workshop

Assessment of Mammalian Embryo Quality: Invasive and Non-Invasive Techniques

Friday, January 12 2018
Shangri-La Hotel, Bangkok

Featured talks:

Tips for morphological evaluation of oocytes and pre-implantation embryos

George Seidel, Colorado State University, USA



Transcriptional and epigenetic profiles of bovine embryos and their relationship with developmental capacity

Heiner Niemann, Friedrich-Loeffler Institute, Germany



Non-invasive methods for assessing the quality of embryos

Jeremy Thompson, The University of Adelaide, Australia



CANDES Preconference Symposium

Monitoring and Controlling Ovarian Activity in CANDES

January 13, 2018
Program chair: Pierre Comizzoli

08:45–09:15	Registration, welcome, and introductory remarks
09:15	Keynote lecture Comparative ovarian function and reproductive monitoring of endangered mammals <i>Janine Brown, Smithsonian Conservation Biology Institute, USA</i>
10:00	Monitoring and controlling ovarian activity in wild felids <i>Ampika Thongphakdee, Zoological Park Organization of Thailand, Thailand</i>
10:30	Coffee break
10:45	Monitoring and controlling ovarian activity in elephants <i>Chachote Thitaram, Chiang Mai University, Thailand</i>
11:15	Monitoring and controlling follicular activity in camelids <i>Ahmed Tibary, Washington State University, USA</i>
11:45	CANDES Trainee Travel Award <i>Femke Van Den Berghe, James Cook University, Australia</i>
12:05	Lunch break
13:15	Monitoring and controlling ovarian activity in ungulates <i>Sadanand Sontakke, Centre for Cellular and Molecular Biology, India</i>
13:45	Recent advances in tools and technologies for monitoring and controlling ovarian activity in marsupials <i>John Rodger, University of Newcastle, Australia</i>
14:15	Monitoring and controlling ovarian function in the rhinoceros <i>Terri Roth, CREW/Cincinnati Zoo, USA</i>
14:45	Ovarian control and monitoring amphibians <i>Natalia Calatayud, San Diego Zoo Institute for Conservation Research, USA</i>
15:15	Final discussion and remarks; coffee break
15:45	End of program

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Platinum Level



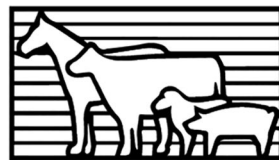
Silver Level



Bronze Level



PETS



Professional Embryo Transfer Supply, Inc.



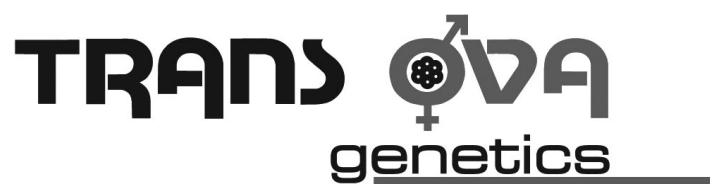
Soluções para reprodução animal

zoetis

Friend Level



BoviteqTM



Notes

