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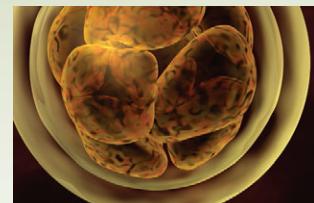
INTERNATIONAL EMBRYO TRANSFER SOCIETY

# 41<sup>st</sup> ANNUAL CONFERENCE

## Program Book

Au Palais des  
Congrès de Versailles

Versailles, France  
January 10-13, 2015



I E T S 2015  
International Embryo Transfer Society®  
*Haga Dott*



# **Program Book**

**41st Annual Conference of the  
International Embryo Transfer Society**

**Reproductive Performance: At the  
Crossroads of Genetics and the Environment**



**Palais des Congrès de Versailles  
Versailles, France  
January 10–13, 2015**

**Scientific Program Co-Chairs:  
Véronique Duranthon and Claire Ponsart**



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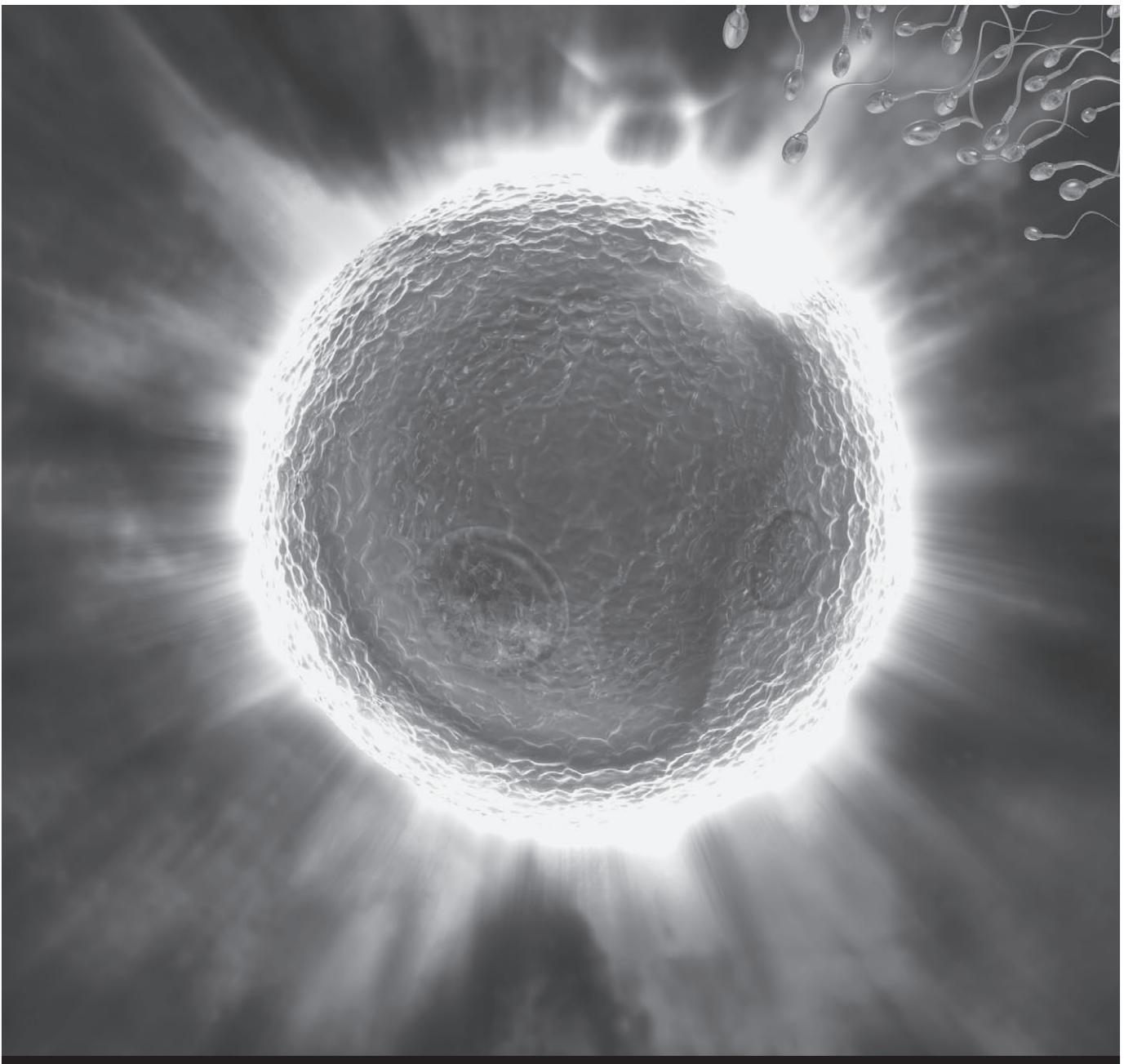
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 *a Sign of Passion*

## Preface and Acknowledgments

The 41st Annual Conference of the International Embryo Transfer Society will be held at the Palais des Congrès de Versailles in Versailles, France, from January 11 to 13, 2015. This year's program theme is "**Reproductive Performance: At the Crossroads of Genetics and the Environment.**" There will be five plenary sessions:

(i) From Genotype to Phenotype, (ii) Environmental Effects on Reproductive Traits, (iii) Can Epigenetics Predict Embryo Viability? (iv) Sanitary Status and Reproductive Performance, (v) Stem Cell Pluripotency and Differentiation. This year's meeting includes 11 invited speakers, all recognized experts in their field, including Dr. Daniel Vaiman, who will discuss the program's theme in an opening address. Also, more than 360 abstracts will be presented as posters and we have chosen 16 of them to be presented as oral presentations, closely related to each scientific session. Another six high-quality abstracts have been entered in the student competition.

There will be also a DABE (Domestic Animal Biomedical Embryology) Symposium organized by Dr. Carol L. Keefer, a CANDES (Companion Animals, Non-Domestic and Endangered Species) Forum organized by Dr. Gabriela Mastromonaco, a Practitioner's Forum organized by Dr. Claire Ponsart and Dr. Frank Becker (AETE European Association for Embryo Transfer), and an Ultrasound Session organized by Dr. Pascale Chavatte-Palmer. The congress will be preceded by two pre-symposia held in Paris, one on equine reproduction organized by Dr. Eric Palmer together with the French Academy of Agriculture and one on safe international trade in embryos organized by Dr. Claire Ponsart together with the OIE.

Organizing such a scientific meeting would not have been possible without the involvement of many of our society members and colleagues. In particular, we thank the invited speakers for providing very stimulating manuscripts, as well as section editors and reviewers for their effort and expertise in reviewing manuscripts and abstracts. Many thanks also to the organizers of forums and symposia and to the chairs for their respective sessions. The local organizing committee—chaired by Dr. Pascale Chavatte-Palmer and including Nathalie Beaujean, Claire Boulesteix, Stéphane Chaffaux, Michèle Dahirel, Véronique Duranthon, Pierre Del Porto, Serge Lacaze, Patrick Le Brenn, Brigitte Leguienne, Claire Ponsart, Hélène Quinton, Karine Reynaud, Christophe Richard, and Olivier Sandra—has done an outstanding job in choosing a famous location and raising sponsorship, ensuring that we will have an excellent time scientifically and socially. We encourage all students to participate in the events organized by our student members, the Morulas, who have developed into a very active and enthusiastic group, representing the bright future of our society.

We also thank the IETS Board of Governors for their support in preparing for the 2015 Annual Conference. Our sincere appreciation is extended to Debi Seymour of FASS, executive secretary of IETS, and Dr. Tony Flint, editor-in-chief, and Caroline Hadley, publisher, of *Reproduction, Fertility and Development* for their help in the production of the proceedings. This meeting would not be possible without the outstanding financial contributions of our sponsors and exhibitors. We are deeply grateful for their support. Finally, we thank you all for attending and contributing to the conference and hope that you have an exceptionally rewarding experience at the 41st Annual Conference of the IETS.

Véronique Duranthon and Claire Ponsart  
2015 Program Co-Chairs

# 2015 Recipients of the IETS Pioneer Award

**Jean-Paul Renard**



**Keith H. S. Campbell**



**Award Presentation: Tuesday, January 13, at 14:45**

## Previous Recipients

W. W. Thatcher (2014)	K. Betteridge (2003)	R. L. Brinster (1992)
J. Hahn (2013)	R. H. Foote (2002)	A. K. Tarkowski (1991)
O. J. Ginther (2012)	P. J. Dziuk (2001)	J. D. Biggers (1990)
I. Wilmut (2011)	R. Yanagimachi (2000)	C. Thibault (1989)
R. J. Mapletoft (2010)	R. M. Moor (1999)	A. L. McLaren and D. Michie (1988)
S. P. Leibo (2009)	I. Gordon (1998)	E. J. C. Polge (1987)
G. Seidel Jr. (2008)	S. Wintenberger-Torres (1997)	T. M. Sugie (1986)
A. Iritani (2007)	W. K. Whitten (1996)	L. E. A. Rowson (1985)
D. Kraemer (2006)	C. R. Austin (1995)	L. E. Casida (1984)
S. Willadsen (2005)	N. W. Moore (1994)	M. C. Chang (1983)
B. Brackett (2004)	R. G. Edwards (1993)	R. O. Berry (1982)

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**C**reated in 1947, UNCEIA (Union Nationale des Coopératives Agricoles d'Elevage et d'Insémination Animale) is a professional organization federating the French breeding and AI cooperatives for national and international lobby as well as for research and development in ruminant species.

UNCEIA is representing the general interests of the French AI cooperatives to lobby with authorities concerning genetics and sanitary issues.

UNCEIA coordinates actions for the development of research projects in breeding and genetics as well as in reproduction and reproductive biotechnologies.

UNCEIA was very active in the setup of the genomic selection in France, and was also involved in its practical implementation in large dairy breeds. The French federation is now strongly supporting the adaptation of the technology to beef breeds and local dairy breeds.

Thanks to research projects, UNCEIA has also acquired a very strong experience in reproductive physiology and biotechnologies (control of ovulation, embryo transfer, in-vitro fertilization, semen quality evaluation) that can be combined with genetics and genomics.

Its modern research and training facility devoted to ruminant reproduction based at Nouzilly (200 km South West from Paris) is dedicated to precision phenotyping in reproduction, especially oocyte and embryo quality assessment. Equipped with the most advanced technologies, it is designed for the measurement and evaluation of behavioral, physiological, hormonal and biochemical parameters. Tomorrow, specialized training courses in reproductive biotechnologies, including Ovum Pick-Up, IVF, Micromanipulation and embryo cryopreservation will be organized. The facility will also host a training center on ruminants breeding and insemination for national and international audiences.

UNCEIA was one of the founder members of the EuroGenomics consortium. Based on the share of genomic data and also on strong and recognized scientific partnerships, UNCEIA, together with Evolution, Genes Diffusion, Midatest and OrigenPlus breeding companies, are therefore collaborating with VikingGenetics (Denmark/Sweden/Finland), CRV (Netherlands/Belgium), DHV and vit (Germany), CONAFE (Spain) and GENOMIKA POLSKA (Poland) to be more efficient together in providing the most precise adapted tools to dairy farmers for an increased genetic progress.



le réseau de la génétique animale

Union Nationale des Coopératives Agricoles d'Elevage et d'Insémination Animale  
(The French National Union of Agricultural Cooperatives for Livestock Breeding and Animal Artificial Insemination)  
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Website: [www.unceia.fr](http://www.unceia.fr) - email: [communication@unceia.fr](mailto:communication@unceia.fr)

# Map of the Venue

**Palais des Congrès de Versailles**  
**10 rue de la chancellerie**  
**place du chateau, 78000 Versailles**



Palais des Congrès de Versailles

## ACCES / ACCESS

- (BUS) Bus
- (RER) RER
- (P) Parkings / Car parks
- Ascenseur / Lift
- Escalier / Stair
- Monte-chARGE / Goods lift

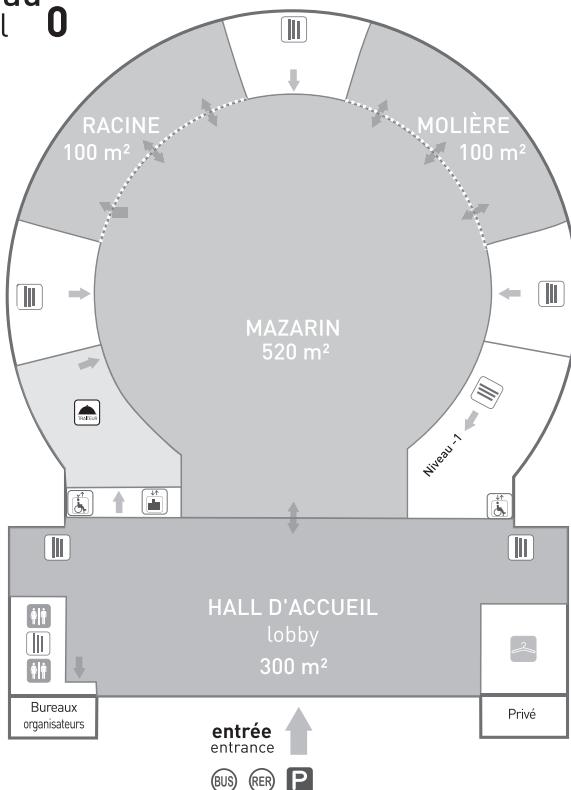
## SERVICES

- Sanitaires / Restrooms
- Vestiaires / Cloakroom
- Office Traiteur  
Caterers' service area

## LES ESPACES / MEETING SPACE

- Salles / Rooms
- Entrées / Entrance

Niveau  
Level **0**



Palais des Congrès de Versailles

## ACCES / ACCESS

- Ascenseur / Lift
- Escalier / Stair
- Monte-chARGE / Goods lift

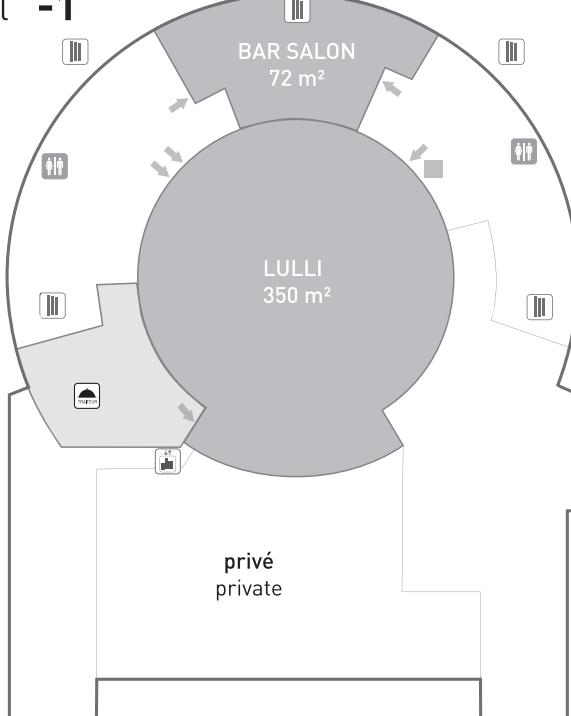
## SERVICES

- Sanitaires / Restrooms
- Office Traiteur  
Caterers' service area

## LES ESPACES / MEETING SPACE

- Salles / Rooms
- Entrées / Entrance

Niveau  
Level **-1**



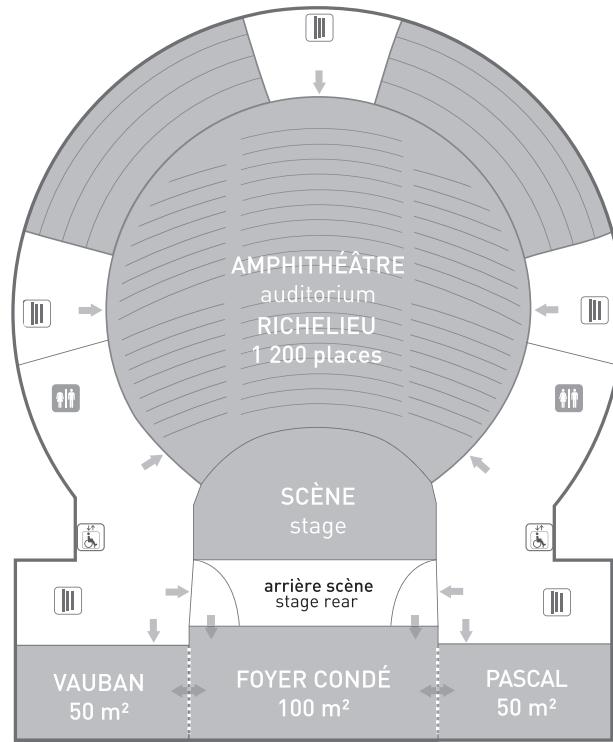
# Map of the Venue



Palais des Congrès de Versailles

Niveau  
Level 1

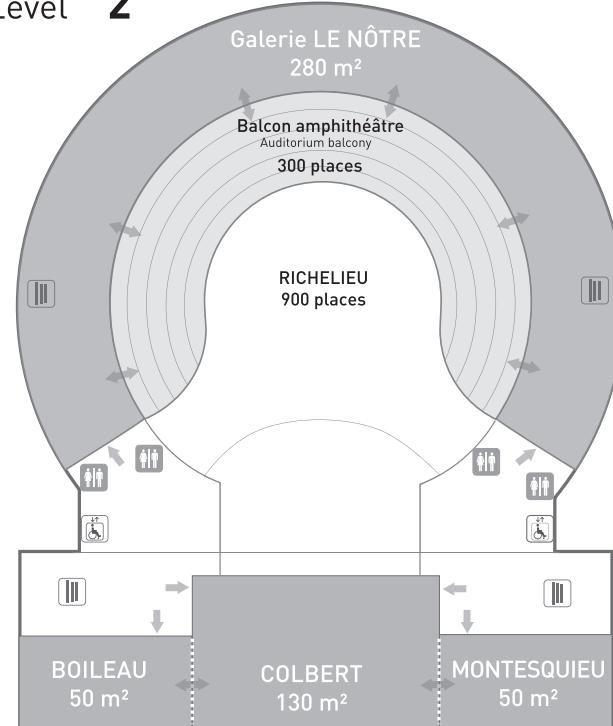
- ACCES / ACCESS**
  - Ascenseur / Lift
  - Escalier / Stair
- SERVICES**
  - Sanitaires / Restrooms
- LES ESPACES / MEETING SPACE**
  - Salles / Rooms
  - Entrées / Entrance



Palais des Congrès de Versailles

Niveau  
Level 2

- ACCES / ACCESS**
  - Ascenseur / Lift
  - Escalier / Stair
- SERVICES**
  - Sanitaires / Restrooms
- LES ESPACES / MEETING SPACE**
  - Salles / Rooms
  - Entrées / Entrance



# General Information

## Meeting Room Directory

Main Conference Sessions	Richelieu
Concurrent Sessions:	Vauban, Foyer Condé, and Pascal
Exhibits	Mazarin, Racine, and Molière
Poster Displays	Mazarin, Racine, Colbert, and Galerie Le Nôtre

Please see the Scientific Program on page 8 for additional room assignments.

## Registration Desk Hours

The registration desk is located in the Hall d'accueil, Lobby.

### Pick up of preregistration packets

Friday, January 9	16:00–19:00
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### On-site registration hours

Saturday, January 10	07:00–18:00
Sunday, January 11	07:00–18:00
Monday, January 12	07:30–16:00
Tuesday, January 13	08:00–15:00

## Exhibit Information

### Setup

Saturday, January 10	09:00–17:00
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### Exhibits open

Sunday, January 11	09:00–19:00 18:00–19:00 (Reception)
Monday, January 12	08:30–17:00
Tuesday, January 13	08:30–13:00

### Teardown

Tuesday, January 13	13:00–17:00
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Details on the exhibitors can be found in the Exhibit Directory on page 60.

## 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 national currency in France is the Euro. The US dollar is not accepted in any establishment. Currency exchange can be made in most banks (look for a sign indicating Change) and post offices as well as in some large stores, train stations, airports, and exchange offices near major tourist sites. Credit cards (Visa, MasterCard, and American Express) are accepted in a large number of shops, hotels, and restaurants. Shopkeepers often state a minimum amount required to be spent.

## Messages

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

## Refreshments

Morning and afternoon refreshments are included in your registration fee and are provided during the scheduled break times in the exhibit area located in Mazarin.

## Dining and Entertainment

A list of the closest restaurants can be found in your meeting packet or online at <http://www.versailles-tourisme.com/en/all.html>.



[www.publish.csiro.au/journals/rfd](http://www.publish.csiro.au/journals/rfd)

# Program

## Friday, January 9

- 08:00–18:00 IETS Board of Governors meeting (Saint Louis, Pullman Hotel)  
09:00–18:00 Preconference Symposium on Equine Reproduction (Académie d'Agriculture, 18 rue de Bellechasse, Paris; métro Solférino or RER C Musée d'Orsay)  
09:00–18:00 HASAC Research Subcommittee meeting (Lycée Jules Ferry, 29 rue du Maréchal Joffre)  
16:00–19:00 Registration (Hall d'accueil, Lobby)

## Saturday, January 10

- 07:00–18:00 Registration (Hall d'accueil, Lobby)  
09:00–17:00 Commercial exhibit setup and poster setup (Mazarin, Racine, Molière, Colbert, and Galerie Le Nôtre)  
09:00–13:15 Preconference Symposium on Equine Reproduction (Académie d'Agriculture, 18 rue de Bellechasse, Paris; métro Solférino or RER C Musée d'Orsay)  
09:00–16:30 Preconference Symposium on Safe International Trade in Embryos (OIE, 12 rue de Prony, Paris; métro Monceau)  
13:30–17:00 IETS Foundation Board of Trustees meeting (Boileau)  
14:00–17:00 Morulas Preconference Workshop on Creating Impact in your Writing (Pascal)

## Sunday, January 11

- 06:30–08:00 Poster setup (Mazarin, Racine, Molière, Colbert, and Galerie Le Nôtre)  
07:00–08:25 HASAC Forms and Certificates Subcommittee meeting (Boileau)  
07:00–18:00 Registration (Hall d'accueil, Lobby)  
07:00–08:30 Past-Presidents' Breakfast (Montesquieu)  
07:00–08:30 Graduate and undergraduate student competition presenters breakfast, with IETS Foundation Education Committee (Vauban)  
09:00–19:00 Commercial exhibition (Mazarin and Molière)

## Opening Talk (Richelieu)

- 08:45–09:00 Opening and welcome: Véronique Duranthon, Claire Ponsart, and Pascale Chavatte-Palmer (Richelieu)  
09:00–09:45 Reproductive performance: At the crossroads of genetics, technologies and environment  
*Daniel Vaiman, Institut Cochin Faculté, France*  
09:45–10:15 Refreshment break/poster exhibit and exhibition (Mazarin, Racine, Molière, Colbert, and Galerie Le Nôtre)

## Plenary Session I: From Genotype to Phenotype (Richelieu)

Session co-chairs: Patrick Blondin, L-Alliance Boviteq, and Yanina Bogliotti, University of California, Davis

- 10:15–10:50 Genetic tools to improve reproduction traits in dairy cattle  
*Aurélien Capitan, UNCEIA, France*  
10:50–11:25 Impact of de novo mutations on gametes and embryos  
*Michel Georges, University of Liège, Belgium*

## 11:25–12:00 Short presentations from selected abstracts

- Growth hormone receptor mutant pigs produced by using the CRISPR/Cas system in *in vitro*-produced zygotes  
*M. Kurome (Abstract #361)*

Magnitude and specificity of effects of maternal and paternal genomes on the feto-placental unit  
*S. Hiendleder (Abstract #97)*

A noninvasive approach to diagnose transgenic conceptuses during pregnancy in goats  
*L. R. Bertolini (Abstract #359)*

- 12:00–13:30 Lunch break  
12:00–13:30 Box lunch, pick up in Lulli (ticket required)  
12:00–13:30 IETS Board luncheon with affiliate society representatives (Vauban)  
12:00–13:30 HASAC Emerging Technologies (Boileau)  
12:00–13:30 Morulas mentor luncheon (Montesquieu)

### **IETS Foundation Student Competition Presentations (Richelieu)**

*Session chair: Charles F. Rosenkrans Jr., University of Arkansas*

- 13:30–13:45 Pathways and cellular functions influenced by insulin treatment during oocyte maturation—A transcriptome study of *in vitro*-produced bovine Day 8 blastocysts  
*D. Laskowski, Y. Sjunnesson, R. Båge, M. A. Sirard, H. Gustafsson, G. Andersson, and P. Humblot (Abstract #1)*
- 13:45–14:00 Elevated nonesterified fatty acid concentrations hamper *in vitro* bovine oviductal epithelial cell physiology  
*L. Jordaeans, S. Valckx, P. E. J. Bols, and J. L. M. R. Leroy (Abstract #2)*
- 14:00–14:15 Sex influences regulation of gene expression by Dickkopf 1 in the bovine morula  
*A. C. Denicol, K. B. Dobbs, and P. J. Hansen (Abstract #3)*
- 14:15–14:30 Developmental outcomes and efficiency of two CRISPR/CAS9 microinjection methods in bovine zygotes  
*Y. S. Bogliotti, M. Vilariño, J. L. Chitwood, J. Wu, A. Mutto, N. Mucci, J. C. Belmonte, and P. J. Ross (Abstract #4)*
- 14:30–14:45 Propylene glycol feeding supplementation modifies insulin-like growth factor system gene expression in cumulus-oocyte complexes and the expression of selected candidate genes in embryos produced *in vitro* in feed-restricted heifers  
*G. Gamarra, C. Ponsart, S. Lacaze, F. Nuttinck, P. Mermilliod, B. Le Guenne, D. Monniaux, P. Humblot, and A. A. Ponter (Abstract #5)*
- 14:45–15:00 Equine sperm induces pronuclear formation by intracytoplasmic sperm injection in bovine, swine, and feline oocytes independently of chemical activation assistance  
*M. B. Rodríguez, A. Gambini, R. J. Bevacqua, and D. F. Salamone (Abstract #6)*
- 15:00–15:30 Refreshment break/poster exhibit and exhibition (Mazarin, Racine, Molière, Colbert, and Galerie Le Notre)

### **Plenary Session II: Environmental Effects on Reproductive Traits (Richelieu)**

*Session co-chairs: Dimitrios Rizos, INIA, and Denise Laskowski, Sveriges Lantbruks Universitet*

- 15:30–16:05 Genetic variation in resistance of the preimplantation bovine embryo to heat shock  
*Peter Hansen, University of Florida, USA*
- 16:05–16:40 TallyHO obese female mice experience poor reproductive outcomes and abnormal blastocyst metabolism which is reversed by metformin  
*Kelle H. Moley, Washington University School of Medicine, USA*
- 16:40–17:40 Short presentations from selected abstracts**  
A short periconceptional maternal hyperglycemia is sufficient to disrupt the feto-placental phenotype in a rabbit model  
*A. Tarrade (Abstract #119)*

Changing maternal nutrition in early pregnancy modifies fetal ovary development in Nellore  
*G. P. Nogueira (Abstract #88)*

Birth of healthy calves after intrafollicular oocyte transfer (IFOT)  
*M. Höller (Abstract #86)*

Lipolysis in cumulus cells accompanies oocyte maturation in bovine  
*S. Uzbekova (Abstract #274)*

Changes in protein expression profiles in bovine endometrial epithelial cells (bEEC) following *E. coli* lipopolysaccharide challenge  
*Y. Z. Guo (Abstract #159)*

17:50–18:20 Welcome show (Richelieu)  
*Sponsored by Labex REVIVE*

18:20–19:20 Welcome reception (Mazarin, Racine, and Molière)  
*Sponsored by Professional Embryo Transfer Supply Inc. (PETS) and Labex REVIVE*

## Monday, January 12

07:30–16:00 Registration (Hall d'accueil, Lobby)  
07:30–08:30 HASAC Regulatory Subcommittee meeting (Boileau)  
08:30–17:00 Commercial exhibits (Mazarin, Racine, and Molière)

### Plenary Session III: Can Epigenetics Predict Embryo Viability? (Richelieu)

Session co-chairs: Poul Hyttel, University of Copenhagen, and María Belén Rodríguez, Universidad de Buenos Aires

08:00–08:35 Exploring the function of long noncoding RNA in the development of bovine early embryos  
*Claude Robert, Université Laval, Canada*

08:35–09:10 Epigenetics, embryo quality, and developmental potential  
*Nathalie Beaujean, INRA, France*

### 09:10–10:15 Short presentations from selected abstracts

Genome-wide analysis of DNA methylation in clones and nonclones of two different breeds: Holstein and Japanese Black  
*H. Kiefer (Abstract #19)*

Cobalamin supplementation during *in vitro* maturation improves preimplantation development of sheep embryos  
*F. Zacchini (Abstract #310)*

Conversion of the chromatin of somatic cells into spermatid-like structures  
*D. Iuso (Abstract #42)*

Epigenetic effects of vitrification on pronuclear domestic cat embryos  
*J. Galiguis (Abstract #75)*

Development of an effective whole-ovary perfusion system  
*F. Gandolfi (Abstract #188)*

10:15–12:00 Poster Session I/exhibition (Mazarin, Racine, Molière, Colbert, and Galerie Le Nôtre)

10:15–10:45 Break (Mazarin, Racine, and Molière)

10:30–12:00 HASAC Manual Committee (Foyer Condé and Pascal)

12:00–13:30 Lunch break

12:00–13:30 Box lunch, pick up in Lulli (ticket required)

- 12:00–13:30 IETS Data Retrieval Committee meeting (Boileau)  
12:00–13:30 Morulas career luncheon (Montesquieu)

#### **Plenary Session IV: Sanitary Status and Reproductive Performance (Richelieu)**

*Session co-chairs: Ann Van Soom, Ghent University, and Giselle Gamarra Lazo, UNCEIA*

- 13:30–14:05 Viral emergence and consequences for reproductive performance in ruminants: Two recent examples (bluetongue and Schmallenberg viruses)  
*Stephan Zientara, INRA, France*
- 14:05–14:40 Genes and environmental factors that influence disease resistance to microbes in the female reproductive tract of dairy cattle  
*Martin Sheldon, Swansea University, United Kingdom*
- 14:40–15:30 IETS business meeting (Richelieu)
- 15:30–16:00 Distinguished Service Awards (Richelieu)
- 16:00–16:30 Poster exhibit and exhibition and break (Mazarin, Racine, Molière, Colbert, and Galerie Le Nôtre)

#### **Concurrent Session**

##### **16:30–18:00 Practitioners' Forum (Richelieu)**

*Session co-chairs: Claire Ponsart, ANSES, and Frank Becker, Leibniz Institute for Farm Animal Biology*

*Sponsored by Sexing Technologies*

Using sexed semen to inseminate donor cows enables conception of *in vivo*-derived embryos with the desired sex without the need for embryo micromanipulation. Variability of results remains an issue in this new biotechnology and is linked to different aspects related to donor females, bull-related parameters, and insemination modalities. This workshop will allow practitioners worldwide to share their experiences about insemination protocols and treatment of donor females to increase efficiency or simplify processes. As *in vitro* embryo production represents an exciting challenge together with ET, special attention will be given to *in vitro* fertilization protocols using sexed semen, subsequent embryo development, and pregnancy rates following ET. The options to adapt processes according to semen characteristics and *in vitro* systems will be discussed.

The main aspects will include

- Worldwide practical approaches in MOET and *in vitro* production
- Challenges of IVF: Conventional, sexed, and reverse-sorted semen
- Experience in Sexing Technologies Inc. donor stations

#### **Concurrent Session**

##### **16:30–18:00 CANDES Forum (Foyer Condé, Vauban, and Pascal)**

*Session chair: Gabriela Mastromonaco, Toronto Zoo*

Presentations of selected topics from the book titled "Reproductive Sciences in Animal Conservation: Progress and Prospects" will be given by the contributing authors. This will be followed by a discussion of current and future needs for the CANDES community.

CANDES Open Meeting to follow CANDES Forum (Foyer Condé and Vauban)

- 18:00–19:00 HASAC open meeting (Richelieu)
- 18:00–19:00 Morulas' trainee forum (Boileau)  
Peter Farin award recipient recognitions and research presentations, Mentor of the year award, CANDES representatives, and Morulas business meeting.
- 20:00 Morulas student mixer (TBD)

## Tuesday, January 13

- 07:00–08:30 Organizational meeting of the IETS Board of Governors (Boileau)  
08:00–15:00 Registration (Hall d'accueil, Lobby)  
08:30–13:00 Commercial exhibits (Mazarin, Racine, and Molière)

### Plenary Session V: Stem Cell Pluripotency and Differentiation (Richelieu)

Session co-chairs: Heiner Niemann, Institute of Farm Animal Genetics, and Anna C. Denicol, University of Florida

Sponsored by Labex REVIVE

- 08:00–08:35 Metabolic determinants of embryonic development and stem cell fate  
*Clifford Folmes, Mayo Clinic, USA*
- 08:35–09:10 Gamete derivation from embryonic stem cells, induced pluripotent stem cells or somatic cell nuclear transfer-derived embryonic stem cells: State of the art  
*Gerald P. Schatten, University of Pittsburgh, USA*
- 09:10–09:45 Short presentations from selected abstracts**
- Generation of oocyte-like structure from ovarian surface epithelial stem cells of goat  
*S. Fatima (Abstract #333)*
- Derivation of bovine-induced pluripotent stem cells by PiggyBac-mediated reprogramming  
*T. T. Rao (Abstract #332)*
- Biological characteristics and functional capability of feline adipose-tissue-derived mesenchymal stem cells  
*M. Gomez (Abstract #340)*

### Concurrent Session

#### 09:45–11:05 Ultrasound Session (Richelieu)

Session co-chairs: Gregg Adams, University of Saskatchewan, and Lies Jordaens, University of Antwerp

Sponsored by INRA and IETS 2015 LOC

- 09:45–10:00 Analysis of follicular reserve using ultrasound tracking of follicles in cows  
*Heinrich Bollwein, University of Zurich, Switzerland*

In several studies performed previously it was demonstrated that there is high variation in the antral follicle count (AFC) between cows. Furthermore, it was noticed that AFC is positively correlated with fertility. Up to now, *in vivo* measurements of AF with a diameter  $\geq 3$  mm were carried out by using two-dimensional (2-D) ultrasound. To count AF by this method it is necessary to perform video records and to capture off-line images for different ovarian sections on a computer monitor. As this technique is time consuming, it can only be used for research purposes, but not in the field. For a few years three-dimensional (3-D) ultrasound has been used to assess AFC in women. It could be shown that the examination time of human ovaries could be reduced and the obtained results were more accurate by using 3-D instead of 2-D ultrasound. Therefore, the aim of this study was to investigate the suitability of transrectal 3-D ultrasound for the determination of AFC in cows. To estimate the accuracy and precision of the method, we examined the ovaries of 10 cows immediately before slaughter by using transrectal 3-D ultrasound and compared the measurements with results obtained by computer tomography (CT) after removal of the ovaries out of the body of the slaughtered animals. The CT was considered the gold standard. For the evaluation of repeatability of 3-D measurements, the intraclass correlation coefficient (ICC) was calculated for AFC of 3 images of each ovary recorded during each examination. In addition, 6 Brown Swiss cows were scanned on days 1, 7, 15, and on day 0 (estrus) during 2 consecutive estrous cycles to investigate if AFC depends on cycle stage and cycle number. All scans were carried out using a 3-D ultrasound machine (Voluson i, GE Medical Systems Kretztechnik GmbH, Zipf, Austria) equipped with a 5- to 9-MHz convex-probe. Analyses of the 3-D images were performed with the SonoAVC software (Voluson i, GE Medical

Systems Kretztechnik GmbH, Zipf, Austria). The 3-D ultrasound technique allowed the illustration of follicles with a diameter of at least 2 mm and each scan of an ovary lasted about 2 seconds. There was a high correlation ( $r = 0.88$ ;  $P < 0.05$ ) and no difference ( $P > 0.05$ ) between AFC determined by 3-D ultrasound and by CT. The ICC of repeated AFC measurements was 0.96; AFC differed between cows (6 to 40 follicles;  $20.4 \pm 1.68$ ). There were no differences ( $P > 0.05$ ) between cycle numbers, but alterations ( $P < 0.05$ ) between cycle stages within cows. On day 7, the follicle number was lower ( $P < 0.05$ ) compared to all other days. In conclusion, the results of this study show that 3-D ultrasound is a suitable method for a fast, accurate, and precise tracking of ovarian antral follicles in cows.

- 10:00–10:15 Transabdominal ultrasound evaluation of bovine fetal development in late gestation  
*Christophe Richard, INRA, France*

Transabdominal ultrasound evaluation of fetal health has been initially developed in the equine species to monitor fetal health in high-risk pregnant mares. This technique was subsequently used to assess bovine fetoplacental development, particularly in the context of the diagnosis of large offspring syndrome in IVP and SCNT pregnancies. So far, studies have focused on placental pathology and hydrops as a means to establish a prognosis for on-going pregnancies and to decide whether or not to terminate the pregnancy. The use of aortic diameter as a predictive measurement for calf weight, as used in horses, was also shown to be unreliable due to the high frequency of enlarged cardiac development in IVP calves. The objective of the current study was to evaluate the use of intercostal measurements to monitor fetal growth and predict calf weight in bovine pregnancies obtained after both IVP or AI. Nineteen heifers of 4 different breeds transferred with 1 or 2 SCNT embryos and 11 Holstein heifers bred by AI were monitored by ultrasound every fortnight from 150 days of gestation using a Voluson-i (GE Medical Systems) equipped with a multifrequency transabdominal probe (2.2–6.5 MHz), allowing the visualization of fetuses. The width of the rib closest to the caudal side of the heart and of the intercostal width (ICW) at the cardiac level was measured. Calf weight was recorded at birth or at maternal euthanasia. Nineteen heifers delivered live calves at term ( $n = 8$  SCNT and 11 AI), 1 NT calf was stillborn, and the others died between 150 and 280 days. Data throughout gestation were analyzed by linear regression and correlations between the last ICW measurement and calf weight were performed using the Pearson test. Differences between groups during gestation were analyzed by ANOVA. ICW increased significantly with time in both groups, with a linear increase and the same slope ( $r^2 = 0.62$  and 0.72 in SCNT and AI, respectively), although ICW were significantly larger in SCNT ( $P < 0.0001$ ). There was a significant positive correlation ( $r^2 = 0.53$ ,  $P < 0.0001$ ) between last ICW and calf weight. These data indicate that ICW may be useful to predict calf weight at birth and to prepare appropriate management of calving. More data are needed to establish more stringent correlations.

- 10:15–10:30 The use of ultrasound biomicroscopy for embryo injections  
*Eve Mourier, INRA, France*

Ultrasound biomicroscopy (UBM) is based on the use of >25-MHz probes enabling high-resolution (<100  $\mu\text{m}$ ) *in vivo* visualisation of structures up to 1 cm deep. It is currently used in ophthalmology and biomedical research (rodents). Ultrasound guidance is used to improve the accuracy of needle placement for *in vivo* injections, particularly in rheumatological and anaesthetic procedures. In developmental biology research, the *in vitro* and *in vivo* injection of cells, tracer dyes and adenoviral or retroviral vectors into embryos are powerful approaches for studying developmental processes. After implantation, however, the conceptus is encased in the maternal uterus and *in vivo* injections into the conceptus become a technical challenge when performed in a blind manner. *In utero* microinjection under UBM guidance was shown to be a useful tool for exploring the developmental consequences of altering gene expression and for studying cell lineage or migration during early embryonic and placental development in mice. For example, the ectoplacental cone region, amniotic cavity, and exocoelomic cavity were targeted with accuracy between E6.5 and E7.5 and a fluorescent bead suspension was injected to study early placental and embryonic development (1). We are

currently adapting this technique to the rabbit model, targeting embryos *in vivo* at the peri-implantation stage (day 6 to 7.5). Practical approaches and qualitative data generated by this work will be presented. The possibility of adaptation to larger animal species will be discussed.

(1) Slevin, J. C. *et al.*: High resolution ultrasound-guided microinjection for interventional studies of early embryonic and placental development *in vivo* in mice. BMC Developmental Biology, 6:10, 2006.

- 10:30–10:45 Elastography: *In vivo* quantification of tissue stiffness, application to the uterine cervix  
*Marie Müller, North Carolina State University, USA*

The resolution and contrast of ultrasonic imaging have improved dramatically in the past 30 years. However, the future of ultrasound for diagnostic imaging does not depend simply on its ability to accurately describe organ morphology. Ultrasound is a mechanical wave and can provide quantitative information on the mechanical properties of tissue, noninvasively and in real time. In particular, elastography allows the objective quantification of tissue stiffness. To measure tissue stiffness, we use the supersonic shear imaging (SSI) technique, based on ultrafast ultrasonic imaging. Originally developed for breast cancer applications, this technique has been used in various organs, such as the liver or kidney, and is presented here. The technique relies on the generation of a transverse mechanical wave that propagates deep within the tissue. During the propagation, ultrafast ultrasonic imaging (up to 20,000 images/sec) allows the measurement of the velocity of the transverse wave, which is proportional to stiffness in soft tissue. The measurement is performed in real time, with a single, conventional, hand-held ultrasonic probe. Recently, we extended the use of SSI to applications in obstetrics. The quantitative assessment of cervical stiffness is crucial for the estimation of preterm delivery risk, and the prediction of the success of labor induction. Various methods can be used for cervical assessment, such as vaginal digital examination or static elastography, but to our knowledge none of them provide a quantitative, absolute evaluation of cervical stiffness. We conducted a prospective study using elastography based on the SSI technique. Using an endocavitory probe, the stiffness of the lower anterior part of the cervix was quantified over an 8-mm region of interest in 157 pregnant women. We assessed the range of normal stiffness values, providing for the first time a database for absolute elastic modulus of the cervix throughout the pregnancy. Stiffness was observed to decrease significantly with gestational age (average  $8.7 \pm 1.6$  kPa in the first trimester vs.  $6.8 \pm 1.5$  kPa in the third trimester) A statistically significant difference could be observed between 1st and 3rd trimester distributions ( $P < 10^{-6}$ ), as well as between 2nd and 3rd trimester distributions ( $P = 10^{-3}$ ). We evaluated the potential of the SSI technique for the discrimination of preterm labor. We observed a reduction of cervical stiffness in patients diagnosed with preterm labor, with a significant difference between the cervical stiffness of control and preterm labor groups for matched gestational ages ( $P = 0.006$ ). This technique may provide new and relevant insight in large animals for the evaluation of cervical relaxation both during the reproductive cycle and in late gestation.

### Short presentations from submitted abstracts

- 10:45–10:50 *In vivo* evaluation of the cervical stiffness evolution during induced labor in ewes using elastography  
*L. Peralta (Abstract #117)*
- 10:50–10:55 Uterine involution and vascular perfusion during early postpartum in mares  
*R. P. Arruda (Abstract #98)*
- 10:55–11:00 Blood flow to the corpus luteum and preovulatory follicle after ovulation induction during first versus second wave in water buffalo  
*J. Singh (Abstract #176)*

### Concurrent Session

- 09:45–11:05 DABE Symposium (Foyer Condé, Vauban, and Pascal)**

*Chair: Carol Keefer, University of Maryland*

- 09:45–09:50 Introduction

- 09:50–10:15 Molecular biological tools (CRISPRs/TALENS) for manipulating genomes  
*Bhanu Telugu, University of Maryland*
- 10:15–10:40 Epigenetic cell conversion: An efficient tool for human, laboratory, and domestic species  
*Tiziana Brevini, University of Milan*
- 10:40–11:05 Genetically modified large animal models for biomedical research  
*Eckhard Wolf, University of Munich*
- 11:05–11:30 Break (Mazarin, Racine, Molière)
- 11:05–12:45 Poster Session II/exhibition break (Mazarin, Racine, Molière, Colbert, and Galerie Le Nôtre)
- 12:30–13:00 13th annual IETS running competition (Versailles Palace, Pièce d'eau des Suisses)
- 13:00–17:00 Commercial exhibit and poster take down (Mazarin, Racine, Molière, Colbert, and Galerie Le Nôtre)
- 12:45–14:15 Lunch break
- 12:45–14:15 Box lunch, pick up in Lulli (ticket required)
- 12:45–14:15 Organizational lunch meeting of the IETS Foundation (Boileau)
- 12:45–14:15 2015, 2016, 2017 IETS Program Committee lunch (Montesquieu)
- 14:15–16:15 Awards presentations (Richelieu)**
- 14:15–14:45 IETS Foundation Student Competition Awards, CANDES, DABE, and HASAC updates
- 14:45–16:15 IETS Pioneer Award presentations
- 16:15–16:45 Closing ceremony (Richelieu)
- 19:00–24:00 Closing party (Lulli)



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Pierre Comizzoli, *Cryopreservation/Cryobiology*  
Judith Eckert, *Developmental Biology*  
Pat Lonergan, *Early Pregnancy/ Pregnancy Recognition*  
Jeremy Thompson, *Embryo Culture*  
Marcelo Bertolini, *Embryo Manipulation*  
Michael Höelker, *Embryo Transfer*  
Ann Van Soom, *Epidemiology/ Diseases*  
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Trudee Fair, *Oocyte Activation*  
Svetlana Uzbekova, *Oocyte Maturation*  
Ulrike Taylor, *Sexing*  
Cesare Galli, *Sperm Injection*  
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Charles Rosenkrans, *Undergraduate Poster Competition*

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Concerning the reproduction field, our focus is on male and female gametogenesis, central and peripheral control of sexual activity, embryonic and larval developmental biology, and reproductive biotechnologies.

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# Poster Session Information

## Location

Posters are located in Racine, Colbert, and Galerie Le Nôtre of the Palais des Congrès de Versailles (see maps on pages 4 and 5).

## Poster Numbers

Posters are identified by the number corresponding to the abstract number in *Reproduction, Fertility and Development* 2015; 27 (1). Numbering of the posters begin at 1 and ends at 363.

## Setup

**Odd-numbered posters, Student Competition finalist posters, and Undergraduate finalist posters** can be put up from 11:00 to 17:00 on Saturday, January 10, 2015, and from 06:30 to 08:00 on Sunday, January 11, 2015. **This year, you will have to take down your poster after the poster session is over, due to space limitations. Even-numbered posters will then be put up for Poster Session II. Student Competition finalist and Undergraduate finalist posters will remain up on all days for judging.**

## Poster Session I

Presentations by authors of odd-numbered abstracts (e.g., 7, 9, 11) in *Reproduction, Fertility and Development* 2015; 27 (1) as well as the Student Competition finalist and Undergraduate finalist poster presentations will take place Monday, January 12, 2015, from 10:15 to 12:00.

**All odd-numbered posters will have to be removed at noon on Monday after the Poster Session, except for competition finalist posters.**

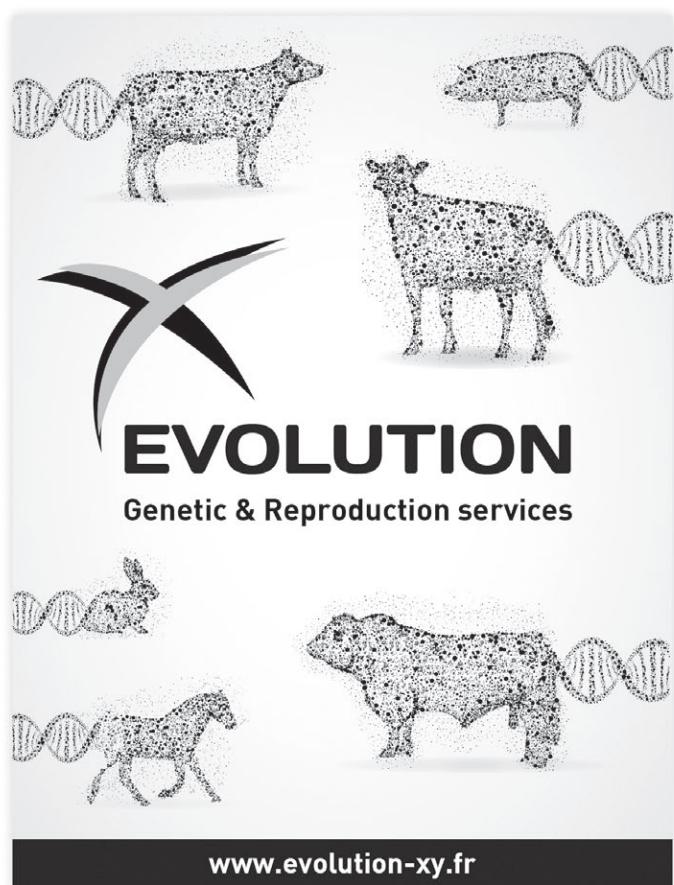
**Even-numbered posters will be put up after 14:00 on Monday afternoon.**

## Poster Session II

**Presentations by authors of even-numbered abstracts** (e.g., 8, 10, 12) in *Reproduction, Fertility and Development* 2015; 27 (1) will take place Tuesday, January 13, 2015, from 11:05 to 12:45.

## Teardown

Poster teardown will take place from 13:00 to 17:00 Tuesday, January 13, 2015. Posters that are not taken down by 17:00 on Tuesday will be taken down and discarded.



# Poster Session Order by Topic

Poster number = abstract number in *Reproduction, Fertility and Development* 2015; 27(1)

## \*Student Competition

- 1 Pathways and cellular functions influenced by insulin treatment during oocyte maturation—A transcriptome study of *in vitro*-produced bovine Day 8 blastocysts  
*D. Laskowski, Y. Sjunnesson, R. Båge, M. A. Sirard, H. Gustafsson, G. Andersson, and P. Humblot*
- 2 Elevated nonesterified fatty acid concentrations hamper *in vitro* bovine oviductal epithelial cell physiology  
*L. Jordaeans, S. Valckx, P. E. J. Bols, and J. L. M. R. Leroy*
- 3 Sex influences regulation of gene expression by Dickkopf 1 in the bovine morula  
*A. C. Denicol, K. B. Dobbs, and P. J. Hansen*
- 4 Developmental outcomes and efficiency of two CRISPR/Cas9 microinjection methods in bovine zygotes  
*Y. S. Bogliotti, M. Vilariño, J. L. Chitwood, J. Wu, A. Mutto, N. Mucci, J. C. Belmonte, and P. J. Ross*
- 5 Propylene glycol feeding supplementation modifies insulin-like growth factor system gene expression in cumulus-oocyte complexes and the expression of selected candidate genes in embryos produced *in vitro* in feed-restricted heifers  
*G. Gamarra, C. Ponsart, S. Lacaze, F. Nuttinck, P. Mermilliod, B. Le Guienne, D. Monniaux, P. Humblot, and A. A. Ponter*
- 6 Equine sperm induces pronuclear formation by intracytoplasmic sperm injection in bovine, swine, and feline oocytes independently of chemical activation assistance  
*M. B. Rodríguez, A. Gambini, R. J. Bevacqua, and D. F. Salamone*

## Artificial Insemination

- 7 Pregnancy rates in beef heifers synchronized with a shortened oestradiol-based treatment that provides for a prolonged proestrus  
*A. Menchaca, R. Nuñez-Olivera, F. Cuadro, and G. Bó*
- 8 Combination of oestrus detection and fixed-time artificial insemination in beef heifers following a shortened oestradiol-based protocol that provides for a lengthened proestrus  
*J. J. de la Mata, M. Ré, and G. A. Bó*
- 9 Timed aritifical insemination in blocks: A new alternative to improve fertility in beef cows  
*L. F. M. Pfeifer, N. A. Castro, L. G. B. Siqueira, K. R. Lagos, A. Bagon, and J. Singh*
- 10 Timed artificial insemination protocols to synchronization of ovulation in *Bos taurus taurus* suckling beef cows  
*G. A. Pessoa, A. P. Martini, J. M. Trentin, D. R. Dotto, H. L. D. Neri, D. T. Schreiner, G. M. Zanatta, M. F. Sá Filho, and M. I. B. Rubin*
- 11 Fertility response in suckled beef cows supplemented with long-acting progesterone after timed artificial insemination  
*G. Pugliesi, F. B. Santos, E. Lopes, É. Nogueira, J. R. G. Maio, and M. Binelli*
- 12 Effect of human chorionic gonadotropin (HCG) administration on Day 2 or 5 after oestrus on pregnancy rate in high-yielding dairy cows  
*J. M. Sanchez, V. Maillo, L. Molina, C. C. Perez-Marin, P. Lonergan, and D. Rizos*

- 13 Use of equine chorionic gonadotropin or follicle-stimulating hormone-luteinizing hormone at implant removal or at fixed-time artificial insemination time in pregnancy rate of suckled Nellore cows  
*E. Nogueira, U. Abreu, L. Oliveira, J. Borges, and W. Rodrigues*
- 14 Is the low number of ovarian antral follicles  $\geq 3$  mm in diameter associated with low fertility in lactating Nellore cows?  
*V. G. Pinheiro, R. L. Ereno, E. M. Razza, C. M. Barros, and M. F. G. Nogueira*
- 15 Sperm storage in female reproductive tract: Study of molecules involved  
*C. Riou, A. Gargaros, G. Harichaux, A. Brionne, J. Gautron, X. Druart, V. Labas, and N. Gerard*
- 16 Biochemical analysis of component in seminal gel secreted with boar semen  
*G. Takahashi, M. Maeda, Y. Kimura, and H. Funahashi*
- 17 Effect of local treatment of seminal vesiculitis on the quality of equine fresh semen  
*Y. F. R. Sancler-Silva, G. A. Monteiro, C. Ramires-Neto, C. P. Freitas-Dell'aqua, A. M. Crespilho, and F. O. Papa*
- 18 Comparison between the efficiency of 30-mg flurogestone acetate intravaginal sponge (FGA-30) and controlled internal drug release (CIDR) to synchronize oestrus in ewes  
*A. Swelum, A. Al-Owaimer, and M. Abouheif*

## Cloning/Nuclear Transfer

- 19 Genome-wide analysis of DNA methylation in clones and nonclones of two different breeds: Holstein and Japanese Black  
*H. Kiefer, M. Kaneda, L. Jouneau, E. Campion, S. Balzergue, M.-L. Martin-Magniette, J.-P. Renard, T. Nagai, and H. Jammes*
- 20 Nuclear transfer alters expression and histone modifications of the imprinted gene *PHLDA2* in the bovine placenta  
*J. C. T. Penteado, D. R. Arnold, R. C. Gaspar, C. V. da Rocha Jr., J. R. Sangalli, T. H. C. de Bem, C. A. P. Corrêa, F. V. Meirelles, and F. L. Lopes*
- 21 Characterization of the microRNA transcriptome in lung tissues of cloned calves suffering from respiratory distress syndrome  
*Y. Liu, Y. Zhang, H.-S. Hao, W.-H. Du, H.-B. Zhu, and Y.-H. Zhang*
- 22 Semen and reproductive profiles of cloned Anatolian grey cattle  
*S. Arat, S. Pabuccuoglu, H. Sagirkaya, K. Demir, R. Arici, B. Ustuner, S. Alcay, B. Toker, S. Alkan, Y. Nak, D. Nak, and R. Kilicaslan*
- 23 Neonatal support therapy and blood gas evaluation in cloned and artificial insemination-derived newborn calves  
*P. Fantinato-Neto, A. T. Zanolchi, M. M. Yasuoka, F. J. M. Marchese, J. R. V. Pimentel, R. V. Sampaio, M. A. Berlingieri, R. Zanin, E. S. Santos, P. R. Adona, M. S. Miranda, M. A. Miglino, O. M. Ohashi, F. V. Meirelles, E. H. Birgel Junior*
- 24 Buffalo (*Bubalus bubalis*) somatic cell nuclear transfer embryos produced from frozen-thawed semen-derived somatic cells: Effect of trichostatin A on the *in vitro* and *in vivo* developmental potential, quality, and epigenetic status  
*N. L. Selokar, M. Saini, H. Agrawal, P. Palta, M. S. Chauhan, R. S. Manik, and S. K. Singla*
- 25 Developmental competence of cloned buffalo (*Bubalus bubalis*) embryos produced by transfected or nontransfected fibroblasts transfer to enucleated oocytes derived from ovum pick-up and abattoir ovaries  
*C. Yang, J. Shang, H. Zheng, M. Chen, F. Huang, C. Li, B. Yang, and X. Liang*

- 26 Histone deacetylase inhibitor scriptaid improves epigenetic reprogramming and cloning efficiency in  
the pig  
*S. Liang, T. Kim, N.-H. Kim, and X.-S. Cui*
- 27 Effect of a specific inhibitor of DOT1L on preimplantation development of porcine somatic cloned  
embryos  
*J. Tao, Y. Zhang, D. Song, Y. Li, and Y. Zhang*
- 28 Effects of recloning on the production of pigs overexpressing 11 β-hydroxysteroid dehydrogenase  
type 1 (11β-HSD1)  
*Y. I. Jeong, Y. Jeon, C. H. Park, K. H. Ko, Y. W. Jeong, Y. W. Kim, S. H. Hyun, I. S. Yang, and  
W. S. Hwang*
- 29 Scriptaid improves somatic nuclear transfer efficiency during *in vitro* culture of porcine embryos  
derived from inbred miniature pig fetal fibroblasts  
*R. Koppang, N. R. Mtango, M. Barcelo-Fimenes, and J. P. Verstegen*
- 30 Postmortem findings in cloned and transgenic piglets dead before weaning  
*M. Schmidt, K. D. Winther, and H. Callesen*
- 31 Production efficiency of gene knockout pigs using genome editing and somatic cell cloning  
*H. Matsunari, M. Watanabe, K. Nakano, A. Uchikura, Y. Asano, S. Hatae, T. Takeishi, K.  
Umeyama, M. Nagaya, S. Miyagawa, Y. Hanazono, H. Nakauchi, and H. Nagashima*
- 32 Allocation of inner cell mass and trophectoderm cells of nuclear transfer embryos cultured in  
medium supplemented with epidermal growth factor and insulin-like growth factor-I  
*A. T. Caputcu, S. Arat, M. Cevik, T. Akkoc, G. Cetinkaya, and H. Bagis*
- 33 Telomerase activities in cloned beagle dogs  
*G. A. Kim, H. J. Oh, M. J. Kim, Y. K. Jo, E. M. N. Setyawan, Y. B. Choi, S. Hee Lee, and B. C. Lee*
- 34 Comparison of proliferation and telomerase activity in fibroblasts derived from Gyeong-ju  
Donggyeong dogs according to their age  
*Y. B. Choi, G. A. Kim, H. J. Oh, M. J. Kim, and B. C. Lee*
- 35 Effect of 6-dimethylaminopurine treatment duration on pronuclear formation and *in vivo*  
development of canine cloned embryo  
*H. J. Oh, G. A. Kim, M. J. Kim, Y. K. Jo, Y. B. Choi, E. M. N. Setyawan, S. H. Lee, H. J. Kim,  
and B. C. Lee*
- 36 Effect of suberoylanilide hydroxamic acid treated donor cells on dog cloning  
*M. J. Kim, H. J. Oh, G. A. Kim, H. N. Suh, Y. K. Jo, Y. B. Choi, D. H. Kim, H. J. Han, and B. C. Lee*
- 37 Effect of cell manipulation for production of transgenic cell lines on goat cloning efficiency  
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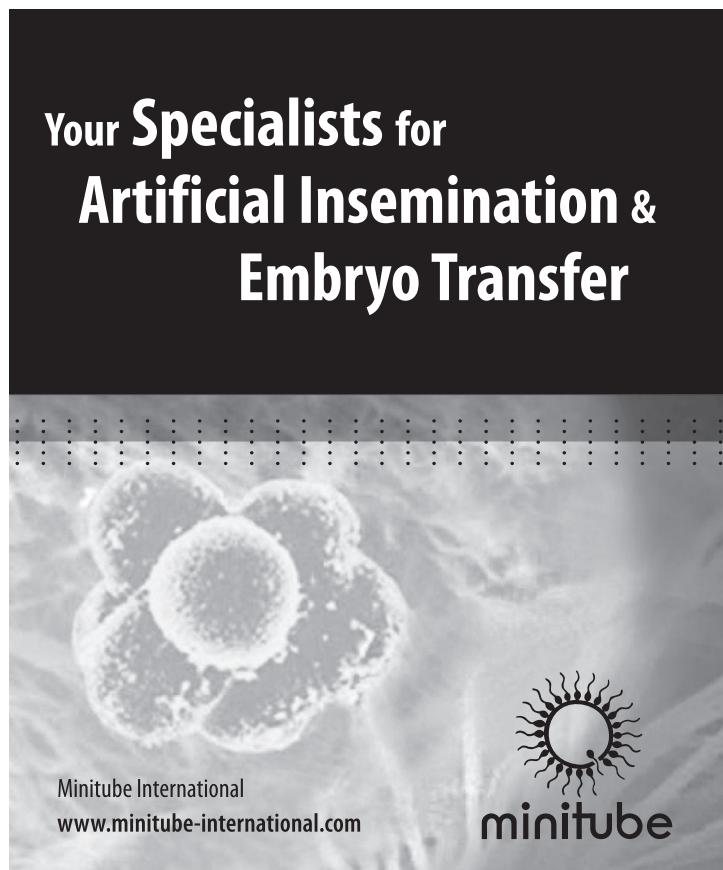
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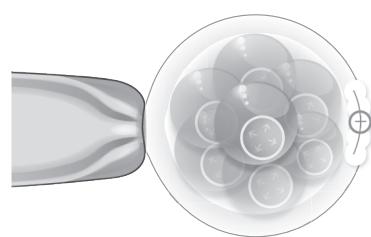
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## 2015 Recipients of the IETS Distinguished Service Award



### Dr. Matthew B. Wheeler

Dr. Matthew B. Wheeler obtained BS and MS degrees from the University of California-Davis and then was awarded a PhD in 1986 from Colorado State University in Fort Collins, Colorado, where he studied *in vitro* capacitation and *in vitro* fertilization in cattle. Dr. Wheeler was an NIH postdoctoral research associate at the University of Virginia School of Medicine and then at the University of Wisconsin-Madison from 1986 to 1989, where he studied granulosa cell function and reproductive endocrinology. Since 1989, he has been a faculty member in the Department of Animal Sciences at the University of Illinois at Urbana-Champaign. His current position is professor of biotechnology and developmental biology and director of the Large Animal Transgenic Facility in the Departments of Animal Sciences, Bioengineering, and Veterinary Clinical Medicine. Dr. Wheeler is deeply involved in teaching, research, service, and outreach.

Dr. Wheeler attended his first IETS meeting in 1979 in Denver, Colorado, and has been an active member ever since. As a graduate student, he was involved in the local arrangements of the IETS Annual Conference for

five years. Since 1994, he has served as chairman of the IETS Publications Committee and editor of the IETS Newsletter. Dr. Wheeler served as the program chair and a member of the Local Organizing Committee for the 2002 Annual Meeting in Foz do Iguacu, Brazil, and the 2010 Annual Meeting in Cordoba, Argentina. He recently served as the Local Organizing Committee Chair and Pre-Conference Symposium Chair for the 2014 Annual Conference in Reno, Nevada, and has overseen the production of the proceedings of the annual conference since 2002.

Dr. Wheeler was a member of the Board of Governors from 2002 to 2004 and served as vice president in 2004, president in 2005, and immediate past-president in 2006. Dr. Wheeler was re-elected to the Board of Governors in 2008 and 2011 and currently serves as the treasurer. Dr. Wheeler, along with Drs. Gabriel Bo and Henrik Callesen, was instrumental in turning around the society's finances in 2002 to 2004, when the IETS was almost forced to close its doors forever. The excellent fiscal health of the IETS and its investment portfolio are directly due to the tireless efforts and financial strategies developed by Dr. Wheeler.

Dr. Wheeler has been involved in embryo transfer and embryo biology research since 1976 and has published more than 200 peer-reviewed articles, chapters, and technical articles. He has been a tireless advocate for embryo research, the embryo transfer industry, new embryo technologies, and for students. Dr. Wheeler is currently involved with disseminating embryo technologies on four continents, including North and South America, Africa, and Asia. Dr. Wheeler's commitment and dedication to the International Embryo Transfer Society has been unwavering.

Dr. Wheeler can serve as an exemplar of the engaged scientist. He has made significant contributions to the embryo transfer industry and embryo biology while giving selflessly to the IETS and the broader scientific community. He is a most deserving recipient of the 2015 IETS Distinguished Service Award.



## Dr. Gabriel Bó

Dr. Gabriel Bó is currently president and director of research and post-graduate training of the Instituto de Reproducción Animal Córdoba (IRAC), and professor of obstetrics and biotechnology of reproduction at the Veterinary School of the Instituto de Ciencias Básicas y Aplicadas, Universidad Nacional de Villa María in Córdoba, Argentina.

Dr. Bó was born in San Nicolás, Argentina, in 1962. He had an interest in animals from an early age. In 1972, his father started a purebred Angus herd and Gabriel became very interested in reproduction and AI and in showing cattle at regional shows in Argentina. During high school, he was involved in estrus synchronization and AI programs in his family herd. After finishing high school, he enrolled in veterinary medicine at the Facultad de Ciencias Veterinarias, Universidad Nacional de Rosario and received his veterinary degree in 1985.

After graduation, Dr. Bó went back to San Nicolás and practiced veterinary medicine for three years. In 1988, he went to Canada to study embryo transfer technology for nine months with Dr. Reuben Mapletoft, with the idea of starting an embryo transfer practice after returning to Argentina. However, he attended the IETS Annual Conference held in San Diego in January 1989, and he became bonded with IETS—he has missed only two IETS meetings since that time. His nine months in Canada turned out to be seven years and, during that time, he received his master's degree in veterinary science (1991) and PhD (1995) in the Department of Herd Medicine and Theriogenology, Western College of Veterinary Medicine, University of Saskatchewan, under the supervision of Drs. Mapletoft, Pierson, and Adams. His PhD thesis was on the effects of estradiol on ovarian follicular wave dynamics. Superstimulation protocols developed during the course of these studies have become the *de facto* standard for clinical use worldwide.

In 1995, Dr. Bó returned to Argentina to join IRAC, where he has worked in applied research on follicular development, superovulation, recipient management, estrus synchronization, and fixed-time AI, and embryo development and cryopreservation. The programs developed under his supervision are the major contributors to the application of fixed-time AI in many Latin American countries. In 2008, Gabriel received the Taurus Award in recognition of his scientific and academic contribution to the field of bovine reproduction in Argentina.

Dr. Bó was first elected to the Board of Governors of the IETS at the meeting in Quebec City in 1999. In 2002, he became involved with the organization of the annual meeting of IETS held in Foz do Iguaçu, Brazil. He was elected first vice-president of the IETS through an online vote in 2002 and became president of IETS at the annual meeting in Portland, Oregon, in 2004. The IETS was in a grave financial position at that time and it was through the efforts of Dr. Bó and a very active and dedicated Board of Governors that the IETS finances slowly improved to the more-stable financial position that we enjoy today. In 2010, he chaired the local organizing committee of the meeting held in Córdoba, Argentina. This meeting was one of the few to be held outside North America that resulted in a strong positive financial balance. He was re-elected vice-president of IETS in 2010 and became president of the IETS at the IETS meeting in Orlando, Florida, in 2011. With this election, Dr. Bó became the only member of the IETS who has been elected President twice.

Dr. Gabriel Bó has worked tirelessly for the widespread application of embryo transfer technologies throughout Latin America and around the world. Since 1990, he has lectured in numerous short courses on advanced reproductive technologies and delivered lectures in almost all Latin American countries as well as the United States, Canada, Spain, Japan, Australia, New Zealand, among others. He has been an invited speaker and workshop participant at several meetings around the world, including the IETS, International Congress of Animal Reproduction (ICAR), and the World Buiatrics Congress. Finally, he has published more than 100 manuscripts in referred journals and book chapters, more than 160 invited reviews, and more than 410 abstracts in conference proceedings at venues around the world.

# Special Events

## Morulas' Preconference Workshop

Creating Impact in your Writing

Saturday, January 10

Montesquieu

14:00–17:00

Camilla Myers from CSIRO Publishing will be moderating an interactive workshop designed to help Morulas build skills for successful writing and publishing. Techniques to be covered include knowing your message and planning the story, helping your readers through context and logic, constructing impactful sentences, and selling your story to become a more effective and competitive professional.

## Morulas and Mentor Luncheon

Sunday, January 11

12:00–13:30

Pascal

One of the main goals of the Morulas is to provide trainees opportunities to interact with the general membership of the IETS. The Morulas and Mentors luncheon is designed to give trainees an opportunity to sit down with mentors in small groups, providing an opportunity to interact and develop a connection with the leaders in our field (**ticket required**).

## Welcome Reception

*Sponsored by Professional Embryo Transfer Supply Inc. (PETS) and Labex REVIVE*

Sunday, January 11

18:00–19:00

Mazarin, Racine, Moliere

The Welcome Reception will take place on January 11 at 18:00 following the welcoming from the Local Organizing Committee. Wines and hors d'oeuvres will be served in Mazarin, Racine, and Molière.

## Morulas Career Luncheon

*Sponsored by CSIRO Publishing*

Monday, January 12

12:00–13:30

Pascal

This year's Career Luncheon will feature a talk by Tony Flint, editor of *Reproduction, Fertility and Development*. Flint will be discussing and providing tips about writing manuscripts, submitting them for publication, and the peer review process (**ticket required**).

## Practitioners' Forum

Monday, January 12

16:30–18:00

Richelieu

## CANDES Forum

Monday, January 12

16:30–18:00

Foyer Condé and Vauban

Presentations of selected topics from the book titled *Reproductive Sciences in Animal Conservation: Progress and Prospects* will be given by the contributing authors. This will be followed by a discussion of current and future needs for the CANDES community.

A CANDES open meeting will follow the CANDES forum.

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

Monday, January 12

18:00–19:00

Richelieu

## **Morulas' Trainee Forum**

Monday, January 12

18:00–19:00

Boileau

All trainees are invited and encouraged to attend the Morulas' Forum and Organizational Meeting. The Board of Governors will be updating the membership on activities and attending to the group's business matters. Additionally, recipients of the Peter Farin Travel Award will present their research, and representatives from CANDES will attend to discuss how Morulas can be involved in CANDES.

## **Morulas' Student Mixer**

Monday, January 12

20:00–22:00

TBD

Following the Morulas' Forum, all trainees are invited to gather with friends and drinks for a social hour. Hosted by IETS and the Morulas student group, this will be a great opportunity to establish a network and build the Morulas group. Student membership in IETS or the Morulas is not necessary. Location will be determined at the conference.

## **Ultrasound Session**

*Sponsored by INRA and the IETS 2015 LOC*

Tuesday, January 13

09:45–11:05

Richelieu

## **DABE Symposium**

Tuesday, January 13

09:45–11:05

Foyer Condé, Vauban, and Pascal

## **13th Annual IETS Fun Run**

Tuesday, January 13

12:30–13:00

Versailles Palace, Pièce d'Eau des Suisses

The fun run will be held in an open part of the Versailles Palace park around the Pièce d'Eau des Suisses (the best running spot in Versailles). It was dug by the Swiss Guards, and its size is 682 × 334 m. One lap is about 2.2 km, and two laps will be run. The runners will meet at the entrance of the park. There will be a prize for the winner and for the best costume. The theme for the fun run is fancy dress, like the Versailles court at the age of Louis XIV. Even if you do not participate, dress up and come and cheer on the runners in a magnificent landscape!

## **Closing Party**

Tuesday, January 13

19:00–Midnight

Lulli

Join us for a night of good food, great conversation, fun, and dancing. Mark your calendar for the closing party; the dinner is all inclusive. Space is limited, so do not wait to register.

## One Day Tour

Wednesday, January 14

The One-Day Tour departs from Versailles in front of the palace and includes a visit of the INRA Jouy en Josas research center, with presentations of experiments taking place there, a lunch at the research center, and a visit to the Alfort Veterinary School (<http://www.vet-alfort.fr/web/en/>), the second oldest veterinary school in the Western world after Lyon Veterinary School. Alfort Veterinary School was created in 1766 by King Louis XV and is the oldest veterinary school still in its initial location. The visit will also include the Fragonard Museum, which is one of the oldest museums in France ([http://www.vet-alfort.fr/web/Musee\\_Fragonard\\_EN/](http://www.vet-alfort.fr/web/Musee_Fragonard_EN/)), initially based on the King's private collections. The bus will return to Versailles at the end of the afternoon.

## WS37

A new standard in Andrology and Embryology

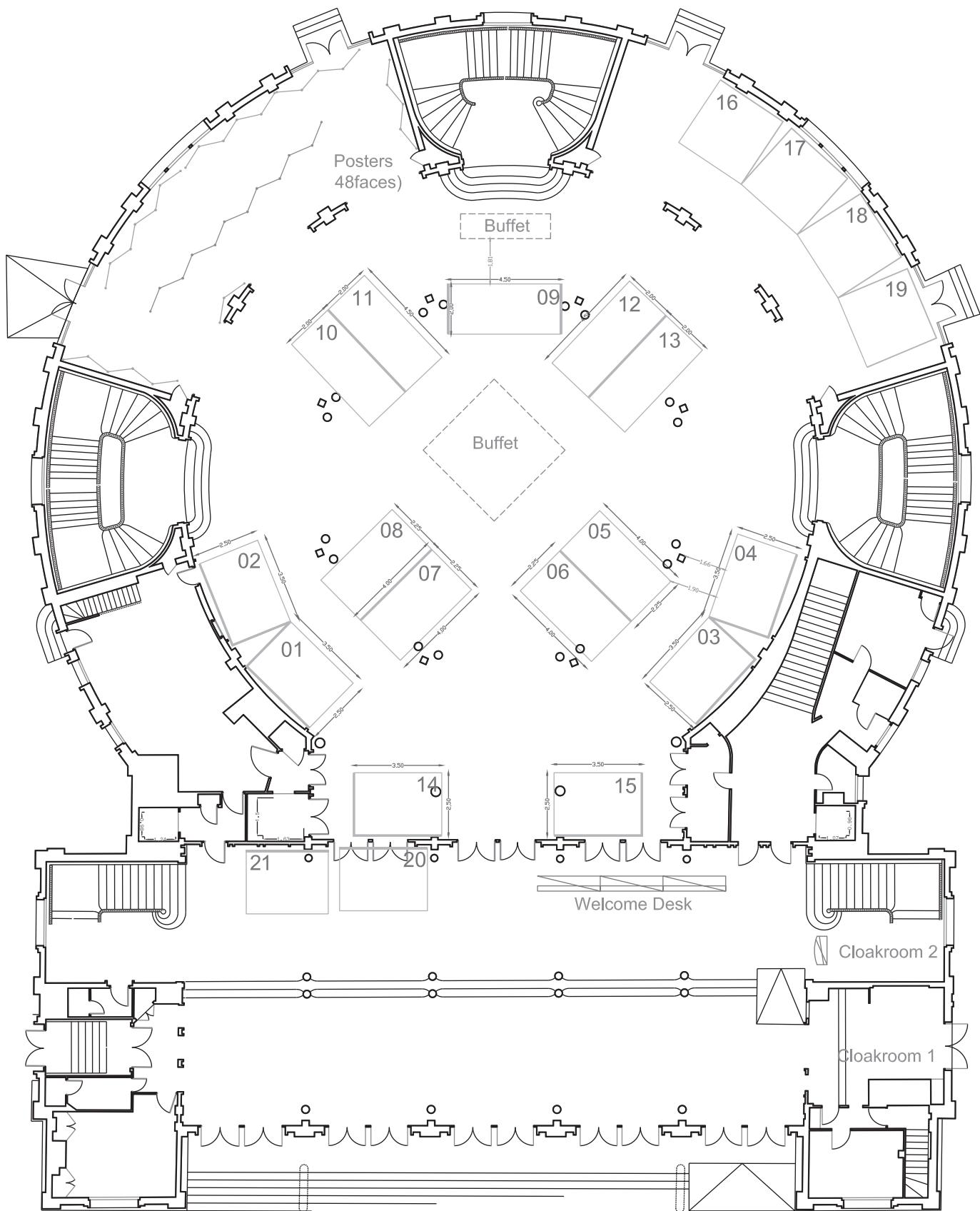
Accurately control the temperature of microscope slides and petri dishes.  
Calibrate using a certified sensor



Linkam Scientific Instruments,  
a world leader in temperature control microscopy

[www.linkam.co.uk](http://www.linkam.co.uk)

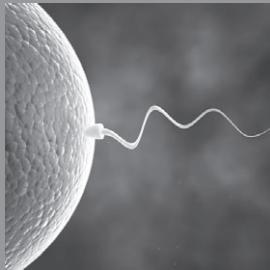
# Exhibit Hall Layout



# Exhibit Directory

## Booth Listing by Number:

Booth #	Company
01 .....	Professional Embryo Transfer Supply Inc. (PETS)
02 .....	Ceva Santé Animale SA
03, 04.....	Bioniche/Vetoquinol
05 .....	BCF Technology
06 .....	Agtech Inc.
07 .....	RI Life Sciences
08 .....	ICPbio Reproduction
09, 12.....	IMV Technologies
10 .....	Minitube GmbH
11 .....	UNCEIA
13 .....	Reprobiol
14 .....	ReproPharm
15 .....	CryoLogic Pty. Ltd
16 .....	IVFtech
17 .....	Supersonic Imagine S.A.
18 .....	EGG Tech
19 .....	Diagenode S.A.
20 .....	Linkam Scientific Instruments
21 .....	EmbryoTrans Biotech ApS



# Improve your embryo production?

## TAKE THE TEST

**A** Is there a more reliable indicator of ovulation than heats?

- YES**
- NO**

**B** Is there an indicator to increase the number of embryos you get?

- YES**
- NO**

Did you answer NO? It is time to discover:

*Predi* / *Bov*

**OVULATION TEST FOR CATTLE**

The most fertile invention  
for your breeding

*Repro PHARM*

Centre INRA de Tours – 37380 Nouzilly – FRANCE  
Tél. +33 (0)2 47 42 79 35 – Tél. +33 (0)2 47 42 77 43  
[contact@repropharm.com](mailto:contact@repropharm.com) – [www.repropharm.com](http://www.repropharm.com)

# Alphabetical Listing of Exhibitors

## Agtech Inc.

Agtech Inc. is your source for the embryo transfer and artificial insemination products you can count on for success. In all that we do, from product development to assisting with your product needs, it is our drive to build on our customer's success that keeps us moving forward. We are driven to help our customers succeed, helping them continue to be leaders in the industry and support their goals. We take great pride in our relationship with our customers and providing them with the products, support, and attention to detail that they have come to rely on. We invite you to get to know Agtech for the embryo transfer and artificial insemination products you can count on, because success transfers.

8801 Anderson Avenue  
Manhattan, KS 66503-9612 USA  
Phone: 800-367-4016  
Fax: 785-776-4295  
[www.agtechinc.com](http://www.agtechinc.com)  
Booth 6

## BCF Technology

BCF are a Scottish company with over 30 years of experience manufacturing and distributing imaging equipment worldwide, specifically for the veterinary and animal husbandry industry. We offer a truly tailored approach to provide the right imaging equipment for your present and future needs. With offices in the United Kingdom, Ireland, United States, and a network of over 40 distributors worldwide, BCF has grown to be a global leader in bovine fertility diagnosis and pregnancy detection using ultrasound.

JDS Center  
30, Avenue du Général Leclerc  
BP 254  
38217 Vienne CEDEX  
France  
[www.france.bcftechnology.com](http://www.france.bcftechnology.com)  
Booth 5

## Bioniche/Vetoquinol

In April 2014, Bioniche Animal Health, the manufacturer of Folltropin-V, became the newest division of Vétoquinol. Vétoquinol is a family-owned, independent company devoted exclusively to animal health. Our product portfolio is divided between livestock and companion animals, with a wide range of products. Vétoquinol trades throughout Europe, the Americas, Africa, the Middle East, and Asia Pacific. With the acquisition of Bioniche Animal Health, Vétoquinol is committed to servicing the Assisted Reproduction industry with its long lasting tradition of excellence.

BP 189  
70204 Lure CEDEX  
France  
Phone: +33 3 84 62 55 55  
Fax: +33 3 84 62 55 56  
[www.vetoquinol.com](http://www.vetoquinol.com)  
Booth 3 & 4

## Ceva Santé Animale SA

Ceva Santé Animale was created in 1999 and is a global veterinary group specializing in research, development, production, and marketing of pharmaceutical products and vaccines for companion animals, ruminants, swine, and poultry. The group is present in 110 countries and turns in double-digit annual growth every year, reaching turnover in excess of €700 million in 2013. Today, Ceva Santé Animale employs over 3,500 people around the world. Since 2007, the management and employees have been the majority shareholders of Ceva Santé Animale, chaired by Marc Prikazsky. ReprodAction is Ceva's approach to reproductive management in ruminants. For further information about ReprodAction please contact Pedro Rodriguez, Corporate Ruminant Product Manager.

Phone: +33 (0) 5 57 55 59 73  
Fax: +33 (0) 5 57 55 42 30  
[Pedro.rodriguez@ceva.com](mailto:Pedro.rodriguez@ceva.com)  
[www.ceva.com](http://www.ceva.com)  
[www.reprodaction.com](http://www.reprodaction.com)  
Booth 2

## CryoLogic Pty. Ltd.

CryoLogic is a leading manufacturer of innovative products for veterinary and laboratory applications. We have been designing and developing high-quality, reliable equipment for more than 20 years. CryoLogic is based in Australia and exports to overseas markets through an international network of distributors. At IETS, we will exhibit our CVM Vitrification Kits, BioTherm microscope warm stages, tube warmer, straw sealer and Transportable Incubators, and our Freeze Control modular cryopreservation systems.

1 / 2 -6 Apollo Court  
Blackburn 3130  
Victoria, Australia  
Phone: +613 9574 7200  
Fax: +613 9574 7300  
[www.cryologic.com](http://www.cryologic.com)  
Booth 15

## **Diagenode S.A.**

Diagenode is a leading global provider of complete solutions for epigenetics research, biological sample preparation, and diagnostics assays based in Liège, Belgium, and Denville, NJ, USA. The company has developed both shearing solutions for a number of applications as well as a comprehensive approach to gain new insights into epigenetic studies. The company offers innovative Bioruptor shearing and IP-Star automation instruments, reagent kits, and high-quality antibodies to streamline DNA methylation, ChIP, and ChIP-seq workflows. The company's latest innovations include a unique, full automation system, the industry's most validated antibodies, including Premium antibodies and Blueprint antibodies, and the Megaruptor shearing system for long fragment generation in sequencing.

Liege Science Park  
Rue Bois Saint-Jean, 3  
4102 Seraing (Ougrée), Belgium  
Phone: +32 4 364 20 50  
Fax: +32 4 364 20 51  
[info@diagenode.com](mailto:info@diagenode.com)  
[orders@diagenode.com](mailto:orders@diagenode.com)  
Booth 19

## **EGG Tech**

EGG Tech are a specialist company committed to the supply of high-quality products for animal embryo transfer and artificial insemination. Our customer service is regarded second to none and we have clients through Europe, the Middle East, Africa, Asia, and beyond. Our ET and AI range include: FSH – Folltropin and Pluset; GnRH – Veterelin; Embryo Media – flush holding, freezing and thaw solutions; Embryo Sexing – YCD and Ampli-Y; Semen Technology – collection, ejaculation, extenders, freezing, thawing, and evaluation; Cryopreservation – freeze control systems, LN2 tanks, labelling, identification; Equipment – microscopes, monitoring, embryology; Consumables – everything you need.

The Grange, Manor Farm  
Chilmark, Salisbury, Wiltshire, SP3 5AF  
United Kingdom  
Phone: +44 1722 717478  
Fax: +44 1722 717549  
[sales@eggtech.co.uk](mailto:sales@eggtech.co.uk)  
[www.eggtech.co.uk](http://www.eggtech.co.uk)  
Booth 18

## **EmbryoTrans Biotech ApS**

We develop, manufacture and sell serum-free and ready-to-use in vitro fertilization (IVF) media for animal reproduction. Increase embryo output through in vitro production (IVP)

EmbryoTrans Biotech ApS

Nyvej 16B  
1851 Frederiksberg - Copenhagen  
Denmark  
Phone: +45 7229 2910  
<http://www.etbiotech.com>  
Booth 21

## **ICPbio Reproduction**

ICPbio Reproduction is a global supplier of embryo transfer and reproductive products, including flushing and embryo-handling media for the equine, bovine, and ovine used by veterinarians and reproductive specialists. ICPbio Reproduction also manufactures and distributes the Ovagen brand FSH for super ovulation of ovine and bovine for embryo transfer procedures.

PO Box 39  
303 S. McKay Avenue  
Spring Valley, WI 54767, USA  
Phone: 877-978-5827  
[www.icpbiorepro.com](http://www.icpbiorepro.com)  
Booth 8

## **IMV Technologies**

The world's leading player in the reproductive biotechnology market, IMV is present in 120 countries. IMV designs and develops equipment, consumables, and preservation media dedicated to animal reproduction, bringing each idea from the drawing board to large-scale production. Based on its long and strong experience and expertise, IMV is involved with a wide range of different species, from bovine, porcine, equine, and poultry to small animals and camelids. Today, IMV Technologies develops solutions designed to simplify the processes involved in herd-improvement programmes around five main areas of expertise:

- Semen collection and analysis
- Sample preparation and dilution
- Packaging and cryopreservation
- Assisted insemination
- Embryo transfer

IMV Technologies uses its own highly skilled workforce to manufacture 95% of all its products in France. With nearly 10% of its turnover reinvested back into research and development each year and 300 patents in France and abroad, IMV Technologies has consistently retained its technological lead over its competitors thanks to its spirit of innovation and its policy of establishing partnerships with leading research laboratories and institutes.

ZI N°1 Est  
61300 Saint Ouen sur Iton, France  
[www.imv-technologies.com](http://www.imv-technologies.com)  
Booth 9 & 12

## **IVFtech**

IVFtech specializes in making equipment for IVF clinics. We manufacture different tools and individual solutions for IVF laboratories, concentrating on the creation of ideal environment for culturing germs cells and embryonic tissue. IVFtech's products are designed to provide a secure atmosphere with regards to temperature, humidity, and CO<sub>2</sub> equilibrium, considering the needs of every single customer.

Toppevadvej 34-38  
DK-3660 Stenløse  
Phone +45 3940 2565  
Fax +45 3940 2564  
IVFtech aps -CVR no:20892307  
e-mail:[info@ivftech.dk](mailto:info@ivftech.dk)  
[www.ivftech.dk](http://www.ivftech.dk)  
Booth 16

## **Linkam Scientific Instruments**

Linkam Scientific Instruments have been supplying heating and cooling stage for over 30 years. These stages are found in thousands of laboratories, hospitals, and universities worldwide with the most successful heating/cooling stage, the THMS600, selling over 4000 units. Linkam develops and manufactures a broad range of heating/cooling stages for biological applications to visualize and assess sample properties. The instruments can be used in conjunction with light microscopes, Raman, IR, other forms of spectroscopy, and X-ray. Linkam Scientific Instrument's product range now includes stages designed specifically for embryology, andrology and biological assessment and research.

Linkam Scientific Instruments Ltd.  
8 Epsom Downs Metro Centre,  
Waterfield, Tadworth, Surrey, KT20 5LR, United Kingdom  
Phone: +44 (0)1737 363476, ext. 601  
Fax: +44 (0)1737 363480  
[www.linkam.co.uk](http://www.linkam.co.uk)  
Booth 20

## **Minitube GmbH**

Minitube International is a biotechnology company specialized in advanced reproduction technologies and molecular biology. With a complete line of assisted reproduction products and services, Minitube serves clients worldwide in agricultural, sport and companion animal breeder, veterinary, medical, and research communities. At Minitube, veterinarians, engineers, and researchers work together on the continuing development of animal breeding technologies to provide customers with solutions resulting in measurable success. As an industry leader, Minitube recognizes the importance of providing products that do not compromise quality or safety. For this reason, all key products are manufactured in our own state-of-the-art facilities.

## **Minitüb GmbH**

Hauptstraße 41  
84184 Tiefenbach  
Phone.: +49 8709 9229-0  
Fax: +49 8709 9229-39  
[www.minitube.de](http://www.minitube.de)  
[minitube@minitube.de](mailto:minitube@minitube.de)  
Booth 10

## **Professional Embryo Transfer Supply Inc. (PETS)**

PETS has been a world-leading embryo transfer supply company for the bovine and equine industries for over 2 decades. Our goal has always been your success and we work every day to achieve this with quality service and quality E.T. supplies and equipment such as emCare, Vigro, emCon, EZ Way, Wesco, ECM, and many more. Come visit us for more details.

Box 188  
Canton, TX 75103, USA  
[www.pets-inc.com](http://www.pets-inc.com)  
Booth 1

## **Reprobiol**

Reprobiol was created in January 2007 in order to develop, to obtain authorizations for presentation on the marked (good manufacturing Practice), and to commercialize products useful for a better control of reproduction in ruminants. The main product is Stimufol, a combination of FSH and LH particularly adapted for induction of a superovulatory response in cattle. The product is prepared in GMP conditions and every batch is strictly controlled for hormone content, sterility (virus- and bacteria-free), and stability. The product is constant, with very low batch-to-batch variations over many years.

GSM: + 32(0) 477 29 70 18  
Fax: + 32(0) 43 66 42 38  
Phone: +32(0) 43 66 41 61  
Email: [info@reprobiol.be](mailto:info@reprobiol.be)  
Booth 13

## **ReproPharm**

ReproPharm is a start-up company launched in September 2009 by 3 scientists working at INRA (National Institute of Agronomic Research) in Tours, France. We are dedicated to the research and development and marketing of innovative diagnostic kits to better control reproduction in farm animals. In the context of a significant drop of breeding animals' fertility, ReproPharm's project is to develop innovative products to improve the control of reproduction in breeding animals (bovine, porcine, and ovine species), particularly artificial insemination (AI) performance. With this aim,

ReproPharm has developed Predi'Bov an easy-to-use farm test to predict the ovulation time in cows and heifers and better monitor the AI practice (with sexed and unsexed semen). Predi'Bov optimizes the investment put into reproduction by ensuring that the insemination is carried out at the optimal time for fertilization and produces higher-quality embryos and the greatest possible number of transferable embryos.

Centre INRA – Tours  
Domaine de l'Orfrasière  
37380 Nouzilly, France  
Phone: +33(0)2 47 42 79 35  
[www.repropharm.com](http://www.repropharm.com)  
Booth 14

### **RI Life Sciences**

RI Life Sciences (RI LS) specializes in micromanipulation, laser ablation, and cell-handling technologies for life sciences applications. RI LS is proud to be a division of Research Instruments Limited, a world leader in the design and manufacture of specialist hardware and consumables for the human ART field. Visit stand 07 to trial the Saturn 5 Active Laser System, offering a movable target which ablates cells with submicron accuracy. Demo the new Integra 3 micromanipulator featuring Thermosafe, which maintains sample temperature uniformly across the dish. See our extensive consumables range, including glass micropipettes and the EZ-Range of cell-handling devices.

Bickland Industrial Park  
Falmouth, Cornwall  
United Kingdom, TR11 4TA  
Phone: +44(0)1326 372753  
Fax: +44(0)1326 378783  
[www.research-instruments.com](http://www.research-instruments.com)  
Booth 7

### **Supersonic Imagine S.A.**

Founded in 2005 and based in Aix-en-Provence (France), SuperSonic Imagine (Euronext: SSI, FR0010526814) is a company specializing in medical imaging. The company designs, develops and markets a revolutionary ultrasound system, Aixplorer, with an UltraFast platform that can acquire images 200 times faster than conventional ultrasound systems. Aixplorer is the only system that can image two types of waves: ultrasound waves that ensure excellent image quality and shear waves that allow physicians to visualize and analyze the stiffness of tissue in a real-time, reliable, reproducible and noninvasive manner.

This innovation, ShearWave Elastography, significantly improves the detection and characterization of numerous pathologies in several applications including breast, thyroid, liver, and prostate. SuperSonic Imagine has been granted regulatory clearances for the commercialization of Aixplorer in the main global markets. Over the past few years, SuperSonic Imagine enjoyed the backing of several prestigious investors, including Auriga Partners, Edmond de Rothschild Investment Partners, Bpifrance, Omnes Capital, and NBGI. For more information about SuperSonic Imagine, please go to [www.supersonicimagine.com](http://www.supersonicimagine.com)

Les Jardins de la Duranne – Bât E&F  
510 Rue René Descartes  
13857 Aix-en-Provence  
France  
Phone: +33 (0)4 42 99 24 32  
Fax: +33 (0)4 42 52 59 21  
Email: [contacts@supersonicimagine.com](mailto:contacts@supersonicimagine.com)  
Booth 17

### **UNCEIA**

UNCEIA (Union Nationale des Coopératives Agricoles d'Elevage et d'Insémination Animale) is a professional organization federating the French breeding and AI cooperatives for national and international lobby as well as for research and development in ruminant species. UNCEIA is representing the general interests of the French AI cooperatives to lobby with authorities concerning genetics and sanitary issues and coordinates actions for the development of research projects in breeding and genetics as well as in reproduction and reproductive biotechnologies. UNCEIA was one of the founder members of the EuroGenomics consortium. Based on the share of genomic data and also on strong and recognized scientific partnerships, UNCEIA is therefore collaborating with European breeding companies to be more efficient in providing the most precise adapted tools to dairy farmers for an increased genetic progress. UNCEIA employs 41 people.

Maison Nationale des Eleveurs  
149 rue de Bercy  
F-75595 Paris, CEDEX 12  
France  
Phone: +33 (0)1 40 04 53 90  
Fax: +33 (0)1 40 04 53 79  
Email: [communication@unceia.fr](mailto:communication@unceia.fr)  
[www.unceia.fr](http://www.unceia.fr)  
Booth 11

## Thank You to Our Exhibitors



*CryoLogic*



**IVF**tech

*Repro PHARM*



**RI** | Life Sciences

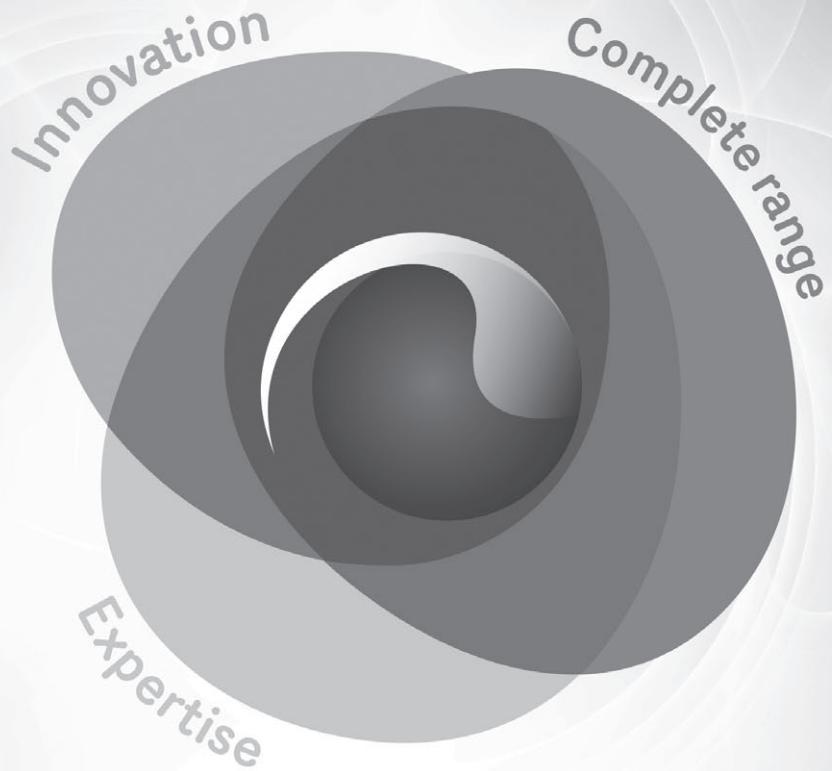


## 13th IETS Annual Fun Run

The fun run will be held in an open part of Versailles Palace park around the “Pièce d’Eau des Suisses” (the best running spot known in Versailles). It was dug by the Swiss Guards (hence its name), and is 682 × 334 m. One lap is about 2.2 km and two laps will be run. The runners will meet at the entrance of the park. There will be a prize for the winner and for the best costume. The theme for the fun run is fancy dress, like the Versailles court at the age of Louis XIV.

Even if you do not participate, come and cheer on the runners in a magnificent landscape and even dress up!





# reprodAction<sup>TM</sup>

Reproductive management in Action

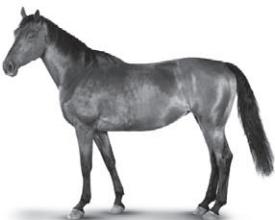


**SYNCROSTIM 500 IU** lyophilisate and solvent for solution for injection for cattle and sheep/Reconstituted solution for 1 dose of 2 ml contains: Equine serum Gonadotropin (eCG, formerly known as PMSG) 500 IU, Benzyl alcohol 33.0 mg/Indications for use: In non cycling cattle (cows and heifers) and in ewes and ewe-lambs: Induction and synchronization of oestrus and ovulation. To be used in combination with a progestagen/Intramuscular use/Withdrawal period(s) Meat and offal: zero days. Milk: zero days. **CYSTORELIN/OVARELIN** 50 µg/ml, solution for injection for cattle/Composition for 1 ml: gonadorelin (as diacetate tetrahydrate) 50.0 µg, Benzyl alcohol 15.0 mg/Indications for use: Treatment of delayed ovulation (repeat breeding)/Intramuscular use/100 µg of gonadorelin (as diacetate) per animal in a single injection. i.e. 2 ml of the product per animal/Withdrawal period(s) Meat and offal: zero days Milk: zero hours. **ENZAPROST** 5 mg/ml Solution for injection for cattle/Each 1ml contains: Dinoprost (as trometamol) 5 mg, Excipients: Benzyl alcohol (E1519) 16.5 mg /Indications for use: This product is indicated for its luteolytic effects in cattle/ Pregnancy status should be determined prior to injection since Dinoprost has been demonstrated to result in abortion or parturition induction when administered at sufficiently high doses in many animal species/Intramuscular use/ Withdrawal period(s) Meat and offal: 3 days Milk: Zero hours. **PRID DELTA** 1.55 g vaginal delivery system for cattle/Each delivery system contains: 1.55 g of progesterone, Ethyl Vinyl Acetate (EVA), Polyamide, Polyester string/ Indications for use: For the control of the oestrus cycle in cows and heifers including Synchronisation of oestrus in cycling and non cycling cattle. To be used in combination with a progestagen and equine Chorionic Gonadotropin (eCG, in the past called PMSG) / Vaginal use: 1.55 g of progesterone per animal for 7 days/ Timing of insemination: Animals should be inseminated 56 hours after removal of the device/ Withdrawal period. Meat and offal: zero days. Milk: zero days.

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## Embryo transfer

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Welcome to France.



# Equine Reproduction Symposium

January 9–10, 2015

Organized by the French Academy of Agriculture

Sponsored by FONDS EPERON and IMV TECHNOLOGIES

Académie d'Agriculture, 18 rue de Bellechasse, Paris

(métro Solférino or RER C Musée d'Orsay)

## Friday, January 9

08:30–09:00 Registration

09:00–09:15 Welcome address (Eric Palmer, France)

### 09:10–11:40 The Stallions (Chair: Ed Squires)

09:10 Sorting Stallion sperm cells for diagnosis and/or for improving fertility (Charles Love, USA)

09:30 State of the art of semen freezing (Harald Sieme, Germany)

09:50 From INRA96 to INRA Freeze, an analytic conception. (Michèle Magistrini, France)

10:10 Social interactions and reproductive efficiency (Dominik Burger, Switzerland)

10:30–11:00 Coffee break

11:00 Imaging of the stallion reproductive tract (Heinrich Bollwein, Switzerland)

11:20 Sperm quality for ICSI (Cesare Galli, Italy)

11:40 General discussion on the stallion

### 12:00–13:20 Embryo and genetics (Chair: Cesare Galli)

12:00 Introduction

12:20 Embryo biopsy and freezing in equine (Florence Guignot, France)

12:35 Embryo testing in equine (Young Ho Choi, USA)

12:50 Embryo sexing followed by implantation (Carolina Herrera, Argentina)

13:05 Questions and discussion of the 3 previous papers

13:20–14:40 Lunch (on your own)

14:45–16:00 Guided tour of the Musée d'Orsay

### 16:15–18:00 Social acceptance of equine ART (Chair: Pierre Del Porto)

16:15 The ethics of horse breeding—Are ART a particular cause for concern? (Madeleine Campbell, United Kingdom)

16:35 Breeding up to 300 mares or more by natural service, at what cost? (Twink Allen, United Kingdom)

16:55 Situation in South America (Carolina Herrera, Argentina)

17:15 Situation in the USA (Ed Squires, USA)

17:35 Situation in Europe (Alline Reis, France)

17:50 General discussion on social acceptance of ART in the equine

## Saturday, January 10

09:00–11:25 Programming and epigenetics (Chair: Jean-Paul Renard)

09:00 Introduction to DOHAD and its possible link to the metabolic syndrome in the horse (Pascale Chavatte-Palmer, France)

- 09:20 Developmental programming of growth, glucose homeostasis, and predisposition to osteochondrosis (Pauline Peugnet, France)  
 09:40 Survey of mares management and foal health (Didier Serteyn, Belgium)  
 10:00 Health of horses issued of ART (ET, ICSI, Cloning) (Katrín Hinrichs, USA)
- 10:30–11:00 Coffee break
- 11:00 Equine stem cells** (Chair: Louis-Marie Houdebine)
- 11:00 Characterization of equine mesenchyme stem cells from umbilical cord, bone marrow, and adipose tissue (K. de Schauwer, Belgium)  
 11:20 Equine IPS cells (Xavier Donadeu, United Kingdom)  
 11:40 Stem cells from NT embryos (Lawrence Smith, Canada)  
 12:00 Clinical use of treatments with equine stem cells (Stéphane Maddens, France)  
 12:20 Development of equine adherent progenitor cells (Jef Pinxteren, Belgium)
- 12:45–12:55 Wrapping up (Eric Palmer)
- 13:00 Depart for the gala lunch and trotter races in Vincennes (optional)



# IETS 2015 Preconference Symposium

January 10, 2015

## Safe International Trade in Embryos

Office International des Epizooties, 12 rue de Prony, Paris  
(métro Monceau)

Chair: Claire Ponsart

Program Co-Chairs: Michel Thibier and Stephan Zientara

- Objectives:** To present to veterinary services, animal health professionals, and embryo transfer stakeholders (1) an update of recent developments in embryo transfer around the world, (2) the animal health challenges for international trade in embryos, and (3) current knowledge on pathogen embryo interactions for current and emerging diseases.

## Two sessions followed by a panel discussion

### Session 1: Activities related to embryo transfer in the world

*Chairs: Michel Thibier, Alex Thiermann*

- 09:00–09:15 Introduction (Bernard Vallat, Director General OIE)  
09:15–09:45 Developments of embryo transfer around the world: Franck Becker (Europe); Patrick Blondin (North America); John Hepburn (Oceania); Joao Henrique Viana (South America)  
09:45–10:15 OIE standards for trade in embryos (Derek Belton, Head of the International Trade Department, OIE)  
10:15–10:45 Sanitary aspects of embryo production: From a practitioner's perspective (Louis Picard, ET practitioner, Canada)  
10:45–11:15 Break (coffee and tea)

### Session 2: Challenges for trade in (semen and) embryos

*Chairs: Derek Bekton, Stéphan Zientara*

- 11:15–11:30 Introduction  
11:30–12:00 Research challenges to understand and manage pathogen-embryo interactions (Julie Gard, Auburn University)  
12:00–12:30 Specific scientific challenges related to *in vitro* production: Update from SBTE sanitary working group (Joao Henrique Viana, EMBRAPA)  
12:30–13:00 Animal health management tools available to veterinary services (Benoit Sauveroche, FVO)  
13:00–14:00 Lunch

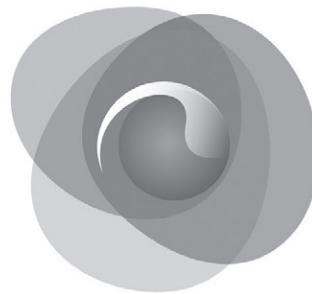
### Panel discussion: How to manage the animal health risks associated with international trade in embryos while avoiding unjustified barriers to trade

*Coordinator: Claire Ponsart, HASAC Chair*

- 14:00–16:00 Introduction: Major questions raised by the emergence of a new pathogen (Stéphan Zientara)  
Major challenges encountered by exporters of embryos with animal health requirements for international trade (AEET representative; Patrick Blondin, IETS; Joao Viana, SBTE)  
The CVO perspective (forecast) of future animal health requirements for safe international embryo trade (Harpreet Kochhar, CVO Canada; CVO Europe representative)  
The OIE perspective (forecast) of future animal health requirements for safe international embryo trade (Alejandro Thiermann, Chair of the OIE Terrestrial Animal Health Standards Commission)  
16:00–16:30 Closing break (coffee and tea)

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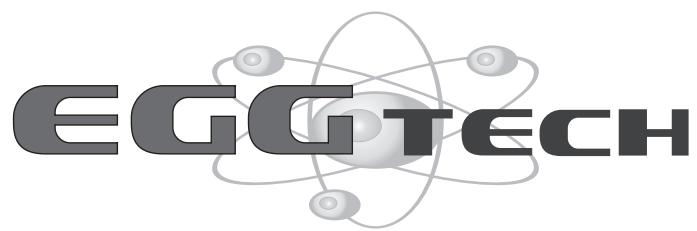
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