

# ***Program Book***

## **The 31<sup>st</sup> Annual Conference of The International Embryo Transfer Society**



The Falconer Center  
and  
The Royal Veterinary and Agricultural University  
Copenhagen, Denmark  
January 9-11, 2005

**Co-Chairs of the Scientific Program:**  
Heiner Niemann and Giovanna Lazzari

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## **2004 PREFACE AND ACKNOWLEDGEMENTS**

The 31st Annual Conference of the International Embryo Transfer Society (IETS) is held at the Falconer Conference Center, Copenhagen, Denmark, on January 9-11, 2005. This year's program theme is "Progress in understanding mammalian oocyte and embryo development". The annual conference of the IETS is organized with five plenary sessions providing in depth overviews of the main theme and poster sessions addressing recent advances in animal biotechnology. In addition, there is a key note lecture on the exciting topic of totipotency and the practitioners' forum providing the latest information on field application of animal biotechnology. To stimulate discussion, for the first time we will have a poster session together with a wine, beer and cheese reception on the Sunday evening. The successful completing of the program would not have been possible without the input of several people.

We are deeply indebted to Christine Weidemann whose help and input was essential for successfully completing the programme and keeping it on track during preparation.

We are grateful to many people for their valuable contributions of time and effort in organizing this scientific meeting. We would like to thank the main session speakers and their co-authors, authors of the abstracts included in these proceedings, participants of the student competition, reviewers of the manuscripts and abstracts, and delegates for their involvement in making this meeting a success. Special thanks go to Torben Greve, Chair of the Local Organizing Committee, and his committee members Henrik Callesen and Poul Hyttel as well as student volunteers for the tremendous efforts they have put forth in organizing the venue for the conference and in developing the post-conference symposium. We also wish to thank Ian Wilmut and Torben Greve for organizing the pre-conference symposium. Our sincere appreciation is extended to Jennifer Gavel, the Executive Secretary of IETS, and Camilla Myers, Managing Editor of Reproduction, Fertility and Development for their help in the production of the conference booklets and proceedings. We thank you all for attending and contributing to the conference and hope that you have an exceptionally rewarding time at the 31st Annual Conference of the IETS.

Heiner Niemann and Giovanna Lazzari  
Program Co-Chairs

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# 2005 Recipient of the IETS Pioneer Award

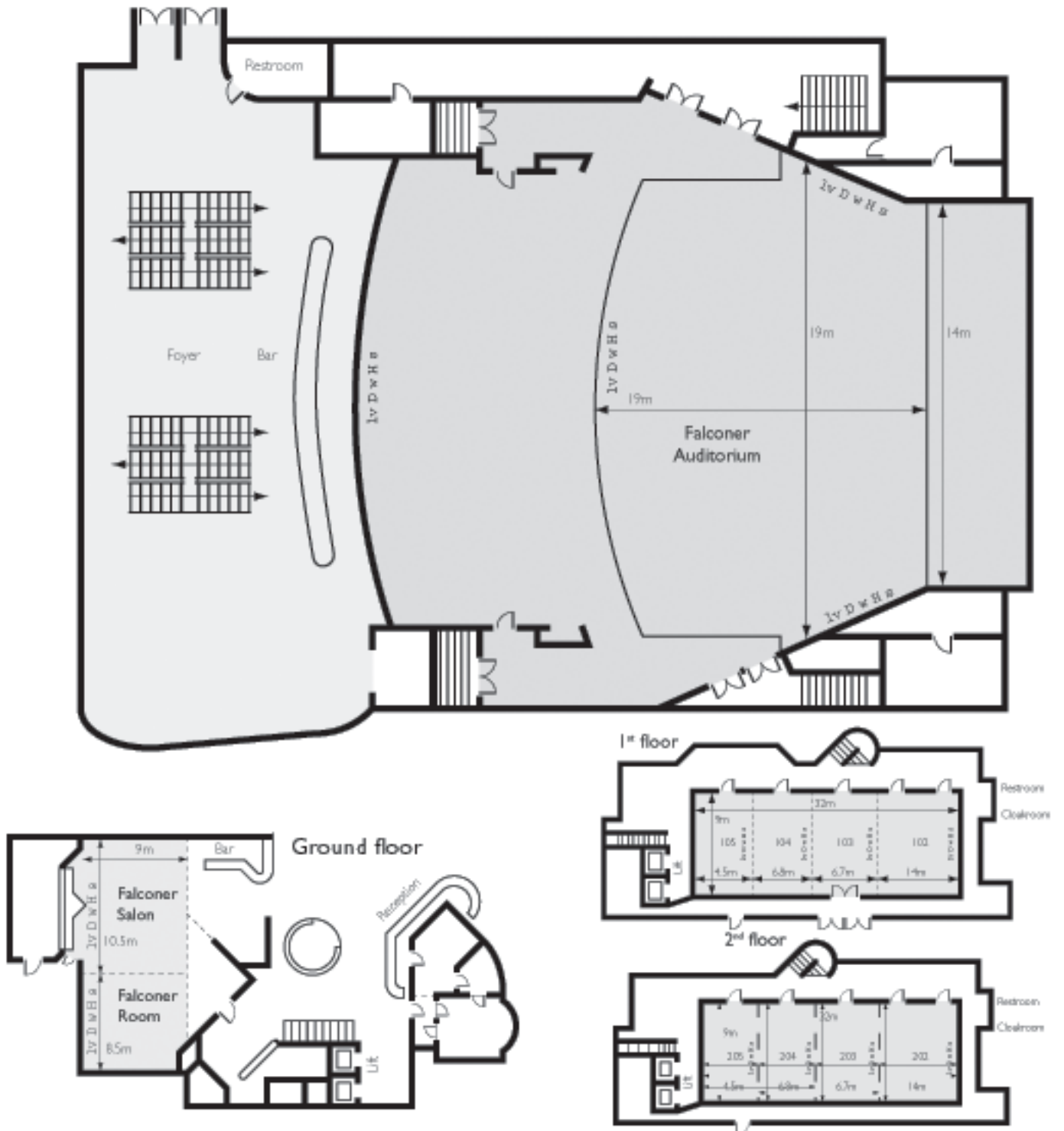
## ***STEEN WILLADSEN***

Award Presentation Monday, January 10, 2005 at 16:30

### ***Previous Recipients:***

*B. Brackett (2004)*  
*K. Betteridge (2003)*  
*R. 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)*  
*G.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. Cassida (1984)*  
*M.C. Chang (1983)*  
*R.O. Berry (1982)*

# Meeting Room Layout



Please see page 17 for the Falconer Hall/Foyer layout with the Exhibit and Poster Setup.

# Calendar of Events

## Thursday, January 6, 2005

10:00 – 18:00 IETS Board of Governors Meeting (KVL)

## Friday, January 7, 2005

8:00 – 17:00 IETS Board of Governors Meeting (KVL)

8:00 – 17:00 Health And Safety Advisory Committee (HASAC) Research Subcommittee (KVL)

17:00 – 21:00 Research and Technology Subcommittees of the Companion Animal, Non-Domestic & Endangered Species (CANDES) Committee (Falconer Room 203)

17:00 – 21:00 Regulatory and Health & Safety Subcommittees of the Companion Animal, Non-Domestic & Endangered Species (CANDES) Committee (Falconer Room 204)

## Saturday, January 8, 2005

8:00 – 17:00 Pre-Conference Workshop: Successful Publishing in an English Language Journal (Falconer Room 203)

8:00 – 17:20 Pre-Conference Symposium: Biology of Regeneration and Stem Cells (KVL)

9:00 – 12:00 Regulatory Subcommittee of the Health And Safety Advisory Committee (HASAC) (Falconer Room 105)

13:30 – 17:00 IETS Foundation Board of Trustees Meeting (Falconer Room 205)

14:00 – 17:00 Research Subcommittee of the Health And Safety Advisory Committee (HASAC) (if necessary) (Falconer Room 105)

17:00 – 19:00 Forms & Certificates Subcommittee of the Health And Safety Advisory Committee (HASAC) (Falconer Room 103)

16:00 – 19:00 Registration with pick up of pre-registrations only (KVL)

18:00 – 21:00 IETS Welcome Reception (KVL)

## Sunday, January 9, 2005

7:30 – 8:30 Past President's Breakfast (Falconer Room 202)

7:30 – 8:15 Student Competition Breakfast with Foundation (Falconer Room 104)

8:00 – 18:00 Registration (Falconer)

8:00 – 12:00 Commercial Exhibit Setup (Falconer Hall/Foyer)

8:00 – 12:00 Poster Setup (Falconer Hall)

8:00 – 12:00 Pre-Conference Workshop: Successful Publishing in an English Language Journal (Falconer Room 203)

8:00 – 17:00 A/V Library/Speaker Preparation (Falconer Room 205)

8:30 – 10:00 IETS Foundation Education Committee (Falconer Room 105)

8:00 – 10:00 Food Safety Subcommittee of the Health And Safety Advisory Committee (HASAC) (Falconer Room 204)

8:30 – 9:30 Open Meeting of the Companion Animal, Non-Domestic & Endangered Species (CANDES) Committee (Falconer Room 102)

10:00 – 10:20 Opening and Welcome (Falconer Auditorium)

10:20 – 12:30 Session I: The role of the oocyte in determining embryo viability (Falconer Auditorium)

12:30 – 13:30 Lunch break

12:00 – 17:00 Commercial Exhibits (Falconer Hall/Foyer)

13:30 – 15:00 IETS-Foundation: Student competition presentations (Falconer Auditorium)

15:00 – 15:10 Gold Sponsor short presentation (Falconer Hall)

- 15:10 – 16:00 Coffee break / Exhibition (Falconer Hall/Foyer)  
 16:00 – 18:00 Session II: Molecular regulation of mammalian preimplantation development (Falconer Auditorium)  
 18:30 – 22:30 Poster session I with “Drinks and Snacks” (Falconer Hall)  
 19:30 – 21:00 Open Meeting of the Health And Safety Advisory Committee (HASAC) (Falconer Auditorium)

### **Monday, January 10, 2005**

- 8:00 – 15:00 Registration (Falconer)  
 8:00 – 18:00 Commercial Exhibits (Falconer Hall/Foyer)  
 8:00 – 17:00 A/V Library/Speaker Preparation (Falconer Room 205)  
 08:30 – 10:00 Session III: Functional genomics applied to preimplantation embryos (Falconer Auditorium)  
 10:00 – 11:00 Coffee break / Exhibition (Falconer Hall/Foyer)  
 10:00 – 11:30 IETS Data Retrieval Committee Meeting (Falconer Room 203)  
 11:00 – 13:00 Poster session II (Falconer Hall)  
 13:00 – 14:00 Lunch break  
 14:00 – 16:00 Session IV: Advances in somatic cloning and transgenesis (Falconer Auditorium)  
 16:00 – 16:30 Coffee break/Exhibition (Falconer Hall/Foyer)  
 16:30 – 17:00 IETS-Pioneer award (Falconer Auditorium)  
 17:00 – 17:45 IETS Annual Business meeting (Falconer Auditorium)  
 18:00 – 21:00 Reception at the City Hall with the Lord Mayor of Copenhagen

### **Tuesday, January 11, 2005**

- 7:00 – 9:00 Organizational Meeting of the IETS Board of Governors (Falconer room 203)  
 9:00 – 11:00 Organizational Meeting of the IETS Foundation (Falconer Room 203)  
 8:00 – 15:00 Registration (Falconer)  
 8:00 – 14:30 Commercial Exhibits(Falconer Hall/Foyer)  
 8:00 – 17:00 A/V Library/Speaker Preparation (Falconer Room 205)  
 08:30 – 10:30 Session V: Embryonic stem cells and cellular plasticity: Implications for livestock (Falconer Auditorium)  
 10:30 – 11:00 Coffee break / Exhibition (Falconer Hall/Foyer)  
 11:00 – 11:30 IETS-Distinguished service award (Falconer Auditorium)  
 11:30 – 13:00 Practitioner Forum (Falconer Auditorium)  
 13:00 – 14:00 Lunch break  
 14:00 – 14:45 IETS-Foundation Student Competition awards, CANDES, HASAC (Falconer Auditorium)  
 14:30 – 17:00 Commercial Exhibit Teardown (Falconer Hall/Foyer)  
 14:30 – 17:00 Poster Teardown (Falconer Hall/Foyer)  
 14:45 – 16:00 Session VI: Key note lecture (Falconer Auditorium)  
 16:00 Closing Ceremony (Falconer Auditorium)  
 16:30 3<sup>rd</sup> IETS Annual Running Competition  
 18:30 – 24:00 KVL Farewell (KVL)

### **Wednesday, January 12, 2005**

- 8:15 – 16:30 Post-conference Symposium: Agricultural and societal applications of contemporary embryo-technologies in farm animals (KVL)

### **Thursday, January 13, 2005**

- All-day Tour to Danish Institute of Agricultural Sciences in the Western part of Denmark

## General Information

### Meeting Room Directory

Conference Sessions	Falconer Auditorium
Exhibition	Falconer Hall
Poster Displays	Falconer Hall
Speakers' Preparation Room	Room 105

### Registration Desk

KVL (prior to Opening Reception)

*Pick-up of pre-registration packets only*

Saturday, January 8	16:00 - 19:00
Falconer Foyer	
Sunday, January 9	08:00-18:00
Monday, January 10	08:00-15:00
Tuesday, January 11	08:00-15:00

Register for the IETS Annual Conference, the pre-conference symposia and/or the post-conference Satellite Symposium at the Registration Desk. Also, sale items such as the 3<sup>rd</sup> edition of the IETS Manual, educational slide sets and videotapes will be available for purchase.

### Exhibit Information

Falconer Hall/Foyer

Exhibitor Set-Up: Sunday, January 9 08:00 – 12:00

Hours of Operation: Sunday, January 9 12:00 – 17:00

Monday, January 10 08:00 – 18:00

Tuesday, January 11 08:00 – 14:30

Exhibitor Tear Down: Tuesday, January 11 14:30 – 17:00

Details on the exhibitors will be available in the Guide to Exhibits that will be enclosed in the conference bags.

### Audio-Visual Library

Room 105

A variety of slide tutorials and videotapes are available from the IETS Foundation for viewing and purchase. These can be checked out at the IETS Registration Desk from 08:00-17:00 on Sunday (January 9) and 08:00-14:30 on Monday and Tuesday (January 10-11) for viewing in Room 105 of the Falconer Center.

### Badges

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



## General Information, cont.

### Carparking

Behind the Falconer Center on payable on an hourly basis or for DKK 60 a day. Tickets can be bought in the reception of the hotel.

On the side street next to the Falconer Center, it is possible to park at DKK 30 per day. These tickets are also sold in the reception.

### Currency & Credit Cards

The currency in Denmark is the Danish Kroner, DKK. Major credit cards are accepted in hotels, restaurants and shops. Should you wish to use your credit card to pay a taxi, please inform the driver immediately when you step in.

### Tipping

Service charges are always included and extra gratuities are not necessary unless you wish to show your appreciation for a good meal or special service.

### Message Board

Any messages received for conference delegates will be posted (alphabetically) on a board the message and information board located by the Registration Desk.

### Refreshments

Morning coffee and afternoon refreshments are included in your registration fee and are provided during the scheduled breaks in the Exhibition area (Falconer Hall/ Foyer).


### Meals

The conference venues are in central part of the city, so lunch can be found in local restaurants or eateries. An information folder is included in the conference bag with useful addresses on nearby eateries for those who wish to go out for lunch.

For those that purchased lunch tickets, your lunch may be picked up on the balcony of the first floor. Tickets are not available for onsite purchase.

### Directions to KVL

A detailed map is included in the conference bags with directions.



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Detlef Rath, Artificial Insemination  
Paul Verma/Cindy Tian, Cloning/Nuclear Transfer  
Stan Leibo, Cryopreservation/Cryobiology  
Christine Wrenzycki, Developmental Biology  
Peter Farin, Early Pregnancy/Pregnancy Recognition  
Pat Lonergan, Embryo Culture  
Andrea Lucas-Hahn, Embryo Manipulation  
Duane Kramer, Embryo Transfer  
Jose Cibelli, Embryo Stem Cells  
Anthony Wrathall, Epidemiology  
Nadia Loskutoff, Exotic Species  
Evelyn Telfer, Folliculogenesis/Oogenesis  
John McLaughlin, Gene Expression  
Barry Bavister/Hiroaki Funahashi/Cesare Galli, IVF/IVP  
John Parks, Male Physiology  
Allan King, Microstructural Analysis  
Ralph Fissore, Oocyte Activation  
Hiemke Knijn, Oocyte Maturation  
Kenneth White, Sexing  
Giovanna Lazzari, Sperm Injection  
Heiner Niemann, Superovulation  
Kurt Zuelke, Tissue Culture  
David Wells, Transgenesis  
Giovanna Lazzari/Cesare Galli, Ultrasound

## Manuscript and Abstract Reviewers

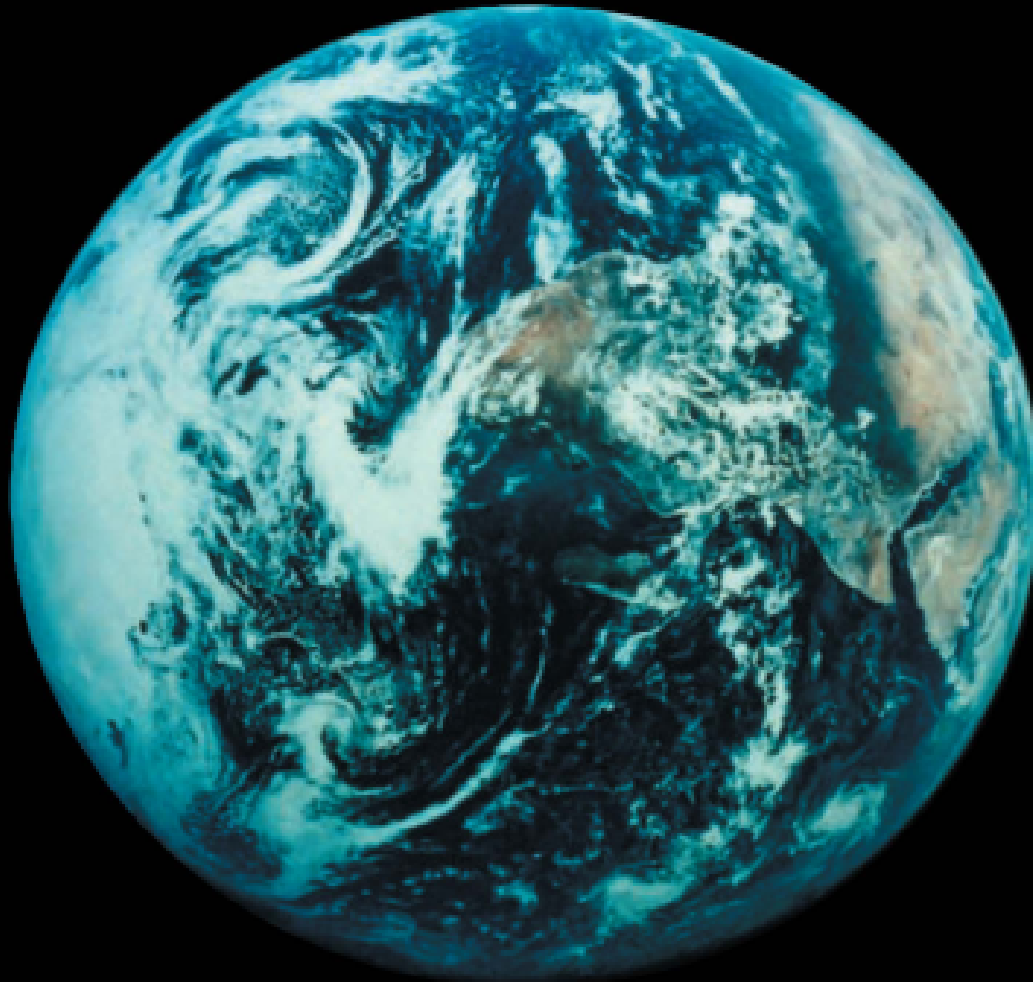
Jon Alderson	Thomas D. Bunch	Sigrid Eckardt
Hannelore Alm	Bruce K. Campbell	Brian Enright
Gary Anderson	Joseph W. Carnwath	Will Eyestone
Jörg Aurich	Anthony Chan	Charlotte Farin
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International Embryo Transfer Society

# Main Scientific Program

## Progress in understanding mammalian oocyte and embryo development

Sunday, January 9<sup>th</sup>, 2005

10:00 – 10:20 Opening and Welcome

10:20 – 12:30 **Session I: *The role of the oocyte in determining embryo viability.***  
**Chairs:** Takashi Nagai (Japan) and Evelyn Telfer (UK)

### **Invited Speaker**

John Eppig (USA): The mouse model: Factors involved in the development of primordial oocytes to competent embryos.

### **Short Contribution**

Begoña Anguita (Spain): Nuclear stage and p34cdc2 expression in different sizes of prepubertal goat oocytes. (Abstract #277)

### **Short Contribution**

Valentina Lodde (Italy): Relationship between chromatin organization and oocyte-cumulus cell communications in germinal vesicle stage bovine oocytes. (Abstract #288)

### **Short Contribution**

George Seidel (USA): Effect of meiotic arrest by roscovitine and subsequent IVM time on developmental competence of immature bovine oocytes. (Abstract #241)

### **Invited Speaker**

Poul Hyttel (Denmark): The role of the nucleolus in determining oocyte developmental competence.

12:30 – 13:30 Lunch break

13:30 – 15:00 **IETS-Foundation: Student competition presentations**

**Chair:** Curt Youngs (USA)

Long term health and behavior of ICSI produced mice.

R. Fernandez-Gonzalez, P. Moreira, A. Bilbao, M.A. Ramirez, M. Perez-Crespo, B. Pintado, F. Rodriguez de Fonseca, and A. Gutierrez-Adan (abstract #1)

Correlation between oxygen respiration rates and morphology, sex, diameter and developmental stage of single bovine IVP-embryos.

A.S. Lopes, N. Ramsing, L.H. Larsen, M. Rätty, J. Peippo, T. Greve, and H. Callesen (abstract #2)

X-linked gene expression in bovine pre-implantation embryos obtained in vivo and in vitro as a measure of impact of embryo production technologies.

M. I. Nino-Soto and W. A. King (abstract #3)

Effect of the timing of artificial insemination on the number of spermatozoa discovered in the uterine crypts of the bitch. T. Rijsselaere, A. Van Soom, S. Van Cruchten, M. Coryn, K. Gortz, D. Maes, and A. de Kruif (abstract #4)

Neutral segregation of donor cell mitochondria in fetal and adult tissues of somatic cell clones in cattle.

F. Viramontes, F. Filion, and L.C. Smith (abstract #5)

Vitrification of bovine embryos without animal-derived products.

D. Walker and G. Seidel (abstract #6)

15:00 – 15:10 Gold sponsor presentation

15:10 – 16:00 Coffee break / Exhibition

16:00 – 18:00 **Session II: *Molecular regulation of mammalian preimplantation development***

**Chairs:** Barry Bavister (USA) and Alfonso Gutierrez-Adan (Spain)

**Invited Speaker**

Lawrence Smith (Canada): The role of the mitochondrial genome in preimplantation development of domestic animals.

**Short contribution**

Szilard Bodo (Hungary): Different gene expression of individual blastomeres in early mouse embryo detected by real time PCR. (Abstract #214)

**Short contribution**

Claudia Gebert (Germany): Methylation status of a differentially methylated region (DMR) within the bovine IGF2 gene in preimplantation embryos. (Abstract #219)

**Short contribution**

Mark Williamson (Australia): Anatomical abnormalities in calves produced by nuclear transfer. (Abstract #74)

**Invited Speaker**

Christine Wrenzycki (Germany): Gene expression patterns in embryos derived from biotechnological procedures and their implications for development.

18:30 – 22:30 Poster session I with Drinks and Snacks

**Monday, January 10<sup>th</sup>, 2005**

08:30 – 10:00 **Session III**

***Functional genomics applied to preimplantation embryos***

**Chairs:** Jean Paul Renard (France) and Eckhard Wolf (Germany)

**Invited Speaker**

James Adjaye (Germany): Approaches for the identification of gene expression profiles in mammalian embryos.

**Short contribution**

Vanessa Hall (Australia): An expression profile of genes crucial for placental development in single in-vivo, in-vitro and cloned bovine blastocysts. (Abstract #220)

**Short contribution**

Severine Degrelle (France): Use of a Day-14 embryonic array to study the elongation phase of the bovine embryo. (Abstract #122)

**Invited Speaker**

Marc-André Sirard (Canada): Potentials and limitations of bovine specific arrays for the analysis of gene expression in early development.

10:00 – 11:00 Coffee break / Exhibition

11:00 – 13:00 Poster session II

13:00 – 14:00 Lunch break

14:00 – 16:00 **Session IV**

***Advances in somatic cloning and transgenesis***

**Chairs:** Irina Polejaeva (USA) and Jerry Yang (USA)

**Invited Speaker**

Eric Forsberg (USA): Large scale somatic cloning and transgenesis in cattle

**Invited Speaker**

Stefan Hiendleder (Germany): The mitochondrial contribution to the success of somatic cloning.

**Invited Speaker**

Sonja Schätzlein (Germany): The role of telomeres in determining normality and longevity in cloned offspring.

**Invited Speaker**

Gabor Vajta (Denmark): The handmade cloning approach: Potentials and limitations.

16:00 – 16:30 Coffee break/Exhibition

16:30 – 17:00 IETS-Pioneer award presentation

17:00 – 17:45 IETS Annual Business meeting

18:00 – 20:00 Reception at the City Hall with the Lord Mayor of Copenhagen

**Tuesday, January 11<sup>th</sup>, 2005**

08:30 – 10:30 **Session V: *Embryonic stem cells and cellular plasticity: Implications for livestock***

**Chairs:** Paul De Sousa (UK) and Ian Wilmut (UK)

**Invited Speaker**

Alan Trounson (Australia): Characteristics and perspectives for embryonic stem cells in mammalian species.

**Invited Speaker**

Wilfried A. Kues (Germany): From fibroblasts to adult somatic stem cells: Implications for cell therapies and somatic cloning.

**Short contribution**

Jan Motlik (Czech Republic): Isolation, culture and potential use of the porcine neural and epidermal stem cells. (Abstract #174)

**Invited Speaker**

Jacob Gjoerret (Denmark): Recent advances in the generation of bovine embryonic stem cells.

10:30 – 11:00 Coffee break / Exhibition

11:00 – 11:30 IETS-Distinguished service award presentation

11:30 – 13:00 **Practitioner Forum: Implementation of animal biotechnology: A worldwide practical experience**

**Chair:** John Hasler (USA)

Speakers:

Patrice Humblot (France)      Bas Landman (The Netherlands)

Yoshito Aoyagi (Japan)      Dave Faber (USA)

Paul Verma (Australia)

13:00 – 14:00 Lunch break

14:00 – 14:45 IETS-Foundation students competition awards, CANDES update and HASAC update

14:45 – 16:00 **Session VI: *Keynote address***

**Chair:** Heiner Niemann (Germany)

**Invited Speaker**

Hans Schöler (USA/Germany): The totipotent cycle: Implications for embryonic development.

16:00 Closing ceremony

16:30 3<sup>rd</sup> IETS Annual Running Competition

18:30 – 24:00 KVL Farewell



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31<sup>st</sup> Annual Conference

## Poster Sessions

Falconer Hall

Posters are identified by the number corresponding to their abstract number in Reproduction, Fertility and Development 2005; 17(1,2). Numbering begins at 1 and ends at 339.

Setup:

Sunday, January 9, 2005 from 8:00 to 12:00

### Poster Session 1

Presentation by authors of 'odd' numbered abstracts in Reproduction, Fertility and Development 2005; 17(1,2) and the Student Competition finalist poster presentations.

Presentation:

Monday, January 12, 2004 from 16:00 to 18:00

### Poster Session 2

Presentation by authors of 'even' numbered abstracts in Reproduction, Fertility and Development 2004; 16(1,2).

Presentation:

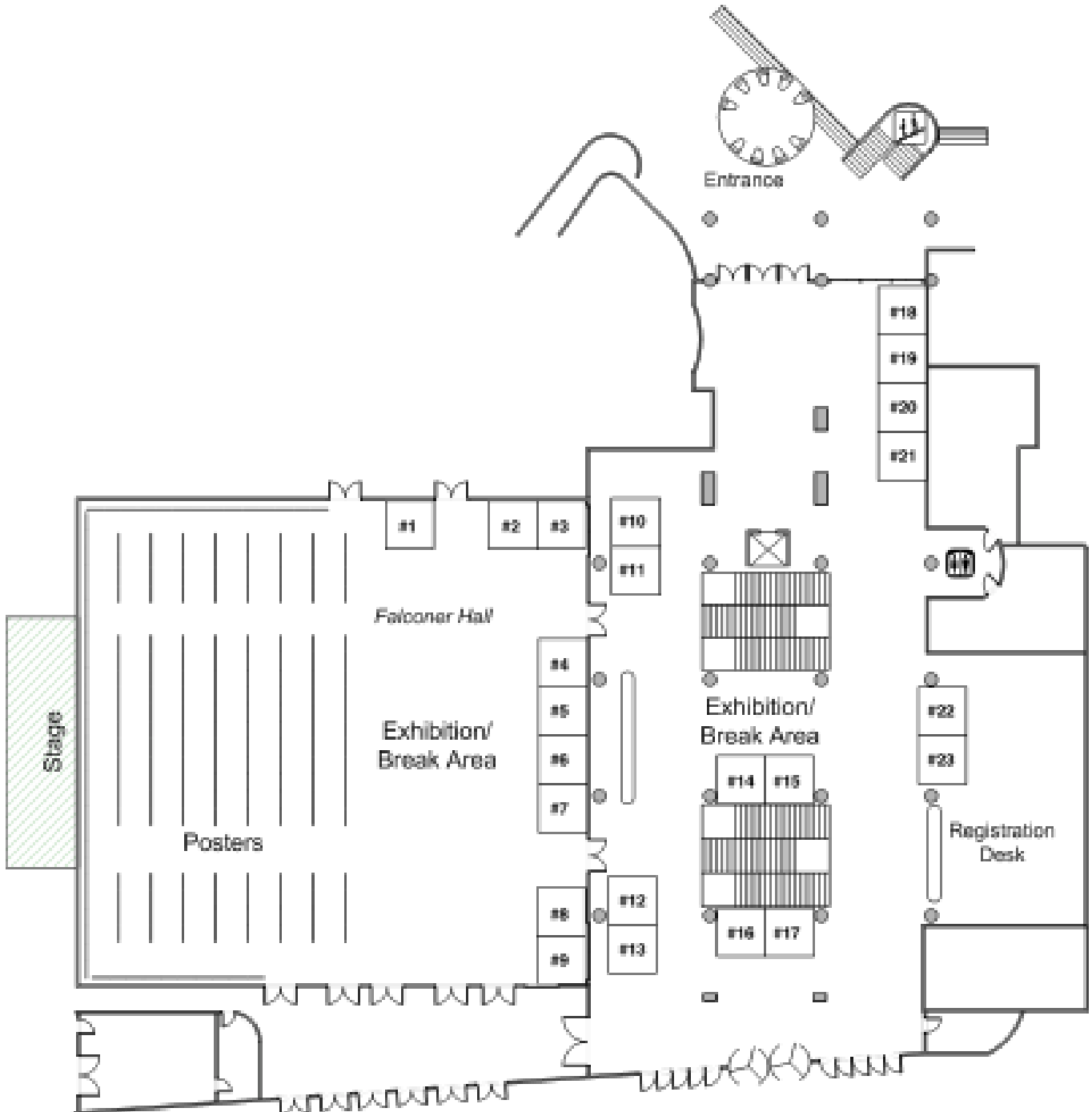
Tuesday, January 13, 2004 from 8:30 to 10:30

Teardown:

Tuesday, January 11, 2005 from 14:30 to 17:00.

Authors of posters that are not put up during their designated time will be reported to the IETS President for possible disciplinary action. The posters must remain up for the duration of the meeting. Posters not removed by the designated time will be removed by the IETS Staff and may be destroyed.

# Poster and Exhibit Room Layout



## Poster Session Order by Topics, Titles & Authors

Poster number = Abstract number in Reproduction, Fertility and Development 2005; 17 (1,2)

### Student Competition Finalist

- 1 Long term health and behavior of ICSI produced mice.  
R. Fernandez-Gonzalez, P. Moreira, A. Bilbao, M.A. Ramirez, M. Perez-Crespo, B. Pintado, F. Rodriguez de Fonseca, and A. Gutierrez-Adan
- 2 Correlation between oxygen respiration rates and morphology, sex, diameter and developmental stage of single bovine IVP-embryos.  
A.S. Lopes, N. Ramsing, L.H. Larsen, M. Rätty, J. Peippo, T. Greve, and H. Callesen
- 3 X-linked gene expression in bovine pre-implantation embryos obtained *in vivo* and *in vitro* as a measure of impact of embryo production technologies.  
M. I. Nino-Soto and W. A. King
- 4 Effect of the timing of artificial insemination on the number of spermatozoa discovered in the uterine crypts of the bitch.  
T. Rijsselaere, A. Van Soom, S. Van Cruchten, M. Coryn, K. Gortz, D. Maes, and A. de Kruif
- 5 Neutral segregation of donor cell mitochondria in fetal and adult tissues of somatic cell clones in cattle.  
F. Viramontes, F. Fillion, and L.C. Smith
- 6 Vitrification of bovine embryos without animal-derived products.  
D. Walker and G. Seidel

### Artificial Insemination

- 7 Heterospermic insemination at two sperm concentrations in timed ai: casa semen parameters and pregnancy rates.  
A. Albrecht, R. Cavia, G. Larraburu, F. Garcia Migliaro, and G. Brogliatti
- 8 Effect of suckling restriction and eCG treatment on pregnancy rates in postpartum bos indicus crossbred cows treated with progesterone vaginal devices and estradiol benzoate.  
E. Balla, L. Cutaia, C. Rizzi, L. Peres, and G.A. Bo
- 9 Does straw concentration affect post-thaw sperm quality in AI bull sires?  
J. Ballester, A. Johannisson, M. Håård, H. Gustafsson, and H. Rodriguez-Martinez
- 10 Timed artificial insemination in cattle with reduced dosage of spermatozoa.  
F. Becker, H. Alm, F. Schneider, H. Nehring, L. Rothe, and W. Kanitz
- 11 Time of insemination relative to ovulation explains fertility variations of frozen-thawed spermatozoa between farms.  
A. Bolarín, G. Carvajal, M. Hernandez, J.M. Vazquez, E.A. Martinez, and J. Roca
- 12 Casa parameters of fresh bull semen collected by artificial vagina or electroejaculation in argentina.  
G. Brogliatti, F. Garcia Migliaro, R. Cavia, G. Larraburu, and A. Albrecht
- 13 Effects of presynchronization with a used cidr, and treatment with ecg on fertility in lactating cows subjected to a cosynch protocol.  
M. Colazo, M. Rutledge, J. Small, J. Kastelic, L. Siqueira, D. Ward, and R. Mapletoft
- 14 Effect of temporary weaning and eCG treatment on pregnancy rates in postpartum bos indicus cows following treatment with progesterone vaginal devices and estradiol benzoate.  
L. Cutaia, E. Balla, C. Rizzi, L. Peres, and G.A. Bo

- 15 Effect of semen thaw method on conception rate in dairy heifer herds.  
M. Kaproth, H. Rycroft, G. Gilbert, G. Abdel-Azim, B. Putnam, S. Schnell, R. Everett,  
and J. Parks
- 16 A cidr-based timed ai protocol resulted in a highly acceptable therapeutic outcome on  
ovarian follicular cysts in lactating dairy cows.  
I.H. Kim, U.H. Kim, and H.W. Nam
- 17 Comparison of follicular wave emergence and follicular development following estradiol  
benzoate plus progesterone or gnrh at the first follicular wave in a cidr-treated, lactating  
holstein cows.  
U.H. Kim, G.H. Suh, and I.H. Kim
- 18 Strategies to improve fertility with cosynch-cidr protocols in beef cattle.  
R. Mapletoft, M. Colazo, L. Siqueira, J. Small, M. Rutledge, D. Ward, and J. Kastelic
- 19 Low-dose deep intrauterine insemination in sows under fields conditions: incidence of  
unilateral fertilizations.  
E.A. Martinez, J.M. Vazquez, I. Parrilla, C. Cuello, M.A. Gil, J.A. Tornel, J. Roca, and  
J.L. Vazquez
- 20 Effects of dose of estradiol benzoate and progesterone in prostaglandin-treated beef  
heifers.  
M. Martínez, M. Caccia, M. Colazo, G. Bó, J. Kastelic, and R. Mapletoft
- 21 Effects of heterologous semen plasma and semen extenders on progressive motility of  
frozen-thawed ram sperm.  
G. Mataveia, S.J. Terblanche, J.O. Nöthling, and D. Gerber
- 22 Influence of sire and sire breed (gir vs. Holstein) on early pregnancy and early embry-  
onic loss rates in holstein cows during summer heat stress.  
M.F. Pegorer, J.L.M. Vasconcelos, P.J. Hansen, and C.M. Barros
- 23 Pregnancy rate in Nelore cows after temporary calf removal, and use of hormonal  
protocols with eCG.  
V. Pinheiro, A. Souza, R. Ereno, and C. Barros

### **Cloning/Nuclear Transfer**

- 24 Transgenesis and nuclear transfer using stem cells from cultured porcine primordial  
germ cells.  
K.S. Ahn, H.S. Yang, S.Y. Heo, and H. Shim
- 25 *In vitro* development of aggregated nuclear transferred embryos derived from bovine  
cumulus cells.  
S. Akagi, B. Tsuneishi, S. Watanabe, and S. Takahashi
- 26 Assessment of chromosome abnormalities in sheep parthenogenetic and nuclear  
transfer embryos: effect of 6-DMAP and cycloheximide on ploidy.  
B. Alexander, G. Coppola, D. Di Berardino, D.H. Betts, and W.A. King
- 27 Morphological and immunohistochemical characterization of day 21 ivp and nt bovine  
embryos.  
N.I. Alexopoulos, P. Maddox-Hyttel, R.T. Tecirlioglu, M.A. Cooney, and A.J. French
- 28 Cloned embryos can be produced using donor cells obtained from a 72-hour cooled  
carcass.  
S. Arat, H. Bagis, H. Odaman Mercan, and A. Dinnyes
- 29 Comparison of term placentas in cloned and control pregnancies in cattle.  
C.A. Batchelder, M. Bertolini, K.A. Hoffert, J.B. Mason, A.L. Moyer, S.G. Petkov, and  
G.B. Anderson

- 30 Nuclear transfer using cultured antlerogenic periosteal cells overcomes the seasonal block to red deer IVF blastocyst development resulting in live calves.  
D.K. Berg, B. Oback, M.C. Berg, C. Li, G.W. Asher, and D.N. Wells
- 31 Construction of a targeting vector specific for the bovine beta-casein gene.  
M. Chang, K.-B. Oh, G. Wee, D.-B.n Koo, S.-T.e Shin, K.-K. Lee, and Y.-M. Han
- 32 Efficiency of female-derived donor cells on high postnatal survival in pig cloning.  
S.K. Cho, M.R. Park, D.N. Kwon, E.K. Lee, S.J. Kang, S.Y. Lee, Y.J. Choi, J.Y. Park, W.J. Son, and J.H. Kim
- 33 Production of transgenic-cloned pigs carrying hDAF, Gnt-III and heterozygously disrupted  $\alpha$ 1,3-galactosyltransferase genes.  
T. Fujimura, Y. Takahagi, H. Nagashima, S. Miyagawa, T. Shigehisa, and H. Murakami
- 34 Lifespan and chromosomal stability of bovine and porcine fetal fibroblast cells cultured *in vitro*.  
A.M. Giraldo, J.W. Lynn, C.E. Pope, R.A. Godke, and K.R. Bondioli
- 35 Production of cloned miniature calves using cytoplasts from cows of standard size.  
M. Givens, R. Carson, K. Riddell, D. Stringfellow, J. Waldrop, E. Whitley, P. Kasinathan, and E. Sullivan
- 36 Improving the application of nuclear transfer for producing non-domestic felids.  
M.C. Gomez, C.E. Pope, L. Lyons, A. Cole, M. Lopez, C. Dumas, and B.L. Dresser
- 37 Pregnancy-associated glycoprotein (PAG) profiles during the peri implantation period in recipients carrying bovine somatic clones: preliminary results.  
Y Heyman, P Chavatte-Palmer, N Melo de Sousa, F Constant, M Guillomot, X Vignon, and JF Beckers
- 38 High Osmolarity At Early Culture Stage Improves *In vitro* Development Of Pre-Implantation Porcine Nuclear Transfer Embryos.  
G.-S. Im, B.-S. Yang, L. Lai, Z. Liu, Y. Hao, and R.S. Prather
- 39 Chromosome abnormalities in bovine nuclear transfer embryos produced by “hand-made cloning”.  
A.S. Jakobsen, G. Vajta, P.D. Thomsen, H. Callesen, and T. Greve
- 40 Characterization of early G<sub>1</sub> cells as nuclear donors for somatic cell cloning in cattle.  
A. Kasamatsu, K. Saeki, T. Tamari, K. Shirouzu, S. Taniguchi, T. Mitani, Y. Aoyagi, M. Urakawa, A. Ideta, K. Matsumoto, Y. Hosoi, and A. Iritani
- 41 Effect of cell types and passages on development and apoptosis of porcine cloned embryos.  
J.-G. Kim, Y.-S. Lee, S.-L. Lee, S.-A. Ock, C.-S. Park, S.-Y. Choe, and G.-J. Rho
- 42 Production of cloned pigs from somatic stem cells derived from salivary gland.  
M. Kurome, H. Ueda, R. Tomii, K. Nakamura, K. Okumura, S. Matsumoto, F. Endo, and H. Nagashima
- 43 DNA synthesis, preimplantation development and oct4 expression of bovine clones reconstructed with oocytes preactivated or enucleated after spindle disassembly.  
S. Kurosaka and K.J. McLaughlin
- 44 Improved development of bovine nuclear transfer embryos by the treatment of nuclear donor cells with apoptosis inhibitors during serum starvation.  
C.-K. Lee, Bon-sik Koo, C.-H. Park, S.-G. Lee, D.-H. Choi, J.-M. Lim, and H.-J. Yong
- 45 Analysis of differentially expressed proteins in the placenta of somatic cell cloned and artificial insemination pig placenta using proteomics.  
S.Y. Lee, S.K. Cho, M.R. Park, E.K. Lee, and J.H. Kim
- 46 Efficient transfection of plasmid dna into cells for use as nuclear donors.  
S.-L. Lee, S.-A. Ock, H.-J. Song, B. Mohana Kumar, S.-Y. Choe, and G.-J. Rho

- 47 Chromatin and cytoskeletal reorganization of rabbit oocytes after cumulus cell nuclear transfer.  
C.-T. Liu, T.-A. Lin, P.-C. Tang, and J.-C. Ju
- 48 Pregnancy and fetal characteristics after transfer of vitrified *in vivo* and cloned bovine embryos.  
P. Lonergan, A.C.O. Evans, E. Boland, D. Rizos, L.-Y. Sung, F. Du, S. Chaubal, S. Fair, E. Scraggs, P. Duffy, J. Xu, X. Yang, and X.C. Tian
- 49 Effect of repeated cell freezings on pregnancy rate of bovine nuclear transfer derived embryos.  
M. Marfil, M. Révora, J. Gutierrez, S. Sosa, J.J. Lagioia, M. Panarace, and M. Medina
- 50 Investigation of the effect of butyrolactone I and cicloheximide treatment during *in vitro* maturation of swine oocytes.  
M.G. Marques, R.P.C. Gerger, A.B. Nascimento, V.P. Oliveira, R. Simoes, C.F. Lucio, and J.A. Visintin
- 51 Phenotypic variation in cloned swine is corrected in the F1 generation.  
B. Mir, G. Zaunbrecher, and J.A. Piedrahita
- 52 Nuclear remodeling after somatic cell nuclear transfer (scnt) in the rhesus monkey.  
S. Mitalipov, J. Byrne, M. Sparman, C. Ramsey, and D. Wolf
- 53 Cell cycle synchronization of donor cells at G1 phase and developmental ability of nuclear transfer embryos in miniature pigs.  
K. Miyamoto, Y. Hoshino, Y. Nagao, N. Minami, M. Yamada, and H. Imai
- 54 Composition of allantoic fluid in cattle pregnant with AI-, IVP-, or nuclear transfer-generated embryos.  
C. Morrow, M. Berg, R. McDonald, D. Wells, A. Peterson, and R. Lee
- 55 Nucleus changes and development of porcine reconstructed (NT) and parthenogenetically activated (PA) embryos.  
N.R. Mtango and T. Kono
- 56 Somatic cell nuclear transfer in non-human primates: the possibility of using oocytes matured *in vitro* for up to 3 days as host ooplasm.  
N.T. Uoc, B.D. Bavister, N.V. Hanh, L.C. Bui, N.T. Thanh, N.H. Duc, Q.X. Huu, N.V. Linh, and X.N. Bui
- 57 Investigation of cynomolgus monkey (*Macaca fascicularis*) fetus fibroblast cell nuclear transfer.  
J. Narita, H. Tsuchiya, T. Takada, and R. Torii
- 58 Handmade cloning in trans-species NT: Culture medium has an effect on the ability of reconstructed bovine-murine embryos to develop beyond the 8-cell stage.  
P.-M. Nieminen, M. Aho, K. Kananen-Anttila, E. Reinikainen, and M. Halmekytä
- 59 A preliminary study of the *in vitro* development of asian elephant, cloned embryos, reconstructed using a rabbit recipient oocyte.  
P. Numchaisrika, R. Rungsiwut, A. Thongpakdee, and M. Techakumphu
- 60 Histological comparisons between nuclear transfer and *in vivo* porcine embryos.  
L. Overman, L. Lai, H.-T. Cheong, G.-S. Im, K.-W. Park, C. Besch-Williford, C. Murphy, J. Green, and R. Prather
- 61 Cloned mouse produced using a zona free method of nuclear transfer.  
R. Ribas, B. Oback, J. Taylor, A. Maurício, M. Sousa, and I. Wilmut
- 62 Relation of intensity of gene expression in bovine reconstructed embryos to subsequent development.  
K. Saeki, T. Tamari, A. Kasamatsu, K. Shirouzu, S. Taniguchi, K. Matsumoto, Y. Hosoi, and A. Iritani

- 63 Improved *in vitro* development of porcine embryos produced by nuclear transfer, IVF and parthenogenesis.  
D. Sage, P. Hassel, B. Petersen, W. Mysegades, P. Westermann, A. Lucas-Hahn, and H. Niemann
- 64 Ooplasmic transfer after interspecies nuclear transfer: presence of foreign mitochondria, pattern of migration, and effect on embryo development.  
M. Sansinena, J. Lynn, R. Denniston, and R. Godke
- 65 Production of porcine nuclear transfer embryos using fetal fibroblast cells analyzed on apoptosis.  
M. Skrzyszowska and M. Samiec
- 66 *In vitro* development of yak (*poephagus mutus*) cloned embryos by interspecies somatic nuclear transfer.  
L. Su, F.L. Du, L.Y. Sung, S. Yang, B.S. Jeong, S. Casinghino, T.L. Nedambale, J. Xu, C.X. Tian, X. Yang, and W. Ji
- 67 Premature chromosome condensation is not essential for bovine somatic nuclear reprogramming.  
L.Y. Sung, F. Du, B.S. Jeong, C.C. Chang, J. Xu, X.C. Tian, and X. Yang
- 68 Reproductive performance of cloned bulls.  
R.T. Tecirlioglu, M.A. Cooney, N.A. Korfiatis, R. Hodgson, M. Williamson, S. Downie, D.B. Galloway, M.K. Holland, and A.J. French
- 69 Production of cloned pigs by nuclear transfer of preadipocytes.  
R. Tomii, M. Kurome, H. Ueda, S. Ueno, K. Hiruma, K. Kano, and H. Nagashima
- 70 Reconstructed bovine blastocysts comprising nuclear transfer-derived inner cell mass and trophoctoderm from IVF embryos do not improve *in vivo* development of clones.  
H.E. Troskie, F.C. Tucker, M.C. Berg, B. Obach, D.N. Wells, and R.S. F Lee
- 71 Developmental delay of pre-implantation ovine *in vitro* cultured and somatic cell nuclear transfer embryos.  
P. Tveden-Nyborg, T. Peura, K. Hartwich, and P. Maddox-Hyttel
- 72 Effect of cell cycle phase of gene-manipulated fetal fibroblasts on the development of cloned bovine embryos.  
M. Urakawa, T. Sawada, Y. Sendai, Y. Shinkai, A. Ideta, K. Kubota, H. Hoshi, and Y. Aoyagi
- 73 Abnormal reprogramming of histone acetylation in cloned bovine embryos.  
G. Wee, D.-B. Koo, M.-J. Kang, S.J. Moon, K.-K. Lee, and Y.-M. Han
- 74 Anatomical abnormalities in calves produced by nuclear transfer.  
M. Williamson, R. Tecirlioglu, A. French, and M. Holland
- 75 Rabbit nuclear transfer with cultured somatic cells.  
F. Yang, B. Kessler, S. Ewerling, E. Wolf, and V. Zakhartchenko
- 76 Production of cloned bovine transgenic embryos with various types of mono-colony cells and ovum pickup.  
J.G. Zhao, X.Y. Yang, Y. Huang, H.F. Liu, H. Li, H.W. Li, S.Z. Huang, and Y.T. Zeng

### **Cryopreservation/Cryobiology**

- 77 Freezing of mouse sperm by three different cryoprotectants.  
C.S. An, S.J. Uhm, D.H. Ko, H.M. Chung, S-G. Cho, K.S. Chung, and H.T. Lee
- 78 Survival of porcine oocytes at germinal vesicle stage after vitrification with open pulled straw method.  
A. Bali Papp, T. Somfai, E. Varga, and M. Marosán



- 79 Effect of pre-freeze addition of platelet-activating factor and platelet-activating factor:acetylhydrolase on the post-thaw integrity of frozen-thawed boar sperm.  
R. Bathgate, B.M. Eriksson, W.M.C. Maxwell, and G. Evans
- 80 Gene expression profiles and *in vitro* development following vitrification of pronuclear and 8 cell-stage mouse embryos.  
D. Boonkusol, A. Baji Gal, S.Z. Bodo, B. Gorchony, K. Pavasuthipaisit, and A. Dinnyes
- 81 Effect of sucrose concentration in warming medium on the development potential of vitrified bovine oocytes.  
W.C. Chang, J. Xu, S. Jiang, X.C. Tian, X. Yang, and F.L. Du
- 82 Evaluation of cell death in cryopreserved mouse embryos.  
A.R.S. Coutinho, A.B. Nascimeto, C.M. Mendes, R. Simoes, C.F. Lucio, M.L.Z. Dagli, and M.E.O.A. Assumpcao
- 83 Cryopreservation of *in vitro* porcine oocytes by solid surface vitrification (SSV).  
A. Dinnyes, T. Somfai, D. Sage, M. Marosan, J. Carnwath, and H. Niemann
- 84 Successful cryopreservation of porcine embryos by the metal mesh vitrification (MMV) method.  
Y. Fujino and Y. Nakamura
- 85 Addition of reduced glutathione to freezing medium improved the sperm functionality of thawed boar spermatozoa.  
J. Gadea, F. Garcia-Vázquez, D. Gumbao, F.A. Rodríguez, and C. Matás
- 86 Culture of pig embryos before cryopreservation.  
B. Gajda and Z. Smorag
- 87 Vitrification of bovine oocytes treated with cholesterol-loaded methyl- $\beta$ -cyclodextrin.  
G. Horvath, L. Solti, and G. Seidel
- 88 Pregnancy rates for *in vitro* and *in vivo* produced ovine embryos vitrified using the minimum volume cooling cryotop method.  
J. Kelly, D. Kleemann, M. Kuwayama, and S. Walker
- 89 Evaluation of a cushioned centrifugation technique for processing boar semen for freezing.  
C. Matas, J. Gadea, and G. Decuadro-Hansen
- 90 Preservation of heritage livestock breeds: Integrated program to cryopreserve germplasm from Tennessee myotonic goats.  
D. Matsas, V. Huntress, H. Levine, S. Ayres, J. Amini, R. Duby, P. Borden, G. Saperstein, and E. Overstrom
- 91 Embryo development after ICSI of equine oocytes vitrified before and after IVM.  
B. Merlo, E. Iacono, S. Colleoni, E. Dell'Aquila, C. Galli, and G. Mari
- 92 Blastocyst formation from vitrified bovine oocytes, zygotes, and two-cell embryos.  
A. Moisan, E. Chamberlain, S. Leibo, B. Dresser, K. Bondioli, and R. Godke
- 93 Blastocyst production from bovine oocytes vitrified in a closed (biosecure) system following *in vitro* maturation in the presence or absence of vitamin E.  
V.C. Moreira, G.J. McCallum, A. Ainslie, and T.G. McEvoy
- 94 Comparing different levels of osmolarity and ph of lactose extender on the viability of spermatozoa in the bactrian camel (*Camelus bactrianus*).  
S. Mosaferi, A. Niasari-Naslaji, A.A. Gharahdaghi, A. Abarghani, A. Ghanbari, and A. Gerami
- 95 Effect of estrous cow serum on survival of *in vitro*-produced bovine embryos after slow freezing or vitrification.  
N. Mucci, J. Aller, P. Ross, G. Kaiser, J. Cabodevila, F. Hozbor, and R. Alberio

- 96 A novel extender for preservation of bactrian camel (*Camelus bactrianus*) semen.  
A. Niasari-Naslaji, S. Mosafari, A.A Gharahdaghi, A. Abarghani, A. Ghanbari, and A. Gerami
- 97 Assessment of viability of *in vitro* produced bovine embryos following vitrification by CVM or slow freezing with ethylene glycol and triple transfer.  
B. Peachey, K. Hartwich, K. Cockrem, A. Marsh, A. Pugh, J. van Wagendonk, and W. Lindemans
- 98 The effect of high hydrostatic pressure on the motility of fresh and frozen-thawed bull semen.  
C.S. Pribenszky, M. Molnar, L. Solti, J. Dengg, and J. Lederer
- 99 Comparison of *in vitro* development following cryopreservation of Meishan and white cross swine embryos.  
B. White, M. Montagner, G. Mills, P. Goncalves, and R. Christenson

### Developmental Biology

- 100 Diet and fatty acid composition of bovine plasma, granulosa cells, and cumulus-oocyte complexes.  
S. Adamiak, M. Ewen, J. Rooke, R. Webb, and K. Sinclair
- 101 Ovarian response and developmental competence of oocytes collected by opu in sheep treated with GnRH antagonist.  
F. Berlinguer, A. Gonzalez-Bulnes, S. Succu, G. Leoni, I. Rosati, A. Veiga-Lopez, R.M. Garcia Garcia, M.J. Cocero, and S. Naitana
- 102 Analysis of early embryonic transcription in the bovine embryo using a dedicated cDNA library.  
L.C. Bui, C. Faure, X. Vignon, J.P. Renard, and V. Duranthon
- 103 Gap junctional intercellular communication is dispensable during regulation of tight junction membrane assembly by cell contact pattern and PKC signaling.  
J. Eckert, A. Mears, I. Cameron, and T. Fleming
- 104 Effect of frozen media on IGF<sub>2</sub> expression of bovine embryos cultured entirely *in vitro* until Day 14.  
M.M. Franco, D.O. Brandão, D.C. Pereira, T.C.D. Mundim, F.F. Ávila, E.O. Melo, M.A.N. Dode, and R. Rumpf
- 105 Expression of pluripotency-determining factors Oct-4 and Nanog in pre-implantation goat embryos.  
S. He, D. Pant, S. Bischoff, W. Gavin, D. Melican, and C. Keefer
- 106 Genomic imprinting of *IGF2R* in tissues of bovine fetuses generated by artificial insemination or *in vitro* fertilization.  
S. Hiendleder, D. Bebbere, S. Bauersachs, M. Stojkovic, H. Wenigerkind, H.-D. Reichenbach, S. Ledda, and E. Wolf
- 107 Initial results from male germ cell transfer between cattle breeds.  
J. Hill, A. Brownlee, R. Davey, M. Herrid, K. Hutton, S. Vignarajan, and I. Dobrinski
- 108 The role of nitric oxide synthase in *in vitro* development of bovine oocytes and pre-implantation embryos.  
A.K. Kadanga, D. Tesfaye, S. Ponsuksili, K. Wimmers, M. Gilles, and K. Schellander
- 109 A bridge of sperm tail between blastomeres enhanced protein migration in the rat two-cell stage embryos.  
N. Kashiwazaki, A. Takizawa, S. Hisamatsu, Y. Akamatsu, M. Shino, S. Sonoki, and T. Inomata
- 110 Nuclear lamin A/C expression in bovine ivf embryos.  
R.D.W. Kelly, R. Alberio, and K.H.S. Campbell

- 111 Cloning and characterization of pig vasa homolog gene and its specific expression in germ cell lineage.  
G.S. Lee, S.H. Lee, H.S. Kim, E.B. Jeung, S.K. Kang, B.C. Lee, and W.S. Hwang
- 112 The presence of lamin A/C antigens in porcine embryos.  
K. Lee, W.L. Fodor, and Z. Machaty
- 113 The distribution of the leptin protein within bovine oocytes and pre-implantation embryos matured and fertilized *in vitro*.  
Z. Madeja, D. Lechniak, J. Peippo, and M. Switonski
- 114 Porcine embryo fragmentation, development and apoptosis: a confocal microscopy study.  
B. Mateusen, A. Van Soom, D. Maes, and A. de Kruif
- 115 Cytological analysis of hepatic gene expression and immunological response of mhc antigens in mouse amniotic epithelial cells.  
T. Mitani, T. Nagai, D. Suzuki, Y. Ukida, H. Kato, K. Matsumoto, K. Saeki, Y. Hosoi, and A. Iritani
- 116 Active methylation and acetylation of histone H3-K9 in mouse embryo with different proportions of maternal and paternal genome.  
V.T. Nguyen, S. Wakayama, H.-T. Bui, and T. Wakayama
- 117 Cytoplasmic factors influence developmental potential of samp1/yit mouse embryos.  
J. Otsuka, H. Funabashi, and T. Kono
- 118 Transfer of iron from mother to fetus in water buffalo: erytrophagocytosis and uteroferrin.  
F. Pereira, F. Braga, J.R. Kfoury Jr, L. Oliveira, P. Papa, A.F. Carvalho, A. Kohayagawa, W. Hamlett, S. Oloris, M.L. Dagli, F. Bazer, and M.A. Miglino
- 119 The localization of a methyl binding domain protein (MBD4) in murine and bovine oocytes and pre-implantation embryos.  
N. Ruddock, J. Xue, L. Sanchez-Partida, M. Cooney, N. Korfiatis, and M. Holland
- 120 Embryonic and postnatal development of diploid-triploid mouse chimaeras.  
A. Suwinska, M. Waksmundzka, W. Ozdzanski, and A. K. Tarkowski
- 121 Heat shock to pig oocytes does not induce apoptosis but reduces embryo development.  
J.-K. Tseng, P.-C. Tang, and J.-C. Ju

### Early Pregnancy/Pregnancy Recognition

- 122 Use of a Day-14 embryonic array to study the elongation phase of the bovine embryo.  
S. Degrelle, I. Hue, and J.P. Renard
- 123 Progesterone levels during 20 days of pregnancy in rabbit treated for endometriosis or with anti-CD44.  
M.J. Illera, P. Bermejo, A. Natarajan, C. Willingham, and J. Hernandez
- 124 The major gene expression patterns in endometrial tissue of pigs during early gestation.  
B.-K. Kim, H.J. Chung, Y.G. Ko, Y.M. Kim, H.-H. Seong, J.K. Jung, N.-H. Kim, and W.K. Chang
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- 212 Heterogeneity of ribosomal RNA gene activation among cells of *in vitro*-produced porcine embryos.  
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- 220 An expression profile of genes crucial for placental development in single in-vivo, in-vitro and cloned bovine blastocysts.  
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H. Kato, H. Murakami, M. Kawasumi, T. Kunieda, M. Okuno, M. Kishimoto, M. Soma, D. Iwai, M. Anzai, T. Mitani, K. Matsumoto, K. Saeki, Y. Hosoi, and A. Iritani
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## IETS Distinguished Service Award

### 2005 Recipient Anthony E Wrathall



Members of the IETS owe a lot to doctor Wrathall (Tony for his friends) who has been a key person in the society. Over 30 years doctor Wrathall worked with preimplantation embryos, transplacental infections, congenital diseases and seasonal infertility problems, among other topics. In 1984, after giving a paper on disease transmission via ET at the International Congress on Animal Reproduction, Urbana-Champaign, Illinois, he was asked to join the International Embryo Transfer Society (IETS) and to serve on its Import/Export Committee (now re-named Health and Safety Advisory Committee, i.e. HASAC). Later he chaired the HASAC Research Subcommittee and eventually the HASAC itself from 1994 to 2000. He helped to develop sanitary protocols for ET and other reproductive technologies, and was involved in drafting parts of the *OIE Terrestrial Animal Health Code* and the European Commission's Directives on ET. Tony also wrote a chapter for the *IETS Manual* on 'Potential of embryo transfer to control transmission of disease'. More recently, and after a long-term research project, his contribution to ET was translated in a significant impact for the industry after he and a group of collaborators demonstrated that bovine spongiform encephalopathy (BSE) was not transmitted via ET. This work was eventually published in *The Veterinary Record* in 2002 (Vet Record 150(12): 365-378, 2002). Therefore the choice of doctor Wrathall for the IETS distinguished service award 2005 is extremely appropriate.

# The International Embryo Transfer Society Foundation Audio-Visual Library

## Videos

### **The Life of a Cow Embryo Today (27 minutes)**

Franz Dessy and Alban Massip, Catholic University of Louvain Dept. of Veterinary Science

*Belgium*

This video is an excellent overview on the production of domestic cattle embryo in vitro. It highlights procedural details from transvaginal aspiration to IVM/IVF/IVG to embryo transfer, including time-lapsed embryo development from the 1-cell stage to blastocyst hatching.

### **Bovine Embryo Transfer (40 minutes)**

Clifford Dorn, Rafter D Genetics, College Station, TX USA

This video is a comprehensive summary on conventional bovine ET applied in a commercial unit. This video is an excellent educational tool that overviews the basic concepts and procedures used in an ET program, from superovulation to embryo splitting.

### **Bovine Reproductive Ultrasonography (64 minutes)**

Brad Stroud, Stroud Veterinary Embryo Services, Weatherford, TX USA

This video is a comprehensive educational tutorial on the reproductive use of transvaginal ultrasonography in the cow. Topics covered include fetal sexing, reproductive pathologies, reproductive anatomy during different phases of the estrous cycle and during superovulatory treatment, early pregnancy detection, uterine flush and embryo collection, and follicular aspiration of oocytes. This video is lengthy, but informative.

### **Laparoscopy for Ova Recovery from the Cow (20 minutes)**

J. E. Rioux, R. D. Lambert, M. A. Sirard, and C. Bernard, Universite Laval Faculte de Medicine, Quebec, Canada

This is a historical video on the recovery of cattle ova via laparoscopy produced in the mid-1980's.

### **In Vitro Development of Normal & Frozen-Thawed Cow Embryos (10 minutes)**

A. Massip and J. Mulnard, Catholic University of Louvain Dept. of Veterinary Science, Belgium

This is an excellent historical and educational video on the time-lapsed development of cattle embryos derived in vivo. (No audio tract)

### **Embryo Transfer in Buffalo - "The Surge" (20 minutes)**

M. L. Madan, National Dairy Research Institute: Embryo Biotechnology Center, India

This video is a research perspective to applied ET for buffalo in India. It provides a comprehensive overview of procedures from media preparation/production to sterilization of supplies/equipment to embryo recovery/transfer/cryopreservation. Also reviewed are the topics of ultrasonography, laparoscopy, endocrinology/hormone assays, IVM/IVF, and micromanipulation.

### **Pratham - The First IVF Buffalo (14 minutes)**

M. L. Madan, National Dairy Research Institute: Embryo Biotechnology Center, India

This video is an overview of the ET procedures adopted to produce the historic birth of the first IVF-derived buffalo calf. The summary includes all steps routinely applied for follicular aspiration/oocyte recovery to IVM/IVF/IVG to embryo transfer.

### **Gametes, Embryos, and Micromanipulation (13 minutes)**

M. Tucker, Reproductive Biology Associates, Atlanta, GA USA

This video is a good overview from a clinical human IVF laboratory perspective on the use of micromanipulation procedures and techniques including microfertilization (PZD, SZI, and ICSI), assisted hatching, and embryo biopsy of human gametes and embryos. It is a useful educational video for microtool preparation, micromanipulator set-up, and implementing of various procedures.

### **NOAHS Center (12 minutes)**

National Organization for the Animal Health Sciences, National Zoological Park, Washington, DC USA

This is an educational summary of wildlife conservation research efforts aimed at geneticists, veterinary medicine, and reproductive physiology. Although produced in 1989, this tape is still relevant due to the slowly evolving progress and effective use of advanced reproductive technologies in this research field.

### **Bovine Fetal Sexing: Unedited**

Brad Stroud, Stroud Veterinary Embryo Services, Weatherford, TX USA

This video is designed to train the veterinarian to diagnose frequently seen economically important and clinically significant bovine reproductive ultrasound images.

### **Direct Transfer of Frozen Bovine Embryos: A Training Video**

Brad Stroud, Stroud Veterinary Embryo Services, Weatherford, TX USA

This video was produced strictly to train veterinarians and experienced AI technicians to thaw, load, and transfer direct transfer (DT) frozen embryos. Professionally produced and narrated, this video covers the following areas in depth: straw, goblet, and can labeling; understanding International Embryo Transfer Society A/B/C Flush Forms; DT equipment, supply list, and where to order; examination of recipient; thawing procedure; loading straw into ET gun; sterile technique; epidural injection; transfer procedure; and recording of transfer data.

## **Slides**

### **Bovine Ova/Embryos**

Tutorial with a set of 30 slides.

### **Embryo Technology in Companion and Non-Domestic Animals**

Tutorial with a set of 40 slides.

### **Assisted Reproductive Technology in Farm Animals: A Historical Perspective**

Tutorial with a set of 75 slides.

# Preconference Satellite Symposium

## Biology of regeneration and stem cells

Saturday, 8th January 2005

Royal Veterinary and Agricultural University,  
Thorvaldsensvej 40, 1871 Frederiksberg C. Copenhagen, Denmark

Our aim in this meeting is to promote discussion and exchange ideas by bringing together groups on two related aspects of biology that both have great potential value in research and the treatment of human injury and disease. These are the ability to regenerate limbs, organs and tissues after injury and the role of stem cells.

### Session 1 - Regeneration

- 09:00 – 09:10** Ian Wilmut – Welcome and introduction
- 09:10 – 10:00** Elly Tanaka - “Introduction to plasticity and reprogramming of differentiated cells in amphibian regeneration”
- 10:00 – 10:20** Morning coffee
- 10:20 - 11:10** Professor Juan Carlos Izpisua-Belmonte – “*Activation of notch signaling pathway precedes heart regeneration in zebrafish*”
- 11:10 – 12:00** Professor Ellen Heber-Katz – “The MRL mouse heart healing response shows donor dominance in allogeneic fetal liver chimeric mice”
- 12:00 – 13:00** Lunch
- 13:00 – 13:50** Dr Geoffrey Raisman - “Olfactory Ensheathing Cells and Repair of Brain and Spinal Cord Injuries”

### Session 2 - Stem Cells

- 13:50 – 14:40** Professor Moustapha Kassem – “Mesenchymal Stem Cells :Biological Characteristics and Potential Clinical Applications”.
- 14:40 – 15:30** Dr Paul de Sousa – “*Neurotrophin signalling in oocyte survival and developmental competence: a paradigm for cellular toti-potency*”
- 15:30 – 16:00** Afternoon tea
- 16:00 – 16:50** Dr Ian Chambers – “The molecular basis of pluripotency in mouse embryonic stem cells”
- 16:50 – 17:00** Ian Wilmut – Thank you and Close

### Meeting Sponsors:

  
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# Preconference Writer's Workshop

## Workshop for Authors needing help with writing in English for scientific journals

Presented by

**V.M. Shille, DVM, PhD, Editor of Theriogenology (Retired)**

P.A. Sokol-Shille, MS, Certified ESOL Instructor

**John P. Kastelic DVM, PhD, Co-Editor in Chief, Theriogenology**

**Are you tired of having your manuscript returned because of Poor English? You are not alone!**

Come, join us in this Pre-Conference Workshop and discover the mysteries of the English language (synonyms, syntax, grammar ) and learn how to integrate research and writing for top efficiency and how to deal with editors and reviewers . Your work in progress is welcome and will be reviewed in class

Although the course is aimed at persons for whom English is a second language, a review is good for native speakers too!

The day-and-a-half workshop will be held in Copenhagen, Denmark just before the IETS conference, on Saturday, 8 Jan. From 8 to 5 and Sunday, 9 Jan. From 8 to Noon. The Workshop will take place in room 203 of the Falconer center.

Class size is limited to 20 participants. Registration fees are payable to IETS via the registration form. The reduced early registration fee (US\$100 for IETS members listed in current membership directory; US\$200 for non-members) must be received before 1 December 2004. On-Site registration fee is US\$150 for IETS members and US\$250 for Non-members (if space is available). Student registration is US\$75, pre-paid or at the door.

Information about the workshop: [pattvic@ufl.edu](mailto:pattvic@ufl.edu) or phone 352-392-4700 ext 5646

Registration and fees: [iets@assoqh.org](mailto:iets@assoqh.org) or call 217-398-4697

## Post Conference Satellite Symposium

### “Agricultural and societal implications of contemporary embryo-technologies in farm animals”

**KVL, Copenhagen, Denmark; Wednesday 12 January 2005**

**Maximum number of participants: 250**

**Sponsored by: OECD and The Abildgaard Foundation**

#### **Introducing part**

08.15-08.45: Registration

08.45-09.00: Torben Greve, Denmark: Welcome and introduction

#### **Parallel Session 1: Embryo technologies and animal health – an international update**

09.15-09.45: Keith J. Betteridge, Canada: “Domestic animal embryo-technologies: achievements and perspectives”

09.45-10.30: **Theo Kruip memorial lecture** given by Janneke van Wagendonk-de Leeuw, New Zealand: “OPU and IVP after use in several generations, a 2005 status”

10.30-11.00: *Break*

11.00-11.45: Tom McEvoy, Scotland: “Consequences for the animal following OPU, IVP and somatic cell nuclear transfer”

11.45-12.15: Torben Greve, Denmark: Discussion and concluding remarks

#### **Parallel Session 2: Semen technologies and animal health – an international update**

09:00-09:15: Preben Christensen, Denmark, Introduction

09.15-09:45: Duane L. Garner, USA: “Flow Cytometric Sexing of Mammalian Sperm”

09:45-10:30: Bart M. Gadella, The Netherlands: “Detection of Damage to DNA in Mammalian Sperm”

10.30-11.00: *Break*

11.00-11.45: Donald P. Evenson, USA: “Clinical Aspects of Detection of DNA fragmentation in Male Infertility and Comparison With Other Techniques”

11.45-12.15: Discussion and concluding remarks (Preben Christensen, Denmark)

12.15-13.30: *Lunch*

#### **Session 3: The next 10 years with semen and embryo technologies**

13.30-14.00: Ian Wilmut, UK: Agricultural implications in research and industry

14.00-14.30: Peter Sandøe, Denmark: Societal implications, an ethical aspect

14.30-15.00: Hanne Severinsen, MP, Denmark: Societal implications, a political aspect

15.00-15.30: *Break*

#### **Concluding part (Torben Greve, Denmark)**

15.30-16.15: Panel Discussion: The last 10 years, the next 10 years

16.15-16.30: Closing comments and conclusions

**International Embryo Transfer Society**