ABSTRACTS

ISCFR 2012

July 26-29, Whistler, Canada

7th International Symposium on Canine and Feline Reproduction

In a joint meeting with

EVSSAR 2012

15th Congress of the European Veterinary Society for Small Animal Reproduction

Editors: Gary England, Michelle Kutzler, Pierre Comizzoli, Wojciech Nizanski, Tom Rijsselaere and Patrick Concannon

Reprinted in IVIS with the permission of the ISCFR Organizers
FOREWORD AND WELCOME
7th INTERNATIONAL SYMPOSIUM ON CANINE AND FELINE REPRODUCTION
JULY 26-29, 2012
Westin Whistler Resort, Whistler Mountain Village, BC, Canada
In a Joint Meeting with EVSSAR (European Veterinary Society for Small Animal Reproduction)
And as a Satellite Meeting to the July 31-August 4 International Congress on Animal Reproduction (ICAR 2012 Vancouver)

HISTORY. Every four years this symposium brings together scientists representing nearly all the major laboratories worldwide investigating canine, feline and endangered carnivore reproduction, fertility and contraception and allows them to share recent research and consider new avenues of cooperation and collaboration. The 7th quadrennial ISCFR follows upon past meetings in Dublin, Ireland 24 years ago (1988), Liege, Belgium (1992), Veldhoven, Holland (1996), Oslo, Norway (2000), Sao Paulo, Brazil (2004), and Vienna, Austria (2008). These have included two previous joint meetings with EVSSAR, in 2000 and 2008. Each ISCFR has produced a Proceedings Book as an special issue of an academic journal and consisting of peer reviewed ISCFR reviews and research papers selected as representing the Symposium highlights and most seminal contributions to our science. More recently the extend abstracts of all ISCFR presentations have been archived online by International Veterinary Information Service (www.ivis.org) including Vienna (2008) and Whistler (2012).

FIRST TIME IN NORTH AMERICA. It is the first time for an ISCFR in North America and the first EVSSAR congress held outside of Europe. It is the third joint meeting of ISCFR and EVSSAR.

EVSSAR. We are grateful to EVSSAR and the EVSSAR Board for their cooperation in the organization of the 7th ISCFR, for providing many of our featured speakers and for assisting with the extensive editorial work involved.

WORKING COMMITTEES. The International Organizing Committee is greatly indebted to all those colleagues who have made the meeting possible by their contributions to committees, including the EVSSAR committee for EVSSAR 2012- North America Committee, the North American Symposium Planning Committee with members from Canada, Mexico and the USA, the Abstract Review Committee, the Proceedings Scientific Committee and the Editorial Committee. Members are listed below.

ATTENDANCE AND DELEGATE NUMBERS. Our symposium speakers and delegates represent a unique gathering of representatives of the most active and prestigious research programs in small animal reproduction, with interests ranging from basic clinical questions and techniques to molecular and cellular aspects of reproduction, and their students and other trainees. Over 225 delegates have registered for the symposium. There are nearly 200 research reports and reviews being presented including 18 plenary lectures, 15 keynote addresses, 90 oral research reports, and 76 posters and other communications.

ABSTRACTS. All accepted abstracts will be published in the “ISCFR Program and Abstract Book” both electronically and in print, and made available online world-wide for free to the animal research and veterinary communities in cooperation with International Veterinary Information Service – IVIS. The Abstract Book also serves as the proceedings of EVSSAR XV, and is available on souvenir thumb drives provided to delegates, courtesy of Minitube of America.

“ISCFR PROCEEDINGS” BOOK SERIES. Each ISCFR results in a post-conference “Proceedings Book”, a volume of peer-reviewed papers representing the most significant reports of the Symposium. This book series has become the sine qua non resource on the history and state of the art of canine and feline reproduction. As a group, the Proceedings are the most frequently referenced source material on the subject. They have been published by the Journal of Reproduction and Fertility, by the journal Theriogenology, and most recently by the journal Reproduction in Domestic Animals. The 2012 Proceedings will again be published by Reproduction in Domestic Animals as a special Supplement to the journal. RDA is the official journal of EVSSAR.
EDITORIAL COMMITTEE AND THE ISCFR PROCEEDINGS. Under the leadership of Dr. Gary England, the committee has processed with the help of the Abstract Review Committee and the Proceedings Scientific Committee all Abstract reviews, manuscript submissions and peer reviews and scientific editing. The resulting “Proceedings Book” will consist of over 100 peer reviewed papers representing almost half the total abstracts presented at the symposium. Papers were invited based on the original abstract quality, scientific timeliness, and importance as determined by the Abstract Review Committee.

PROCEEDINGS PUBLICATION. This will be by Reproduction in Domestic Animals. RDA is the official journal of EVSSAR and one of the premier journals in the area of animal reproduction. We are indebted to Heriberto Rodriguez-Martinez, the Editor of RDA, for his assistance in arranging for the ISCFR Proceedings publication.

FEATURED SPEAKERS. We thank our many featured speakers who not only agreed to provide plenary and keynote presentations but were able to attend the meeting at their own expense. That kindness has permitted the organizers to use the available budget to enhance the experience of symposium participation and subsidize some of the cost of the publication of the Proceedings as a Special Issue Supplement of RDA.

SCHEDULE OF EVENTS. The Program includes the Thursday evening “Poster Set-up Dessert and Coffee Mixer” and Opening Ceremony, the Friday evening “Poster Highlights and Tapas and Drinks Welcome Reception”, the Saturday “Gala Banquet”, and the Sunday afternoon “Closing and Awards Ceremony”. Scientific sessions include Plenary Sessions Thursday evening and the next three mornings, Parallel Research Report Sessions Friday and Saturday afternoons and early Sunday before the last plenary lectures and closing ceremony mid-day Sunday.

PROGRAM OF SIX PLENARY SESSIONS.
- Past, Present & Future of Carnivore Reproduction Research
- Genetic Aspects of Reproduction Research
- Phenomena of Pregnancy,
- Basic Research Using Clinical Material
- Ova and Embryos: to, from and through the oviduct
- Reproductive Control, Intervention and Contraception.

PROGRAM OF 15 PARALLEL SESSIONS OF SCIENTIFIC REPORTS
- Semen and semen cryopreservation
- Deslorelin implants for fertility control
- Ovarian activity in different biological states
- Interface of basic and applied reproduction research
- Endocrine and molecular control mechanisms
- Reproductive Health: factors affecting development, fertility & pregnancy outcome.
- Monitoring reproductive activity
- Embryo biology and manipulation
- Advances in semen evaluation & artificial insemination
- Oocyte biology and culture
- Neonatal and environmental adaptations and seasonal breeding
- Pregnancy diagnosis, management & outcome
- Challenges in embryo cryopreservation
- Pregnancy and parturition
- Endometrial responses to hormones, embryos & infection

SPONSORS. We thank the following sponsors for their generous support of the ISCFR-2012 and EVSSAR-2012.
The Michelson Prize and Grants Program of the Found Animals Foundation, Los Angeles.
The Morris Animal Foundation, Denver, Colorado
Pfizer Animal Health and Synbiotics
Royal Canin Canada
Minitube of America
Mars Veterinary
IVIS - International Veterinary Information Service (www.ivis.org)

THANK YOU ALL FOR COMING. ENJOY WHISTLER AND THE SYMPOSIUM

Michelle Kutzler, Pierre Comizzoli and Patrick Concannon
For the ISCFR International Organizing Committee
ISCFR VII International Organizing Committee

Michelle Kutzler, Oregon State University, USA
Pierre Comizzoli, Smithsonian Institutes, USA
John Verstegen, Minitube of America, USA
Gary England, University of Nottingham, UK
Patrick Concannon, Cornell University and International Veterinary Information Service, USA

EVSSAR XV - North America 2012 Congress Planning Committee

Wojciech Nizanski, Wroclaw, POL, Chairman
Tom Rijsselaere, Ghent, BEL
Xavier Levy, L'Ile-Jourdain, FRA
G. Cecilia Luvoni, Milan, ITA
Sabine Schaefer-Somi, Vienna, AUT
Alain Fontbonne, Alfort-Paris, FRA
Angelika von Heimendahl, Cambridge, UK
Susi Arnold, Zurich, SUI

ISCFR Program Committee

Pierre Comizzoli, Smithsonian Institutes (Co-chair)
Michelle Kutzler, Oregon State University (Co-chair)
Tom Rijsselaere, Ghent University
Barbara Durrant, San Diego Zoological Society
Bruce Murphy, Univ. of Montreal, FMV, CRRA
Travis, Cornell University, CVM
Cathy Gartley, OVC, Univ. of Guelph
Xavier Levy, CRECS, L’Isle-Jourdain, France
Cecilia Luvoni, University of Milan
Patrick Concannon, IVIS, ISCFR IOC

“ISCFR-Whistler 2012” - North American Symposium Planning Committee

Cheryl Asa, St Louis, MO
Vickie Meyers-Wallen, Ithaca, NY
Pierre Comizzoli, Washington, DC
Cathy Gartley, Guelph, ON
Bruce Eilts, Baton Rouge, LA
Rosa Paramo, Mexico City, MX
Alex Travis, Ithaca, NY
Karen Goodrowe, Tacoma, WA
Bruce Murphy, Ste. Hyacinth, QUE
Carlos Gradil, Amherst, MA
Michelle Kutzler, Corvallis, OR
John Verstegen, Verona, WI
Patrice Concannon, Ithaca, NY

EVSSAR Executive Board 2011-2012

Wojciech Nizanski, POL, President
Susi Arnold, SUI, Treasurer
Tom Rijsselaere, BEL, Secretary
Michela Beccaglia, ITA, Editor
Xavier Levy, FRA
Vibeke Rootwelt, NOR
Catherine Lefevre, BEL
Ragnvi Hagman, SWE

ISCFR - 2012 Abstract Review Committee

Eva Axner, Uppsala, Sweden
Patrick Concannon, Ithaca, USA
Autumn Davidson, Davis, USA
Jeffrey De Gier, Utrecht, Netherlands
Gary England, Nottingham, England
Sandra Goericke-Pesch, Giessen, Germany
Angelika von Heimendahl, Cambridge, England
Angela Hughes, Portland, USA
Pete Irons, Onderstepoort, South Africa
Katarina Jewgenow, Berlin, Germany
Michelle Kutzler, Corvallis, USA
Marcelo Luz, Belo Horizonte, Brazil
Steven Metcalfe, Perth, Australia
Vicki Meyers-Wallen, Ithaca, USA
Rosa Paramo, Mexico City, Mexico
Karin Reynaud, Paris, France
Sabine Schaefer-Somi, Vienna, Austria
Donald Schlafer, Ithaca, USA
Juliana Thurowczy, Budapest, Hungary
Camila Vanucci, Sao Paulo, Brazil

Proceedings of the 7th International Symposium on Canine and Feline Reproduction - ISCFR, 2012 - Whistler, Canada
ISCFR - 2012 Proceedings Scientific Review Committee

Joerg Aurich, Vienna, Austria
Michaela Beccaglia, Milan, Italy
Beate Braun, Berlin, Germany
Samuel Buff, Lyon, France
Pierre Commizzoli, Washington, DC, USA
Patrick Concannon, Ithaca, USA
Isabel Cunha, Campos, RJ, Brazil
Bruce Eilts, Baton Rouge, USA
Gary England, Nottingham, UK
Wenche Farstad, Oslo, Norway
Cristina Gobello, La Plata, Argentina
Martha Gomez, New Orleans, USA
Anne Rose Guenzel-Apel, Hannover, Germany
Bernd Hoffmann, Hannover, Germany
Mariuz Kowalewski, Zurich, Switzerland
Michelle Kutzler, Corvallis, USA
Catharina Linde-Forsberg, Uppsala, Sweden
Gaia Cecilia Luvoni, Milan, Italy
Jan Mol, Utrecht, Nederlands
Bruce Murphy, St Hyacinthe, Canada
Wojciech Nizanski, Wroclaw, Poland
Johann Nothling, Pretoria, South Africa
Auke Okkens, Utrecht, Nederlands
Tom Rijsselaere, Ghent, Belgium
Sudson Sirivaidyapong, Bangkok, Thailand
Nucharin Songsasen, Washington, DC, USA
Hasan Besim Sontas, Istanbul, Turkey
Maria Alejandra Stornelli, La Plata, Argentina
Bodil Ström Holst, Uppsala, Sweden
Hiroshi Suzuki, Obihiro, Japan
William Swanson, Cincinnati, USA
Maria Magda Wanke, Buenos Aires, Argentina
Patrick Wright, Melbourne, Australia

ISCFR - 2012 Editorial Committee

Gary England, University of Nottingham, Sutton Bonnington, UK, Chairman
Michelle Kutzler, Oregon State University, Corvallis, USA
Pierre Comizzoli, Smithsonian Institutes, Washington, DC, USA
Patrick Concannon, Cornell University and International Veterinary Information Service, Ithaca, USA
Welcome from the EVSSAR President

Dear Colleagues
On behalf of the EVSSAR Board I am honoured to welcome you to the 7th Quadrennial ISCFR-15th EVSSAR Congress in Whistler on 26-29 July 2012, organized as a Satellite Meeting to ICAR 2012 which takes place in Vancouver (Canada).

I hope you will enjoy all the carefully planned Sessions, which are mainly focused on the particular area of interest for people involved in small animal reproduction. I am deeply confident, that the program is interesting not only to the veterinary researchers and practitioners, but also to biologists, biotechnologists, geneticists, breeders and all the others involved in the carnivore veterinary science. This scientific programme has been prepared with the aim of bringing together those actively engaged in clinical work and in experimental research and to indicate possible new directions of science in our area of interest.

This Symposium is the result of skillful and proficient work, along with passion and exclusive scientific experience of the ISCFR – International Organizing Committee Founding Members - Prof. Patrick Concannon, Prof. Gary England and Prof. John Verstegen, as well as members of the Programme Committee, with Chairpersons - Prof. Michelle Kutzler and Prof. Pierre Commizzoli and the Local Organizing Committee. We are honored that EVSSAR is a co-organizer of this great event. The arrangements have also been supported by authorities working for the Abstract Review Committee, Scientific Committee and Ad-Hoc Organizing Committee, whom the EVSSAR Board would like to thank gratefully for their huge commitment in this event.

Certainly, the Symposium would not be possible without the generous support of our sponsors. We are very grateful to all of them for their assistance in organizing of this event.

The Annual General Assembly of EVSSAR will be held on July 28th at 18.30 in Room A, and we hope that you all will be able to participate. The final voting for the new EVSSAR Board member takes place during that meeting.
We would also like to deeply thank Prof. Susi Arnold - EVSSAR Treasurer, who leaves the Board this year, for her great work for the Board. Thank You!

I wish you a very pleasant and unforgettable stay in Whistler.
Wojciech Niżański,
EVSSAR President

Agenda for the General Assembly of the EVSSAR

Whistler, July 27th, 2012

1/ Opening of the General Assembly and approval of the agenda
2/ Approval of the minutes from the 14th General Assembly (Milano, Italy)
3/ Annual report from the President
4/ Annual report from the Treasurer
5/ Annual report from the Secretary
6/ Election of Board Member
7/ Questions and motions
8/ Next meeting
9/ Closing of the General Assembly
NEW EVSSAR HONORARY MEMBER

Professor Gary C W England, BvetMed, PhD, DvetMed, DVR, CertVA, DVRep, Dipl ACT, Dipl ECAR, FHEA, FRCVS

Dr. Gary C W England obtained his Bachelor of Veterinary Medicine at the University of London in 1986 and his PhD at the University of London in 1990.

Dr. England is a Veterinary Surgeon who graduated from the Royal Veterinary College, University of London and who has been a member of the Royal College of Veterinary Surgeons since 1986. He also holds a Diploma of Fellowship of the Royal College of Veterinary Surgeons (1993), Diploma in Veterinary Radiology, Royal College of Veterinary Surgeons (1993), a Diploma in Veterinary Reproduction, Royal College of Veterinary Surgeons (1995), a Specialist Register of the Royal College of Veterinary Surgeons (1996) and a DVetMed, University of London (1997).

Dr. England is a Diplomate of the American College of Theriogenology (1995) and a Diplomate of the European College of Animal Reproduction (1999). He is also a member of the British Veterinary Association and a Member of the Institute of Teaching and Learning (2001).

Dr. England chairs Research Advisory Committees for the Prostate Cancer Charity and the Guide Dogs for the Blind Association and is a Scientific Advisor for Mars Petfoods.

Dr. England has published over 150 publications (excluding abstracts) and editor or co-editor of several books, including the Proceedings of the International Symposium on Canine and Feline Reproduction. His research interest is in the field of reproductive biology in dogs and horses. This work is designed to both enhance and to control fertility in these species. In dogs his work studies peri-ovulatory physiology, cryopreservation of gametes, sperm transport and sperm-oocyte interaction. His was the first group to perform in-vitro fertilization in dogs. In horses his work studies follicular dynamics, ovulation, and sperm transport within the female reproductive tract.

Dr. England is an academic clinician who worked at the Royal Veterinary College, University of London from 1986 until 2002, and then joined the Guide Dogs for the Blind Association until 2005. In 2005, he joined the University of Nottingham as the Foundation Dean of the School of Veterinary Medicine. While at Notts he has taught didactic and laboratory courses, written and edited several books, directed graduate research, and maintained his own research programme in addition to leading the School to accreditation and its second graduating class. He is the chairman of the ISCFR 2012 Editorial Committee and a member of the ISCFR International Organizing Committee.

Dr. England is also one of the eight Founding Members of EVSSAR, and a most fitting recipient of the EVSSAR society’s highest distinction.
The Michelson Prize & Grants in Reproductive Biology

Apply for Research Grants

THE MICHELSON GRANTS
The Foundation seeks proposals for up to $250,000 per year for up to 3 years of funding for research in pursuit of permanent contraceptives for male and female cats and dogs. The first step in the Michelson Grant process is submission of a Letter of Intent (LOI).
For further details, visit: http://michelson.foundanimals.org.

THE MICHELSON PRIZE
A $25 million prize will be awarded to the first entity to provide to Found Animals a safe, effective, and practical non-surgical sterilant for use in cats and dogs. The winning entry for the Michelson Prize in Reproductive Biology must meet the following criteria:

- Single dose, permanent non-surgical sterilant
- Safe and effective in male and female cats and dogs
- Suitable for administration in a field setting
- Viable pathway to regulatory approval
- Reasonable manufacturing process and cost

For more information about the Michelson Prize & Grants, visit:
http://michelson.foundanimals.org
BREED SMART

For over 40 years Minitube has pioneered the development of assisted reproduction technologies through the research and development of the highest quality products and services. Minitube is an industry leader and innovator in providing products, services and education to support canine reproduction.

Contact Minitube today | 800.646.4882 www.minitube.com
Global breeding – made easier on everyone

Breeding can be stressful on animals and breeders, but Synbiotics worldwide reproduction services make everything about it simpler.

We ship frozen canine semen to 30 countries around the world to meet global veterinary breeding needs. And our diagnostic and reproduction products are some of the most innovative in the world.

Be part of it
Learn more about joining the Synbiotics reproduction network.

Become a Synbiotics freeze center and join the leader in reproduction services.

- Global shipping and permanent storage of frozen semen
- The world’s largest and most secure AKC-approved storage facility
- Unmatched in-clinic diagnostics:
  - WITNESS® RELAXIN pregnancy testing
  - WITNESS® LH ovulation timing
- AI products
- FRESH EXPRESS® kits for collection and shipping of fresh-chilled semen

Mischa simply detests jet lag.
Optimal Selection™ is a tool to help breeders choose more optimal pairings by using cutting edge genetic technology to look beyond pedigrees. By examining the chromosomes of potential breeding matches and making “virtual” crosses to see what can be produced, Optimal Selection gives breeders “peace of mind” while taking away the guess work, allowing them to make more educated selections. This service helps breeders maintain their individual breed standards and desired traits while helping to improve their breeding programs and produce healthier dogs.

In a pilot study working with the Dandie Dinmont Terrier Club of America, Optimal Selection was used to help the breeders select mates. This program has been very successful producing champions while improving the puppies’ diversity and enhancing fertility.

Optimal Selection helps breeders dedicated to selecting the best for both their program and their breed. We already select for best possible type, temperament, health, and soundness. Now, using Optimal Selection, we have a brilliant means for choosing genetic diversity as well. This is thrilling especially for breeders passionate about numerically endangered breeds and their overall health and wellness. I couldn’t be happier with the results!

Miriam Couto
Clossongrey Dandie Dinmont Terriers

- Available for over 150 breeds
- Price: $95 per dog, free unlimited virtual matches
- www.OptimalSelectionDNA.com

Mars Veterinary is a proud sponsor of ISCFR 2012
IVIS is proud to be chosen
as the internet publisher
of the 2008 Vienna and 2012 Whistler
ISCFR Symposium Abstracts