AETE
Association Européenne de Transfert Embryonnaire
European Embryo Transfer Association

July 2014 **A.E.T.E. NEWSLETTER N°41** **Editor: Dimitrios Rizos**

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A.E.T.E. Newsletter
Dimitrios Rizos, Editor
email: drizos@inia.es
N° 41 July 2014
A biannual published by the
European Embryo Transfer Association
Web Site: http:// www.aete.eu
Letters to the Editor are welcomed.
Please include name, address, telephone, FAX, and E-mail address

President's letter

Dear Colleagues, dear friends,

Time is flying – and this year - we will perform our 30th annual meeting. Thirty years ago, Apple introduced the Macintosh with the promise to put the creative power of technology in everyone's hands. It launched a generation of innovators who continue to change the world. Reflecting on the same year - 1984 and reflecting on three decades: who would have dreamt to see the AETE and the ET industry so well and alive 30 years later? The sustainable development of the ET industry in Europe is associated to the success story of the AETE which has had very well attended annual meetings in France and in other European countries. Our this-year-meeting will be held in Dresden in the Hilton-Hotel from the 12th to the 13th of September. The board members of AETE, the local organizing committee from the breeding organization Masterrind GmbH and the Leibniz Institute for Farm Animal Biology, FBN, Dummerstorf are honored to hold this anniversary meeting in Germany – It gives us a great pleasure to extend to you our warmest welcome to attend our conference in Dresden. We believe this meeting will offer opportunities to our members and all other participants to meet and to discuss the diverse topics of ET and all relevant associated fields.
Dresden is a vibrant city and belongs to the top five touristic destinations in Germany. It is truly a charming city, in which everyone will lose its heart. It is more famous for its history than as a big must-

see tourist destination like the German capital - Berlin. And be aware: Dresden is also a capital. It is the capital of Saxony. Saxony has a long history as a duchy, an electorate of the Holy Roman Empire and as a kingdom - the Kingdom of Saxony. So it would be a shame to miss out this exciting baroque city, which has undergone a major rebirth since its nearly complete destruction during World War II. Dresden is also a hotspot of culture - there are 56 galleries, 44 museums, and 36 theaters to choose from! However if you prefer a different culture – there are uncountable beer gardens, vineyards and local as well as international shops. Therefore it is very attractive for many tourists – consequently: do not forget to order your hotel reservation in time. In addition Dresden is easily accessible: by plane, by train, by coach, by car. Please visit the AETE web site (www.aete.eu) for more detailed information about Dresden, the hotels and travel information. The venue of our meeting – The Hilton Hotel (www.hiltonhotels.de) - is located directly in the center of the city. The world famous Frauenkirche and many other important places are only a stone's throw from there.

The Scientific Committee of the AETE has developed a truly unique and inspiring program. We very much believe the ultimate success of the program is dependent on all of you who have actively joined and who have volunteered with enthusiasm to contribute. As a well-established and accepted frame the scientific program is structured in five invited lectures with integrated 3 - 4 short oral communications and two workshops. We nominated the short presentations from more than 60 submitted abstracts, which will be included in the proceedings.

We hope that Michel Thibier will be able to come to Dresden to give our first invited lecture - overviewing three decades of AETE, our French roots, our European development and to give some recommendations to continue our further development. Michel is one of the most important grandfathers of this AETE success story – it would be nice to have him there. Michel – we wish you all the best and first of all a good recovery and good health!

Other invited lectures will focus on the impact of elevated temperatures on the development of oocytes and embryos – given by Zvi Roth from Israel. From a practical point of view we think, that the ET has a major impact on genomic selection of farm animals. However genomic selection is characterized as well by revolutionary elements as by different limitations. I am sure Sander de Roos from the Netherlands will give a good overview about this interesting and predominant topic, which is closely associated with the development of ET activities in Europe and overseas. Furthermore, the cryopreservation has advanced extensively in the last decades. Pictorially speaking, embryos 'like' to be either in the uterus or in liquid nitrogen. Equally, oocytes would rather be in the follicle, oviduct - ready for fertilization - or in liquid nitrogen too. Otherwise there are potentially damaging threats. However, we know there are also major damaging factors, which occur during cryopreservation. Teresa Mogas from Spain will deliver new insights into this long-running issue of ET. For me a further highpoint of our Dresden meeting will be to follow the presentation of our 2014 AETE Pioneer - Klaus Brüssow. For the first time we will honor a pioneer in the field of porcine ET. I have never met anyone else with such experience and such a well-based knowledge in porcine reproduction. I have never met someone who plans his experiments so exactly, writing his papers with so much meticulous effort. So – I am very happy to overhand the award to a close friend. The two workshops – managed by experienced board members, Serge Lacaze and Jo Leroy – will focus on major aspects of our practical approach regarding bovine ET. Serge will analyze a questionnaire from European colleagues regarding Genotyping of embryos and will discuss the outcome with our participants. Jo will pay attention to the important aspect of feeding strategies to improve oocyte and embryo development.

Likewise you should not miss our traditional student competition. The board has selected again four abstracts and it is inspiring to see over the years the personal and professional development of our students within our scientific family. Some promising careers have been started with participation or even a triumph in our AETE competition.

The social events are also legendary during our AETE meetings. It is not easy for the LOC´s to overtrump every year the outstanding events from the last year. And it is also not the attitude of the board to stimulate it. But do not be afraid: This year we will have a nice Gala diner in the hall of the museum "Deutsches Hygienemuseum" (www.dhmd.de). It is also not far from our conference venue – gives us the possibility for a 10 minutes' walk through a beautiful town after a hard

scientific day - and is a complete stylistic break in relation to the baroque character of the whole city. And of course we ordered a fantastic band. We are planning a second social evening on Saturday as well –visiting the The Green Vault - Grünes Gewölbe, renowned as one of the richest treasure chambers in Europe. Since the new opening in 2006, more than 3 million visitors have admired the treasures held there. They were fascinated by the radiance and opulent magnificence of these exceptional works of art. And we will end our meeting with the taste of a typical Saxon beer or wine.

So I am sure, that you will soon feel the special sense we share in belonging to our AETE family - and to share it in a nice scientific and social atmosphere within a unique city – in DRESDEN.

Finally I would like to thank Frank Richter from MASTERRIND and the local organizing committee, the board members of the AETE as well as the Sponsors for all their efforts to arrange an anniversary conference in Germany. Thank you for joining us and see you in Dresden.

Kind regards

Frank BECKER

President A.E.T.E

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Increased Flexibility of equine oocyte maturation procedure for in vitro production of equine embryos by Ovum Pick Up-ICSI

Cesare Galli[1,2,3] and Giovanna Lazzari[1,3]

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Introduction

Equine assisted reproductive technologies such as Ovum Pick, Intracytoplasmic Sperm Injection (ICSI) and slow freezing of in vitro produced embryos have been developed over the last few years. Contrary to cattle, in which the availability of experimental ovaries collected at the abattoir has virtually no limit, in equine it is very difficult and laborious to recover experimental oocytes for practising these technologies in order to acquire the confidence and the reliability necessary to offer a successful commercial service. This explains why relatively few teams are providing these services to breeders although there is a growing interest in the application of these technologies. Often the clinical team that can perform the oocyte collection has no access to a nearby laboratory where the oocytes can be processed in due time for ICSI and where the embryos can be cultured in CO2 incubators up to the blastocyst stage. In this case shipping oocytes from the site of collection to the ART laboratory is the only option that requires however a complicated logistics to respect the conditions (transport in a portable incubator at 37-38°C) and the limit of approximately 24-28h from collection to completion of oocyte maturation that corresponds to the time when ICSI has to be performed. This is made more challenging if oocytes from several donor mares are recovered by the same team over several hours meaning that each batch of oocytes will reach the metaphase II stage at different time and perhaps night time. Therefore a method for holding the oocytes at room temperature to delay the onset of maturation could be advantageous giving the possibility of synchronizing batches of oocytes recovered at different timing and also providing more time for transporting oocytes from the site of collection to the ART laboratory and requiring less strict temperature control during shipment. The possibility of delaying oocyte maturation has been previously explored using Roscovitine a potent cyclin –dependent kinases inhibitor, and more recently simply mantaining the oocytes at room temperature in holding media (Foss et al., 2013). In our laboratory we have verified this procedure (Galli et al., 2014) examining chromatin configuration, maturation and developmental competence of equine oocytes collected from abattoir ovaries after 18 h of holding at room temperature prior to in vitro maturation (IVM) versus control oocytes recovered and transferred in IVM without a holding period.

Materials and methods

- *Oocyte holding and maturation*

Oocytes were recovered from abattoir ovaries by scraping and washing each follicle ranging from 0.5 to 2.5 cm in diameter. Collected oocytes were washed in hepes buffered synthetic oviductal fluid (H-SOF) medium and transferred immediately after collections in IVM medium for 24 h (CTR) or held at room temperature (22-25 °C) for 18 h in H-SOF and then matured in IVM for 24 (Holding treatment, HT). Both groups were matured in vitro in DMEM-F12 based medium at 38.5°C in a humidified atmosphere containing 5% of CO2 in air (Galli et al., 2007). Part of the oocytes immediately after recovery or after the holding treatment, were decumulated and stained with Hoechst to assess chromatin configuration under UV light. After IVM cumulus cells were removed and the oocytes with a polar body were fertilised by ICSI. The experiment was replicated 3 times.

- *Sperm preparation*

Frozen semen of a fertile stallion was used and live sperms were isolated by swim up procedure. Straws were thawed in water at room temperature and 100 µl of semen were placed on the bottom of a round tube containing 1 ml of TALP Ca free. Semen was incubated at 38.5°C for 1 h, then 800 µl were collected from the top of the medium, diluted in 5

ml of TALP Ca free and centrifuged. The sperm pellet was re-suspended in TALP IVF medium and diluted 1:1 in PVP 12% in PBS just before injection.

- *ICSI and Embryo culture*

Oocytes were fertilized using a piezo-driven micromanipulator. Single spermatozoa with normal morphology were immobilized by piezo pulses and injected into the cytoplasm after piezo drilling to cut zona pellucida and penetrate the oolemma. Injected oocytes (day 0) were cultured in modified SOF medium supplemented with BSA and MEM amino acids (Lazzari et al., 2002). The medium was partially changed at day 4 and 6. Cleavage rate was evaluated 48 hr post injection and blastocyst development at day 7, 8 and 9. Blastocyst were frozen in glycerol with a 2 steps procedure (5% and 10% glycerol in H-SOF) in a methanol freezer.

Results

Morphological evaluation of immature oocytes indicates that the HT does not induce relevant changes in the chromatin configuration. Most of the oocytes showed condensed GV chromatin in both groups (46.4% CTR and 55.6% HT), but in the holding treatment there was a higher number of degenerated oocytes (17.9% CTR vs 33.3% HT).

Meiotic and developmental competence: the results showed a statistically significant difference in the number of matured, degenerated and non matured oocytes in favour of the conventional IVM treatment (58.4% CTR vs 43.9% HT, 33.6% CTR vs 42.8% HT and 8,0% CTR vs 13.3% HT respectively) indicating that probably already partially compromised oocytes are less tolerant to the holding treatment. Nevertheless the overall developmental rate calculated as number of blastocysts on total number of oocytes at the beginning of the experiment, was not significantly influenced by the treatment (15.2% CTR vs 13.6% HT) (Table 1). The kinetics of blastocyst development was slightly delayed in the HT group as shown in Table 2.

Conclusion

Holding of immature oocytes at room temperature prevents resumption of meiosis allowing to synchronize the onset of IVM of different batches of oocytes and providing a more flexible schedule for oocyte transportation from the site of collection to the ART laboratory. Analysis of chromatin configuration showed a shift from fibrillar/intermediate to condensed configuration in the HT oocytes, indicating a progression towards meiotic resumption (Love et al., 2002). In fact, also in other species, progressive chromatin condensation is associated, in vivo, with the acquisition of oocytes meiotic and developmental competence during folliculogenesis (Lodde et al., 2007). After in vitro maturation fewer HT oocytes reached metaphase II, with an increase of the number of degenerated and non matured oocytes. Development to blastocyst stage instead was not significantly influenced by the treatment, since also with a reduced number of matured/injected oocytes the overall development was similar for HT and CTR oocytes. All together these data indicate that a holding treatment of 18 h at room temperature of equine oocytes seems to select the most competent oocytes whitout affecting their developmental competence.

Our findings reinforce previous work (Choi et al., 2006; Foss et al., 2013) on the possibility of using this approach to schedule oocyte maturation at fixed times. This method of delaying oocyte maturation and allowing more time for transport of the oocytes from the site of collecton to the ART laboratory can increase the application of the OPU-ICSI technology over the coming years.

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Table 1. Effect of holding treatment on maturation and developmental competence of equine oocytes

Treatment	Total No. of oocytes	No. MII-Injected (%)	No. Deg (%)	No. NM (%)	No. Cleaved (%)	Total No. of Blastocyst	% Bl/Clea v	% Bl/Inj	% Bl/Tot
CTR	250	146 (58.4) a	84 (33.6) a	20 (8.00) a	108 (73.97)	38	35,19	26,03	15,2
HT	346	152 (43.93) b	148 (42.77) b	46 (13.29) b	110 (72.37)	47	42,73	30,92	13,58

Numbers in columns with different letters statistically differs (ChiSquare Test $p<0.05$)
(Modified from Galli et al. 2014)

Table 2. Effect of holding treatment on the timing of blastocyst development

Treatment	No. Day 7 (%)	No. Day 8 (%)	No. Day 9 (%)	Total number of blastocyst
CTR	21 (55.26)	13 (34.21)	4 (10.52) a	38
HT	21 (44.68)	13 (27.65)	13 (27.65) b	47

Numbers in columns with different letters statistically differs (ChiSquare Test $p<0.05$)
(Modified from Galli et al. 2014)

Cattle embryo production with sex-sorted semen

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Annually 350-500 embryo collections and 3000-4000 embryo transfers are performed in Finland, mostly on dairy breeds, Holstein and Ayrshire. These numbers reflect a quite frequent activity in a country with only 280 000 dairy cows. Majority of embryo collections, more than 70 %, are performed on virgin heifers, and the proportion of heifers seems to increase year by year, as genomic selection facilitates the breeding decisions of farmers. Sex-sorted semen has been used open-mindedly among Finnish farmers for superovulated donors in Finland since year 2008. Recently, of embryo collections on commercial farms, more than 30 % are performed on donors inseminated with sexed semen. The average herd size on Finnish dairy farms is only 28 cows, limiting the number of animals applicable as recipients on small farms. The limited availability of recipients may encourage farmers to use sex-sorted semen more frequently than in many other countries, since the same number of female calves can be achieved with a lower number of recipients.
Pregnancy rate after insemination with 2 million sexed sperm is generally about 80 % of what is achieved by conventional semen under excellent management conditions (Seidel, 2014). When inseminating superovulated animals, the quality and dose of semen and timing of insemination is of great importance, because fertilization rate is compromised in superovulated animals (Sartori et al., 2010). The lower fertility limits the use of sex-sorted semen for superovulated animals.

We studied the data of 1487 commercial embryo collections performed in Finnish dairy herds between January 2008 and December 2011 (Kaimio et al., 2013). The collections were performed on 633 and 854 animals of Holstein and Finnish Ayrshire breeds, respectively. The donors were deep uterine inseminated mainly three times with sex-sorted frozen-thawed semen (n=218) or twice with conventional frozen-thawed semen (n=1269, controls). Donors inseminated with sex-sorted semen consisted of 130 heifers and 88 cows (22 first parity and 66 multiparous animals), while in the control group there were 945 heifers and 324 cows.
Superovulation and embryo recovery were performed by standard protocols. Estrus was induced with an injection of prostaglandin $F_{2\alpha}$ or a synthetic agonist along with the sixth or seventh FSH treatment. Inseminations were started 12 h after the onset of standing estrus. The donors were inseminated two or three times 9 to 15 hours apart. When using conventional semen, an artificial insemination technician or a farmer inseminated the animal with one dose of semen at a time into the uterine corpus. When using sex-sorted semen, an embryo transfer technician performed the inseminations. Instructions for the use of sex-sorted semen were to inseminate three times with 2+2+1 straws. When two straws were used at a time, each uterine horn received one straw and when one straw was used, the content of the straw was divided between the two uterine horns. Embryo flushing was performed 7 days after AI. Recovered ova/embryos were evaluated according to the IETS classification system.
Semen doses used for AIs were commercially produced at several AI centers and doses of several bulls were used. The majority of the conventional semen straws contained 15 million spermatozoa. The total number of conventional sperm used per donor was 30 (to 45) million. Sex-sorted semen straws contained 2 million spermatozoa, and the total number of sex-sorted sperm used for each embryo recovery attempt was 8 to 12 million sperm.
In heifers, the mean number of transferable embryos was numerically 1.1 embryos lower when sex-sorted semen was used compared to conventional semen (Table 1.). However, this was not significantly different. In cows, there was a clear decline ($P \leq 0.001$) of 4.2 transferable embryos when using sex-sorted semen compared with conventional semen. The number of UFOs was higher when using sex-sorted semen than with conventional semen both in heifers ($P<0.01$) and in cows ($P<0.05$). Also, in cows the number of degenerate embryos was significantly higher ($P<0.01$) when using sex-sorted semen. As a consequence, in cows the percentage of transferable embryos out of all embryos/ova recovered was only 45% with sex-sorted semen, while it was 70% with conventional semen. When the embryo recovery results were compared

between the first parity and older cows, no significant differences were found. Bull or AI center had no significant effect on embryo recovery results when using sex-sorted semen.

Table 1. Mean numbers of transferable embryos, degenerate embryos and unfertilized oocytes (UFO) in recoveries from heifers and cows bred with sex-sorted versus conventional semen. (% per total embryos/UFOs)

	Heifers			Cows		
	Sex-sorted (n=130)	Conventional (n=945)	P	Sex-sorted (n=88)	Conventional (n=324)	P
Transferable	6.1 (59)	7.2 (63)	n.s.	4.9 (45)	9.1 (70)	<0.001
Degenerated	1.6 (15)	1.9 (17)	n.s.	2.4 (22)	1.5 (11)	<0.05
UFOs	2.8 (26)	2.3 (21)	<0.01	3.6 (33)	2.5 (19)	<0.01
All	10.6 (100)	11.4 (100)		10.9 (100)	13.0 (100)	

n.s. = non-significant

Upcoming Events

EPICONCEPT – Conference 2014
Epigenetics and Periconception Environment
COST Action FA1201
1-3 October 2014,
Vilamoura, Portugal
For more information, please visit the IETS web site at: http://cost-epiconcept.eu/conference_2014.html

American Embryo Transfer Association **(AETA)** & Canadian Embryo Transfer Association **(CETA/ACTE)**
Joint Scientific Convention
October 6-8, 2014
Marriott Madison West
Middleton, Wisconsin, USA
For more information, please visit the CETA/ACTE web site at: http://www.ceta.ca/convention.html
or the AETA web site at: http://www.aeta.org/2014/

41st Annual Conference of the International Embryo Transfer Society **(IETS)**
January 10-13, 2015
Versailles, France
Au Palais des Congres de Versailles
For more information, please visit the IETS web site at: http://www.iets.org/2015/

Invitation to the 30th Annual Scientific Meeting of AETE, September 12th to 13th 2014 in Dresden Gernmany

Local Organization committee

Dr. Frank Becker
Leibniz Institute for Farm Animal Biology (FBN), 18196 Dummerstorf, Germany

Dr. Frank Richter
MASTERRIND GmbH, Hohenfichte, 09573 Leubsdorf, Germany

Dear colleges and friends,

On behalf of the European Embryo Transfer Association the local organizing committee cordially invites you to the 30th scientific meeting of the organization in Dresden, Germany, from the 12th to the 13th of September 2014.

For further information about the conference visit the AETE website www.aete.eu
http://aete.eu/meetings.php
http://aete.eu/iscrizioni2010.php
http://aete.eu/Announcing_Form.pdf

Yours sincerely

AETE LOC

The 30th Scientific Meeting of the AETE

Will be held in

Dresden, Germany 12th-13th September 2014

The Conference Location

HILTON DRESDEN

AN DER FRAUENKIRCHE 5,
01067 DRESDEN, GERMANY
TEL: 49-351-86420 FAX: 49-351-8642 725
Email us

Located in downtown Dresden, overlooking the famous Frauenkirche (Church of Our Lady), the Hilton Dresden hotel provides modern comfort and technology in the center of this historic and vibrant city. In close proximity to Dresden's main railway station and well positioned for access to the city's extensive tram network, this hotel gives you the freedom to make the most out of your time in Dresden.

http://www3.hilton.com/en/hotels/sachen/hilton-dresden-DRSHITW/index.html

HOW TO GET HERE FROM THE AIRPORT

Dresden, Germany

DIRECTIONS

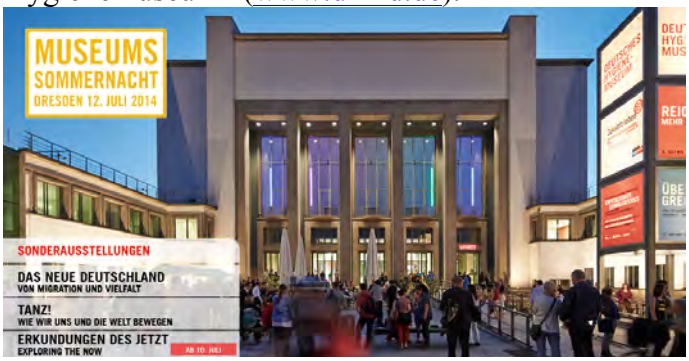
From Dresden Klotzsche Airport follow signs for Zentrum, then go over Carola Brucke Bridge. Turn left at first traffic lights and follow signs to the Hilton Dresden hotel.

Distance from Hotel:
10 km.
Drive Time:
20 min.

Type	Typical Minimum Charge
Bus Service	1.90 EUR
Subway/Rail	1.90 EUR
Taxi	20.00 EUR

Friday 12th September 2014

Gala diner in the hall of the museum "Deutsches Hygienemuseum" (www.dhmd.de).



Saturday 13th of September 2014

Visit the The Green Vault - Grünes Gewölbe, renowned as one of the richest treasure chambers in Europe ending our meeting with the taste of a typical Saxon beer and wine.

Through careful restoration and partial reconstruction, the Historisches Grünes Gewölbe, which was largely destroyed in the Second World War, has been returned to its former glory. In keeping with the splendid architecture, around 3,000 masterpieces of the jeweller's and the goldsmith's art, as well as precious objects made of amber and ivory, gemstone vessels and elegant bronze statuettes are presented without showcases in front of ornate mirrored display walls.

Accommodation:-

A list of hotels nearby the Congress hotel, **HILTON DRESDEN** is available in AETE web site: http://aete.eu/iscrizioni2010.php
or by: www.booking.com.
We look forward to seeing you in Dresden.
Frank Becker, FBN, Dummerstorf, Germany
Frank Richter, Masterrind GmbH, Hohenfichte
Local Organizing Committee.

Language

The official language of the conference is English.

Scientific Secretariat

AETE board

REGISTRATION FEES

Dresden, Germany 2014	Euros
Full/Associate Member **Before** *16th July 2014*	**290 €**
Full/Associate Member **After** *16th July 2014*	**340 €**
Student Member **Before** *16th July 2014*	**140 €**
Student Member **After** *16th July 2014*	**155 €**
2014 Membership Fee ***Members who pay their annual fee but do not attend the Meeting will receive a copy of the proceedings***	**90 €**
2014 Accompanied Person	**120 €**

This price includes:

- membership fee
- participation at the Meeting (two full days)
- two workshops
- published proceedings
- lunch and coffee breaks
- social events

Fees for Sponsoring AETE Meeting

Main Sponsor	**7 500 Euros**
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Exhibitors	**1 900 Euros**
Supporters	**1 000 Euros**

Costs for advertisement in the Newsletter (2 issues) for one year (mailed to ~700 members)

Full color back page	**800 Euros**
Full inside color page	**600 Euros**
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Thanks to all our sponsors!

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AETE

Association Européenne de Transfert Embryonnaire

European Embryo Transfer Association

30th Scientific Meeting

Hilton Dresden

An der Frauenkirche

Germany

PROGRAMME

12th and 13th September 2014

THURSDAY, September 11th 2014

19.00-20.00: Registration
19.00-22.00: Welcome Reception

FRIDAY, September 12th 2014

07.30-09.00: Registration

09.00-09.15: Opening meeting by the AETE President **Frank Becker**

SESSION 1 - Chairpersons: HIEMKE KNIJN & RAINER SANER

09.15-10.00: Anniversary lecture
Michel Thibier (France): The European embryo transfer industry in cattle – a challenge in 1984, a success in 2014- and well supported and reported by the AETE.

10.00-10.45: POSTER SESSION 1 and coffee break

10.45-11.30: First invited lecture:
Sander de Roos (Netherlands): Inbreeding, genotyping and genomic selection in dairy cattle breeding programs

11.30-12.15: Short oral communications (Breeding tools)
(1) R**eichenbach et al.:** Using genomic evaluation of bovine embryos as A breeding tool in A commercial program

(2) **Guignot et al.:** First birth after transfer of sexed and cryopreserved welsh pony blastocysts in France

(3) **Jaskowski et al.:** Clinical or ultrasound examination for selection of recipient heifers

12.15-13.30: Lunch

SESSION 2 – Chairpersons: IAN KIPPAX & JO LEROY

13.30-14.15: Second invited lecture:
Teresa Mogas (Spain): New insight on cryopreservation of oocytes and embryos

14.15-15.15: Short oral communications (Student Competition)
(1) **RodrÍguez et al.:** Improving embryo survival by assisted uterine embryo migration in Sarda ewe: a preliminary study.
(2) **Jordaens et al.:** Non-esterified fatty acids affect sperm binding capacity of bovine oviduct epithelial cells in two in vitro culture systems
(3) **Gamarra et al.:** Ovum pick up and in vitro embryo production following propylene glycol diet in heifers differing in their AMH profiles
(4) **Desmet et al.:** The effect of non-esterified fatty acids during in vitro culture on DNA methylation of bovine blastocysts

15.15-16.00: POSTER SESSION 2 and coffee break

16.00-17.30: Workshop I:– Feeding strategies to optimize oocyte and embryo development
Moderated by **Jo Leroy (Belgium)**

20:00: *Gala Dinner, in the Museum „Deutsches Hygienemuseum“*

SATURDAY, September 13th 2014

SESSION 3 – Chairpersons: SERGE LACAZE & MARIA DATTENA

09.00-09.45: Third invited lecture:
Zvi Roth (Israel): Insights into the cellular and molecular responses of bovine oocytes and embryos to elevated temperature

09.45-10.45: Short oral communications (Follicle and IVP)

(1) **Vernunft et al.:** Ultrasound-guided follicle injection: a method to proof results of bovine follicle cell cultures in an in-vivo model
(2) **Rozner and Verstegen:** Anti-Mullerian hormone (AMH) profiles and ovarian reserve or embryo production in Holstein cows.
(3) **Bernal et al.:** Effects of cyclic amp regulators during oocyte *in vitro* maturation on bovine embryo development and quality in prepubertal and adult donors
(4) **Lopera et al.:** Effect of bovine oviductal fluid on *in vitro* bovine embryo production

10.45-11.00: Sponsor presentation

11.00-11.30: General Assembly

11.30-12.00: POSTER SESSION 3 and coffee break

12.00-13.15: Lunch

SESSION 4 – Chairpersons: DIMITRIOS RIZOS & PETER VOS

13.15-14.00: Fourth invited lecture:
Klaus-Peter Brüssow (Germany): Footprints around embryo transfer in pigs

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14.00-14.15: Klaus-Peter Brüssow - AETE Medallist Presentation
introduced by **Jozsef Rátky (Hungary)**

14.15-15.00: Short oral communications (Semen and fertilisation)

(1) **Mullaart et al.:** Effect of cysteamine during in vitro maturation is dependent on the bull used for IVF

(2) **Ctvrtlikova-Knitlova et al.:** Spermatozoa improve mitochondrial status of mature bovine oocytes

(3) **Ortiz-Escribano and Van Soom:** Increasing sperm concentration has a positive effect on fertilization rates of vitrified-warmed mature bovine oocytes

15.00-15.15: Coffee break

15.15-16.45: Workshop II: Genotyping of embryos
Moderated by **Serge Lacaze and Daniel Le Bourhis (France**)

16.45-17.00: Closing session: Student Competition results and invitation to the AETE Conference 2014

19:00: *Farewell Party „Grünes Gewölbe“*

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