

AETE

Association Européenne des Technologies de l'Embryon

Association of Embryo Technology in Europe

Jan 2023 AETE Newsletter Issue 58

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PRESIDENTS LETTER

Dear friends and colleagues,

Last year, after two years of virtual meetings and travel restrictions, we could finally enjoy a physical and long-awaited gathering at the 38th annual AETE meeting in Utrecht. Kinepolis offered a unique venue for almost 200 participants in a cinema. The outstanding Local Organizing Committee, chaired by Hilde Aardema, enabled the success of the meeting. The LOC truly worked efficiently, and I want to thank all the members of this excellent LOC for all their efforts.

Editor: Roger Sturmey



Lively dinner

The attractive scientific program was built around a theme "The male side". Prior to the meeting, CRV arranged a preconference day at their embryo production facilities. Erik Mullaart and his CRV team did an amazing job with all the arrangements, and CRV's hospitality is highly appreciated. Thank you CRV!

During the 2-day conference, all the invited speakers gave excellent presentations inspiring the audience and encouraging to discussions. You will find a report of the scientific and social program of the conference in this Newsletter, so I will only briefly mention some acknowledgements here without further referring to the program. Marcella Milazzotto represented SBTE, our sister organization in Brazil, and I want to thank her as well as all invited speakers for their excellent presentations. The Pioneer Award was given to Prof. Hilary Dobson, and the laudatio was presented by Martin Sheldon. For Hilary's and Martin's presentations, our Technical Team, of Kaylee Nieuwland, Roger Sturmey and Hilde Aardema, prepared a smooth online connection, for which they deserve a big applause.

I would like to thank also Calier for supporting the Practitioner's forum and Esco Medical for the workshop *Rigor in the IVF laboratory*. AETE meetings are not only about a great scientific program, but we could also enjoy a fantastic social program at the Gala Dinner and a barbeque and farewell party, the latter sponsored by Vetoquinol. Thank you to all who made the meeting a success.



Galadinner at Speelklok museum, with some excited old board members at the right

I would like to share some statistics about the membership profile from Conftool of the Utrecht meeting. Of the species of interest among the meeting participants, 66% had their main interest in cattle. Horses, sheep, and pig represent the main interest of 7%, 5% and 4% of meeting participants, respectively. And regarding the affiliations, 30% of members were scientists, 20 % worked in the industry, 18% were students, and 15% practitioners and 15% other/not specified. Special thanks to our "Conftool Master" Jan Detterer for these statistics.

In the General Assembly, new board members were voted, and farewell was bid to Jo Leroy and Daniel LeBourhis, both of whom left the board after many years of dedicated service.



Jo Leroy and Daniel LeBourhis depart the board

The board welcomed new governors: James Quinn, Pascal Salvetti and Christine Wrenzycki.

A short poll was carried out to ask our members about preferred weekdays of our meeting, the frequency of the meetings and whether we should arrange hybrid meetings. You can find a short summary of the results of the poll in this Newsletter (see later). Recently, we have also been building a closer collaboration between AETE and the Health and Safety Advisory Committee (HASAC) of and have the **IETS** two European representatives in HASAC conveying information between the committee and AETE.

Right now, we are in full preparation to organize a great 39th AETE annual meeting that will take place at 7-8 September 2023 in Heraklion, Crete! The central theme of this meeting will be "The interplay between the environment and ART". We look forward to meeting you in Greece, please check the preliminary program. The Galaxy Hotel will offer a pleasant venue for the meeting as well as rooms for accommodation at short walking distance from the city center. The LOC, chaired by Prof. Georgios Amoiridis, together with a Professional Conference Organizer, Artion, are working intensively to prepare a meeting of high quality in an AETEatmosphere. You can find the invitation for the meeting in this Newsletter. We encourage all students to participate and to share their work with the society with supported (check out the AETE travel grant!) and affordable membership fees. We advise you to keep an eye on the website for updates according to abstract submissions (deadline May 1st), travel grant applications and the latest information for the upcoming meeting in Heraklion. So, please stay tuned.

Last but not least, I want to thank the board of governors for their commitment and persistent work for the society, often behind the scenes. We are a team of people from different backgrounds and specializations, sharing the same passion and working to keep the AETE ball rolling! I also want to thank all our members as well as sponsors who supported our meeting in Utrecht and hope to see you all again in Heraklion next September.

Marja Mikkola, President of AETE

AETE BOARD MEMBERS

President Marja Mikkola; Norway marja.mikkola@spermvital.com

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Autonomous University of Barcelona

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Spain

AETE Board members - 2022-2023



L:R Pascall Salvetti; Helene Quinton; Jane Morrell; Hilde Aardema; Marja Mikkola; Christine Wrenzycki; James Quinn; Teresa Mogas; Jan Detterer (Roger Sturmey not in photo)

For further details of the board, check out AETE.eu/about-us/board-of-governors/



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- Folltropin' was developed specifically for the superstimulation of domestic animals used in embryo transfer, based on the limitations of other gonadotrophin preparations available in the market. A great deal of effort has been expended over the years in improving superstimulaltion treatment protocols. Treatments have evolved from natural luteolysis to complete control of follicular development and ovulation. These advances have made superovulation treatment more "user friendly" and have helped in disseminating the application of embryo transfer technology throughout the world. A major advancement has been the purification of gonadotrophin products for the induction of superstimulation.
- Folltropin* is a purified pituitary extract that has been used successfully in breeds of cattle globally for 25 years.



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REFLECTIONS ON THE AETE 2022 IN UTRECHT

The two-day event located in Utrecht this year in a cinema setting created splendid opportunities for the excellent presentations that were given by all the speakers, helped by the immense screens that optimally visualized the presentations.

The two workshops and a parallel practitioners' forum, were a huge success with many attendees, and resulted in interactive and practical sessions around interesting topics. Calier supported the practitioners' forum and Esco Medical a workshop Rigor in the IVF laboratory. The location for the sponsors and posters in our 'living room' restaurant this year did the rest to create a nice and informal atmosphere with good food, drinks and social conversations among the many different sponsor booths and scientific posters during the breaks. In the General Assembly, new board members were voted in, and after many years we needed to say goodbye to Jo Leroy and Daniel LeBourhis, and the board welcomed James Quinn, Pascal Salvetti and Christine Wrenzycki.

Along with the scientific program, the LOC arranged a social program with a Gala Dinner at unique and charming surroundings in the medieval city center of Utrecht, an organ museum, Museum Speelklok as well as a barbeque and farewell party at Gasthuis Leeuwenbergh, the latter generously sponsored by Vetoquinol.

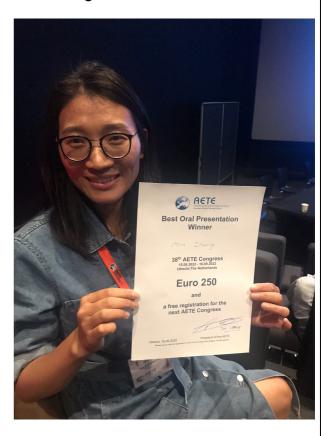
All presentations were of the highest standard, with much new information shared. In particular, we were delighted to have two prize winners, who have contributed short reports for the newsletter – read on to find out more!

Overall, both from the scientific as well from the social aspects we can look back at a very successful and enjoyable AETE meeting, many thanks to you as participant and contributor!

Contributed by Hilde Aardema, on behalf of the Utrecht LOC

BEST PRESENTATION MIN ZHANG

Min Zhang won the best presentation award on the 38th annual meeting of the AETE in Utrecht in September 16, 2022. She presented her PhD studies on the cysteine rich secretory protein 2 (CRISP2) in pig sperm. CRISP2 is present in dense protein structures in the sperm head and tail, structures that are essential for sperm functioning.



Condensation of protein structures allow compaction and thus minimize the size of the sperm cell and are also responsible for the shape and robustness of the sperm cell. Min showed that CRISP2 is involved in the organization of these dense protein structures. She also showed that CRISP2 is rapidly dissolved from the dense protein structures of sperm, immediately after fertilization. The redox state of the sperm cell and of the fertilized oocyte are likely the determinants for the CRISP2 behaviour in building and dissociation of the dense protein structures. She further demonstrated that CRISP2 entraps a set of proteins during the formation of dense protein structures and these proteins are released after fertilization. Thus, the central role of CRISP2 to form dense protein structures in the testis and in the epididymal environments and to dissolve post fertilization from these structures deserve further attention with special emphasis on the role of CRISP2 in (de)condensation dynamics. Min Zhang defended her PhD thesis in public at the Aula at the Academy Building of Utrecht University on January 17, 2023.

Contributed by Bart Gadella and Bernd Helms (promotors)

STUDENT COMPETITION WINNER – ALBA PEREZGOMEZ

Congratulations to the winner of the Student Competition; Alba Perez-Gomez from Department of Animal Reproduction, National Institute for Agriculture, Food Research and Technology (INIA), from Madrid, Spain. Alba's work explored the inheritance patterns of Holstein Haplotype 5 in early development.

Holstein Haplotype 5 (HH5) is a lethal allele present in dairy cows that causes pre-term mortality in double-carrier (DC, homozygous for HH5) embryos. HH5 haplotype is characterized by a large genomic deletion causing the ablation of the gene TFB1M (Transcription Factor B1, Mitochondrial). The developmental period when DC embryos arrest their development remains unknown and this information is critical to evaluate the economic damage associated to inadvertent cross between single-carrier (SC, heterozygous) individuals. In our study, we determined whether DC embryos were able to survive up to maternal recognition of pregnancy. To that aim, we evaluated the development of Day 14 conceptuses collected from 3 superovulated SC cows inseminated with a SC bull, a cross that results in ~25 % DC embryos. Conceptuses were measured, immunohistochemistry was performed to analyse trophectoderm (CDX2), hypoblast (GATA6) and epiblast (SOX2) development following fluorescence microscopy analysis, samples were genotyped by PCR. Our first observation was that mendelian inheritance of the allele was maintained in the conceptuses retrieved (5:16:7 WT:SC:DC). Hypoblast migration was observed in all conceptuses, but a dramatic reduction in proliferation of the extraembryonic membranes was evident in DC embryos. DC conceptuses remained spherical, in contrast to the elongated WT (non-carrier) or SC conceptuses and were significantly smaller (26.2±8.5 vs. 30.5±4.9 vs. 0.7±0.1 for WT, SC and DC, respectively, mean ± s.e.m., ANOVA p<0.05). Finally, an embryonic disc was formed in all DC embryos, but its diameter was also significantly reduced compared to WT or SC embryos (319±40 vs. 396±27 vs. 223±13 μm for WT, SC and DC, respectively, mean±s.e.m. ANOVA p<0.05). The conclusion of our study was that bovine HH5 DC embryos arrest their development prior to early conceptus elongation and maternal recognition of pregnancy. We are now conducting further research to better understand when development failure begins. To this aim, we are using CRISPR technology to generate TFB1M KO embryos (functionally equivalent to HH5 DC embryos) and assess their development up to Day 8 or Day 12 in vitro.



Alba Perez-Gomez with her award.

TRAVEL GRANT

The AETE would like to remind all members of the **AETE travel grant**. The purpose of the grant is to make a partial financial contribution to student presenters attending our annual conference. The number of grants available will be announced on **Feb 15** each year, on both our website and our Facebook page. If awarded, the student will receive the bursary after the conference using electronic money transfer. In order to maximize the number of granted awards, the precise value of the award will depend on the estimated expenses and demonstrated/perceived needs of the recipients, up to a maximum of 250€ per awardee. The award can be used to cover costs associated with travel, hotel and registration for our AETE conference.

The grant is for students wishing to present their work as a first author during one of the lecture/poster sessions at the next AETE conference. It is mandatory that the student is the first author of the abstract.

Applicants will need a letter of support from their supervisor (or chair of department) and you will also need to write a letter explaining your motivation for the application.

Full details and full eligibility criteria can be found on our website: https://www.aete.eu/students/travel-grant/

AETE STRENGTHENS
IETS LINKS THROUGH
HASAC

The International Embryo Technology Society (IETS) manage 5 Committees. AETE already participate to the Data Retrieval one by providing the European statistics collected from its members each year. The AETE board have decided to participate now to another one, the Health and Safety Advisory Committee (HASAC).

The key roles of the HASAC Committee are to:

1. Respond to the IETS members' questions & requests for advice related to animal health, traceability and quality assurance associated with embryo transfer and related technologies.

2. Submit recommendations based on current scientific knowledge to further provide guidance

& advice to international Agencies (FAO, OIE...).

We think that a cooperation between AETE and IETS HASAC is important to transmit questions and information from AETE members to HASAC and from HASAC to AETE. It can also help to organize the transmission of the European practitioners and researchers opinion.

We have 2 European correspondents who participate to HASAC: Lamia BRIAND-AMIRAT (ONIRIS-France) and Alline De Paula Reis (ENVA-France). Our proposition is that after the HASAC Conference in January, they submit to the AETE Board a summary with the questions that HASAC wants to ask to AETE members and information about the current topics (identification and labelling embryos, risks classification, sanitary emerging disease...). The AETE board will decide then with them the best way of communication (Practitioners forum, workshop, invited lecture, webinar, emailing and survey...). After the AETE conference in September, the AETE will transmit to HASAC board our correspondent the members answers and questions.





L: Lamia Braind-Amirat (Oniris, France) R: Alline De Paula Reis (Enva, France)

POSTER PRIZE WINNER - WALEED MAREI

Dr Waleed Marei from University of Antwerp was judged to have the best poster. Waleed has kindly allowed us to reproduce his poster in the newsletter. Great work Waleed and co-authors!



Optimal blood anti-oxidant concentrations at the time of breeding may enhance preovulatory granulosa cell functions after negative energy balance in dairy cows.

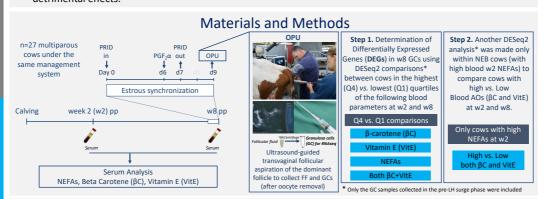
A transcriptomic insight.

Waleed F.A. Marei, Jessie De Bie, Silke Andries, Inne Xhonneux and Jo L.M.R. Leroy Gamete Research Centre, Department of Veterinary Sciences, University of Antwerp, Wilrijk, Belgium

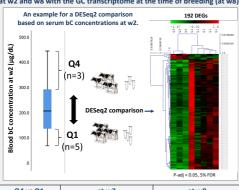


Introduction

- > Sever negative energy balance (NEB) in dairy cows results in elevated blood non-esterified fatty acid (NEFAs) concentrations during the early postpartum period (pp) with a negative impact on fertility.
- > It has been postulated that early pp metabolic stress might have a long-lasting impact on follicular physiology and oocyte quality up to several weeks after the end of the NEB period (Britt hypothesis, 1992). Nevertheless, the mechanisms mediating such carry-over effect have not been elucidated
- > We hypothesized that high blood NEFAs at week 2 pp exert long-term effects on the growing follicles leading to alterations in the granulosa cell (GC) functions in the preovulatory follicle at the time of breeding (w8 pp). Furthermore, we hypothesized that optimal blood antioxidant (AO) concentrations may protect against these detrimental effects.

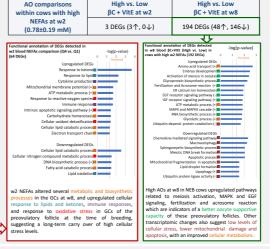


Step 1. The association between cow's metabolic and antioxidant profile at w2 and w8 with the GC transcriptome at the time of breeding (at w8)



Q4 vs Q1	at w2	at w8
βС	192 DEGs (9↑ and 183↓)	170 DEGs (14↑ and 156↓)
VitE	157 DEGs (118↑ and 39↓)	0 DEGs
Both bC and VitE	341 DEGs (162↑ and 179↓)	10 DEGs (0↑ and 10↓)
NEFAs	64 DEGs (16↑ and 48↓)**	0 DEGs
** NEFA concentrations were 0.86±0.16 mM in the Q4 cows vs. 0.30±0.08 mM in Q1		

Step 2. The effect of high vs. low levels of antioxidants in blood (at w2 and w8) on the GC transcriptomic profile in NEB cows (with high NEFAs at w2)



Conclusions

In conclusion, these results show evidence that sever NEB (high NEFAs) in dairy cows early postpartum can have a long-term impact on the GC functions in the preovulatory follicles at the time of breeding. Such effect might be mitigated by optimized AO concentrations before breeding. Further studies are needed to examine the consequences for oocyte quality and fertility.









AETE, Utrecht, 2022





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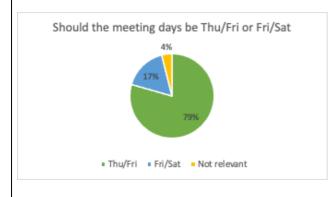
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YOUR SAY - MEETINGS AND COMMUNICATIONS

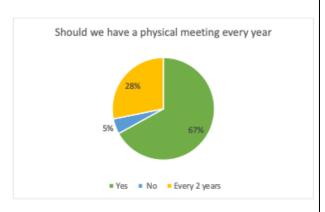
During the General Assembly, we asked AETE members a few questions regarding the meeting days, frequency and format of the meetings as well as the preferred ways for AETE to reach out for members. Answers from 103 participants are summarized in the graphs below:

We first asked on which days of the week we should hold our annual meetings.



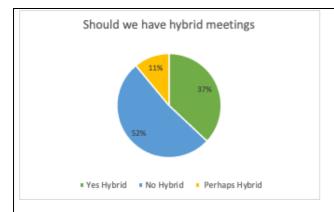
More than 79% of respondents thought that our annual meeting should be on Thursday and Fridays.

Next, we polled you on whether we should meet in person:

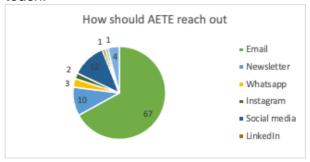


Two-thirds of those in attendance thought we should continue to organise physical meetings every year.

Of course, post-COVID, we all work differently, and so we asked whether we should move toward hybrid meetings:



More than half of those present were against hybrid meetings, although interestingly, more than one third were in favour of some hybrid offer Finally, we asked about the best way to stay in touch:



More than two-thirds prefer standard email communication.

These small surveys are vital for the Board to ensure that we provide the best offering possible for our membership and so many thanks to all those who took part – we hear your voice!

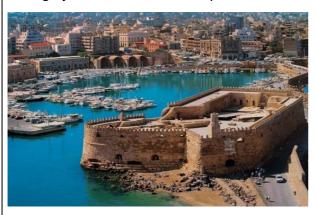




Invitation to Heraklion 2023

Dear colleagues,

As the nightmare of the COVID era gradually becomes a faint memory, the second actual meeting is ahead of us. This year we will move from the cloudy- but wonderful- Utrecht to the far south of Europe, to magnificent Crete and its capital city Heraklion. At this period of the year, many air carriers offer direct flights to Heraklion from many European cities. However, Crete is in the heart of the high tourist season, hence, it is advisable to arrange your travel as soon as possible.





Images of Heraklion

September is ideal for traveling around the island, swimming, and enjoying city life. Heraklion itself and the surrounding area are worth exploring. Apart from the vibrant nightlife, many museums, archeological sites (such as the Knossos and Phaistos Minoan palaces), and picturesque beaches can be found within a minute's drive from the city center.





Cretan Historical Sites

During our on-site inspection, the board members and the local organizing committee decided that **Hotel Galaxy**, located next to the city center, with comfortable and spacious rooms, a nice restaurant and coffee area, and a beautiful pool, would be the ideal venue for our meeting. Galaxy Hotel combines all requirements for delegates to enjoy a great scientific program and to relax at the on-site amenities.





Hotel Galaxy - the venue for our 2023 meeting

The Conference Registration & Welcome Reception will take place at the hotel, where we will enjoy our drink next to the pool, or we could continue our chats on rambling city center streets ending in one of the hundred pubs. The **Sponsors' Area** is close to the conference room and the restaurant where our lunch and coffee will be served.



Conference theatre

For our Conference Dinner, we will visit the Arolithos Traditional Cretan Village, located 12km from Heraklion on the slopes of Psiloritis Mountain. The Arolithos complex was built in the late 1980s as a recreation of a traditional Cretan village and occupies a cluster of buildings. We will walk in the village's narrow streets on a short journey back to the past. Our dinner will be the finest combination of local products that gave the unique identity of the famous Cretan cousin; we will taste traditional recipes cooked with care and love and eat and drink as locals. Local musicians and a group of dancers will create the atmosphere of a Cretan fest, while those believing they are good dancers will have the chance to test their dancing abilities under the vibrating Cretan rhythms.



As nice things end soon, we will have our Farewell Party in a club downtown the following evening. Here we will shift from traditional to modern -for youngsters- or classical -for the elderly- music and style. Be prepared and fit...; no club in Crete closes before sunrise.

And for those willing to explore Crete, before and after our Meeting, we have pre-arranged half and full-day excursions around the island!



On the 6th of September, you will have the opportunity to visit **Archanes village** and **Knossos Palace** with a professional tour guide. On the 9th of September, those lucky enough to extend their accommodation will have the opportunity to choose between our two full-day excursions. The first option is to visit and stroll around **Chania & Rethymno cities**, and the second is to visit **Elounda resort & Spinaloga Peninsula**. Further details about our excursions are available in the online accommodation form.

Dear friends and colleagues, we look forward to meeting you in Crete to enjoy a special scientific event and an unforgettable social program together!

UPCOMING EVENTS

International Ruminant Reproduction Symposium 28 May-1 June 2023

Galway, Ireland https://bsas.org.uk/irrs

AET-D (ET WORKING GROUP OF GERMAN-SPEAKING COUNTRIES) 15-16 June 2023

Schwäbischen Bauernschule in Bad Waldsee, Germany https://www.aet-d-de

SOCIETY FOR THE STUDY OF REPRODUCTION 11-14 July, 2023

Ottowa, Canada

https://www.ssr.org/news-events/upcoming-events/annual-meeting2023

AETE

7-8 September 2023

Heraklion, Crete https://www.aete.eu

1ST EUROPEAN SYMPOSIUM ON ANIMAL REPRODUCTION (ECAR/ESDAR/EVSSAR)

21-23 September 2023

Nantes, France

https://www.asconnect-evenement.fr/congres/1st-european-symposium-on-animal-reproduction-nantes-2023/REGISTRATIONS/

AETA & CETA/ACTE JOINT ANNUAL CONVENTION 26-28 October 2023

Orlando, Florida, USA

https://www.aeta.org/mtg future.asp

PLEASE NOTE – ALL DETAILS SUBJECT TO CHANGE...

PRELIMINARY PROGRAMME - AETE 2023



39th SCIENTIFIC MEETING

Galaxy Hotel Heraklion, Greece

PROGRAMME

7th and 8th September 2023

WEDNESDAY, September 6th 2023

18.30-20.00: Registration

20.00-22.00: Welcome Reception

THURSDAY, September 7th 2023

08.00-17.00: Registration
08.45-18.00: Opening meeting
SESSION 1: First invited lecture:

Urban Besenfelder, Institute of Animal Breeding and Genetics, University for Veterinary Medicine Vienna, Vienna, Austria.

The interaction between the environment and embryo development in assisted reproduction.

Second invited lecture:

Pietro Baruselli, Departamento de Reprodução Animal, FMVZ-USP, São Paolo, Brazil The contribution of assisted reproductive technologies and reproduction management to reducing the CO2 equivalent emissions of dairy and beef industry.

POSTER SESSION 1 and coffee break

Short oral communications: Student Competition

Sponsor presentation

Lunch

SESSION 2: Third invited lecture:

Hilde Aardema, Faculty of Veterinary Medicine, Utrecht University, The Netherlands *The potential impact of microplastics on reproduction*

Short oral communications

POSTER SESSION 2 and coffee break

Practitioners' forum

20.00-02:00: Traditional Cretan Dinner at Arolithos Traditional Cretan Village

FRIDAY, September 8th 2023

08:00-18.00:

SESSION 3: Fourth invited lecture:

William Holt, Department of Oncology and Metabolism, The Medical School, Sheffield, UK.

Environmental effects on developmental plasticity in conservation biology

Short oral communications

POSTER SESSION 3 and coffee break

General Assembly

Lunch/Student Lunch

SESSION 4: Fifth invited lecture

Sabine Meinecke-Tillmann and Burkhard Meinecke, Institute for Reproductive Biology, University of Veterinary Medicine, Hanover, Germany

Lab partners: oocyte, embryo and company.

Pioneer award 2022 -Sabine Meinecke-Tillmann and Burkhard Meinecke AETE Medalist Presentation

introduced by Christine Wrenzycki and Martin Gehring (Germany)

Short oral communications

POSTER SESSION 4 and coffee break

Workshop: Animal welfare in ART's

Closing session:

Student Competition results and invitation to the AETE Conference 2024

20.00-24:00: Farewell party

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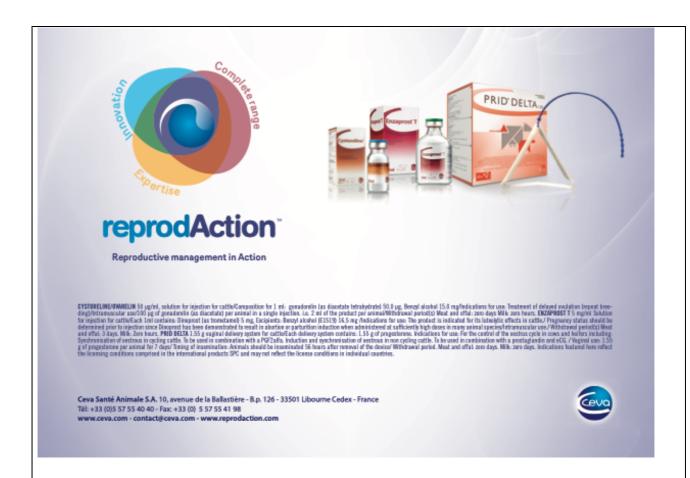
Friends













You may have noticed that this newsletter is coming to you in January, rather than the usual December. December is such a busy month and everyone stops work (and hopefully checking emails), so we are trialling a new timeline of newsletters in JANUARY and JUNE.

Thoughts? Let us know what you think at aete20@gmail.com