

Action FA0702

Maternal Interaction With Gametes and Embryos

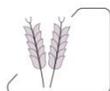
Participating countries: AT, BE, CRO, DK, EE, FR, DE, GR, HU, IL, IT, LT, NL, PL, PT, SL, SK, ES, SE, CH, UK, AUS, NZ

Chair of the Action: **Dr Alireza Fazeli**, a.fazeli@sheffield.ac.uk

Vice Chair of the action: **Prof Fulvio Gandolfi**, fulvio.gandolfi@unimi.it

COST Science Officer: **Dr Ioanna Stavridou**, istavridou@cost.esf.org

FA



www.cost-gemini.eu



A message from the Chairman Dr Alireza Fazeli

Dear All

I am just back from GEMINI's Systems Biology Research Training School in Croatia. You will hear more about it in the next GEMINI newsletter. It was a very successful school. At the moment systems biology approaches are not really applied in studies of maternal interaction with gametes and embryos. However, it looks to me that systems biology will become like statistics in biological research. I remember when I started to do my PhD, scientific journals were emphasising that research papers published should have a sound statistical analysis included; otherwise they would not be accepted. I am sure they still require it. But in those days, there were people that wanted to publish without including statistical analysis of their data. I believe systems biology will become like statistics; a main part of our science.

Another piece of news this week was the creation of the first artificial form of life. It seems the next wave is already coming. After systems biology we are starting to see the rise of synthetic biology. It may not be in my life time to see the rise of synthetic biology in investigating maternal interactions with gametes and embryos. But I am sure in the way that it is going we will soon see the rise of first computer simulations in our field. More than wishful thinking this is becoming a necessity. We are producing huge amounts of data with advances in high through put omic technologies. But hardly even 1% of these data are converted to useful information. Funny enough, despite gaining all these data, still we just pick one or two candidates and start working on those and focusing all the attention to understand their role and function in a limited manner. One wonders then why we did the whole microarray or proteomic analysis to look at thousands of genes or proteins when we are not going to bother about 99.99% of the data produced. Biology is facing a bottleneck. A lot of information is being produced but scientists are unable to use a huge proportion of it. We need to learn new tricks to be able to use this data. Systems biology and synthetic biology are all aiming to reverse engineer biological systems. What it seems to be the future destiny of medicine and biology.

Coming back to the everyday affairs of GEMINI, we have managed to transfer the GEMINI Grant to the University of Sheffield. In essence it should not make a difference to us as it is mainly administration and bureaucracy. I thought the change was very swift. Although I had a bit of a stressful time till

Continued on page 2

In this Issue:

- 3rd General Meeting Announcement (Page 3)
- 2nd General Meeting – Organisers Report (Page 4)
- The Polish Ministry of Science & Higher Education Supports GEMINI (Page 7)
- STSM Reports (Page 8)
- Information (Pages 9)

Message from the Editor

The action is now two years old and we have already made some impressive achievements.

This newsletter is a summary of GEMINI's activities since the second newsletter in August 2009 and also provides information on future GEMINI initiatives.

If you would like to contribute to future editions please email: secretary@cost-gemini.eu

I hope you enjoy this second edition!

Best wishes
Sara Gottlieb
GEMINI Administrator

Continued from page 1...

Chairman's Report

it happened. I have to here thank the COST Office for supporting us in the last two years and the help they provided to us for administration of this grant. In addition I look forward to new adventures with our new administrators.

One important point that I need to mention and emphasise is having the name of GEMINI mentioned in the acknowledgment of the papers that you publish. The COST office is taking this as an indication of the success of our Action. If you feel in any way GEMINI has helped you in conceiving an idea, carrying on the research or producing or preparing your scientific paper, then please add the following phrase or similar phrases to your paper:

“Authors are members of COST ACTION FA0702 (GEMINI) and this paper has been produced with the help provided by COST ACTION FA0702 (GEMINI) program”.

It does not need to be exactly this phrase. But please mention GEMINI and send us a reprint or address of your published paper to secretary@cost-gemini.eu.

I hope I will see many of you at our annual meeting in France. Pascale and friends have promised us a taste of French hospitality. I look forward to see as many of you in the meeting. Further details of the meeting are in the newsletter.

Alireza Fazeli
Chairman COST Action FA0702 (GEMINI)

GEMINI Logo

Earlier this year GEMINI HQ launched a competition for its members to design a logo to represent GEMINI. The guidelines were that the logo must represent some aspect of Maternal Interaction with Gametes and Embryos.

We received 5 entries from:

- Gabriel Bodek (Poland)
- Isabel Casas (Spain)
- Mark Burkitt (UK)
- Vanessa Hall (Denmark)
- Wedad Aboussahoud (UK)

The winner was Vanessa Hall from Denmark, with a simple effective design.

Congratulations Vanessa! All entrants will be presented with a bottle at GEMINI's annual meeting in Soustons.





GEMINI

Maternal Interaction with Gametes and Embryo 3rd General Conference

Soustons, France
1-3 October 2010

The 3rd COST GEMINI conference will be hosted by the Belambra Club of Vieux-Boucau in Soustons, France.

The scientific programme will include the following guest speakers:

Ann Van Soom (University of Ghent, Belgium)
Tiazana Brevini (University of Milan, Italy)
Alireza Fazeli (University of Sheffield, United Kingdom)
Jean-Pierre Ozil (INRA, France)
Tom Fleming (University of Southampton, United Kingdom)
Olivier Morel (PremUp foundation, INRA, INSERM, France)

The program aims at promoting interactions between scientists and discussions of short presentations and posters.

Soustons is a seaside resort in south-western France, about 45 minutes drive from Biarritz. This town is localised at the boundaries between the vastest forest of maritime pines in Europe (Les Landes) and the sand dunes overhanging the Atlantic Ocean. The Côte Landaise is about 106 km long and stretches from the Dune of Pyla to Saint-Jean-de-Luz, close to the Spanish border. This area is also renowned for its culinary delights within the close proximity of the traditional oysters' parks in Arcachon, the food from the Pays Basque and the influence of Spain, and the vine-growing area of Bordeaux.

Local Organising Committee

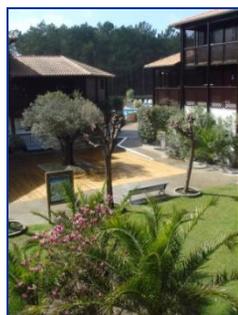
P. Chavatte-Palmer
V. Duranthon
O. Sandra



<http://www4.jouy.inra.fr/bdr>

Meeting Details:

- Abstract deadline – 1st August 2010
- Website: <https://colloque.inra.fr/gemini>
- For further information please contact: organisers.soustons@jouy.inra.fr



2nd Annual GEMINI Conference

1-3 October 2009, Alghero, Italy

Organiser's Report

By Sergio Ledda

When we were invited to organise the II Annual GEMINI Meeting I was sailing along the Alghero coast. I was very happy to finally have some relaxing time after a very busy period. So I said yes suddenly and did not consider how much time was necessary to organise such meetings! This I discovered later! The other reason that convinced me to accept the invitation was to give the chance for many friends to visit our beautiful Sardinia and in particular Alghero with its long and beautiful beaches, historical buildings and warm weather.

The selection of the meeting venue was the first point to consider. Fortunately Alghero offers several opportunities but we spent a few days trying to find the right place according to our view. We thought that it would be strategic to have a conference centre inside the town to leave the participants to choose their preferred hotel and, a part the meeting program, time to visit Alghero town. The Conference took place in Quartè Sayal, a former 17th century convent fully restored in 2008 and transformed in a modern Conference Centre. All participants appreciated the location, the organization and the tasty meals!

Another complication was to find sponsors available to support the meeting and give us the chance to offer as much as possible to the participants. Due to the global economical problem we were only able to have the support of our Rector that offer us to pay all the expenses related to the meeting book program. So calculating only the amount of money from the registration fee and the small amount of Cost Action we work very hard to reduce and negotiate any costs related to the meeting organization. For these reasons many things were organized by our self and to assure a suitable welcome for the 120 participants, scholars and PhD students were involved in each phases of the meeting from the registration desk up to the assistance in the lecture room. The biggest hurdle was to assign the proper size and colour of T-shirts to each participant. Unfortunately, sizes of t-shirt had been requested on the basis of the body build of Sardinian people which is notoriously shorter than the other European citizens. Moreover, a lot of people asked for red t-shirts which were only assigned to the staff organisers. We recommend considering these suggestions for the next meeting. We do not know how it was possible but after precise calculations we were able to save some money that gave us great pleasure to assign some money for local grants for poster presenters not covered by COST grants.

Another complication was the speakers' invitation. Speakers sometime are special as they do not care so much about reservations and what is around the meeting organization. As a result we did not know exactly their travel and accommodation arrangements until the beginning of the meeting, however, in the end, magically, everything ran well and they arrived safe and in time. Our target was to create a family environment so people were "strongly" stimulated to reserve the meals at the conference venue publishing all the details about food and drinks (it was mainly sea food). We had great pleasure as we saw that almost all the participants decided to stay together during the refreshment breaks and enjoyed what had been proposed.



Photos courtesy of
Prof Urban Bessenfelder

Continued from page 4...



Organisers Report

At the end of the last oral communication, (fortunately everything was OK) we received as Local Organizing Committee (LOC) the kind congratulations from the COST-GEMINI chairman Dr Alireza Fazeli for a successful meeting and declared to rename Dr Sergio Ledda as "Il Maestro" (The Master) for his organisational skills!



The Meeting ended with a Gala Dinner at Le Pinnette, the name given to the old rural stone buildings, with cane roofs, that were used as shelters by the shepherds or for equipment, as well as places where craftsmen first began working the products they obtained through stock-rearing. A platform next to the patio allowed participants to dance and enjoy live performances of Alireza's dancing!

On that occasion, every participant sung a funny Happy Birthday in its proper mother tongue to celebrate Sergio Ledda's birthday.



The final goal was to bring people close to each other. For this purpose, a one day excursion was organised at the beautiful Neptune Caves, one of the most important naturalistic places in Sardinia. This was a risk because the weather in this period sometime is not stable so we were consulting all the time forecast web sites, fishermen and professional skippers! We were lucky and we had a beautiful sunny day with a calm sea.



For the majority of contributors, accustomed to cold and rainy falls, the warm and sunny day was a not to be missed opportunity to swim and sunbathe. In spite of master's warning, several participants swam straight after lunch...fortunately without consequences and so we will have all the friends in the next COST-GEMINI meeting.

The LOC (Local Organizing Committee) and "Il Maestro"

Sense About Science Report

In January 2010 I had the opportunity to take part in Standing Up for Science media workshop, "Communicating Scientific Research 2010" which is being held at the Instituto Gulbenkian de Ciência, Oeiras, Portugal on 18th January.

The venue of the workshop was ideal choice since outside temperatures were about 20 degrees and the odorous ocean fragrance could be enjoyed. As part of the outreach strategy COST is involved in sponsoring of such events and the possibility was gave to COST Early Stage Researchers (PhD students, post-docs or equivalent in first job) to participate in it.

The organizer, Sense About Science is a registered small charity that promotes good science and evidence in public debates and equips people to make sense of science and evidence (to find out more visit: www.senseaboutscience.org/donate). The workshop was part of a 2 day conference on communicating scientific research (for more information on the full conference visit www.igc.gulbenkian.pt/media/static/workshop).

The importance for good science and evidence to be communicated to a wider audience were discussed as well as what can be done about misconceptions and misinformation about science. The first workshop day was consisted of different sessions: 1) Science in the media: a panel of scientists discussed what happens when research announcements go wrong, statistics are manipulated, risk factors are distorted and discussions become polarised; 2) What journalists are looking for: a panel of journalists discussed how journalists approach stories; balance the need for news and entertainment with reporting science and deal with accusations of polarising debates and mis-representing the facts; 3) Standing up for science; the nuts and bolts: not yet the leaders in the field what can early career researchers do to encourage good science and evidence in the public domain; 4) Writing the media: the press release; aims, audience, structure and form.

The workshop was really useful; I recommend it to everyone to participate in the future!

Juraj Grizelj, CROATIA



2nd Annual GEMINI Conference

1-2 October 2009, Alghero, Italy

Student Report:

We were very happy with the choice of the location where the meeting was taking place. From the plane, we could appreciate the famous beautiful beaches and unexpected high hills that looked like sleeping volcanoes. It looked very promising! At the airport, we discovered a lot of people carrying posters, so we started immediately to make our first contacts. Since the first day of the meeting started late in the afternoon, we had the opportunity to visit the old town and enjoy the beautiful views. We also started to appreciate the local cuisine (pizza for everybody!).

“We enjoyed the nice buffet but it wasn’t all fun”

When we came to Quarté Sayàl, a very beautiful conference hall made from an old convent, we saw a lot of familiar faces, some of them from previous COST GEMINI meetings. We enjoyed the nice buffet but it wasn’t all fun: we also had to hang our posters for the morning posters session.

The first day of lectures was about Experimental Models and Technologies. We had a very interesting and unexpected first lecture about biologists’ ability to fix electrical appliances, which was like a wake up call to advise us to be more objective and less dramatical when talking about our scientific work. After that, the day went by very quickly, with a lot of interesting oral presentations and short communications with the poster session jammed in the middle. The only problem was that we had a very short time to appreciate all the posters, as the poster session coincided with lunch and coffee breaks (very good espresso, by the way) and there wasn’t enough time to discuss the ideas with poster authors. Bless our cameras and the COST book with all the mail addresses that allowed us to pay more attention to the posters later and get some answers for our doubts.

The second day of lectures was about the search for mechanisms, with a lot of focus on nutrition. Every working group session was finished by a discussion where everyone could contribute with ideas to achieve the best direction to be followed. At this point, everyone was starting to get exciting with the Gala Dinner. At the end of the afternoon, there was the “MC meeting” and we took the time to go to the beach and get a little tan.

Dinner was great! We had the chance to try typical Sardinian food

Dinner was great! We had the chance to try typical Sardinian food, which was very good, finishing with a wonderful “lime sorbeto”. Afterwards we all had the chance to learn how to dance mambo and other dances and to appreciate our colleagues dancing skills.

Unfortunately, the evening was over too soon, since a lot of people had to catch their planes early in the morning and the rest of us had a ferry to catch.

All Sunday was spent in the Mediterranean Sea, enjoying the views (the ones who didn’t get sea sick...). The Neptune caves were truly a Nature’s wonder, but getting off the boat was a real adventure! Afterwards we sailed to a paradisiacal small beach where we had Workshop IV: swimming in the calm, warm and clear Mediterranean water and enjoying the sun. Lunch was on the boat, served by very merry sailors.

In short, we learnt how to design our future scientific work, how to choose the correct model and how to correctly analyze our data, discovering at the same time some recent breakthroughs. Above all we appreciated the opportunity to meet and exchange ideas with people working in the same area. We hope that we will all meet at the next meeting and that we learn and have as much fun as we did in Alghero. See you all there!

Ana Catarina Torres, Portugal & Mariana Raposo Batista, Portugal
 Karolina Łukasik, Poland, & Anna Szóstek, Poland

The Polish Ministry of Science and Higher Education supports GEMINI action

Five research projects in the framework of the COST Action FA0702 (Maternal interaction with gametes and embryos) have been approved and funded for period 2008-2011 by Polish Ministry of Science and Higher Education. The total value of projects reaches about 540 000 EURO and were classified as “non-financed international projects” carried out within the framework of international multilateral programmes.

The following projects were founded:

1) Markers of uterine receptivity during periimplantation period in pigs - leader Dr. Agnieszka Waclawik, Institute of Animal Reproduction and Food Research of Polish Academy of Sciences, Olsztyn, Poland.

The aim of the project was determination of potential receptivity markers in uterus, which influence the proper implantation and embryo capability to implantation and placenta development.

2) Lysophosphatidic acid influence on the cellular and molecular embryo-maternal interactions in the cow: *in vitro* studies – leader Dr. Izabela Woclawek-Potocka, Institute of Animal Reproduction and Food Research of Polish Academy of Sciences, Olsztyn, Poland.

The general aim of the study is to establish new methods for the diagnosis and prevention of early embryo mortality and other ovarian and uterine dysfunction.

3) Quality of oocytes of peri-pubertal gilts in relation to donor puberty - leader Dr. Dorota Cieslak, Poznan University of Life Sciences, Poland

The aims of the project: 1) analysis of the fatty acid profile in the follicular fluid (FF) and its application as a marker of oocyte quality in peripubertal gilts and 2) investigation of a relationship between donor puberty and oocyte quality in prepubertal and pubertal gilts.



Adam Ziecik

4) The influence of bovine oviduct epithelial cells on *in vitro* development of bovine embryos at elevated temperature – leader Dr. Anna Maria Duszewska, Faculty of Veterinary Medicine, Warsaw University of Life Sciences, Poland

The one aim of the study is to evaluate whether the increase of temperature effects the level of expression and synthesis of the specific oviductal glycoprotein 1 of bovine oviductal epithelial cells, the level of which is positively correlated with embryo development.

5) Role of cells presenting antigen in development of systemic tolerance status during periimplantation period in mice – leader Dr. Anna Chelmonska-Soyta, Institute of Immunology and Experimental Therapy of Polish Academy of Sciences, Wroclaw, Poland.

We would like to thank Dr. Marek Zdanowski – The National COST Coordinator in Poland for valuable suggestions and help during preparation of projects.

Adam Ziecik and Jerzy Strzezek
Polish MC Members

Short Term Scientific Mission Grants

In its first year and a half COST-GEMINI has funded a number of Short Term Scientific Mission (STSM) grants. The following are a series of reports from the grants that Gemini has funded:

Somayyeh Fahiminiya France– Scotland, UK May-August 2009

I am a 4th year PhD student at the University of Francois-Rabelais Tours in France and I am working at the Department of Reproductive and Behavioural Physiology in INRA (Nouzilly, France).

My thesis project has focused on “The proteomic and transcriptomic analysis of dominant follicle development in mare”. During 2009, I received a STSM grant from the GEMINI COST-Action to join the laboratory of Dr. Xavier Donadeu at the Roslin institute (Scotland, UK).

The purpose of the STSM was to obtain, for the first time, gene expression profiles associated with maturation of the mare preovulatory

follicle using microarray technology available at the ARK Genomics facility of the Roslin Institute. The results obtained indicated substantial differences in gene expression profiles between different stages of equine follicle development and different follicular cell populations. These results have been submitted to the Tenth International Symposium on Equine Reproduction (ISER X, July 2010, Kentucky, USA).

The study is still ongoing to validate the expression profiles obtained and to identify gene networks involved in the

selection and pre-ovulatory maturation of equine follicles. Furthermore, my visit initiated collaborative work between the laboratories of Dr. Nadine Gerard at

INRA and Dr. Xavier Donadeu at Roslin institute. Overall, I am truly thankful to Gemini for providing me with this valuable opportunity to develop research work at Roslin Institute as this will add significant value to the quality of my thesis and to my scientific career.

Valentina Mollo Italy- Sheffield, UK March - June 2009

I'm from the Department of Structural and Functional Biology, University of Naples Federico II, Italy. I received a STSM Grant from the Gemini COST-Action in 2009. I visited Dr Alireza Fazeli's laboratory in the Academic Unit of Reproductive and Developmental Medicine, at the University of Sheffield, UK, in March to June 2009. This scientific visit offered me the opportunity to learn new methodologies and to see how scientific research is structured in another country.

The reason for this STSM was the sharing of research topics about sperm adhesion in the female reproductive tract with the host institution. Both teams are intensely involved in the study of gamete-oviduct interaction but in different species and using different experimental approaches. In fact the main research line of my team is the study of sperm adhesion, selection and release of bovine sperm from the Oviductal epithelial cells. Recently we demonstrated that sulfated glycoconjugates and disulfide reductants, whose presence has been reported in the oviductal

fluid powerfully induce the release of bovine sperm bound to the oviductal epithelium in vitro in the bovine species. It was interesting to investigate which proteins are expressed during the sperm adhesion to the Fallopian tube and how this expression changes depending on the conditions. Also the purpose of this short visit was get familiar with new laboratory technologies (as like genomic



Continued on page 9

Short Term Scientific Mission Grants

Continued from page 8...

methodologies; 1-2D electrophoresis and mass spectrometry) and to use them in the further studies.

Therefore it was interesting to get an experience on genomic techniques and apply that knowledge to our scientific research to identify changes of gene expression during sperm adhesion and release from the Oviductal epithelial cells. During the mission at the Jessop Wing we were aiming to determinate expression changes of the HSC70 protein on the surface of the oviductal epithelial cells in response to spermatozoa. This study was carried out at the genomic level using the porcine model.

In my opinion the STSM was very interesting and it was useful. I would like to thank COST-Gemini for providing me with this opportunity. It was a pleasant experience for me, especially because I felt welcome in Dr Fazeli's team.

Letters

As a GEMINI member we would love to hear your news on say successful grant applications, or how much you enjoyed attending a meeting. If you are looking to solve a problem and need a collaborator make a pitch for all to see and hopefully someone will come forward to help solve your research problem!!

If you would like to contribute to the next edition of the newsletter please email your article to secretary@cost-gemini.eu.

Future Meetings

COST-GEMINI 3rd General Meeting

1-3 October 2010

Soustons, France

Website: <https://colloque.inra.fr/gemini>

32nd Annual British Andrology Society Meeting

9-10 November 2010

AstraZeneca Pharmaceuticals, Cheshire, UK

Website: www.britishandrology.org.uk/meetings.html

COST-GEMINI Executive Committee

POST	NAME	COUNTRY
Chairman	Dr Alireza Fazeli	UK
Vice Chairman	Prof Fulvio Gandolfi	Italy
WG1 Lead	Prof Ann Van Soom	Belgium
WG1 Deputy	Dr Andras Dinnyes	Hungary
WG2 Lead	Prof Eckhard Wolf	Germany
WG2 Deputy	Dr Jean-Pierre Ozil	France
WG3 Lead	Prof Tom Fleming	UK
WG3 Deputy	Dr Pascale Chavatte-Palmer	France

GEMINI Members

For a list of Gemini members visit:

www.cost-gemini.eu/members.html

Information

Here at GEMINI HQ we would like to keep an ongoing record of any publications that may have come about due to GEMINI.

We would also like to keep a more specific record of any outcomes from attending an STSM.

Please keep me updated with such information by emailing, secretary@cost-gemini.eu.

Sara Gottlieb
GEMINI Administrator