



UNIVERSITY  
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MĀNOA

John A. Burns School of Medicine  
Department of Anatomy, Biochemistry and Physiology  
Institute for Biogenesis Research

September 4, 2019

## SRF WORKSHOP AND EVENT SPONSORSHIP FINAL REPORT

### Gordon Research Conference on Germinal Stem Cell Biology

May 19-24, 2019

Courtyard by Marriott Hong Kong Sha Tin, Hong Kong, CN

The final report is prepared to outline the details regarding the SRF sponsored event after it has taken place. The conference was a great success. We 154 registrants from countries representing North America, Europe, Asia and Australia. The conference program included 39 speakers sharing their current data on advances in the field of germinal stem cell biology. Among these there were 28 invited speakers who gave 25 min talks and 11 speakers selected from submitted abstracts who gave 10 min talks. In addition, we had 22 rapid fire (1 min) talks and 69 posters. Together, there were plenty of opportunities for all participants to present their data.

The final conference program can be viewed here: <https://www.grc.org/germinal-stem-cell-biology-conference/2019/> and is also attached to this document for your convenience

### Overall Summary

There was a nice balance between senior and early stage investigators, post-doctoral fellows and graduate students, men and women as outlined in detail below. The atmosphere at the conference was friendly and interactive because of its size and overall focus on interaction. Only positive comments from attendees were received during and after the meeting. Based on what was discussed at social venues, it is very likely that international collaborations were initiated because of this conference.

### Demographic Information

We had 154 registrants. The total number was within typical range of participants of GRC meetings and the highest we ever had for this particular conference.

### Countries Represented

The registrants came from 13 countries. We had 43 (28%) of registrants from the U.S.A. We also had 27 (18%) registrants from Europe, 73 (47%) from Asia, 11 (7%) from Australia. The conference location in Hong Kong enhances international participation and enhances mingling of East and West.

### Senior/Junior/Trainee Participants

Among all registrants there were 39 (25%) students, 32 (21%) post-docs, 65 (42%) Lab Heads (Assistant, Associate and Full Professors), and 17 (11%) others (Physicians, Research Directors, Research Scientists and Unspecified Other).

Among 28 Invited Speakers, 5 (18%) were Early Stage Investigators (ESI, Assistant Professor or equivalent) and 23 were Established Investigators (Associate Professor/Professor or equivalent). Among 9 Discussion Leaders, 1 (11%) was ESI. Among 11 Speakers Invited from Abstracts, 10 (91%) were trainees and 1 (9%) was ESI Industry Representative. Among the 10 trainees, 5 (50%) were post-docs and 5 (50%) were graduate students.

### **Female/Male Participants**

Among all registrants, there were 64 (42%) women and 90 (58%) were men. The participation of women among Speakers and Discussion Leaders was strong. Women constituted 9/28 (32%), 6/9 (67%), and 5/11 (45%) of Invited Speakers, Invited Discussion Leaders, and Speakers Invited from Abstracts, respectively; when the three groups are combined, 20/48 (42%) Invitees were women.

### **Underrepresented Minorities (URM)**

Every attempt was made to attract URM. The conference flyer with a scientific program was sent to SACNAS, ABRCMS, NAFEO, and WITI. Moreover, an opportunity to obtain a waiver of the conference registration (\$1,575) for 3 URMs was advertised by SDB, SSR and ASA. Unfortunately, only one URM expressed an interest in joining the meeting. For this individual the entire cost of attendance, including conference registration (lodging and meals) and airfare, was covered.

### **Intercepts from Unsolicited Thank You Notes**

"..Thank you so very much for inviting me to GRC conference AGAIN! This is such a huge opportunity for my early career and thank you so much for supporting me!.." (from a Junior Investigator Invited Speaker)

"... I just wanted to say thank you for organising such a fantastic and successful conference. I also want to say thanks again for the opportunity to share my work with everyone. I thought the conference was the perfect mix of science, networking and social activities. As a junior researcher, I find that this particular conference provides a friendly and welcoming environment where people like myself can interact with other scientists at all career stages..." (from a post-doctoral fellow)

"...Thank you for your hard work in getting financial support for trainees. The attendance of trainees really makes the conference highly dynamic and interactive...." (from a Junior Investigator Discussion Leader)

With gratitude for your sponsorship.

Monika A. Ward, PhD, Professor  
GRC Germinal Stem Cell Biology 2019, Chair

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# Germinal Stem Cell Biology

*Gordon Research Conference*

Germ Cell Programming in Vertebrate Biology, Medicine and Biotechnology

May 19-24, 2019

Courtyard by Marriott Hong Kong Sha Tin

Hong Kong, China

Chair: Monika A. Ward

Vice Chair: Blanche Capel

## Contributors

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**Gordon Research  
Conferences**  
*Frontiers of Science*



Carl Storm  
International  
Diversity  
Fellowship Program



National Institutes of Health



Croucher Foundation  
裘槎基金會



上海俊喆生物技术有限公司  
Shanghai Jun zhe Biological Technology Co. Ltd.

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CAMPION FUND

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[GermlineExposures.org](http://GermlineExposures.org)



American Society for  
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Asian Journal of  
Andrology

<http://www.asiaandro.com/>



何鴻燊航天科技人才培訓基金會

## Contributors (*continued*)

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香港中文大學  
The Chinese University of Hong Kong



創新科技署  
Innovation and  
Technology Commission



## Meeting Program

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### Sunday

2:00 pm - 8:00 pm	Arrival and Check-in
6:00 pm	Dinner
7:30 pm - 7:40 pm	Welcome / Introductory Comments by GRC Site Staff
7:40 pm - 9:30 pm	<b>Early Embryogenesis: The Origin of the Germline</b>
	Discussion Leader: <b>Ian Chambers</b> (University of Edinburgh, United Kingdom)
7:40 pm - 7:45 pm	Introduction by Discussion Leader
7:45 pm - 8:10 pm	<b>Magdalena Zernicka-Goetz</b> (University of Cambridge, United Kingdom) "Building the Mammalian Embryo <i>In Vivo</i> and <i>In Vitro</i> "
8:10 pm - 8:20 pm	Discussion
8:20 pm - 8:45 pm	<b>Takashi Hiragi</b> (European Molecular Biology Laboratory (EMBL), Germany) "Self-Organization in Mouse Development"
8:45 pm - 8:55 pm	Discussion
8:55 pm - 9:20 pm	<b>Jianping Fu</b> (University of Michigan, Ann Arbor, USA) "Synthetic Human Embryo-Like Structures: A New Paradigm for Human Embryology"
9:20 pm - 9:30 pm	Discussion

## Monday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>Genetic Regulation of the Germline</b> Discussion Leader: <b>Josephine Bowles</b> (The University of Queensland, Australia)
9:00 am - 9:05 am	Introduction by Discussion Leader
9:05 am - 9:15 am	Selected from Poster Abstracts: <b>Walfred Tang</b> (University of Cambridge, United Kingdom) "A Critical but Divergent Role of PRDM14 in Human Primordial Germ Cell Fate Revealed by Inducible Degrons"
9:15 am - 9:20 am	Discussion
9:20 am - 9:45 am	<b>Martin Matzuk</b> (Baylor College of Medicine, USA) "Targeting Spermatogenesis for Male Contraception"
9:45 am - 9:55 am	Discussion
9:55 am - 10:05 am	Selected from Poster Abstracts: <b>Julia Spindel</b> (The Babraham Institute, University of Cambridge / MRC Cambridge Stem Cell Institute, United Kingdom) "The Role and Regulation of UHRF1 During Mammalian Embryogenesis"
10:05 am - 10:10 am	Discussion
10:10 am - 10:40 am	Group Photo / Coffee Break
10:40 am - 11:05 am	<b>Wei Li</b> (Institute of Zoology, Chinese Academy of Sciences, China) "Deciphering Allelic Imbalance and Its Role in Reproduction"
11:05 am - 11:15 am	Discussion
11:15 am - 11:25 am	Selected from Poster Abstracts: <b>Man Zhang</b> (University of Edinburgh, United Kingdom) "Otx2 Heterozygosity Enables ESRRB to Induce PGC Differentiation Without Cytokines"
11:25 am - 11:30 am	Discussion
11:30 am - 11:55 am	<b>Peter Koopman</b> (The University of Queensland, Australia) "Molecular Pathways of Mammalian Sex Determination"
11:55 am - 12:05 pm	Discussion
12:05 pm - 12:15 pm	General Discussion
12:15 pm - 12:30 pm	Poster Previews
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session</u>
6:00 pm	Dinner

7:30 pm - 9:30 pm

## Female Germline Development

Discussion Leader: **Lei Lei** (University of Michigan, USA)

7:30 pm - 7:35 pm

Introduction by Discussion Leader

7:35 pm - 8:00 pm

**Ji Wu** (Shanghai Jiao Tong University, China)

"Epigenetic Regulation Mechanism in Differentiation of Female Germline Stem Cells"

8:00 pm - 8:10 pm

Discussion

8:10 pm - 8:35 pm

**Evelyn Telfer** (University of Edinburgh, United Kingdom)

"Growing Old Human Oocytes and Making New Ones *In Vitro*"

8:35 pm - 8:45 pm

Discussion

8:45 pm - 9:10 pm

**Cai-Xia Yang** (Northeast Agricultural University, China)

"Functional Investigation of Long Noncoding RNAs on Porcine Oocyte Maturation and Early Embryo Development"

9:10 pm - 9:20 pm

Discussion

9:20 pm - 9:30 pm

General Discussion

## Tuesday

7:30 am - 8:30 am

Breakfast

9:00 am - 12:30 pm

## Single Cell Analyses of Germ Cell Development

Discussion Leader: **Blanche Capel** (Duke University, USA)

9:00 am - 9:05 am

Introduction by Discussion Leader

9:05 am - 9:30 am

**Fuchou Tang** (Peking University, China)

"Decoding the Gene Regulation Network of Human Germline Cells by Single Cell Functional Genomics Approach"

9:30 am - 9:40 am

Discussion

9:40 am - 10:05 am

**Kikue Tachibana** (IMBA - Institute of Molecular Biotechnology, Austrian Academy of Sciences, Austria)

"New Insights into the Causes of the Maternal Age Effect"

10:05 am - 10:15 am

Discussion

10:15 am - 10:45 am

Coffee Break

10:45 am - 10:55 am

Selected from Poster Abstracts: **Tsotne Chitiashvili** (University of California, Los Angeles, USA)

"Human Primordial Germ Cells Recapitulate X Chromosome Dynamics of Human Pre-Implantation Embryos"

10:55 am - 11:00 am

Discussion

11:00 am - 11:25 am

**Sue Hammoud** (University of Michigan, USA)

"The Power of One: Single Cell Sequencing Identifies an Unexpected Somatic Cell Progenitor"

11:25 am - 11:35 am

Discussion

11:35 am - 12:00 pm	<b>Brian Hermann</b> (University of Texas at San Antonio, USA) "Identifying Spermatogonial Stem Cells and Their Regulatory Framework with Single-Cell Transcriptomics"
12:00 pm - 12:10 pm	Discussion
12:10 pm - 12:15 pm	General Discussion
12:15 pm - 12:30 pm	Poster Previews
12:30 pm	Lunch
2:00 pm - 4:00 pm	<u>Poster Session</u>
4:00 pm - 6:00 pm	<b>Environmental Impacts on the Germline</b>
	Discussion Leader: <b>Patricia Hunt</b> (Washington State University, USA)
4:00 pm - 4:05 pm	Introduction by Discussion Leader
4:05 pm - 4:30 pm	<b>Qi Chen</b> (University of California, Riverside, USA) "Sperm RNA Code: How Many More Secrets in Programming Offspring Phenotypes?"
4:30 pm - 4:40 pm	Discussion
4:40 pm - 5:05 pm	<b>Adam Watkins</b> (University of Nottingham, United Kingdom) "Dads, Diet and Disease: The Paternal Programming of Offspring Health"
5:05 pm - 5:15 pm	Discussion
5:15 pm - 5:40 pm	<b>Michael Skinner</b> (Washington State University, USA) "Environmental Impacts on the Epigenetic Transgenerational Inheritance of Sperm Epimutations and Their Developmental Origins"
5:40 pm - 5:50 pm	Discussion
5:50 pm - 6:00 pm	General Discussion
6:00 pm	Dinner

## Wednesday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>Spermatogonial Stem Cells and Their Niche</b>
	Discussion Leader: <b>Jon Oatley</b> (Washington State University, USA)
9:00 am - 9:05 am	Introduction by Discussion Leader
9:05 am - 9:15 am	Selected from Poster Abstracts: <b>Robin Friedman</b> (Ohana Biosciences, USA) "Widespread Haploid-Biased Gene Expression in Mammalian Spermatogenesis Associated with Frequent Selective Sweeps and Evolutionary Conflict"
9:15 am - 9:20 am	Discussion
9:20 am - 9:45 am	<b>Bradley Cairns</b> (University of Utah, USA) "The Human Testis Transcriptional Cell Atlas"
9:45 am - 9:55 am	Discussion



9:55 am - 10:05 am	Selected from Poster Abstracts: <b>Julien Legrand</b> (Monash University, Australia) "Role of the RNA Helicase DDX5 in Spermatogonial Maintenance and Function"
10:05 am - 10:10 am	Discussion
10:10 am - 10:40 am	Coffee Break
10:40 am - 11:05 am	<b>Xin Chen</b> (Johns Hopkins University, USA) "Asymmetry from Symmetry or Symmetry from Asymmetry?"
11:05 am - 11:15 am	Discussion
11:15 am - 11:25 am	Selected from Poster Abstracts: <b>Aya Uchida</b> (The University of Tokyo, Japan) "Non-Cell Autonomous Regionalization of Sertoli Niche in the Terminal Segment of the Seminiferous Tubules of Mouse Testes"
11:25 am - 11:30 am	Discussion
11:30 am - 11:55 am	<b>Jan-Bernd Stukenborg</b> (Karolinska Institutet, Sweden) "Male Germ Stem Cells, Their Niche and Potential <i>In Vitro</i> "
11:55 am - 12:05 pm	Discussion
12:05 pm - 12:15 pm	Selected from Poster Abstracts: <b>Cameron Berry</b> (Stanford University, USA) "Developmentally Regulated Differential Cleavage of Transcript 3' Ends Controls a Switch in Proteins Expressed as Male Germline Cells Transition from Proliferation to Differentiation"
12:15 pm - 12:20 pm	Discussion
12:20 pm - 12:30 pm	General Discussion
12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<u>Poster Session</u>
6:00 pm	Dinner
7:00 pm - 7:30 pm	<u>Business Meeting</u>  <i>Nominations for the Next Vice Chair; Fill in Conference Evaluation Forms; Discuss Future Site and Scheduling Preferences; Election of the Next Vice Chair</i>
7:30 pm - 9:30 pm	<b>Epigenetic Programming of Germline Development</b> Discussion Leader: <b>Amander Clark</b> (University of California, Los Angeles, USA)
7:30 pm - 7:35 pm	Introduction by Discussion Leader
7:35 pm - 8:00 pm	<b>Mitinori Saitou</b> (Kyoto University, Japan) "Mechanism and Reconstitution <i>In Vitro</i> of Human Germ Cell Development"
8:00 pm - 8:10 pm	Discussion
8:10 pm - 8:35 pm	<b>Makoto Tachibana</b> (Graduate School of Frontier Biosciences, Osaka University, Japan) "Epigenetic Regulation of Spermatogonial Development by Histone Demethylation"
8:35 pm - 8:45 pm	Discussion



8:45 pm - 9:10 pm	<b>Patrick Western</b> (Hudson Institute of Medical Research, Australia) "Germline Epigenetics: Polycomb Regulated Investment in Offspring Futures"
9:10 pm - 9:20 pm	Discussion
9:20 pm - 9:30 pm	General Discussion

## Thursday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	<b>Technological Advances in Germ Cell Research</b> Discussion Leader: <b>Susana Chuva de Sousa Lopes</b> (Leiden University Medical Center, The Netherlands)
9:00 am - 9:05 am	Introduction by Discussion Leader
9:05 am - 9:15 am	Selected from Poster Abstracts: <b>Swati Sharma</b> (Centre for Reproductive Medicine and Andrology, University of Münster, Germany) "Testes-on-Chip Model for <i>In Vitro</i> Primate Spermatogenesis"
9:15 am - 9:20 am	Discussion
9:20 am - 9:45 am	<b>Irina Larina</b> (Baylor College of Medicine, USA) "Regulation of Gametes and Preimplantation Embryos by Oviduct Environment: What Can We Learn from <i>In Vivo</i> Imaging"
9:45 am - 9:55 am	Discussion
9:55 am - 10:05 am	Selected from Poster Abstracts: <b>Magdalena Wagner</b> (Karolinska Institutet, Sweden) "Characterization of Human Ovarian Tissue Cells"
10:05 am - 10:10 am	Discussion
10:10 am - 10:40 am	Coffee Break
10:40 am - 11:05 am	<b>Goro Yoshizaki</b> (Tokyo University of Marine Science and Technology, Japan) "Germ Cell Transplantation in Fish: Current Status and Future Prospects"
11:05 am - 11:15 am	Discussion
11:15 am - 11:25 am	Selected from Poster Abstracts: <b>Daisylyn Senna Tan</b> (The University of Hong Kong, Hong Kong SAR China) "Elucidating the Mechanism for High Performance Cell Fate Reprogramming by an Artificially Evolved POU Factor"
11:25 am - 11:30 am	Discussion
11:30 am - 11:55 am	<b>Masahito Ikawa</b> (Osaka University, Japan) "CRISPR/Cas9 Mediated Genome Editing and Its Application for the Study of Fertilization"
11:55 am - 12:05 pm	Discussion
12:05 pm - 12:15 pm	Selected from Poster Abstracts: <b>Kanako Ikami</b> (University of Michigan, USA) "Branched Germline Cysts Formation and Fragmentation in Mouse Gametogenesis"
12:15 pm - 12:20 pm	Discussion
12:20 pm - 12:30 pm	General Discussion

12:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	<b>Natural and Induced Mutations in the Germline</b>
	Discussion Leader: <b>John McCarrey</b> (University of Texas at San Antonio, USA)
4:00 pm - 4:05 pm	Introduction by Discussion Leader
4:05 pm - 4:30 pm	<b>Itai Yanai</b> (New York University Langone Health, USA) "Widespread Transcriptional Scanning in Testes Modulates Gene Evolution Rates"
4:30 pm - 4:40 pm	Discussion
4:40 pm - 5:05 pm	<b>Anne Goriely</b> (University of Oxford, United Kingdom) "Selfish Testes, New Mutations and Human Disease"
5:05 pm - 5:15 pm	Discussion
5:15 pm - 5:40 pm	<b>Jacob Mueller</b> (University of Michigan Medical School, USA) "A Mus Lineage-Specific Gene Family Is Essential for Male Fertility and Equalized Sex Ratio"
5:40 pm - 5:50 pm	Discussion
5:50 pm - 6:00 pm	General Discussion
6:00 pm	Dinner
<b>Friday</b>	
7:30 am - 8:30 am	Breakfast
9:00 am	Departure

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