



**Red Cells (GRS)**  
*Gordon Research Seminar*

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# Exploring Transcriptional, Metabolic and Structural Mechanisms in Red Cell Biology and Disease

July 15 - 16, 2017

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## Chairs

Marlies P. Rossmann and Daniel Hidalgo

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## Salve Regina University

100 Ochre Point Avenue  
Newport, RI, US

## Conference Description

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The Gordon Research Seminar on Red Cells is a unique forum for graduate students, post-docs, and other scientists with comparable levels of experience and education to present and exchange new data and cutting edge ideas prior to the full Gordon Research Conference at the same venue.

The scientific focus of this meeting covers the entire spectrum of red cell biology, from the transcriptional regulation of erythropoiesis to the structure, metabolism and function of red cells, and red cell diseases. The Red Cells GRS gives attendees the chance to discuss both their current research and future career options with their peers and senior scientists in the field.

## Related Meeting

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This GRS will be held in conjunction with the "Red Cells" Gordon Research Conference (GRC). Those interested in attending both meetings must submit an application for the GRC in addition to an application for the GRS. Refer to the [associated GRC program page](#) for more information.

## Conference Program

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**Saturday**

2:00 pm - 5:00 pm	Arrival and Check-in
3:30 pm - 3:45 pm	Introductory Comments by GRC Site Staff / Welcome from the GRS Chair
3:45 pm - 4:30 pm	<p><b>Keynote Session: About Stem Cells and Red Cells: Two Perspectives</b></p> <p>Discussion Leader: <b>Daniel Hidalgo</b> (University of Massachusetts Medical School, USA)</p>
3:45 pm - 4:05 pm	<p><b>James Palis</b> (University of Rochester Medical Center, USA)</p> <p>"A Developmental Journey"</p>
4:05 pm - 4:15 pm	Discussion
4:15 pm - 4:30 pm	General Discussion
4:30 pm - 6:00 pm	<b>Poster Session</b>
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	<p><b>Keynote Session: About Stem Cells and Red Cells: Two Perspectives (<i>continued</i>) / Understanding Red Cell Formation from Different Angles</b></p> <p>Discussion Leaders: <b>Alyson Smith</b> (The Scripps Research Institute, USA) and <b>Sara El Hoss</b> (Integrated Biology of the Red Cell, INSERM UMR_S1134 / Institut National de la Transfusion Sanguine, France)</p>
7:30 pm - 7:50 pm	<p><b>Elaine Dzierzak</b> (The University of Edinburgh, United Kingdom)</p> <p>"Crossing Borders of Professional, Personal and Stem Cell Development"</p>
7:50 pm - 8:00 pm	Discussion
8:00 pm - 8:10 pm	<p><b>Annamaria Aprile</b> (San Raffaele Telethon Institute for Gene Therapy (SR-TIGET), Italy)</p> <p>"Beta-Thalassemia Beyond the Erythropoietic Defect: Impaired Self-Renewal of Hematopoietic Stem Cell Within an Altered Bone Marrow Niche"</p>
8:10 pm - 8:15 pm	Discussion

8:15 pm - 8:25 pm	<b>Jayme Olsen</b> (University of Rochester, USA) "Bmi-1 Overexpression Increases <i>Ex Vivo</i> Self-Renewal of Human Erythroblasts"
8:25 pm - 8:30 pm	Discussion
8:30 pm - 8:40 pm	<b>Aishwarya Swaminathan</b> (University of Massachusetts Medical School, USA) "Analyzing the Effect of Acute Deletion of Tet2 and Tet3 Dioxygenases on Erythropoiesis"
8:40 pm - 8:45 pm	Discussion
8:45 pm - 8:55 pm	<b>Steven Heshusius</b> (Sanquin, The Netherlands) "Fetal Hemoglobin Expression in Adult Erythroid Cultures Is Repressed by Signaling Activated by CD14 <sup>+</sup> Cells"
8:55 pm - 9:00 pm	Discussion
9:00 pm - 9:10 pm	<b>Shuping Zhang</b> (Massachusetts Institute of Technology, USA) "Genome-Wide Heme and eIF2aP Regulated Gene Expression in Basophilic Erythroblasts"
9:10 pm - 9:15 pm	Discussion
9:15 pm - 9:25 pm	<b>Andra Dumitru</b> (Université Catholique de Louvain, Belgium) "Investigation at High-Resolution of Red Blood Cells Plasma Membrane Lipid Microdomains"
9:25 pm - 9:30 pm	Discussion
<b>Sunday</b>	
7:30 am - 8:30 am	Breakfast

9:00 am - 11:00 am	<p><b>Transcriptional and Epigenetic Regulation of Erythropoiesis / Mentorship Component: Career Panel</b></p> <p><i>The career panel consists of a diverse group of panelists, covering the spectrum of academic science at different career stages, geographic locations and type of institutions as well as alternative careers in the life sciences. Each panelist will give a brief introduction about their career path followed by a Q&amp;A session moderated by the GRS Conference Chairs.</i></p> <p>Discussion Leaders: <b>Alejandra Macias</b> (Massachusetts Institute of Technology, USA), <b>Christophe Lechaue</b> (St. Jude Children's Research Hospital, USA) and <b>Marlies Rossmann</b> (Harvard University, USA)</p>
9:00 am - 9:10 am	<p><b>Elisabeth Heuston</b> (National Human Genome Research Institute, NIH, USA)</p> <p>"Erythropoiesis Requires Epigenetic and Transcriptional Reprogramming to Divert Hematopoietic Stem and Progenitor Cells from Pre-Primed Megakaryocytic Fate"</p>
9:10 am - 9:15 am	Discussion
9:15 am - 9:25 am	<p><b>Avik Choudhuri</b> (Harvard University, USA)</p> <p>"Signaling Centers Define Stages of Human Erythropoiesis and Harbor Common Variants of Red Blood Cell Traits"</p>
9:25 am - 9:30 am	Discussion
9:30 am - 9:40 am	<p><b>Kyle Hewitt</b> (University of Wisconsin-Madison, USA)</p> <p>"GATA Factor-Regulated Samd14 Enhancer Confers Red Blood Cell Regeneration and Survival in Severe Anemia"</p>
9:40 am - 9:45 am	Discussion
9:45 am - 9:55 am	<p><b>Mary Lee</b> (University of Michigan Medical School, USA)</p> <p>"Murine Tr4 Haploinsufficiency Results in Defective Erythropoiesis"</p>
9:55 am - 10:00 am	Discussion

10:00 am - 11:00 am	<p><b>Panel Discussion</b>  <i>Career Development</i></p> <ul style="list-style-type: none"> <li>• <b>Terry Bishop</b> (National Institute of Diabetes and Digestive and Kidney Diseases, NIH, USA)</li> <li>• <b>Elaine Dzierzak</b> (The University of Edinburgh, United Kingdom)</li> <li>• <b>James Palis</b> (University of Rochester Medical Center, USA)</li> <li>• <b>Jeff Shearstone</b> (Syros Pharmaceuticals, USA)</li> <li>• <b>Deborah Sweet</b> (Cell Stem Cell, Cell Press, USA)</li> <li>• <b>Mitchell Weiss</b> (St. Jude Children's Research Hospital, USA)</li> <li>• <b>Jian Xu</b> (University of Texas Southwestern Medical Center, USA)</li> </ul>
11:00 am - 12:30 pm	<p><b>Poster Session</b>  <i>Coffee will be served in the poster area from 11:00 am - 11:30 am</i></p>
12:30 pm - 1:30 pm	Lunch
1:30 pm - 2:30 pm	<p><b>Red Cell Disorders and Therapies</b>  Discussion Leaders: <b>Yuanting Chen</b> (Pennsylvania State University, USA) and <b>Giulia Pavani</b> (Genethon, France)</p>
1:30 pm - 1:40 pm	<p><b>Chang Liao</b> (Pennsylvania State University, USA)  "Selenoproteins Play a Key Role in Stress Erythropoiesis by Regulating both the Stress Erythroid Progenitors and the Spleen Microenvironment"</p>
1:40 pm - 1:45 pm	Discussion
1:45 pm - 1:55 pm	<p><b>Brian Dulmovits</b> (Hofstra Northwell School of Medicine, USA)  "HMGB1 Acts as a Causative Factor of Erythropoietin-Refractory Anemia Associated with Inflammation"</p>
1:55 pm - 2:00 pm	Discussion
2:00 pm - 2:10 pm	<p><b>Ruopeng Feng</b> (St. Jude Children's Research Hospital, USA)  "A CRISPR/Cas9 gRNA Library Screen Identifies UHRF1 as a Potential Modulator of HbF Production"</p>
2:10 pm - 2:15 pm	Discussion

2:15 pm - 2:25 pm	<b>Margaux Chauvet</b> (UMR 216, Institut de Recherche pour le Développement (IRD), Université Paris Descartes, France) "Differential Phosphorylation of Human Erythrocyte Proteins According to Haemoglobin S and C Carriage upon Infection by <i>Plasmodium falciparum</i> "
2:25 pm - 2:30 pm	Discussion
2:30 pm - 3:00 pm	<b>Evaluation Period</b> <i>Fill in GRS Evaluation Forms</i>
3:00 pm	Seminar Concludes

## Contributors

 <p>NIH National Institutes of Health Turning Discovery Into Health</p>	 <p>Boston Children's Hospital Until every child is well</p>	 <p>bluebirdbio™</p>
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