



The Basic Science of Malaria: A Springboard for New Approaches to Control and Elimination

July 2 - 7, 2017

Chair

Maria Mota

Vice Chair

Peter D. Crompton

Les Diablerets Conference Center

Eurotel Victoria
Les Diablerets, CH

Conference Description

New tools and strategies are needed to accelerate progress toward malaria control and elimination. To successfully meet this challenge we need a clearer understanding of the complex interplay between the *Plasmodium* parasite, its mosquito vector and the vertebrate host it infects. The 2017 Gordon Research Conference (GRC) on Malaria will focus on the biology of *Plasmodium* infection at every stage of the parasite's life cycle. To set the stage for a thought-provoking meeting, the program is composed of both malaria and non-malaria scientists at the forefront of their fields. We hope to stimulate innovative ideas and collaborations by providing a forum to discuss cutting edge basic malaria research as well as recent advances in non-malaria fields with potential relevance to malaria. The conference will be preceded by the Malaria Gordon Research Seminar (GRS) from July 1-2, 2017 targeted at graduate students, post-docs and junior scientists.

Related Meeting



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



Conference Program

Sunday

4:00 pm - 8:00 pm	Arrival and Check-in
6:00 pm - 7:00 pm	Dinner
7:30 pm - 7:40 pm	Introductory Comments by GRC Site Staff / Welcome from the GRC Chair
7:40 pm - 9:30 pm	Keynote Session: Progress and Next Steps in Understanding the Parasite, Vector and Host <i>This session will be composed by lectures of leaders in the field that will put in perspective the past achievements and present challenges of malaria research, setting the tone for the entire conference and scientific discussions.</i> Discussion Leader: Maria Mota (Instituto de Medicina Molecular, University of Lisbon, Portugal)
7:40 pm - 7:45 pm	Introduction by Discussion Leader
7:45 pm - 8:10 pm	Carolina Barillas-Mury (National Institutes of Health, USA) "Can a Pfs47-Based Vaccine Recruit the Mosquito Immune System to Disrupt Malaria Transmission?"
8:10 pm - 8:20 pm	Discussion
8:20 pm - 8:45 pm	Fidel Zavala (Johns Hopkins University, USA) "Dissecting Protective Immune Mechanisms Against PE Stages"
8:45 pm - 8:55 pm	Discussion
8:55 pm - 9:20 pm	Alan Cowman (Walter and Eliza Hall Institute of Medical Research, Australia) "Understanding Red Blood Cell Infection and Pathogenicity"
9:20 pm - 9:30 pm	Discussion

Monday

7:30 am - 8:30 am Breakfast



9:00 am - 12:30 pm	Within the Mosquito Vector, Basic Biology Discussion Leader: Carolina Barillas-Mury (National Institutes of Health, USA)
9:00 am - 9:10 am	Introduction by Discussion Leader
9:10 am - 9:30 am	Flaminia Catteruccia (Harvard T.H. Chan School of Public Health, USA) "Studying <i>Anopheles-Plasmodium</i> Interactions: From Basic Research to Applications for Malaria Control"
9:30 am - 9:40 am	Discussion
9:40 am - 10:00 am	Elena Levashina (Max Planck Institute for Infection Biology, Germany) "Environmental and Genetic Factors in Mosquito Resistance to <i>Plasmodium</i> "
10:00 am - 10:10 am	Discussion
10:10 am - 10:40 am	Coffee Break
10:40 am - 11:00 am	Oliver Billker (Wellcome Trust Sanger Institute, United Kingdom) "Regulation of Sexual Development in <i>P. berghei</i> "
11:00 am - 11:10 am	Discussion
11:10 am - 11:20 am	Selected from Poster Abstracts: Ekta Saini (International Centre for Genetic Engineering and Biotechnology (ICGEB), India) "Photosensitized INA-Labelled Protein 1 (PhIL1) Is a Novel Component of the Inner Membrane Complex of All Invasive and Motile Stages of <i>Plasmodium</i> "
11:20 am - 11:25 am	Discussion
11:25 am - 11:35 am	Selected from Poster Abstracts: Ashley Vaughan (Center for Infectious Disease Research, USA) "A <i>Plasmodium</i> ABC Transporter Plays an Essential Role in the Uptake of Lipid to the Developing Oocyst"
11:35 am - 11:40 am	Discussion



11:40 am - 12:00 pm	Matthias Marti (University of Glasgow, United Kingdom) "Lysophosphatidylcholine Regulates Sexual Stage Differentiation in the Human Malaria Parasite <i>Plasmodium falciparum</i> "
12:00 pm - 12:10 pm	Discussion
12:10 pm - 12:30 pm	General Discussion
12:30 pm - 1:30 pm	Group Photo / Lunch
1:30 pm - 4:30 pm	Free Time
4:30 pm - 6:00 pm	Poster Session
6:00 pm - 8:00 pm	Beyond the Bench of the <i>Plasmodium</i>-<i>Anopheles</i> Interactions Discussion Leader: Flaminia Catteruccia (Harvard T.H. Chan School of Public Health, USA)
6:00 pm - 6:10 pm	Introduction by Discussion Leader
6:10 pm - 6:30 pm	David Sacks (National Institute of Allergy and Infectious Diseases, NIH, USA) "Sand Fly Molecules Controlling the Development of Transmissible Infections"
6:30 pm - 6:40 pm	Discussion
6:40 pm - 7:00 pm	Shirley Luckhart (University of Idaho, USA) "An Ancient Plant and Animal Hormone Functions as a Transmission Blocking Therapeutic to Control Immunity to Erythrocytic and Sporogonic Stages of <i>Plasmodium falciparum</i> "
7:00 pm - 7:10 pm	Discussion
7:10 pm - 7:20 pm	Selected from Poster Abstracts: Katharine Collins (QIMR Berghofer Medical Research Institute, Australia) "Human to Mosquito Transmission of <i>P. falciparum</i> and <i>P. vivax</i> During Controlled Human Malaria Infection"
7:20 pm - 7:25 pm	Discussion



7:25 pm - 7:45 pm	George Dimopoulos (Johns Hopkins Bloomberg School of Public Health, USA) "Exploring Strategies for <i>Plasmodium</i> Suppression in the Mosquito"
7:45 pm - 7:55 pm	Discussion
7:55 pm - 8:00 pm	General Discussion
8:00 pm - 9:00 pm	Dinner
Tuesday	
7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Basic Biology of the Pre-Erythrocytic Stages Discussion Leader: Stefan Kappe (Center for Infectious Disease Research, USA)
9:00 am - 9:10 am	Introduction by Discussion Leader
9:10 am - 9:30 am	Irwin Arias (Senior Scientist Emeritus, NIH, USA) "Polarizing Challenges for Hepatocytes and Malaria"
9:30 am - 9:40 am	Discussion
9:40 am - 10:00 am	Olivier Silvie (Centre d'Immunologie et des Maladies Infectieuses, France) "New Insights into Host Cell and Parasite Determinants of <i>Plasmodium</i> Sporozoite Entry into Hepatocytes"
10:00 am - 10:05 am	Discussion
10:05 am - 10:35 am	Coffee Break
10:35 am - 10:55 am	Photini Sinnis (Johns Hopkins Bloomberg School of Public Health, USA) "Establishment of Malaria Infection: Transmission Dynamics and Roadblocks"
10:55 am - 11:00 am	Discussion



11:00 am - 11:10 am	Selected from Poster Abstracts: Annie Yang (Radboud University Medical Center, The Netherlands) "O-Glycosylation of Sporozoite Thrombospondin Repeats Is Required for Liver Infection by <i>Plasmodium falciparum</i> "
11:10 am - 11:15 am	Discussion
11:15 am - 11:25 am	Selected from Poster Abstracts: Erika Flannery (Center for Infectious Disease Research, USA) "Perturbation of <i>Plasmodium vivax</i> Hypnozoite Formation, Growth and Reactivation <i>In Vivo</i> in a Human-Liver Chimeric Mouse"
11:25 am - 11:30 am	Discussion
11:30 am - 11:40 am	Selected from Poster Abstracts: Alexandra Spencer (University of Oxford, United Kingdom) "Factors Defining the Ability of a Liver-Stage Malaria Antigen to Reactivate Protective CD8+ T Cell Responses"
11:40 am - 11:45 am	Discussion
11:45 am - 11:55 am	Selected from Poster Abstracts: Brandon Sack (Center for Infectious Disease Research, USA) "Non-Classical Antibodies to Prevent Malaria Infection"
11:55 am - 12:00 pm	Discussion
12:00 pm - 12:20 pm	Volker Heussler (University of Bern, Switzerland) "Phenotypic Analysis of KO Parasites for Genes Identified by High-Throughput Screening"
12:20 pm - 12:25 pm	Discussion
12:25 pm - 12:30 pm	General Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:30 pm	Free Time
4:30 pm - 6:00 pm	Poster Session



6:00 pm - 8:00 pm	The Pre-Erythrocytic Stages, Beyond the Bench Discussion Leader: Photini Sinnis (Johns Hopkins Bloomberg School of Public Health, USA)
6:00 pm - 6:10 pm	Introduction by Discussion Leader
6:10 pm - 6:30 pm	Charles Rice (The Rockefeller University, USA) "New Insights into Cell-Specific Innate Immunity"
6:30 pm - 6:35 pm	Discussion
6:35 pm - 6:55 pm	Stefan Kappe (Center for Infectious Disease Research, USA) "Preventing Pre-Erythrocytic Malaria Infection"
6:55 pm - 7:00 pm	Discussion
7:00 pm - 7:20 pm	Ian Cockburn (Australian National University, Australia) "Why Don't We Make Better Antibody and B Cell Responses to the Circumsporozoite Protein?"
7:20 pm - 7:25 pm	Discussion
7:25 pm - 7:45 pm	Elizabeth Winzeler (University of California, San Diego, USA) "Finding New Compounds that Kill Liver Stage Parasites"
7:45 pm - 7:50 pm	Discussion
7:50 pm - 8:00 pm	General Discussion
8:00 pm - 9:00 pm	Dinner

Wednesday

7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Malaria Blood Stage Biology Discussion Leader: Alan Cowman (Walter and Eliza Hall Institute of Medical Research, Australia)
9:00 am - 9:10 am	Introduction by Discussion Leader



9:10 am - 9:30 am	Judy Lieberman (Harvard Medical School, USA) "Killer Lymphocytes Recognize and Kill Blood Stage <i>Falciparum</i> Malaria and Other Protozoan Parasites"
9:30 am - 9:40 am	Discussion
9:40 am - 10:00 am	John Hartly (University of Iowa, USA) "Immune Regulation During Blood-Stage <i>Plasmodium</i> -Infection"
10:00 am - 10:10 am	Discussion
10:10 am - 10:40 am	Coffee Break
10:40 am - 11:00 am	Leann Tilley (University of Melbourne, Australia) "Mechanisms of Action of and Resistance to Artemisinins"
11:00 am - 11:05 am	Discussion
11:05 am - 11:25 am	Wai-Hong Tham (Walter and Eliza Hall Institute of Medical Research, Australia) "A New Invasion Pathway for <i>Plasmodium vivax</i> Entry into Reticulocytes"
11:25 am - 11:30 am	Discussion
11:30 am - 11:40 am	Selected from Poster Abstracts: Tania de Koning-Ward (Deakin University, Australia) "Is HSP101 the PTEX Unfoldase?"
11:40 am - 11:45 am	Discussion
11:45 am - 11:55 am	Selected from Poster Abstracts: Mohammad Mahmood Alam (Wellcome Centre for Molecular Parasitology, University of Glasgow, United Kingdom) "Phospho-Signalling Pathways in Malaria Parasite During Host Cell Invasion"
11:55 am - 12:00 pm	Discussion
12:00 pm - 12:20 pm	Jacquin Niles (Massachusetts Institute of Technology, USA) "A Functional Genetics Toolkit for Human Malarial Parasites"
12:20 pm - 12:25 pm	Discussion



12:25 pm - 12:30 pm	General Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:30 pm	Free Time
4:30 pm - 6:00 pm	Poster Session
6:00 pm - 8:00 pm	Blood Stage Malaria Biology Moved Forward Discussion Leader: Wai-Hong Tham (Walter and Eliza Hall Institute of Medical Research, Australia)
6:00 pm - 6:10 pm	Introduction by Discussion Leader
6:10 pm - 6:30 pm	Galit Alter (Ragon Institute, Harvard Medical School, USA) "Using Systems Tools to Define Correlates of Humoral Immunity Against Malaria"
6:30 pm - 6:40 pm	Discussion
6:40 pm - 7:00 pm	Brendan Crabb (Burnet Institute, Australia) "Toward Anti-Malarial Drugs Targeting Host Red Blood Cell Remodelling"
7:00 pm - 7:10 pm	Discussion
7:10 pm - 7:20 pm	Selected from Poster Abstracts: Christine Lehmann (The Francis Crick Institute, United Kingdom) " <i>Plasmodium falciparum</i> Dipeptidyl Aminopeptidase 3 Is Important for Efficient Attachment of Merozoites to Erythrocytes"
7:20 pm - 7:25 pm	Discussion
7:25 pm - 7:45 pm	Simon Draper (Jenner Institute, University of Oxford, United Kingdom) "Towards a Broadly-Neutralising Vaccine Against the <i>P. falciparum</i> Merozoite"
7:45 pm - 7:55 pm	Discussion
7:55 pm - 8:00 pm	General Discussion
8:00 pm - 9:00 pm	Dinner



Thursday

7:30 am - 8:30 am Breakfast

8:30 am - 9:00 am **Business Meeting**
Nominations for the Next Vice Chair; Fill in Conference Evaluation Forms; Discuss Future Site and Scheduling Preferences; Election of the Next Vice Chair

9:00 am - 12:30 pm **Emerging Themes in Pathogenesis and Host Defense**
Discussion Leader: **Peter Crompton** (National Institute of Allergy and Infectious Diseases, NIH, USA)

9:00 am - 9:10 am Introduction by Discussion Leader

9:10 am - 9:30 am **Benjamin Marsland** (University Hospital of Lausanne, Switzerland)
"Microbiota and Respiratory Disease"

9:30 am - 9:40 am Discussion

9:40 am - 10:00 am **Nathan Schmidt** (University of Louisville, USA)
"Contributions of the Intestinal Microbiota to Severe Malaria"

10:00 am - 10:10 am Discussion

10:10 am - 10:40 am Coffee Break

10:40 am - 11:00 am **Miguel Soares** (Fundacao Calouste Gulbenkian, Instituto Gulbenkian de Ciencia, Portugal)
"Disease Tolerance as a Defence Strategy Against Malaria"

11:00 am - 11:10 am Discussion

11:10 am - 11:20 am Selected from Poster Abstracts: **Caroline Junqueira** (Instituto René Rachou, Fiocruz Minas, Brazil)
"The Role of Antigen-Presenting Reticulocytes During Malaria"

11:20 am - 11:25 am Discussion

11:25 am - 11:35 am Selected from Poster Abstracts: **Vanessa Zuzarte-Luis** (University of Lisbon, Portugal)
"Dietary Alterations Modulate the Establishment of *Plasmodium* Infection"



11:35 am - 11:40 am	Discussion
11:40 am - 11:50 am	Selected from Poster Abstracts: Lisa Drewry (Washington University, USA) "Toxoplasma gondii Infection Reprograms Monocyte Motility to Favor Migration Within 3D Substrates, Suggesting a Role in Enabling Tissue Dissemination"
11:50 am - 11:55 am	Discussion
11:55 am - 12:15 pm	Cevayir Coban (Osaka University, Japan) "Plasmodium Products Persist in the Bone Marrow and Promote Chronic Bone Loss"
12:15 pm - 12:25 pm	Discussion
12:25 pm - 12:30 pm	General Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:30 pm	Free Time
4:30 pm - 6:00 pm	Poster Session
6:00 pm - 8:00 pm	Enabling Tools for Malaria Research Discussion Leader: Oliver Billker (Wellcome Trust Sanger Institute, United Kingdom)
6:00 pm - 6:10 pm	Introduction by Discussion Leader
6:10 pm - 6:30 pm	Ulrike Endesfelder (Max Planck Institute for Terrestrial Microbiology / SYNMIKRO Center for Synthetic Microbiology, Germany) "From Single Molecules to Life: Quantitative Microscopy at the Nanoscale"
6:30 pm - 6:35 pm	Discussion
6:35 pm - 6:55 pm	Kirsten Hanson (University of Texas at San Antonio, USA) "Single Cell Profiling of Plasmodium Phenotypic Heterogeneity"
6:55 pm - 7:00 pm	Discussion



7:00 pm - 7:10 pm	Selected from Poster Abstracts: Nil Gural (Massachusetts Institute of Technology, USA) "How Bioengineering Can Help Us?"
7:10 pm - 7:15 pm	Discussion
7:15 pm - 7:25 pm	Selected from Poster Abstracts: Christopher Goodman (University of Melbourne, Australia) "Using the Unusual Reproductive Genetics of <i>Plasmodium</i> to Facilitate Phenotypic Analysis in the Parasite Liver Stages"
7:25 pm - 7:30 pm	Discussion
7:30 pm - 7:40 pm	Selected from Poster Abstracts: David Wright (Vanderbilt University, USA) "Brain-on-a-Chip: New Tools to Study Cerebral Malaria"
7:40 pm - 7:45 pm	Discussion
7:45 pm - 7:55 pm	General Discussion
7:55 pm - 8:00 pm	Closing Remarks
8:00 pm - 9:00 pm	Dinner
Friday	
7:30 am - 8:30 am	Breakfast
9:00 am	Departure

Contributors

 Gordon Research Conferences	 Carl Storm Underrepresented Minority Fellowship	 Carl Storm International Diversity Fellowship
 National Institute of Allergy and Infectious Diseases	 CellPress	 nature microbiology



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