



Join Keystone Symposia
for the 2016 conference on:

Drug Discovery for Parasitic Diseases

January 24–28, 2016

Granlibakken Resort | Tahoe City, California | USA

Scientific Organizers:

Leann M. Tilley, Philip J. Rosenthal and Kelly Chibale

For many parasitic diseases, available therapies are unsatisfactory and increasingly threatened by drug resistance. New therapies, ideally directed against novel targets, are urgently needed. Recent advances in anti-parasitic drug discovery have come from three different approaches – target-based methods that build on improved understanding of parasite biology; phenotypic high-throughput screens that are benefitting from improved technology; and repositioning and repurposing drugs developed for other indications. These different approaches all benefit from the integration of medicinal chemistry with parasitology and pharmacotherapy programs. This conference will showcase cutting-edge anti-parasitic drug discovery programs that illustrate the path from parasite biology to lead identification and from optimization to candidate selection. It will emphasize the need for coordinated integration of programs in medicinal chemistry, parasite biology, pharmacokinetics and safety assessment. It will feature emerging technologies such as chemical biology, chemoproteomics, chemical informatics, genomics, transcriptomics and metabolomics that are facilitating drug discovery. It will also discuss the current status of anti-parasitic drug resistance and advances in our understanding of mechanisms of resistance.

Session Topics:

- Antiparasitic Drug Development: From Start to Finish
- Phenotypic vs. Target-Based Screening
- Target-Based Screening vs. Repurposing and Repositioning
- Hit to Lead
- Drug Resistance
- Tackling Challenging Targets
- New Approaches, New Solutions
- Emerging Technologies and Pioneering Methods
- Workshop and Panel – Drug Target to Clinic: The Pipeline



Submitting an abstract is a great way of participating in the conference through poster presentation and possible selection for a short talk.

Scholarship & Discounted Abstract Deadline: **Sep 28, 2015**

Abstract Deadline: **Oct 28, 2015**

Discounted Registration Deadline: **Nov 23, 2015**

For additional details, visit www.keystonesymposia.org/16A5.

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SUNDAY, JANUARY 24

Arrival and Registration

MONDAY, JANUARY 25

Welcome and Keynote Address

***Leann M. Tilley**, University of Melbourne, Australia

Elizabeth A. Winzeler, University of California, San Diego, USA
Antimalarial Drug Discovery: From Phenotypic Screen to Novel Hits to Target Identification to Preclinical Studies

Clinical Development and Evaluation

***R. Kip Guy**, St. Jude Children's Research Hospital, USA

***Lawrence R. Dick**, Takeda, USA

Annette Kuesel, World Health Organization, Switzerland
Clinical Development of Drugs for Control and Elimination of Helminthic Diseases

Philip J. Rosenthal, University of California, San Francisco, USA
Changing Malaria Treatment Efficacy with Changes in Treatment Practices and Drug Sensitivities in Uganda

Shyam Sundar, Banaras Hindu University, India
Clinical Trials for the Treatment of Visceral Leishmaniasis

Ian H. Gilbert, University of Dundee, UK
Short Talk: A Fully Integrated Partnership Performing Drug Discovery towards Visceral Leishmaniasis

Target-Based Screening

***Rob Leurs**, Vrije Universiteit Amsterdam, Netherlands

***Tanya Paquet**, University of Cape Town, South Africa

James H. McKerrow, University of California, San Diego, USA
Target-Based Drug Discovery: Targeting Cysteine Proteases in Multiple Organisms

Matthew S. Bogyo, Stanford University School of Medicine, USA
Structure and Function-Based Design of Plasmodium-Selective Proteasome Inhibitors

Meg Phillips, University of Texas Southwestern Medical Center, USA
A Clinical Candidate Targeting Plasmodium falciparum Dihydroorotate Dehydrogenase

Black Diamonds (2 minute poster teaser talks)

***Christopher Dean Goodman**, University of Melbourne, Australia

***Philip J. Rosenthal**, University of California, San Francisco, USA

Sneha Anand, Jawahar Lal Nehru University, India
Characterization of Essential Non-Translational Function of Leishmania Tyrosyl tRNA Synthetase and its Prospect as a Drug Target

Ximena Barros-Alvarez, University of Washington, USA
Structural Biology in the Development of Inhibitors Targeting Methionyl-tRNA Synthetase for the Discovery of New Therapeutics to Treat Sleeping Sickness

Jessica L. Bridgford, University of Melbourne, Australia
Targeting Artemisinin Resistance in the Malaria Parasite Plasmodium falciparum

Lynn Dong Blake, Central Michigan University College of Medicine, USA

Characterization of Menoetone Efficacy Against Plasmodium Berghei and P. falciparum

Brian R. Blank, University of California, San Francisco, USA
In Vitro and in vivo Investigation of Regioisomeric Forms of Arterolane-Like Endoperoxides

Stephanie Braillard, Drugs for Neglected Diseases Initiative, Switzerland
DNDI-0690: A New Promising Drug Candidate for the Treatment of Visceral Leishmaniasis

Angela Kelly Carrillo Alocen, St Jude Children's Research Hospital, USA

Towards the Determination of the Mechanism of Action of the Chloronitrobenzamides against Trypanosoma brucei brucei

Victoria Catherine Corey, University of California, San Diego, USA
Comprehensive Analysis of Resistance Development in the Malaria Parasite

Manu De Rycker, University of Dundee, UK
Tailored Hit-Discovery Cascades for Leishmania donovani and Trypanosoma cruzi that Combine High-Throughput Screening with Multiple Secondary Assays to Build Confidence in Hits

Gregory Goldgof, University of California, San Diego, USA
Synthetic Drug Sensitive Yeast as a Tool for Drug Target Discovery

Rob Leurs, Vrije Universiteit Amsterdam, Netherlands
Phenotypic Screening Identifies Human PDE4 Inhibitors with Submicromolar Activity Against Trypanosoma Cruzi, the Causative Agent of Chagas Disease

Ebere Sonoiki, University of California, San Francisco, USA
Two Novel p. Falciparum Targets Identified by Different Benzoxaboroles

Poster Session 1

TUESDAY, JANUARY 26

Phenotypic Screening, Repurposing and Repositioning

***Jane Kelly**, Portland State University, USA

***Leslie Street**, University of Cape Town, South Africa

Jeremy N. Burrows, Medicines for Malaria Venture, Switzerland
Drug Discovery to Control and Eradicate Malaria

Michael H. Gelb, University of Washington, USA
A Phenotypic Approach to Drug Discovery for Stage II Human African trypanosomiasis

Jennifer Keiser, Swiss Tropical and Public Health Institute, Switzerland
Repurposing for Antischistosomal Drug Discovery: From Bench to Field

John Haselden, GlaxoSmithKline, Spain
Antiparasitic Hits from Phenotypic High Throughput Screening

Amy K. Wernimont, National Institutes of Health, USA
Short Talk: Collaborative Drug Discovery and Structural Genomics – Impact for Neglected Disease Research

Charles E. Mowbray, Drugs for Neglected Diseases Initiative, Switzerland
Short Talk: The NTD Drug Discovery Booster: A Novel Approach for Hit to Lead Chemistry

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Workshop and Panel: Drug Target to Clinic: The Pipeline

***Kelly Chibale**, University of Cape Town, South Africa

Meg Phillips, University of Texas Southwestern Medical Center, USA
Target Validation and the Comparison of Target-Based HTS versus Whole Organism Screening

Timothy G. Geary, McGill University, Canada
Moving from Concept to Reality for Repurposing an Approved Drug for a New Neglected Disease Indication

Kevin Read, University of Dundee, Scotland
NTD Drug Discovery: An Academic Perspective

Robert T. Jacobs, Anacor Pharmaceuticals, Inc., USA
Parasitic/Neglected Disease Drug Discovery: A Biotech Perspective

John Haselden, GlaxoSmithKline, Spain
A Pharma Perspective on Opportunities to Transition Drug Discovery Assets into Preclinical and Early Clinical Drug Development

Jeremy N. Burrows, Medicines for Malaria Venture, Switzerland
Practical Issues in Translating Antimalarial Drugs

Susan A. Charman, Monash University, Australia
Human Pharmacokinetic and Dose Predictions

Annette Kuesel, World Health Organization, Switzerland
What Support do Regulatory Agencies Offer

Hit to Lead

***Debopam Chakrabarti**, University of Central Florida, USA

***Audrey R. Odom**, Washington University School of Medicine, USA

Jonathan L. Vennerstrom, University of Nebraska Medical Center, USA
Discovery of Antimalarial Ozonides OZ277 and OZ439

Kelly Chibale, University of Cape Town, South Africa
Antimalarials from SoftFocus Libraries: Optimization and Target Identification

Robert T. Jacobs, Anacor Pharmaceuticals, Inc., USA
Drug Discovery and Development Based on Antiparasitic Benzoxaboroles

Short Schusses (2 minute poster teaser talks)

***Darren J. Creek**, Monash University, Australia

***Leann M. Tilley**, University of Melbourne, Australia

Rajiv S. Jumani, University of Vermont, USA
Methods to Prioritize Anti-Cryptosporidium Hits

Leah S. Imlay, Washington University in St. Louis, USA
Structure-Activity Relationship Studies of the Malaria Box Compound 1R,3S-MMV008138, Inhibitor of the Non-Mevalonate Pathway Enzyme IspD

Benoit Laleu, Medicines for Malaria Venture, Switzerland
The Pathogen Box Project: A Catalyst for Neglected Disease Drug Discover

Cynthia Lichorowic, Northeastern University, USA
Orally Bioavailable and In Vivo Efficacious Antimalarial 4(1H)-Quinolones

Stephan Meister, University of California, San Diego, USA
A High-Throughput Luciferase-Based Assay for the Discovery of Malaria Liver Stage Therapeutics

Jane C. Munday, University of Glasgow, UK
Functional Analysis of Parasitic PDEs Towards Validation as Potential Drug Targets

Caroline Ng, University of Nebraska Medical Center, USA
PfMDR1 Mutations Protect Against a Novel Antimalarial but Confer Sensitivity to Partner Drugs in Artemisinin-Based Combination Therapy

Ferdinand Wafula Ndubi, University of Cape Town, South Africa
Synthesis and Structure-Activity Relationship Studies of Antimalarial Pyrido [1, 2alpha] Benzimidazoles

John Okombo, University of Cape Town, South Africa
Mechanistic Profiling of Dual-Functioning Reversed Chloroquine Compounds Containing a Dibenzylmethylamine Side Chain

Khan T. Osman, University of Toronto, Canada
Discovery of Novel Dual-Kinase Inhibitors Against Parasite-Specific Protein Kinases

Sarah Preston, University of Melbourne, Australia
Working Toward New Drugs Against Parasitic Worms in Public-Private Partnership

Babu Somepalli Mastan, University of Hyderabad, India
Probing the function of Aspartyl proteases, Plasmeprin VII & VIII in Plasmodium berghei

Poster Session 2

WEDNESDAY, JANUARY 27

Drug Resistance

***Elisabeth D. Martinez**, University of Texas Southwestern Medical Center, USA

***Kellan C. Gregory**, Collaborative Drug Discovery Inc, USA
David A. Fidock, Columbia University Medical Center, USA
Leveraging Genome Editing to Define the Genetic Basis of Antimalarial Drug Resistance

Leann M. Tilley, University of Melbourne, Australia
Molecular Basis of Artemisinin Action and Resistance

Marc Ouellette, CIHR Institute of Infection and Immunity, Canada
Functional Genomics of Drug Resistance in Leishmania

Vern B. Carruthers, University of Michigan Medical School, USA
Targeting a T. gondii Cathepsin Protease Essential for Chronic Toxoplasmosis

Kirsten Hanson, University of Texas at San Antonio, USA
Short Talk: Targeting Liver Stages of Malaria Parasites

Tackling Challenging Targets

***Case W. McNamara**, California Institute for Biomedical Research, USA

***Rosa A. Maldonado**, University of Texas at El Paso, USA

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Timothy G. Geary, McGill University, Canada
Mechanism-Based Screening Against Nematode G Protein-Coupled Receptors: A Case History

Christophe Bodenreider, Novartis Institute for Tropical Diseases, Singapore
Development of PI(4) Kinase Inhibitors Active across the Life-Cycle of Plasmodium

Geoffrey Ian McFadden, University of Melbourne, Australia
Parasite Resistance to the Antimalarial Atovaquone is not Transmissible by Mosquitoes

Malcolm J. McConville, University of Melbourne, Australia
Measuring Parasite Metabolism in vivo

Collette Britton, University of Glasgow, UK
Small RNAs: Association with Anthelmintic Resistance and as Potential New Drug Targets

Dominique Soldati-Favre, University of Geneva, Switzerland
Short Talk: Plasmeprin IX and X: New Candidate Targets for Old Antimalarial Drugs

Conor Caffrey, University of California, San Diego, USA
Short Talk: Automated Screening Technologies for Large Parasites

Screaming Snowboarders (2 minute poster teaser talks)

***Paul Horrocks**, Keele University, UK

***Kelly Chibale**, University of Cape Town, South Africa

Bracken Franklin Roberts, University of Central Florida, USA
Identification of Novel Chemical Scaffolds that Inhibit All Stages of Plasmodium Asexual Life Cycle

Vijeta Sharma, Shiv Nadar University, India
Anti-Plasmodial Activity of Redox System Enzyme Inhibitor

Jair L. Siqueira-Neto, University of California, San Diego, USA
Different Strategies to Find New Active Compounds to Treat Chagas Disease

Allison Michele Stickles, Oregon Health & Science University, USA
Atovaquone and ELQ-300 Combination Therapy: A Novel Dual-Site Cytochrome bc1 Inhibition Strategy for Malaria

Taher Uddin, University of Melbourne, Australia
Validation of Putative Apicoplast Targeting Drugs Using a chemical Supplementation Assay in Cultured Malaria Parasites

Manu Vanaerschot, Columbia University, USA
Identifying Dihydropyridones as New Antimalarial Drug Candidates with Asexual Blood Stage and Gametocyte Activity

Richard John Wall, University of Dundee, UK
Defining Drug Mechanism of Action: Leveraging Phenotypic Hits Against Kinetoplastids

Leah Walker, Johns Hopkins School of Public Health, USA
Short Talk: Duration of Artemisinin Combination Therapy Influences Parasitological Outcome in a Mouse Model of Malaria

Clarisse Ricci, University of California, San Diego, USA
Molecular Dynamics Investigation of Plasmodium vivax GGPPS and Implications for Computer-Aided Drug Discovery

Poster Session 3

THURSDAY, JANUARY 28

Genomics, Proteomics and Metabolomics and New Technologies

***Kirsten Hanson**, University of Texas at San Antonio, USA

***Stuart A. Ralph**, University of Melbourne, Australia

Sarah K. Volkman, Harvard T.H. Chan School of Public Health, USA
Genome Wide Association Studies to Gain Insights into Drug Resistance

Sonja Ghidelli-Disse, Cellzome, a GSK company, Germany
Use of Chemoproteomics to Identify Parasite Targets

Pharmacokinetics and Informatics

***Michael Riscoe**, Oregon Health & Science University, USA

***Dennis E. Kyle**, University of South Florida, USA

Kevin Read, University of Dundee, Scotland
Integrating Drug Metabolism and Pharmacokinetics into Antiparasitic Drug Discovery

Susan A. Charman, Monash University, Australia
Human Pharmacokinetic and Dose Predictions for Neglected Diseases

John Overington, Medicines Discovery Catapult, UK
Informatics Approaches to Target Identification and Selection for Neglected Disease Drug Discovery

Meeting Wrap-Up: Outcomes and Future Directions

***Philip J. Rosenthal**, University of California, San Francisco, USA

FRIDAY, JANUARY 29

Departure