November 16th to 17th, 2015 – Harnack House Berlin

Max-Planck – Focus Symposium

– Program –

Host-directed therapy
New ways to curing infections

• Registration open from 10:30 •

11:30 – 13:00 Lunch Buffet

Monday Nov. 16th (12:00 – 12:45) – Industry Workshop

Monday Nov. 16th (13:00 – 21:30) – Main Symposium and Panel Discussion 1

13:00 – 14:30
Emerging diseases and acute infectious disease health issues
(Ebola, EHEC, MDRP etc.)

This session will set the frame for the conference topic and give an introduction to the problems of clinically important and emerging infectious diseases. The emergence of (antibiotic) treatment resistance constitutes an increasing public health problem. Additionally, zoonotic infections and transmission from animals with subsequent epidemics constitute a serious recurring threat, as illustrated by the continuing spread of multidrug resistant strains as well as the recent epidemics of Ebola, EHEC and others.

Chair: Klaus Osterrieder, FU Berlin

• Welcome address and introductory remarks	Thomas F. Meyer, MPI-IB Berlin Jörg Hacker, Leopoldina Halle
• Relevance of zoonotic infections	Thomas Mettenleiter, FLI Riems
• The example of Ebola and similar threats	Heinrich Feldmann, NIH Montana

14:30 Coffe Break, Poster Session, Company Exhibition

15:00 – 16:30
High-throughput loss and gain of function analyses
(RNAi, CRISPR, assays, bioinformatics etc.)

The host-directed approach generally relies on the identification of druggable host factors with crucial functions in the infection process. Concomitant with the discovery of the broad applicability of RNA interference for loss-of-function analysis in human cells, functional genome analysis has progressed rapidly. The breakthrough with RNAi was soon complemented by technologies involving haploid cell models and sophisticated bioinformatics tools. Most recently, an even more powerful system, CRISPR/Cas9, has been added to the toolbox, raising further increasing expectations.

Chair: Jens von Kries, FMP Berlin

- Overview of loss-of-function analyses (LOF) — Anil Koul, Janssen Belgium
- RNAi and other global approaches — Christoph Sachse, NMI TT Berlin
- CRISPR to unravel infection — Marco Hein, UC San Francisco

17:00 – 18:30
Model systems (Influenza, Chikungunya, Chlamydia, Tuberculosis, Ebola etc.)

This session aims to provide an update and examples of current successful approaches that not only have led to the identification of experimental host cell targets suitable for blocking infections but have already pointed to distinct candidate treatment options for both persistent bacterial and viral infections.

Chair: Marc Lecuit, IP Paris

- Influenza — Ari Helenius, ETH Zurich
- Chlamydia — Marion Rother, MPI-IB Berlin
- Tuberculosis — Alan Sher, NIH Bethesda

18:30 Dinner

20:00 – 21:30
Panel Discussion 1 – Traditional versus host-directed therapies

Host-directed infection treatment strategies promise a number of advantages over the conventional pathogen-directed antibiotic and antiviral approaches. However, these presumed advantages are still largely hypothetical. One of the most compelling benefits could be the relative inertness of this approach to resistance development. Furthermore, the approach promises preparedness to epidemics caused by novel or resistant strains, such as influenza virus. On the other hand, the development and use of host-directed drugs may be connected with various uncertainties and pitfalls. It is therefore necessary to illuminate these pros and cons amongst experts from multiple viewpoints, including basic science, pharmaceutical industry and the clinics. Experts from these areas will provide brief statements, followed by moderated discussion.

Ralf Bartenschlager, Ari Helenius, Bert Klebl, Anil Koul, Helga Rübsamen-Schaeff

Moderator: Lakshmi Goyal

Tuesday Nov. 17th (9:00 – 19:00) – Main Symposium, ANTIFLU Public and Panel Discussion 2

09:00 – 10:30
Host targets and host-directed drugs in clinical settings

This session will address clinically relevant examples of the importance of host factors in efforts to treat or prevent serious infections. On one hand, clinical observations have recently demonstrated the eradication of HIV infection following the transplantation of CCR5 defective hemopoietic stem cells. On the other hand, initial host-directed drugs are in the process of entering the clinical market.

Chair: Christian Drosten, U Bonn

• An intriguing host factor-based cure of HIV	Eckhard Thiel, Charité Berlin
• Host-directed anti-infectives in the pipeline	Jason Mercer, UCL London
• Host targeting drugs: lessons learnt from hepatitis C virus	Ralf Bartenschlager, U Heidelberg
• Antimicrobial drug development: approaches and success record	Helga Rübsamen-Schaeff, AiCuris Wuppertal

10:30 Coffe Break, Poster Session, Company Exhibition

11:00 – 12:40
Drug repurposing strategies

A great challenge is the provision of new drugs in the case of emergencies, such as during an upcoming epidemic. Since drugs against numerous human factors have already been developed and in part already officially approved (FDA), albeit for other clinical indications, the matching of host targets identified in large genomic LOF screens with the pool of already established drugs offers a unique opportunity to identify new anti-infective treatment options extremely rapidly. While this new ‘rational drug repurposing’ strategy has great clinical potential, it is often connected with various IP issues that might hamper big pharma and needs to be intelligently overcome.

Chair: Andreas Herrmann, HU Berlin

• A faster track to generate efficient drugs	Bert Klebl, LDC Dortmund
• Effective drug repurposing against Influenza	Vincent Lotteau, INSERM Lyon
• Effective drug repurposing against Chikungunya	Alexander Karlas, MPI-IB Berlin
• Concluding remarks	Ari Helenius, ETH Zurich

13:00 Lunch

ANTIFLU public outreach meeting (14:00 – 17:00) – public workshop, free access, registration needed

The EU has provided funds for a collaborative project to develop new host-directed drugs and RNAi based strategies to combat Influenza infections. The ANTIFLU Consortium will present its approach and strategies for generating new effective host directed anti-influenza drugs.

History and goals of ANTIFLU	Thomas F. Meyer, MPI-IB Berlin
Influenza biology	Wendy Barclay, Imperial College London
RNAi approach and delivery	Jørgen Kjems, U Arhus
Kinase inhibitor approach	Gyorgy Keri, Vichem Budapest
Berlin Integrated Screening C.	Jens von Kries, FMP Berlin
3D structure and modelling	Oded Livnah, Hebrew U Jerusalem
Non-kinase targets	Klaus Dinkel, LDC Dortmund

17:30 – 19:00
Panel Discussion 2 – Basic research and innovation in the context of emerging infectious diseases – The case of Ebola

The ongoing Ebola outbreak in West Africa continues to be a serious threat. Moreover, this outbreak is just an example of the challenges our societies are confronted with in terms of

infectious diseases and the sudden, unexpected occurrence of new, or even old but forgotten, pathogens. Apart from the failures experienced by our world societies to provide the necessary infrastructure and general healthcare conditions to combat the disease, there are also still no vaccines or effective medications available yet. We therefore would like to discuss the anticipated potential of the new host-directed anti-infective approach in the light of the current Ebola outbreak and any unavoidable future threat of new epidemics: Could host-directed drug intervention provide a solution to this problem in terms of broad spectrum efficacy and avoidance of pathogen resistance? And could rational (LOF analysis-based) drug repositioning strategies help to develop and apply effective drugs more rapidly? Questions along these lines should be discussed with a panel of first-hand epidemics experts, researchers, medical doctors as well as pharmacologists, with the participation of relevant politicians.

Stephan Becker, *Heinrich Feldmann, Walter Lindner (provisional), Thomas Mettenleiter, Dietmar Scheiter (provisional), Lothar Wieler*

Moderator: N.N.

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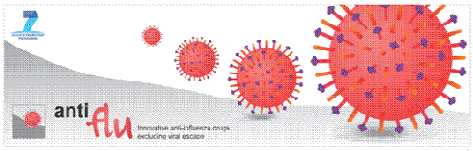

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