Friedrich-Loeffler-Institut
Federal Research Institute for Animal Health

The Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health (FLI), is an independent higher Federal authority under the auspices of the German Federal Ministry of Food and Agriculture (BMEL). The FLI performs research concerning infectious diseases of animals, animal genetics, animal nutrition and animal welfare and husbandry. Furthermore it is the national reference laboratory for all infectious diseases of animals including zoonoses, which are notifiable or reportable. At the international level, it fulfils numerous functions within the World Organisation for Animal Health (OIE), the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO). Today, it encompasses 11 research departments at five sites. The headquarters is located on the Insel Riems, Greifswald, Germany.

German National Academy of Sciences Leopoldina

Founded in 1652, the Leopoldina brings together some 1,500 outstanding scientists from about 30 countries. It is dedicated to the advancement of science for the benefit of humankind and to shaping a better future. In its role as the German National Academy of Science, the Leopoldina represents the German scientific community in international committees. It offers unbiased scientific opinions on political and societal questions, publishing independent studies of national and international significance. The Leopoldina promotes scientific and public debate, supports young scientists, confers awards for scientific achievements, conducts research projects, and campaigns for the human rights of persecuted scientists.

Humboldt-Universität zu Berlin

Humboldt-Universität zu Berlin is one of the leading research institutions in the world. In 1810, the university was the first to introduce the unity of research and teaching, to uphold the ideal of research without restrictions and to provide a comprehensive education for its students. Humboldt-Universität invests all its energy in fostering an environment for excellent research and teaching. The university's key goals are to promote young talents and to positively influence society and economy outside the university framework. Life sciences with a focus on cell- and molecular biology, neurosciences and immunobiology constitute one of the focal research areas. As one of eleven German universities, Humboldt-Universität was chosen a "University of Excellence" in June 2012. In international comparisons, Humboldt-Universität ranks among the top five of German universities.

Symposium organization:

Prof. Dr. Dr. h. c. mult. T. Hiepe (Berlin), MdL*
Prof. Dr. Dr. h. c. T. C. Mettenleiter (Insel Riems), MdL*

Scientific advisory board:

Prof. Dr. H. Aspöck (Vienna), MdL*
Prof. Dr. S. Becker (Hannover)
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Prof. Dr. R. Lucius (Berlin)
Prof. Dr. G. von Samson-Himmelstjerna (Berlin)
Prof. Dr. E. Tannich (Hamburg)

* Member of the Leopoldina

Symposium venue:

Humboldt Universität zu Berlin
Campus North
Faculty of Life Sciences
Emil Fischer Lecture Hall
Hessische Straße 1/2
10115 Berlin

Information and registration:

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Further information and registration are available online:
http://Arthropods.FLI.Bund.de/

FRIEDRICH-LOEFFLER-INSTITUT
FLI
Bundesforschungsinstitut für Tiergesundheit
Federal Research Institute for Animal Health

Leopoldina
Nationale Akademie
der Wissenschaften

Arthropod-borne infectious diseases and arthropods as disease agents in human and animal health

International Symposium
October 1-3
Berlin, Germany

Growing globalization of trade, climate change and expanding worldwide travel activity increase the risk to import formerly exotic arthropods to Europe as well as to introduce pathogens which are transmitted by arthropods. Thus, in recent years various invasive mosquito species were detected in Europe, for example the Japanese bush mosquito or the Asian tiger mosquito, which have a high vector competence for various pathogens. The presence of several new arthropod-borne viruses and exotic nematodes document an increasing entry of these pathogens. Regarding arthropod pests especially the appearance of the small hive beetle in Italy causes concern.

A basic prerequisite for the successful control of arthropods and the pathogens they transmit is to conduct coordinated research in the areas of biology, epidemiology, and not least to revise arthropod taxonomy using new OMICS technologies. In recent years, a variety of studies in different countries have been performed. This symposium will bring together internationally recognized experts in the fields of taxonomy, epidemiology, vector and pathogen research and biology of arthropod pests in order to promote scientific exchange between the individual disciplines and to support coordinated programs.

Thomas C. Mettenleiter, MdL*
Friedrich-Loeffler-Institut

Stefanie Becker
Tierärztliche Hochschule
Hannover

Theodor Hiepe, MdL*
Humboldt-Universität zu Berlin
Freie Universität Berlin

Richard Lucius
Humboldt-Universität zu Berlin

Thursday, October 1, 2015

1.00 pm – 1.30 pm
Welcome address
Jörg Hacker (Halle/Saale, Germany)
President of the German National Academy of Sciences Leopoldina
Thomas C. Mettenleiter (Insel Riems, Germany)
President of the Friedrich-Loeffler-Institut, Federal Research Institute for Animal Health
Richard Lucius (Berlin, Germany)
Dean of the Faculty of Life Sciences, Humboldt-Universität zu Berlin

Session I: Taxonomy goes OMICs: Molecular versus morphological methods in taxonomic research

1.30 pm – 2.00 pm
Approaches to infer local vectorial capacity: from rapid assays to population genomics and transcriptomics, a review
Dina M. Fonseca (New Brunswick, NJ, USA)
2.00 pm – 2.30 pm
Can Next-Generation-Sequencing help with overcoming the taxonomic impediment in arthropod systematics?
Rudolf Meier (Singapore)
2.30 pm – 3.00 pm
The Making of Vectors: Lessons from the *Simuliidae*
Peter H. Adler (Clemson, USA)
3.00 pm – 3.30 pm
Coffee Break
3.30 pm – 4.00 pm
Towards high-throughput identification of arthropod vectors by mass spectrometry
Alexander Mathis (Zürich, Switzerland)
4.00 pm – 4.30 pm
The red flour beetle *Tribolium castaneum* – a novel model for pest insects
Gregor Bucher (Göttingen, Germany)
4.30 pm – 5.00 pm
Tungiasis – a neglected tropical zoonosis with many facets
Hermann Feldmeier (Berlin, Germany)

Plenary Lecture

6.00 pm - 7.00 pm
at the Tieranatomisches Theater
Welcome address
Klaus Osterrieder (Berlin, Germany)
Introduction
Theodor Hiepe (Berlin, Germany)
Die Vielfalt der Arthropoden - eine molekularbiologische Sicht (in German language)
Bernhard Misof (Bonn, Germany)
7.00 pm
Welcome Reception at the Tieranatomisches Theater

Friday, October 2, 2015

Session II: Vector control as "One health" approach? Arthropod-borne diseases in veterinary and public health

9.00 am – 9.30 am
Modeling of arthropod-borne diseases
Franz Rubel (Vienna, Austria)

Mosquitoes

9.30 am – 10.00 am
Mosquito monitoring in Germany
Helge Kampen (Insel Riems, Germany)
10.00 am – 10.30 am
The German Mobovirus Surveillance Program, 2009 – 2015
Jonas Schmidt-Chanasit (Hamburg, Germany)
10.30 am – 11.00 am
Dirofilariasis – a new emerging vector-borne zoonosis in Central Europe
Egbert Tannich (Hamburg, Germany)
11.00 am – 11.30 am
Coffee break
11.30 am – 12.00 pm
Genetic structure of *Aedes albopictus* population and Chikungunya emergence
Anna-Bella Failloux (Paris, France)
12.00 pm – 12.30 pm
The impact of biotic and abiotic factors on vectorial capacity of *Culex* mosquitoes for West Nile virus
Laura D. Kramer (Albany, NY, USA)
12.30 pm – 1.00 pm
NN
NN (…)
1.00 pm – 2.00 pm
Lunch Break

Biting midges

2.00 pm – 2.30 pm
Culicoides biting midges and their relevance as vectors: a European perspective.
Claudio de Liberato (Rome, Italy)

Sandflies

2.30 pm – 3.00 pm
Targeting phlebotomine vectors for the integrated control of leishmaniasis
Paul Ready (London, UK)

Ticks

3.00 pm – 3.30 pm
Infections with Spotted-Fever Group *Rickettsiae* in man and animals
Martin Pfeffer (Leipzig, Germany)
3.30 pm – 4.00 pm
Tick-borne viruses
Gerhard Dobler (Munich, Germany)
4.00 pm – 4.30 pm
Coffee break

Prevention and Control

4.30 pm – 5.00 pm
Novel malaria vector control based on proven historical concepts
Bart Knols (Wageningen, Netherlands)
5.00 pm – 5.30 pm
The potential use of *Wolbachia*-based mosquito biocontrol strategies for Japanese encephalitis
Thomas Walker (London, UK)
5.30 pm – 6.00 pm
Analysis of insecticide resistance in major mosquito vectors: from molecular mechanisms to management.
John Vontas (Crete, Athens, Greece)

Genetic Models for Vector-borne Diseases

6.00 pm – 6.30 pm
Insect Biotechnology used for eco-friendly pest control
Marc F. Schetelig (Giessen, Germany)
6.30 pm – 7.00 pm
Drosophila as models for Arbovirus Infection
Stefanie Becker (Hannover, Germany)

Saturday, October 3, 2015

Session III: Sleeping with the Enemy: Bedbugs and other parasitic arthropods

9.00 am – 9.30 am
Vaccinomics: from systems biology of tick-pathogen interactions to vaccine development
José de la Fuente (Ciudad Real, Spain)
9.30 am – 10.00 am
Bed Bugs: the Clinical Implications
Stephen Doggett (Westmead, Australia)
10.00 am – 10.30 am
Small hive beetle in Italy
Franco Mutinelli (Legnaro/Padua, Italy)
10.30 am – 11.00 am
Coffee break
11.00 am – 11.30 am
Varroa destructor: from an invasive parasite to a permanent threat
Peter Rosenkranz (Stuttgart, Germany)
11.30 am – 12.00 pm
Dermanyssus gallinae: a never-ending story for the poultry industry and public health
Annunziata Giangaspero (Foggia, Italy)
12.00 pm – 12.30 pm
Medical Entomology in the 21st Century: Retrospect and Challenges
Horst Aspöck (Vienna, Austria)
12.30 pm – 1.00 pm
Coffee Break

Session IV: Gaps and needs in research, prevention and control

1.00 pm – 2.00 pm
Round table discussion and summary