Combating resistance: microbes and vectors

2018 INSTITUT PASTEUR INTERNATIONAL NETWORK SYMPOSIUM

Institut Pasteur, Paris – November 15-16, 2018
I. CURRENT SITUATION

The development of effective treatments against pathogens is one of the major progresses of modern medicine. Today, the emergence and spread of pathogens resistant to these treatments is a serious health threat worldwide. Resistant infections are responsible for 700,000 deaths each year worldwide. Drug-resistant TB alone kills 250,000 people each year.

Resistant infections also have a significant economic impact on health systems due to the longer duration of care, additional testing and the use of more expensive next generation drugs. A recent economic study commissioned by the British government has concluded that antimicrobial resistance will kill 10 million people a year by 2050 and its cost will cost the global economy $100 billion without strategies to stop the current spread.

In addition, the use of insecticides to control vector populations, particularly mosquitoes, remains a key measure for public health. Unfortunately, after years of intensive use, the emergence of resistant vectors is jeopardizing the success of these control strategies around the world.

Due to its global presence and the diversity of its expertise, the Institut Pasteur International Network has the potential to play a major role in the monitoring and fight against microbial agents and vectors resistance. Members of the International Network of Institut Pasteur are carrying out many programs of detection, surveillance and resistance control at the epidemiological level, as well as projects for the development of new diagnosis and treatment tools.
II. THE INSTITUT PASTEUR INTERNATIONAL NETWORK SYMPOSIUM

Over the years, the Institut Pasteur International Network Symposium has become a major event that brings together researchers from all walks of life and gives them the opportunity to present their results, share ideas and strengthen their cooperation.

Building on the success of the previous three editions, the Institut Pasteur International Network's symposium will focus this year on all aspects of antimicrobial and insecticide resistance research.

As a high-level forum, it will promote multidisciplinary dialogue and exchanges between scientists and representatives of international institutions involved in these major public health issues to:

• present research projects conducted to identify, monitor or predict the emergence of resistant pathogens and vectors
• highlight current efforts in translational research to develop new tools and technologies needed to meet the challenges of diagnosing and monitoring these threats to human health
• explore innovative solutions to practically develop these tools in the field, in resource-constrained settings.

Unique in its conception, this high-level international scientific symposium will gather about 400 participants. A particular attention will be given to the participation of young scientists, especially from resource-limited countries.

Organized over two full days, the scientific program will consist of plenary sessions delivered by invited researchers and followed by oral communication sessions selected on the basis of abstracts. Poster sessions will be organized at lunch time.

An event supported by

[Images of Pfizer and Biomérieux logos]
III. INVITED KEYNOTE SPEAKERS

Opening keynote lecture

The unfolding of antimicrobial resistance

Pr Keiji Fukuda
Director and Professor
Division of Community Medicine and Public Health, School of Public Health, University of Hong-Kong

Harnessing biological insight to accelerate the discovery of antituberculosis drugs with new mechanisms of action

Pr Valérie Mizrahi
Director
Institute of Infectious Disease and Molecular Medicine
University of Cape Town, South Africa

Recent insights into mechanisms of antimalarial drug resistance in Plasmodium falciparum

Pr David Fidock
C. S. Hamish Young Professor of Microbiology & Immunology, Professor of Medical Sciences, Columbia University Medical Center
New York, United States

Combating antimicrobial resistance of enteric bacteria in resource-limited settings

Pr Iruka Okeke
Professor at the University of Ibadan, Department of Pharmaceutical Microbiology, University of Ibadan, Nigeria

Tackling the challenge of vector resistance

Pr David Weetman
Senior Lecturer in the Department of Vector Biology, Liverpool School of Tropical Medicine
Liverpool, United Kingdom

Monitoring antiviral drug resistance in resource-limited settings

Pr Éric Delaporte
Professor of Tropical Diseases, University of Montpellier
Montpellier, France
### SCIENTIFIC PROGRAMME AT-A-GLANCE

**Thursday 15 November 2018**

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<td>08:30 - 09:00</td>
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| 09:00 - 09:30 | OPENING LECTURE  
Pr Keiji Fukuda, Director School of Public Health, The University of Hong Kong |
| 09:30 - 11:00 | Abstract Session 01  
**HOW DOES RESISTANCE AFFECT GLOBAL HEALTH?** |
| 11:00 - 11:30 | Coffee Break                                                        |
| 11:30 - 13:00 | Abstract Session 02  
**HOW DOES RESISTANCE AFFECT GLOBAL HEALTH?** |
| 13:00 - 14:30 | POSTER SESSION & LUNCH                                               |
| 14:30 - 15:30 | Plenary SESSION  
Pr Eric Delaporte, University of Montpellier  
Pr David Fidock, Columbia University Medical Center, New-York, USA |
| 15:30 - 17:00 | Abstract Session 03  
**WHAT ARE THE MECHANISMS OF DRUG RESISTANCE?** |
| 17:00 - 18:00 | Coffee Break                                                        |
| **SANOFI-INSTITUT PASTEUR AWARDS 2018** | |

**Friday 16 November 2018**

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| 08:30 - 09:30 | Plenary SESSION  
Pr David Weetman, Liverpool School of Tropical Medicine  
Pr Valerie Mizrahi, University of Cape Town |
| 09:30 - 11:00 | Abstract Session 04  
**HOW TO COMBAT DRUG RESISTANCE?** |
| 11:00 - 11:30 | Coffee Break                                                        |
| 11:30 - 13:00 | Abstract Session 05  
**HOW TO MONITOR DRUG RESISTANCE AND ASSESS THE SPREAD OF RESISTANT POPULATIONS?** |
| 13:00 - 14:00 | POSTER SESSION 2 & LUNCH                                             |
| 14:00 - 14:30 | DEDONDER-CLAYTON PRIZE 2018                                          |
| 14:30 - 15:00 | Plenary SESSION  
Pr Iruka Okeke, University of Ibadan                                    |
| 15:00 - 16:30 | Abstract Session 06  
**HOW TO MONITOR DRUG RESISTANCE AND ASSESS THE SPREAD OF RESISTANT POPULATIONS?** |
| 16:30 - 17:00 | PASTEUR TALENT AWARDS                                                 |
SCIENTIFIC PROGRAMME
THURSDAY 15th NOVEMBER

OPENING CEREMONY
8h30 - 9h00
Stewart Cole, President, Institut Pasteur
Françoise-Xavier Weil, Emeritus, Bacterial Pathogens unit, Institut Pasteur
Hezni Mardassi, Laboratory of Molecular Microbiology, Vaccinology and Bacteriological Development, Institut Pasteur de Tunis
Françoise Barre-Sinoussi, 2008 Nobel Prize in Medicine, Honorary President of the Institut Pasteur International Network

OPENING LECTURE
9h00 - 9h30
Pr Keiji Fukuda, Director and Clinical Professor, School of Public Health, Li Ka Shing Faculty of Medicine, the University of Hong Kong
The unfolding of the antimicrobial resistance

SESSION 01: HOW DOES RESISTANCE AFFECTS GLOBAL HEALTH?
Co-chairs
Bitch-Yam Huynh, Pharmacopeiology of Infectious disease unit, Institut Pasteur
Anna-Bella Folliaux, Arboviruses and Insect Vectors unit, Institut Pasteur

9h30 - 9h50
ORAL 01
Lee Musset
Institut Pasteur de la Guyane
Emergence of P. vivax resistance to chloroquine in French Guiana

9h50 - 10h10
ORAL 02
Sylvain Brisse
Institut Pasteur
Klebsiella pneumoniae carriage in low-income countries: antimicrobial resistance, risk factors and genomic diversity

10h10 - 10h30
ORAL 03
Lanjiao Wang
Institut Pasteur de la Guyane
Inferior lines of Aedes aegypti differ in their vector competence for chikungunya virus

10h30 - 10h50
ORAL 04
John Penders
Maastricht University Medical Center*
Unwanted souvenirs: acquisition and persistence of AMR in the gut microbiome of international travelers visiting endemic areas

10h50 - 11h00
SHORT 01
Hein Mii Tun
Hong Kong-University-Pasteur Research Pole
Early life antibiotic exposure and infant gut resistance

11h00 - 11h20
SHORT 02
Hassou Abou
IRNA/CRAD
Is malaria vector control still useful despite insecticide resistance?

11h20 - 11h40
SHORT 03
Ollanfar Andre Toure
Institut Pasteur de Côte d’Ivoire
Parasite Clearance and Efficacy of Artemesunate + Amodiaquine and Artemether + Lumefantrine in Bouake district Côte d’Ivoire

11h40 - 11h50 Coffee Break

SESSION 02: HOW DOES RESISTANCE AFFECTS GLOBAL HEALTH?
Co-chairs
Didier Fontenille, Director, Institut Pasteur du Cameroun
Igor Mokrousov, Molecular Epidemiology and Evolutionary Genomics Laboratory, Institut Pasteur de Saint Petersburg

11h50 - 12h10
ORAL 05
Agathe de Luzanne
Institut Pasteur du Cameroun
High prevalence of ESBL producing enterobacteriaceae fecal carriage within the community in Cambodia: results of the BIRDY and PEEC-NIC studies.

12h10 - 12h30
ORAL 06
Nairn Deval
Institut Pasteur de Tunis
Propensity of Mycobacterium tuberculosis Haarlem genotype to generate successful MDR-TE clones in Northern Tunisia

12h30 - 12h50
ORAL 07
Catherine Bourgoin
Institut Pasteur
Anopheles competence to Artemisinin-resistant Plasmodium falciparum isolates

12h50 - 13h00
ORAL 08
Haine Chamon
Université Federal Fluminense
Adhesion and biofilm formation by distinct lineages of staphylococcus aureus isolated at Rio de Janeiro hospitals

13h00 -14h15 LUNCH BREAK & POSTER Session 1

14h15-14h30 GROUP PHOTO

PLenary session
Co-chairs
Didier Menard, Head of the Malaria genetic and resistance group, Institut Pasteur Paris
Sara Eyayghi, Scientific Director, Pasteur Center in Cameroon

14h30 - 15h00
Pr Eric Delaporte, Professor of Tropical Diseases, University of Montpellier
Monitoring antiviral drug resistance in resource-limited settings

15h00 - 15h30
Pr David Fidock, C. S. Hamish Young Professor of Microbiology & Immunology, Columbia University Medical Center, New-York, USA
Recent insights into mechanisms of antimalarial drug resistance in Plasmodium falciparum

SESSION 03: WHAT ARE THE MECHANISMS OF DRUG RESISTANCE?
Co-Chairs
Philippe Glaser, Ecology and Evolution of Antibiotics Resistance unit, Institut Pasteur
Seojin Jang, Antibacterial Resistance Laboratory, Institut Pasteur Korea

15h30 -15h50
ORAL 09
Jin Zhong
Institut Pasteur de Shanghai, Chinese Academy of Sciences
Identification of novel DAA-resistant mutations in genotype 2, 3 and 6 hepatitis C virus

15h50 - 16h10
ORAL 10
Changbin Chen
Institut Pasteur de Shanghai, Chinese Academy of Sciences
Sequencing modification of the master regulator Pdr1 interferes with its transcriptional autoregulation and confers altered azole resistance in Candida glabrata

16h10 -16h30
ORAL 11
Nicolas Personnic
University of Zürich
The L. pneumophila quorum sensing system promotes paraster formation in infected A. castellanii

16h30 - 16h50
ORAL 23
Yanouk Epelboin
Institut Pasteur de la Guyane
Use of isofemale lines to decipher the multiple and cross resistance to insecticides in Aedes aegypti mosquitoes

16h50 - 17h00
SHORT 10
Nai-Shi Yen
Institut Pasteur
Synthetic miRNAs induce dual arbovirus-resistance phenotypes in the vector mosquito Aedes aegypti

17h00 - 17h20
SHORT 7
Blanca Solavi
CNRS
Global mechanisms of gene expression regulation for bacterial adaptation to sublethal levels of chloramphenicol

17h20 - 17h40
SHORT 8
Nadine Bongaerts
INSERM
Discovery of Mtb resistance mutations based on screening synthetic mutant libraries

17h40 - 17h50 Coffee Break

18h00 - 20h45 SANOFI-INSTITUT PASTEUR AWARDS 2018

20h45 - 22h00 COCKTAIL
Institut Pasteur International Network Symposium

« Combating resistance: microbes vectors »

Friday 16th November

SCIENTIFIC PROGRAMME

PLENARY SESSION

Co-chairs
Isabelle Dusfour, Vector Adaptation and Control Unit, Institut Pasteur de la Guadeloupe
Antoine Talarmi, Director, Institut Pasteur de la Guadeloupe

8h30 - 9h00

8h30 - 8h50

EXOTIC PATHOLOGY SOCIETY PRIZE

9h00 - 9h30

RESISTANCE TO TB AND DRUG RESISTANCE

SESSION 04: HOW TO MONITOR DRUG RESISTANCE AND ASSESS THE SPREAD OF RESISTANT POPULATIONS ?

Co-chairs
Lawrence Ayong, Malaria Research Laboratory, Pasteur Center in Cameroon
Halima Bouba Gana, Mainassara, Director, CERMES Niger

9h30 - 10h30

10h30 - 11h00

11h00 - 11h30

Coffee Break

PLENARY SESSION

Co-chairs
Sylvain Brisse, Biodiversity and Epidemiology of Bacterial Pathogens, Institut Pasteur
Lise Musset, Parasitology Laboratory, Institut Pasteur de la Guadeloupe

11h30 - 11h50

11h50 - 12h10

12h10 - 12h30

12h30 - 12h50

LUNCH BREAK & POSTER Session 2

SESSION 05: HOW TO MONITOR DRUG RESISTANCE AND ASSESS THE SPREAD OF RESISTANT POPULATIONS ?

Co-chairs
Francesca Barin-sinoussi, 2008 Nobel Prize in Medicine, Honorary President of the Institut Pasteur International Network
Stewart Cole, President, Institut Pasteur

14h00 - 14h30

DEDONDER-CLAYTON PRIZE 2018

14h30 - 15h00

SESSION 03: HOW TO MONITOR DRUG RESISTANCE AND ASSESS THE SPREAD OF RESISTANT POPULATIONS ?

Co-Chairs
François-Xavier Weill, Enteric Bacterial Pathogens Unit, Institut Pasteur
Helmi Mardassi, Laboratory of Molecular Microbiology, Vaccinology and Biotechnological Development, Institut Pasteur de Tunis

15h00 - 15h30

15h30 - 16h00

16h00 - 16h30

16h30 - 17h00

PASTEUR TALENT AWARDS