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network of european universities in life sciences

Proposal for EUROLIFE Summer School 2024

TITLE:	*Innovative solutions to address current and (re)emerging infectious diseases at a global scale.*
DATE:	1st – 5th July 2024
LOCATION:	Leiden University Medical Center, Leiden, the Netherlands
ORGANIZERS/ MODERATORS	Prof. Dr. Annemieke Geluk, Dr. Abena Amoah, Dr. Robin van den Biggelaar, Dr. Sebenzile Myeni Leiden University Center for Infectious Diseases (LUCID) Leiden University Medical Center (LUMC), the Netherlands

SPEAKERS EUROLIFE INSTITUTES:
Prof. Dr Jayne Hope (University of Edinburgh, United Kingdom)
Prof. Dr. Matti Sallberg (Karolinska Institutet, Stockholm, Sweden)
Dr. Cristina Garcia (University Barcelona, Spain)
Dr. Xavier Fernàndez Busquets (Head of Nanomalaria Joint Unit, Barcelona Institute for Global Health)

DESCRIPTION OF THE THEME
It is expected that infectious diseases will be the number one cause of death worldwide within 50 years, displacing cancer from the top spot. Contributing factors are increasing resistance to antimicrobials, the effects of extended migration, (new) pandemics, overpopulation, climate/environmental change and intensive livestock farming. Since the causative agents of infectious diseases are not contained by borders, these problems need to be addressed at a global scale.
This summer school will address these factors thereby providing insights into the current trends through lectures given by experts in various themes of infectious diseases such as **One health, Applications of AI in diagnostics of infectious diseases, Mathematical, human & animal models for infectious diseases, and Vaccination & treatment.** Lectures will also provide an immersion into possible solutions to tackling new and (re)emerging infectious diseases.
Through collaborative group assignments, participants will actively contribute to envisioning and addressing future challenges, while benefitting from the diverse perspectives of students from different corners of the world.

AIM OF THE SUMMER SCHOOL:

- to provide students with an overview of globally applicable innovative solutions to address current and emerging infectious diseases.

LEARNING OBJECTIVES:

- to acquire knowledge in current global issues related to infectious diseases
- to apply innovative thinking and generate solutions to tackle these issues
- to expand personal and professional networks leading to new collaborations, potential PhD and postdoc positions
- to explore new focus areas for grants focused on infectious diseases.

ASSIGNMENT: "White paper" on selected topics*

Participants in the summer school will be required to complete an assignment. The aim of the assignment is to engage participants in identifying current trends and potential future problems related to infectious diseases as well as the factors contributing to the current global infectious disease situation. To accomplish this, participants will be motivated to brainstorm daily in groups supervised by moderators and for the final day of the summer school, come up with a presentation focused on globally applicable innovative solutions for the identified problems (i.e. white paper). Throughout the course, the organizers will act as moderators and facilitate group discussions.

The assignment will involve:

- daily wrap-ups in small groups in which topics addressed by speakers on a specific day are discussed and evaluated in terms of how each area contributes to the assignment topic of that group.
- critically reading and appraising scientific papers of speakers provided to the participants before the summer school.
- generating a white paper in groups on a selected topic* using a format provided by the summer school.
- presentations by participants of their white papers including approaches to tackle future problems of (re)emerging infectious diseases.

Selected Topics* will include but are not limited to the following:

1. **Surveillance and Early Detection**: The importance of advanced surveillance systems and early detection methods for identifying and containing outbreaks.
2. **Multidrug-Resistant Tuberculosis**: TB remains the most lethal infectious diseases, mainly in low-income countries, but also presenting an unignorable threat in Europe, with MDR and XDR strains increasingly present.
3. **Zoonotic Disease Spillover:** How increasing human activity in natural habitats can lead to the spillover of diseases from animals to humans.
4. **Climate Change and Disease**: The impact of climate change on the prevalence and distribution of infectious diseases, including vector-borne diseases like malaria and dengue.
5. **Pandemic Preparedness**: The need for strategic monitoring (dashboards), robust preparedness plans, and infrastructure to respond effectively to future pandemics.

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PROGRAM OUTLINE

30TH JUNE

Arrival of participants; Informal get together in hotel for general information and information on speakers (scientific papers and CV)

DAY 1: JULY 1ST

9.00 – 9.15 Welcome to the LUMC – Dean Prof. Dr. Pancras Hogendoorn

9.15 - 10.00
Introductory round of organizers and participants
Introduction to the Summer school themes
Explanation about the assignment (Day 5)
Division of the participants into groups

One Health

10.30 – 12.30
Teun Bousema (Radboud University, Nijmegen, the Netherlands)
Combatting malaria in a rapidly changing landscape
Lidwien Smit (University Utrecht, the Netherlands)
One Health in the Planetary Health era

12.30 – 1.30 *Lunch break*

1.30 – 3.30
Jayne Hope, (University of Edinburgh, United Kingdom)
One Health approaches for bovine TB control
Eric Snijder (Leiden University Medical Center, the Netherlands)
Viruses without borders

3.30 - 5.00 *Daily wrap-up in subgroups*

DAY 2: JULY 2ND

9.00 – 12.00
Applications of AI in Dx of infectious diseases
Temitope Agbana (Delft University of Technology, the Netherlands)
AI in digital pathology for point-of-need disease diagnosis in resource-limited settings
Florent Geert (Delft University of Technology, the Netherlands)
The story of CAD4TB: AI impacting over 18 million globally

12.00 – 1.00 *Lunch break*

1.00 – 4.30
Models for infectious diseases (mathematical, human, animal)
David Blok (Erasmus Medical Center, Rotterdam, the Netherlands)
Modeling for supporting policy and control of neglected tropical diseases
Cristina Garcia (University of Barcelona, Spain)
Antibiotic efficacy in animal models
Meta Roestenberg (Leiden University Medical Center, the Netherlands)
Experimental infections in healthy volunteers (to accelerate product development)

	Xavier Fernàndez Busquets (Barcelona Institute for Global Health, Spain) ***Development of nanovectors for the targeted drug delivery of antimalarials.***
4.30 - 5.00	*Daily wrap-up*
DAY 3: JULY 3RD	
8.30 – 10.00	Transport to Biomedical Primate Research Center (Rijswijk, the Netherlands)
10.00 – 12.00	**NHP models for infectious diseases** Annemarie Voorberg-van der Wel ***The nightmare of sleeping malaria parasites*** Frank Verreck ***How to overcome the limits of a successful TB vaccine?***
12:00-1:00	*Lunch break at BPRC*
1:00-3:00	Tour of the BPRC Facilities Transport back to Leiden
DAY 4: JULY 4TH	
10.00 – 12.00	**Vaccination and Treatment** Cecile van Els (National Institute for Public Health and the Environment) ***Vaccines today*** Matti Sallberg (Karolinska Institutet) ***New vaccine technologies for new viral infections***
12.00 – 1.00	*Lunch break*
1.00 – 3.30	Martijn van Hemert (Leiden University Medical Center, the Netherlands) ***Development of antivirals for pandemic preparedness*** Nacer Lounis (Johnson & Johnson, Global Public Health) ***Treatment improvement of TB and Leprosy by bedaquiline***
3.45 - 5.00	*Daily wrap-up*
6.00 -	Joint dinner
DAY 5: JULY 5TH	**"White Paper" presentations**
10.00 – 12.00	Work on finalizing White Paper presentation
12.00 – 1.00	*Lunch break*
1.00 – 3.30	Presentations of White paper
3.45 – 4.15	Wrap-up of Summer school and Diploma ceremon