

# Workshop on Plasmids as Vehicles of AMR Spread



**18 - 22 September 2023**  
**An ICTP Hybrid Meeting**  
**Trieste, Italy**

Further information:  
<http://indico.ictp.it/event/10210/smr3876@ictp.it>

Antimicrobial resistance is a global threat to modern medicine, whereby bacteria evolve resistance to (i.e the ability to not be killed by) antibiotics. Since bacteria are able to pass chunks of DNA between unrelated individuals, this allows them to pass around genes encoding resistance mechanisms - in other words they can give each other an evolutionary head-start, directly donating the ability to survive an antibiotic in a process called Horizontal Gene Transfer.

Plasmids are key players in Horizontal Gene Transfer, acting as vehicles of antimicrobial resistance (AMR) spread, able to transfer tens of genes, and therefore multidrug resistance, in one event. It is therefore critical that we understand their biology, ecology and epidemiology.

Recent technology developments (longread sequencing and targeted bioinformatic tools) have led to improved ability to observe these processes, making thorough investigation of plasmid-mediated AMR outbreaks possible.

However, it has also highlighted how complex plasmid evolution is, the uniqueness of plasmid eco-evolutionary processes and the unsuitableness of many chromosome-based methods like point-mutation- and tree-based phylogenetics.

New models are needed to be able to understand the processes that genomics allows us to observe and to appreciate their clinical and epidemiological implications in the light of plasmid evolution.

## Call for Contributed Abstracts:

All applicants are encouraged to submit an abstract for a poster presentation and/or a contributed talk.

## How to apply:

Online application:  
<http://indico.ictp.it/event/10210/>

Female scientists are encouraged to apply.

## Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

## Directors:

F. DE LA CRUZ CALAHORRA, University of Cantabria, Spain  
Z. IQBAL, EBI Cambridge, UK  
A. LEDDA, UK Health Security Agency, UK

## Local Organiser:

M. MARSILI, ICTP, Italy

## Speakers:

D. AANENSEN, University of Oxford, UK  
F. BENZ, Institut Pasteur Paris, France  
T. M. COQUE, IRYCIS, Spain  
T. DAGAN, Christian-Albrechts University of Kiel, Germany  
E. FEIL, University of Bath, UK  
P. J. HALL, University of Liverpool, UK  
J. HAWKEY, Monash University, Australia  
O. KOSTERLITZ, University of Washington, USA  
N. QUINONES-OLVERA, Harvard University, USA  
A. ROBERTS, Liverpool School of Tropical Medicine, UK  
E. ROCHA, Institut Pasteur Paris, France  
A. SAN MILLAN CRUZ, CSIC Madrid, Spain  
L. P. SHAW, University of Oxford, UK  
D. VAN TYNE, University of Pittsburgh, USA

## Deadlines:

**15 June 2023**

for applicants to attend in person

**1 September 2023**

for applicants to attend online



The Abdus Salam  
International Centre  
for Theoretical Physics  
[www.ictp.it](http://www.ictp.it)  
Trieste, Italy

