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# Predicting antibiotic resistance

## Fact Sheet

### Project Information

**PAR**

Grant agreement ID: 241476

Project closed

**Start date**

1 April 2010

**End date**

31 March 2013

**Funded under**

Specific Programme "Cooperation": Health

**Total cost**

€ 7 950 621,00

**EU contribution**

€ 6 000 000,00

**Coordinated by**

UPPSALA UNIVERSITET

 Sweden

## This project is featured in...

RESEARCH\*EU MAGAZINE



Cleaning up space junk

# Objective

The aim of this proposal is to describe and predict the dynamics of antibiotic resistance development at the level of the drug target, the microbe and the host. That is, we want to generate the knowledge required to be able to connect resistance mechanism --> bacterial physiology and fitness --> bacterial survival within a host --> bacterial spread between hosts. To achieve this goal we will develop quantitative models that can capture these complex dynamics, obtain relevant parameter values and validate the models by testing them in suitable in vitro, animal models and in clinical settings. We will address three main areas (A-C) in 11 different work packages. A. Formation and emergence of resistant bacteria (WPs 1-5). The rate of formation of resistant mutants is one major determinant that influences how rapidly resistant mutants will appear in response to antibiotic use. Depending on the type of resistance mechanism factors such as rates of mutation, recombination and transfer of plasmids will be important. In WPs 1-5 we will experimentally determine these rates for different combinations of bacterial species and resistance mechanisms. B. Survival and persistence of resistant strains (WPs 6-8). A key factor that affects the survival and persistence of resistant strains is the impact the particular resistance mechanism has on bacterial physiology, including bacterial growth rate and virulence. We want to determine the effect of various drug resistance mechanisms on cellular physiology and fitness to establish a link between the molecular alteration and potential effects at the cellular level. C. Transmission of resistant strains (WPs 9-11). Finally we want to understand and predict how resistance mechanisms (by their effect on bacterial physiology) influence the ability of the bacteria to be transmitted between hosts. Thus, we aim to generate both animal and clinical determinations of how resistance affects transmissibility and testable mathematical models.

## Fields of science (EuroSciVoc)

[natural sciences](#) > [biological sciences](#) > [microbiology](#) > [bacteriology](#)

[natural sciences](#) > [biological sciences](#) > [genetics](#) > [mutation](#)

[medical and health sciences](#) > [basic medicine](#) > [physiology](#)

[medical and health sciences](#) > [basic medicine](#) > [pharmacology and pharmacy](#) > [drug resistance](#) > [antibiotic resistance](#)

[natural sciences](#) > [mathematics](#) > [applied mathematics](#) > [mathematical model](#)



## Programme(s)

## Topic(s)

[HEALTH-2009-2.3.1-2 - Impact of specific antibiotic therapies on the prevalence of resistant bacteria in the human host](#)

## Call for proposal

FP7-HEALTH-2009-single-stage

[See other projects for this call](#)

## Funding Scheme

[CP-FP - Small or medium-scale focused research project](#)

## Coordinator



### UPPSALA UNIVERSITET

EU contribution

€ 1 400 000,00

Total cost

No data

Address

VON KRAEMERS ALLE 4

751 05 Uppsala

 Sweden 

Region

Östra Sverige > Östra Mellansverige > Uppsala län

Activity type

Higher or Secondary Education Establishments

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

# Participants (11)

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## STATENS SERUM INSTITUT

 Denmark

EU contribution

€ 350 000,00

Address

ARTILLERIVEJ 5  
2300 Kobenhavn S 

Region

Danmark > Hovedstaden > Byen København

Activity type

Research Organisations

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#) 

[HORIZON collaboration network](#) 

Total cost

No data



## SERVICIO MADRILENO DE SALUD

 Spain

EU contribution

€ 500 000,00

Address

Paseo De la Castellana, 280  
28046 MADRID 

Region

Comunidad de Madrid > Comunidad de Madrid > Madrid

Activity type

Public bodies (excluding Research Organisations and Secondary or Higher Education Establishments)

Links

[Contact the organisation](#)  [Website](#) 

[Participation in EU R&I programmes](#)  
[HORIZON collaboration network](#)

Total cost  
**No data**



UNIVERSITY COLLEGE LONDON

EU contribution  
**No data**

Address  
**GOWER STREET  
WC1E 6BT LONDON**

Activity type  
**Higher or Secondary Education Establishments**

Links  
[Contact the organisation](#) [Website](#)  
[Participation in EU R&I programmes](#)  
[HORIZON collaboration network](#)

Total cost  
**No data**



**AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS**

Spain

EU contribution  
**€ 850 000,00**

Address  
**CALLE SERRANO 117  
28006 Madrid**

Region  
**Comunidad de Madrid > Comunidad de Madrid > Madrid**

Activity type  
**Research Organisations**

Links  
[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)  
[HORIZON collaboration network](#)

Total cost  
**No data**



**University of Zurich**

Switzerland

EU contribution  
**€ 550 000,00**

Address  
**RAMISTRASSE 71  
8006 ZURICH**

Activity type  
**Higher or Secondary Education Establishments**

Links  
[Contact the organisation](#) [Website](#)  
[Participation in EU R&I programmes](#)  
[HORIZON collaboration network](#)

Total cost  
**No data**



**INSTITUT PASTEUR**

France

EU contribution  
**€ 500 000,00**

Address  
**RUE DU DOCTEUR ROUX 25-28  
75724 Paris**

Region  
**Ile-de-France > Ile-de-France > Hauts-de-Seine**

Activity type  
**Research Organisations**

Links  
[Contact the organisation](#) [Website](#)

[Participation in EU R&I programmes](#)  
[HORIZON collaboration network](#)

Total cost  
**No data**



**UNIVERSITY OF LEEDS**

United Kingdom  
EU contribution  
**€ 350 000,00**

Address  
**WOODHOUSE LANE**  
**LS2 9JT Leeds**

Region  
**Yorkshire and the Humber > West Yorkshire > Leeds**

Activity type  
**Higher or Secondary Education Establishments**

Links  
[Contact the organisation](#) [Website](#)  
[Participation in EU R&I programmes](#)  
[HORIZON collaboration network](#)

Total cost  
**No data**



**INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE**

France  
EU contribution  
**€ 350 000,00**

Address  
**RUE DE TOLBIAC 101**  
**75654 Paris**

Region  
**Ile-de-France > Ile-de-France > Paris**

Activity type  
**Research Organisations**

Links

- [Contact the organisation](#)
- [Website](#)
- [Participation in EU R&I programmes](#)
- [HORIZON collaboration network](#)

Total cost

No data



CARDIFF UNIVERSITY

United Kingdom

EU contribution

€ 450 000,00

Address

NEWPORT ROAD 30 36  
CF24 0DE Cardiff

Region

Wales > East Wales > Cardiff and Vale of Glamorgan

Activity type

Higher or Secondary Education Establishments

Links

- [Contact the organisation](#)
- [Website](#)
- [Participation in EU R&I programmes](#)
- [HORIZON collaboration network](#)

Total cost

No data



THE UNIVERSITY OF SHEFFIELD

United Kingdom

EU contribution

€ 350 000,00

Address

FIRTH COURT WESTERN BANK  
S10 2TN Sheffield

Region

Yorkshire and the Humber > South Yorkshire > Sheffield



Activity type  
**Higher or Secondary Education Establishments**

Links  
[Contact the organisation](#) [Website](#)  
[Participation in EU R&I programmes](#)  
[HORIZON collaboration network](#)

Total cost  
**No data**



**THE UNIVERSITY COURT OF THE UNIVERSITY OF ST ANDREWS**

 United Kingdom  
EU contribution  
**€ 350 000,00**

Address  
**NORTH STREET 66 COLLEGE GATE**  
**KY16 9AJ St Andrews** 

Region  
**Scotland > Eastern Scotland > Clackmannanshire and Fife**

Activity type  
**Higher or Secondary Education Establishments**

Links  
[Contact the organisation](#) [Website](#)  
[Participation in EU R&I programmes](#)  
[HORIZON collaboration network](#)

Total cost  
**No data**

**Last update:** 6 September 2024

**Permalink:** <https://cordis.europa.eu/project/id/241476>

European Union, 2025