

INTEGRATE

A MSCA-ETN Project Directed to
the Training of a New Generation
of Scientists Active in the Field of
Antibacterial Research

Gabriele Costantino, University of Parma (Italy)
Scientific Coordinator



gabriele.costantino@unipr.it



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The inexorable rise in resistance against commonly-prescribed antibiotics such as fluoroquinolones, carbapenems, cephalosporins and aminoglycosides is posing a serious health for the public health

worldwide. Therapeutic options for multi-resistant Gram-negative pathogens in particular are becoming increasingly limited and each year in the EU multidrug-resistant bacterial infections result in the death of ca. 25,000 patients with an extremely high healthcare costs and productivity losses. Therefore, there is an urgent need for better antibiotic stewardship and for the discovery and development of new drugs to fight against Gram-negative bacteria.

INTEGRATE is a multidisciplinary Marie Curie Educational Training Network (ETN) consortium funded by the EU Horizon 2020 Programme, which has the ambitious aim to tackle this challenge head-on. INTEGRATE gathers together 11 academic and industrial beneficiaries from seven countries (Italy, Belgium, Finland, Germany, UK, Latvia, Slovenia) with a broad expertise in disciplines ranging from computational medicinal chemistry, synthetic medicinal chemistry, biochemistry, in vitro and in vivo microbiology. In this coordinated interdisciplinary and intersectoral environment, the recruited early stage researchers (ESR) will develop at best their potential towards a new generation of scientists with improved employability and entrepreneur skills.

INTEGRATE has started on January 1st, 2015, and has recruited all the ESR through a transparent and iterative selection procedure, finalized with a recruitment workshop held in Verona (Italy) at the Aptuit research center. While recruitment has been strongly based on scientific quality and enthusiasm for research, a large attention has been paid to geographical and gender representation.

These ESR are now actively working on their research projects, which are based on the notion that the targets for most of the conventional antibacterials are essential gene products, such as those involved in bacterial cell wall biosynthesis, protein synthesis, or DNA replication. Consequently, there is a very strong evolutionary selection pressure for resistance to arise against such compounds. It is now accepted that identification of novel drug targets and non-conventional mechanisms, as well as the development of novel chemotypes is central to the fight against bacteria. An alternative approach is to not kill the bacteria, but instead, to attenuate their fitness. The rationale behind this emerging concept, which is attracting increasing interest from many sectors, is that by attenuating bacterial fitness the host immune system will be given a greater window of opportunity in which to clear the infection.

As usual for EU funded projects, INTEGRATE will disseminate the main achievements also to the general public and will actively seek collaboration with other EU funded projects on antibacterials in order to maximize the synergy.



INTEGRATE Recruitment Workshop: Beneficiaries and applicants (Aptuit, Verona)

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