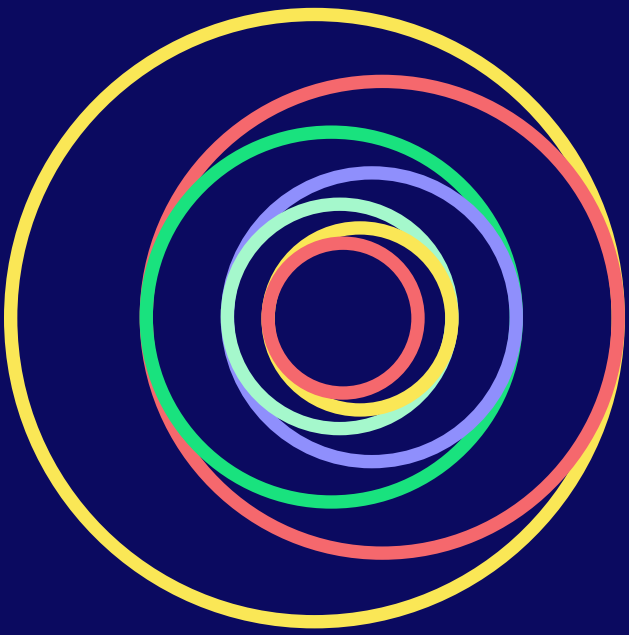


ACHIEVEMENTS OF 1ST JOINT CALL:

Innovative approaches to address antibacterial resistance

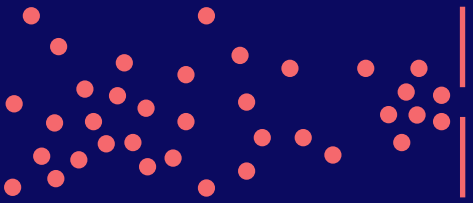
jpiamr

Three Innovative Impacts

We are pleased to present results from three of the seven projects funded in the first JPIAMR joint call. Announced in 2014 and titled "Innovative approaches to address antibacterial resistance", the call has resulted in: A pending patent for a TB compound, a new approach to interrupting bacteria communications, and innovations to make existing antibiotics remain effective. This call was promoted by 14 funding agencies in 12 countries, and had a total budget of 13.8M €.

NACPLI

Breaking resistance barriers



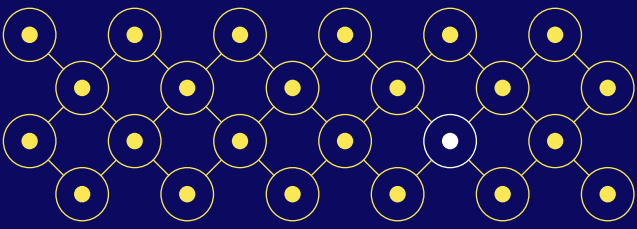
Bacterial resistance to antibiotics has been mainly fought by modifications of molecules discovered more than 50 years ago. But the bacteria are constantly "fighting" back, putting up protective shields. What if we could break those shields so that our old weapons could be useful again?

This JPIAMR-funded project brought together research teams with complementary expertise to evaluate new ways to inhibit "old" drug targets, those of β-lactams. The project has identified new binding sites that are distinct from that of penicillin and are essential for the activity of the targets. A new lead molecule that is an analog of peptidoglycan fragment and acts as a bi-substrate inhibitor of L,D-transpeptidases has been identified, which is involved in distinct β-lactam resistance mechanisms. The collaboration has received further support through other funding, including CARBX for academia-industry research partnership.

Research team, NACPLI: Coordinator: Michel Arthur, INSERM, France. Waldemar Vollmer, Newcastle University, United Kingdom. Tanneke den Blaauwen, University of Amsterdam, Netherlands. Jean-Pierre Simorre, CNRS, France. John Mc Kinney, Swiss Federal Institute of Technology Lausanne (EFPL), Switzerland. Natalie Strynadka, University of British Columbia, Canada.

noTBSec

New search for TB-therapy



***Mycobacterium tuberculosis* is the causative agent of tuberculosis (TB). Most existing compounds only target a single molecule, which significantly increases the chances of resistant strains emerging, but now a patent is pending for a compound that blocks more than one essential target.**

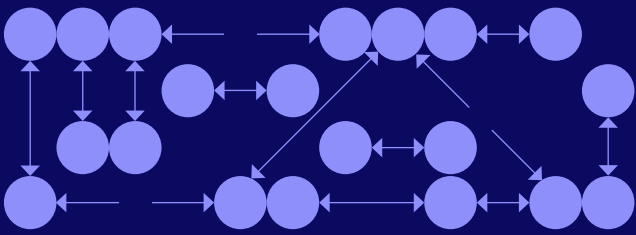
A large compound library was screened for activity and toxicity tests. Out of the few promising hits, a lead compound was extracted as a potent inhibitor of the secretion system that also showed synergistic activity with the antibiotic vancomycin. Further analyses are ongoing to elucidate its mechanism of action and a patent is pending to be filed for the identified lead

compound. The project has resulted in successful follow-up funding and generated interest for a new collaboration with TB Alliance.

Research team, noTBSec: Coordinator: Willbert Bitter, VU University medical center, Netherlands. Roland Brosch, Institut Pasteur, France. Charles Thompson, University of British Columbia, Canada. Stewart Cole, École polytechnique fédérale de Lausanne (EFPL), Switzerland.

SENBIOTAR

Interrupting bacterial communication



***Pseudomonas aeruginosa*, one of the major pathogens worldwide, uses chemical signals to trigger the production of toxic products that cause diseases and resistance to antibiotics. But what if we could interrupt that signalling?**

In SENBIOTAR, researchers have developed compounds, which do not kill the pathogen but interfere with quorum sensing, reducing the capacity of this organism to cause disease whilst making it more sensitive to antibiotics: a novel antagonist of the receptor of the Pseudomonas quinolone signal pathway (PqsR) and a novel antisense molecule (peptide nucleic acid, PNA) conjugate. Both have shown inhibition of quorum sensing, biofilm formation and synergistic effects with PqsR inhibitors. Combinations of the newly identified compounds with tobramycin were effective in a rodent infection model and are now continued for further development in a step closer to exploitation at clinic level.

Research team, SENBIOTAR: Coordinator: Miguel Camara, University of Nottingham, United Kingdom. Peter Nielsen, University of Copenhagen, Denmark. Roger Levesque, University of Laval, Canada. Christel Bergström, Uppsala University, Sweden.

“Results generated from this call shows how JPIAMR funding can make a difference, and lead to ground-breaking research and innovations.”

Prof. Jan-Ingvar Jönsson, Acting Chair JPIAMR

1ST Joint Call

Innovative approaches to address antibacterial resistance

- Number of projects: 7
- Participating countries: 12
- Budget: 13.8M €
- Please visit jpiamr.eu for more facts about each funded project

JPIAMR

Joint Programming Initiative on Antimicrobial Resistance

JPIAMR is an international collaborative platform that coordinates national research funding, multidimensional AMR research and funding on a global scale and aligns collaborative action for filling knowledge gaps on AMR with a One Health perspective. It brings together 27 member nations. A shared Strategic Research Agenda outlines the key areas to address and provides guidance for countries to align their AMR research agendas nationally and internationally. Since its inception, JPIAMR has funded more than 70 active projects and networks with invested joint funds exceeding 85M € to date.

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