

New Class of inhibitors with activity against Gram-positive and Gram-negative bacteria

Field of use

Healthcare-Medical
Science; antibacterial drug
discovery

Current state of technology

Laboratory tested;
preclinical

Intellectual property

Patent application:
LU100918

Developed by

University of Ljubljana,
Faculty of Pharmacy,
University of Helsinki (UH)
and Biological Research
Center of the Hungarian
Academy of Sciences,
Szeged

Reference

821-15/2018

Contact

[Knowledge Transfer Office,
University of Ljubljana](#)

Gabriela Droga Mazovec
Phone: +386 1 2418 533
E-mail: ipr@uni-lj.si



Background

The increasing number of life-threatening infections due to resistant Gram-positive and Gram-negative pathogens is alarming. In the last 50 years, the number of multi-drug resistant (MDR) bacteria is rising and the number of drugs crossing the first testing phases is very limited.

Description of the Invention

We have discovered a new class of inhibitors of the ATPase domains of DNA gyrase and/or topoisomerase IV. The benzothiazole scaffold-based compounds, that can be used in the manufacture of drugs, are effective against both Gram-positive and Gram-negative pathogens in humans. Examples include pathogens of the "ESKAPE" group (*Enterococcus faecium*, *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *Pseudomonas aeruginosa*, and *Enterobacter* species).

Main Advantages

Most inhibitors previously described showed activity only against Gram-positive strains and were not successful in clinical trials due to their high toxicity profile. Our compounds show promising possibilities for derivatization and are active against both Gram-positive and Gram-negative bacteria.