COMPOUNDS FOR TREATING HELICOBACTER PYLORI AND CAMPYLOBACTER JEJUNI INFECTION

A research group from University of Zaragoza, Institute for Health Research from Aragon, CIBER and Instituto Aragonés de Ciencias de la Salud has developed new bioactive compounds with antimicrobial effect against H. pylori and C. jejuni.

The Need

H. pylori and C. jejuni are considered “high priority” pathogens in the R&D of new antimicrobials by the World Health Organization due to their high risk for human health because of increasing antibiotic resistance worldwide. H. pylori infection affects more than 50% of world population. Persistent colonization of human stomach by this pathogen results in gastric inflammation and highly contributes to the pathogenesis of peptic ulceration, gastric adenocarcinoma, and mucosa-associated lymphoid-tissue (MALT) lymphoma. C. jejuni constitutes the main cause of bacterial gastroenteritis in humans worldwide. Besides, current antimicrobial therapies against H. pylori and C. jejuni infection have negative side effects on normal human microbiota, which is a frequent cause of dysbiosis, therapy interruptions and emergence of antibiotic resistance.

The Solution

The present invention describes new bioactive compounds with antimicrobial activity against Helicobacter pylori (H. pylori) and Campylobacter jejuni (C. jejuni) by acting specifically on the protein HsrA (essential for cell viability).

Model of the molecular interaction between the compounds of the invention and the C-terminal DNA binding domain of the H. pylori essential response regulator HsrA. The helix-turn-helix (HTH) DNA binding motif of HsrA has been highlighted in blue. Some interacting residues are indicated.

Innovative Aspects

• The compounds of the invention are as effective as traditional antibiotics against H. pylori and C. jejuni while not being harmful to normal human microbiota.

• Furthermore, these compounds are not affected by the molecular mechanisms of resistances developed by H. pylori and C. jejuni.

• Therefore, these antimicrobial compounds may be of special relevance in the eradication of infections caused by strains resistant to conventional antibiotics.

Intellectual Property:

• Priority Spanish patent application filed (February, 2022).

• Suitable for international extension (PCT application).

Aims

Looking for a partner interested in a license and/or a collaboration agreement to develop and exploit this asset.

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