Universidad de Oviedo

SERVICIO DE SALUD DEL PRINCIPADO DE ASTURIAS

TECHNOLOGY OFFER

# NOVEL ANTIBIOTICS PRODUCED BY THE ABYSSAL ACTINOBACTERIUM PSEUDONOCARDIA CARBOXYDIVORANS

## COMPETITIVE ADVANTAGES

✓ **Wide and international potential market,** as **two novel natural products** are available with different antibiotic activity against Gram-positive and Gram-negative pathogenic bacteria.

✓ **Simple, short and economic biotechnological process:** our method allows the production of antibiotics by fermentation, rather than by chemical synthesis.

## PATENTS

ES patent applied.

In time to seek international patent extension.

## TYPE OF COLLABORATION

Licence agreement.

## INNOVATIVE ASPECTS

✓ The present invention represents a solution to the need for new antibiotic compounds with biomedical potential in the treatment or prevention of infectious diseases caused by pathogenic bacteria, which are resistant to current antibiotics.

✓ It also represents a solution to the need for simple, short and economic procedures for obtaining said compounds with antibacterial activity as the method of the invention allows to produce the antibiotics by fermentation with actinobacteria, rather than by chemical synthesis, which is a more complex, lengthy and costly process.

## ABSTRACT

Marine environments are emerging as a source of novel natural products of pharmacological relevance, and deep-sea habitats are essentially unexplored sources for natural product discovery. Due to the increasing emergence of current antibiotic-resistant pathogenic bacteria, the development of new antibiotics is necessary.

The present invention provides a novel bacterial strain of *Pseudonocardia carboxydivorans* that has been isolated from its natural environment, which is able to efficiently produce by fermentation antibiotic compounds of the family of branimycins. Specifically, this strain is producing two new branimycins, having antibiotic or antibacterial activity in vitro and in vivo against pathogenic bacteria, preferably human, both Gram-positive and Gram-negative.

The present invention thus relates to a bacterial strain of *Pseudonocardia carboxydivorans*, to a supernatant or extract of a culture of such bacterial strain, to the use of the bacterial strain for the production of certain branimycins, to a process for obtaining said branimycins, to a pharmaceutical or cosmetic composition, to the manufacture of a medicament for the treatment and / or prevention of bacterial infections or for removal and / or prevention and / or inhibition of bacterial biofilm formation, preferably on inert surfaces, i.e. *ex vivo*.


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