ESA Patentverwertungsagentur Sachsen-Anhalt GmbH

Technology Offer

Novel antibiotics

Abstract

Novel Trisindolylcycloalkanes and Indolylbenzocarbazoles have been developed which represent new classes of antibiotics. They efficiently inhibit growth of MRSA by a new mechanism. The compounds can be synthesized safely and with high yield at room temperature.

Background

Staphylococcus aureus, a gram positive bacterium frequently occurring in nature, can be detected on the skin or in the upper respiratory tract of about 30 % of humans. Most critical in this context are methillicin-resistant *Staphylococcus aureus* strains (MRSA) which are resistant to penicillin and to methicillin as well as to almost all commercially available β-Lactam-antibiotics. In healthy humans usually no symptoms will appear. MRSA can however cause severe problems such as local superficial infections (i.e. wound infection, abscess) and invasive systemic complications (i.e. endocarditis or osteomylitis) in immune compromised patients (i.e. after surgery).

Problem to be solved

So far infections caused by MRSA have been treated using an antibiotic of last resort – vancomycin. In the meantime resistance to this antibiotic has also been observed, mainly due to more frequent use. Multiple resistances develop in parallel, which affects the effectiveness of different antibiotics and even classes of antibiotics. Low effectiveness for systemic diseases, a high interaction potential and increasing patient mortality are limiting the application of such special antibiotics significantly. For these reasons and in anticipation of the rising prevalence of MRSA, there is a need to develop and provide new active substances to treat conditions caused by this bacterium.

Advantages over the state of the art

The invention relates to novel active substances - Trisindolylcycloalkanes and Indolylbenzocarbazoles - the application of which will overcome resistance mechanisms based on genetic variability. These are completely new substances which cannot be classified into existing classes of antibiotics. Their effectiveness is based on a different mode of action which will allow the treatment of infections caused by otherwise resistant pathogens. The newly developed substances selectively inhibit the growth of MRSA at concentrations in the low micro-molar range. This invention allows these novel substances to be produced safely and with high yield in a simple one-pot reaction.

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Technology / Field of Application

- Medizin und Pharma
- Therapie und Wirkstoffe
- Therapie von Infektionskrankheiten, MRSA

Market / Business

- Pharma
- Medizin

State of development

Proof-of-concept

Patent Status

Application pending

Reference No.:- *ESA-UNIHAL046* -

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Possibilities for Cooperation

The ESA PVA seeks on behalf of the Martin-Luther-University Halle-Wittenberg licensees especially in Germany and Europe. The scientific guidance for an industrial partner can be ensured in suitable manner.

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