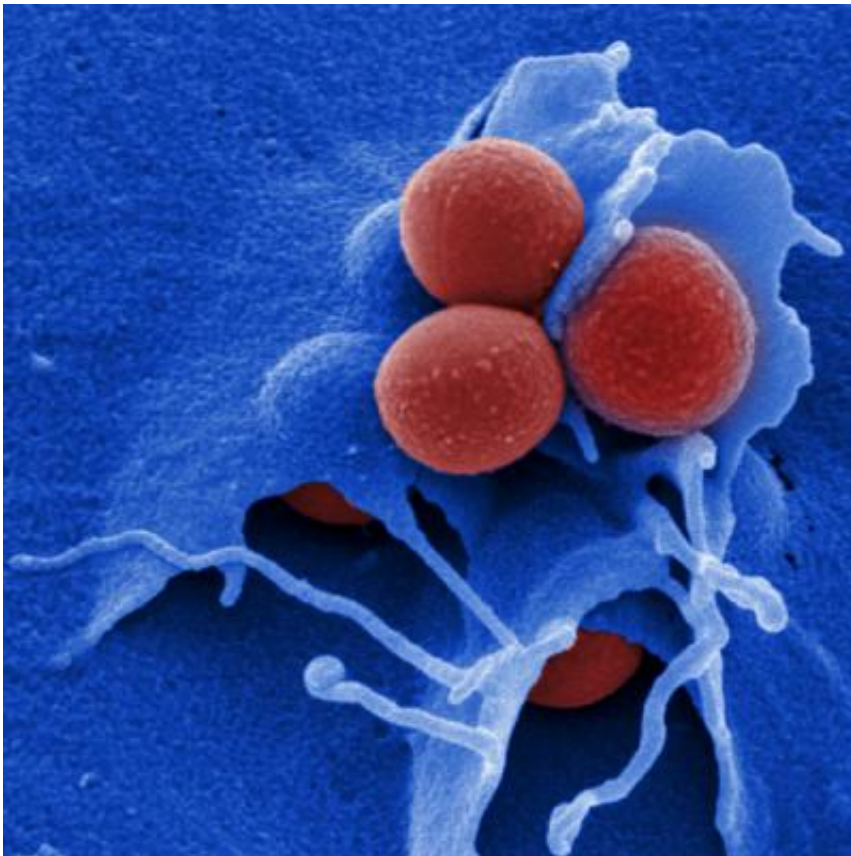


New hope in fight against multi-resistant germs

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This image shows *Staphylococcus aureus* bacteria, magnified by electron microscopy. Credit: HZI / Rohde

An increasing number of bacteria is evolving antibiotic resistance. Much-feared representatives of this steadily growing group include *Staphylococci* strains. At this point, multi-resistant forms of the

bacterium *Staphylococcus aureus* - the "hospital germ" known commonly by its acronym, MRSA - can only be treated with a select subset of antibiotics as many drugs have simply stopped working. This is precisely why the field of medicine is in desperate need of new treatment options.

One highly promising [drug candidate](#) is now scheduled for testing in clinical trials. The substance, developed by the British pharmaceutical company [GlaxoSmithKline](#), is still known by its rather cryptic working name, GSK1322322. In the course of clinical trials to evaluate new drugs, physicians typically end up with large numbers of patient samples that are invaluable in studying the different diseases patients are suffering from - samples that have, until recently, rarely been recruited for research purposes. Now, scientists at the Helmholtz Centre for Infection Research (HZI) in Braunschweig, Germany, and at the TWINCORE Centre for Experimental and Clinical Infection Research in Hannover, Germany, aim to study such patient samples for a five-year-period. Part of a special collection at the Hannover Medical School's biobank, the samples will allow researchers to find out more about the etiology, course, and characteristic marker substances of infectious diseases. IMI, the Innovative Medicines Initiative, has awarded the scientists research grants totaling 6 million Euros as part of the COMBACTE (Combating [Bacterial Resistance](#) in Europe) project. IMI is a joint initiative by the European Union and the pharmaceutical industry. Dr. Frank Pessler, who heads TWINCORE's "[Biomarkers in Infectious Diseases](#)" research group, secured the grant and is the project's coordinator at HZI. Under his helmage, the scientists, along with their colleagues in Paris, Barcelona, and Philadelphia, will be searching for biomarkers - molecules that are unique to a particular disease and which may provide information about if the diagnosis was correct and whether or not the therapy is working.

The new antibiotic, GSK1322322, targets gram-positive bacteria including methicillin-resistant strains of *Staphylococcus aureus* -

notorious MRSA - capable of causing serious skin and wound infections. Gram-positive germs are also frequently the culprit behind pneumonia. The drug targets the bacterial enzyme peptide deformylase. Phase I clinical trials, designed to evaluate a new drug's tolerability and safety profile, have already successfully concluded and showed only minor adverse effects. If the next study shows that GSK1322322 does not bestow any added benefit compared to current treatments, it will not be admitted into the next round of [clinical trials](#). "This is where COMBACTE's added scientific value comes into play. In case this happens, the samples that were obtained will still offer insights into the infections they were supposed to treat, and perhaps aid in developing other better treatments" Frank Pessler explains.

Besides Pessler's own group, research teams headed by Prof. Susanne Häussler, Prof. Singh Chhatwal, Prof. Dietmar Pieper, Dr. Eva Medina, Prof. Irene Wagner-Döbler, Dr. Robert Geffers and Prof. Frank Klawonn are also involved in the project. Each team contributes its own special know-how, and, in concert, they are an excellent force. Adds Pessler: "Where else do you find this many experts from all these different disciplines under one roof, some of them even on the same floor? It makes the whole collaboration smooth and efficient."

Provided by Helmholtz Centre for Infection Research

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