

Press Release



Fraunhofer-Institut für
Translationale Medizin und
Pharmakologie ITMP



ANTARES project launch: Artificial Intelligence aims to speed up the search for new antibacterials

[FOR IMMEDIATE RELEASE]

[Braunschweig, Frankfurt, Hamburg, Germany – July 23, 2026]

ANTARES is a new public-private partnership funded by the German Federal Ministry of Research, Technology and Space (BMFTR) that brings together the Fraunhofer ITMP in Hamburg, the Helmholtz Centre for Infection Research (HZI) in Braunschweig and Enamine Deutschland GmbH from Frankfurt am Main (Enamine). The partners will use AI models to rapidly identify novel antibiotics towards safer, more affordable cures for patients battling life-threatening and often drug-resistant infections.

The AI models will be trained and tested using publicly available datasets, providing a low-risk approach to optimize the most suitable model. After the initial adjustment, the model is improved iteratively using high throughput testing of substances predicted to be antibacterially active to achieve the best possible prediction accuracy. In order to enhance the discrimination power of the model, structurally similar compounds that were predicted to be inactive will also be confirmed experimentally in addition to the hits. *“The iterative rounds of predictions and experimental validations are a big plus of our approach. Other programs often rely on a single round of training the model, predicting actives and validating them experimentally. This is where*

ANTARES will make a difference” explains Dr. Bernhard Ellinger from Fraunhofer ITMP. Importantly, while starting with known datasets the consortium has the ability to make and test newly synthesized libraries.

Translating science into next-generation antibacterials

The three partners of ANTARES, Fraunhofer ITMP, HZI and Enamine, are all experts in translating their respective scientific expertise into inventions and products.

Dr. Sven Wagner, Vice President of Partnerships at Enamine, adds: *“We face a severe structural crisis worldwide for the development of urgently needed new antibacterials, the so-called “broken market”. The fight against antimicrobial resistance (AMR) is critical, but the return on investment (ROI) for drug developers is marginal. Enamine is committed to step in to support research in neglected fields of high medical need and bridging the “valleys of death” through critical public-private partnerships, here in ANTARES with two premier scientific leaders, ITMP and HZI. Within the overall ANTARES workflow, Enamine is accelerating the design and creation of small molecules for antibiotic drug discovery on a wider scale.”*

To enable this vision, structure-activity relationships learned from the models will be extracted using ExplainableAI (XAI) approaches. In addition, a generative model will propose new structures with antibiotic activity. The models and the developed standardized data sets will be published FAIR to support further antibiotic drug discovery. *“Our goal is to realize time savings and a better success rate at the discovery stage by combining AI with high throughput experimentation. To enhance the value of the identified active molecules, we will also describe their mechanism of action and their scope of activities,”* explains Prof. Mark Brönstrup from the Helmholtz Centre for Infection Research.

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With funding from the:



Fact box

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Projekttitel: Antibiotic Network for Targeted AI-driven Research and Explainable Screening

Acronym: ANTARES

Projektbeginn: 01.07.2026

Projektlaufzeit: 3 Jahre

Fördersumme: 1,18 Millionen €

Zuwendungsgeber: Bundesministerium für Forschung, Technologie und Raumfahrt

Projektträger: PtJ Projektträger Jülich

About Enamine

Enamine is the leading provider of chemical compounds and a scientifically driven Contract Research Organisation for integrated drug discovery (IDD) with unique partnering opportunities in exploring new chemical spaces. The company combines access to the in-house produced screening compounds (5 million in stock) and building blocks (350,000 in stock) with a comprehensive platform of integrated discovery services in bioinformatics, biology, and chemistry to advance and accelerate the efforts in drug discovery.

For more information, please visit: enamine.net/

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About Fraunhofer ITMP

Fraunhofer ITMP with its Hamburg site has a strong expertise in high-throughput drug discovery using high-quality compound and repurposing libraries (in silico and in vitro screening). We are also developing workflows to ensure the analysis of drug discovery data and the highest standards of FAIR data management, as well as algorithms and AI tools for the statistical analysis of patient cohorts in different medical indications, thus covering the broad field of »medical data science«.

For more information, please visit: <https://www.itmp.fraunhofer.de/>

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About HZI

Scientists at the Helmholtz Centre for Infection Research (HZI) in Braunschweig and its other sites in Germany are engaged in the study of bacterial and viral infections and the body's defense mechanisms. They have a profound expertise in natural compound research and its exploitation as a valuable source for novel anti-infectives. As member of the Helmholtz Association and the German Center for Infection Research (DZIF) the HZI performs translational research laying the ground for the development of new treatments and vaccines against infectious diseases.

For more information, please visit: <https://www.helmholtz-hzi.de/>