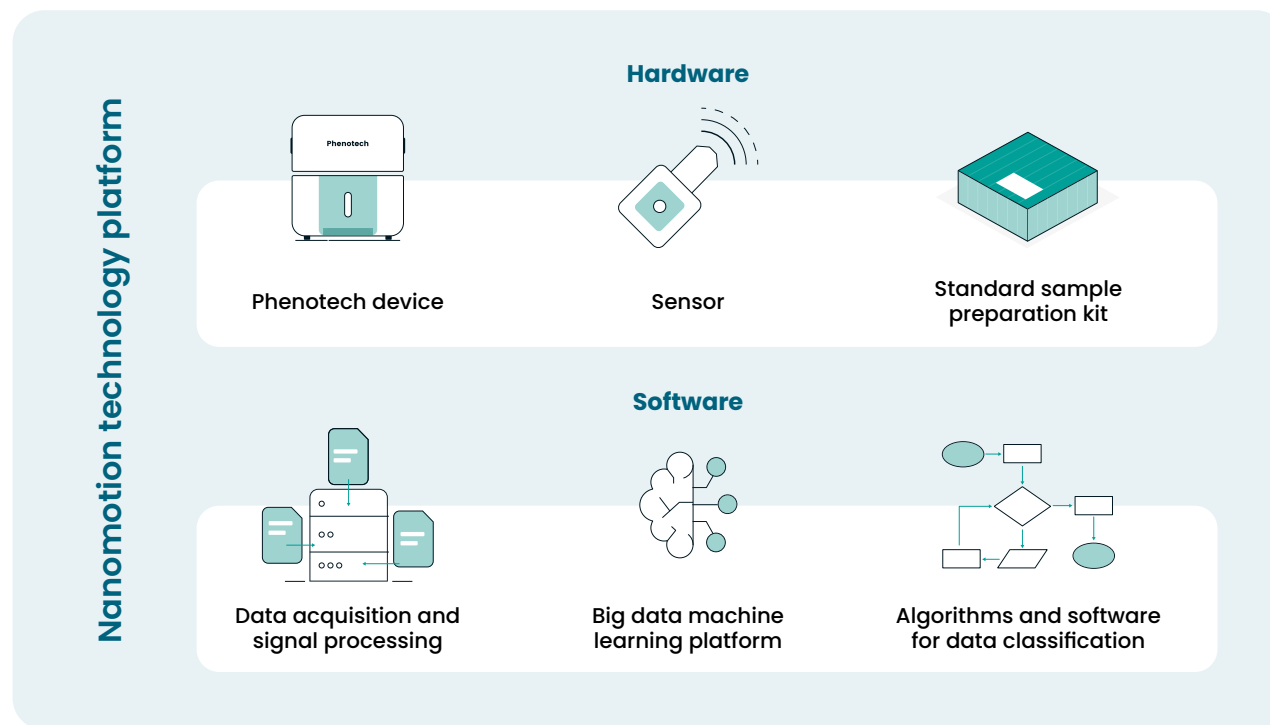


## Resistell's groundbreaking AST platform featured in Nature Communications

Resistell, an EPFL spin-off developing rapid phenotypic antibiotic susceptibility testing (AST) solutions, announces the peer-reviewed article in the Nature Communications journal. The publication marks the completion of the company's technology validation stage and showcases the potential of the Resistell nanomotion technology platform as a diagnostic in the fight against antimicrobial resistance (AMR).



The study including clinical data details Resistell's novel approach to AST, which unlike traditional methods, does not rely on bacterial growth. Instead, it utilizes nanomotion sensors to detect bacterial vibrations, a method proven to accurately determine antibiotic susceptibility.

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Sturm et al. 2024 Nature Communications  
DOI: 10.1038/s41467-024-46213-y  
[www.nature.com/articles/s41467-024-46213-y](https://www.nature.com/articles/s41467-024-46213-y)



Resistell's algorithms were developed using advanced machine learning techniques. They were trained on a large dataset comprising 2762 nanomotion recordings from 1180 positive blood cultures. These samples encompassed 364 *Escherichia coli* and *Klebsiella pneumoniae* isolates exposed to cephalosporins and fluoroquinolones. The technology demonstrated remarkable accuracy rates between **90.5%** and **100%** during training phases, with independent tests on 223 strains showing accuracies from **89.5%** to **98.9%**.

The Phenotech platform is being validated in an international multisite clinical study in collaboration with University Hospital Lausanne (CHUV) in Switzerland, the University Hospital Ramón y Cajal in Madrid, Spain and the Medical University of Innsbruck, Austria. The test reached an accuracy of **97.6%** and a mean time-to-result of 4.24 h, on the first 85 *E. coli* and *K. pneumoniae* isolates included in the study.

The next generation device, decreases the test time to only **2 hours and achieves 95.8%** accuracy on the combination antibiotic ceftazidime-avibactam commercialized by Pfizer as Zavicefta.



*No other phenotypic AST can deliver accurate results in just **2 hours**. This means physicians get crucial antimicrobial resistance information much faster than current technologies permit and can make improved treatment decisions that save lives.*



**Dr. Danuta Cichocka,**  
Resistell CEO



*Resistell's 2-hour AST can become a game-changer for critically ill patients with bloodstream infections, where every hour of delayed treatment increases the risk of death. This ultra-rapid AST enables the swift administration of critical last-resort drugs to those in dire need, while also facilitating the use of narrow-spectrum antibiotics for others, promoting antibiotic stewardship.*



**Prof. Gilbert Greub,**  
Director of the Institute of Microbiology at the University of Lausanne (UNIL) and Head of Microbiology Diagnostic Laboratories at Lausanne University Hospital (CHUV) and attending physician in infectious diseases

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*This is an improvement for real-time antimicrobial susceptibility testing that can benefit interventions of the antimicrobial stewardship team and on patients' management.*



**Prof. Rafael Canton,**

Head of Clinical Microbiology Department at Ramón y Cajal University Hospital in Madrid, Spain

Antimicrobial resistance is a growing public health crisis, with AMR threatening to nullify modern medical advances. In 2019 AMR contributed to **4.95 million** deaths and by 2050 it can kill **10 million** per year. Rapid ASTs are critical for the timely identification of effective antibiotics, directly impacting patient recovery rates and combating the spread of resistance.

*"This validation from one of the world's most reputable scientific journals paves the way for Resistell to transition from technology validation to wider clinical application. It's an important milestone on the way to becoming a new gold standard in antibiotic susceptibility testing,"* says Dr Cichocka.

## About Resistell

Resistell AG is a Swiss diagnostic firm at the forefront of AST technology. By harnessing the power of nanomotion detection, Resistell offers the fastest AST platform, capable of delivering results in as little as 2 hours. The company is currently working on a high-throughput version of the Phenotech device, which will deliver AST results for a panel of the most important antibiotics in clinical practice. Our mission is to provide healthcare professionals with rapid, accurate tools to fight the global crisis of antimicrobial resistance.



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