**PRESS RELEASE**

**Portable AI-based test kit to identify bacterial infections: Dutch scientist selected as a finalist for the Young Inventors Prize 2024**

* **29-year-old Dutch scientist Rochelle Niemeijer developed a fast, affordable and AI-driven tool to diagnose bacterial infections for better treatment decisions**
* **Her startup, Nostics, focuses on the most common types of infection, including urinary tract, fungal and bloodstream infections**
* **The Dutch inventor will compete for the Young Inventors Prize against a Ukrainian finalist and Tunisian team until 9 July**

**Munich, 4 June 2024** – According to a study published in [The Lancet](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(22)02185-7/fulltext), one in eight global deaths in 2019 was caused by common bacterial infections, which are the second leading cause of death worldwide. Due to slow or ineffective diagnostics many treatments are carried out with limited information on the condition, leading to the overuse of antibiotics - a major concern that Dutch scientist Rochelle Niemeijer seeks to address**.** She developed a point-of-care test kit that uses artificial intelligence (AI) to quickly identify bacteria causing infections like urinary tract infections, thus enabling for better treatment decisions. Niemeijer is a finalist for the Young Inventors Prize of the European Inventor Award 2024 in recognition of her promising work making diagnostics more accessible and thereby addressing one of the United Nations’ Sustainable Development Goals (SDGs). She was selected from over 550 candidates for this year’s edition.

**Leveraging AI for better healthcare**

Antimicrobial resistance (AMR) is one of the top global public health and development threats. The World Health Organization (WHO) states that AMR was directly responsible for 1.27 million global deaths in 2019. Inadequate diagnostics - particularly in rural and low-income areas that lack resources and funding - exacerbate the issue, leading to misdiagnosis, unnecessary treatments, and strain on healthcare.Niemeijer’s startup, Nostics, aims to provide doctors with rapid diagnostic tools to enable more effective treatment, starting with one of the most common types of infection globally, urinary tract infections.

Nostics' tool enables quick detection and identification of bacteria. The technology combines a portable spectrometer with artificial intelligence-powered digital software, with a single disposable cartridge that makes sample processing and measurement easy. The invention uses Surface-Enhanced Raman Spectroscopy (SERS) to analyse the samples which has been explored in academic research but not realised in tangible products in the healthcare industry before. The interactions of laser light with the sample generate spectral patterns even when few pathogens are present. A team of AI specialists develops algorithms capable of deciphering these spectral patterns, thereby enabling the accurate identification and classification of various pathogens.

The technology can identify bacterial species within 15 minutes, without the need for expert users or expensive lab infrastructure on a first diagnosis step, making it faster and more convenient than sending the sample to a lab. **This technology is versatile and can be adapted different infectious diseases,** as it is ideal for conducting screening and profiling in places with limited resources, in the field or during point-of-care tests, as it doesn’t require expert users.

Nostics has raised EUR 10 million to date to build fast, affordable, and data-driven diagnostic tools in the form of a portable platform for doctors. The process relies on a combination of photonics, nanotechnology, and AI.

**Aspiring to help others through nanobiology**

Niemeijer’s aspiration to help others evolved during her volunteer work at a hospital in Samraong, Cambodia, in 2012, where she faced significant resource shortages and saw the lack of accessible diagnostic tools firsthand. Afterwards she pursued Nanobiology at the Delft University of Technology, where she earned a bachelor’s and master’s degree. In April 2020, she co-founded Nostics and became its Chief Scientific Officer, leveraging nanotechnology, photonics, and machine learning to innovate in diagnostics.Niemeijer said: “*We want to make an impact by providing rapid and accessible diagnostic* *tools. That way, we can make sure that everyone receives the right treatment at the right time*”*.*

By providing diagnostic access to everyone, everywhere, the invention brings efficiency and clarity to patient care, promotes responsible use of germ-fighting medicines, averts the misuse or overuse of antibiotics, and improves disease monitoring, thus contributing to the United Nations’ Sustainable Development Goal (SDG) 3 for good health and well-being.

The young Dutch scientist behind the innovation has been named one of three finalists for the Young Inventors Prize for this year’s European Inventor Award, recognising outstanding European inventors aged under 30 for their inventions**.** The other finalists are Ukrainian Valentyn Frechka who has developed a method to convert fallen leaves into recyclable paper, reducing deforestation and lowering CO2 emissions and a team of Tunisian inventors, Khaoula Ben Ahmed, Ghofrane Ayari, Souleima Ben Temime, and Sirine Ayari, who have developed a smart wheelchair control solution so individuals with severe disabilities can navigate independently. **The winners of the 2024 edition of the European Inventor Award and Young Inventors Prize will be announced** during a ceremony [livestreamed](https://www.epo.org/en/news-events/european-inventor-award/streaming?mtm_campaign=EIA2024&mtm_keyword=pressrelease&mtm_medium=press) from Malta on 9 July 2024.

Find more information about the invention’s impact, the technology and the inventors’ stories [here](https://www.epo.org/en/news-events/european-inventor-award/meet-the-finalists/rochelle-niemeijer?mtm_campaign=EIA2024&mtm_keyword=pressrelease&mtm_medium=press).

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**About the Young Inventors Prize**

The European Patent Office established the Young Inventors Prize in 2021 to inspire the next generation of inventors. Aimed at innovators aged 30 or below from all around the world, it recognises initiatives that use technology to contribute toward the United Nation's Sustainable Development Goals. The winner will receive EUR 20 000, the second and third placed finalists will receive EUR 10 000 and EUR 5 000, respectively. An independent jury comprising former finalists of the European Inventor Award selects the finalists and winner. The EPO will confer the prize at the European Inventor Award 2024 hybrid ceremony on 9 July. Unlike the traditional Award categories, the Young Inventors Prize finalists do not need a granted European patent to be considered for the prize. [Read more](https://new.epo.org/en/news-events/european-inventor-award?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press&mtm_group=press) on the Young Inventors Prize eligibility and selection criteria.

**About the European Inventor Award**

The European Inventor Award is one of Europe's most prestigious innovation prizes. Launched by the EPO in 2006, the award honours individuals and teams, who have come up with solutions to some of the biggest challenges of our time. The finalists and winners are selected by an independent jury comprising former Award finalists. Together, they examine the proposals for their contribution towards technical progress, social and sustainable development, and economic prosperity. All inventors must have been granted a European patent for their invention. Read more [here](https://www.epo.org/en/news-events/european-inventor-award?mtm_campaign=EIA2024&mtm_keyword=pressrelease&mtm_medium=press) on the various categories, prizes, selection criteria and livestream ceremony to be held on 9 July in Malta.

**About the EPO**

With 6,300 staff members, the [European Patent Office (EPO)](https://www.epo.org/?mtm_campaign=EIA2023&mtm_keyword=EIA-pressrelease&mtm_medium=press&mtm_group=press) is one of the largest public service institutions in Europe. Headquartered in Munich with offices in Berlin, Brussels, The Hague and Vienna, the EPO was founded with the aim of strengthening co-operation on patents in Europe. Through the EPO's centralised patent granting procedure, inventors are able to obtain high-quality patent protection in up to 45 countries, covering a market of some 700 million people. The EPO is also the world's leading authority in patent information and patent searching.