

Raytheon

Raytheon developing portable "Friend or Foe" system to identify harmful bacteria before they cause harm

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CAMBRIDGE, Mass., April 23, 2019 /PRNewswire/ -- Raytheon (NYSE: RTN) is developing a portable device to evaluate bacteria and their potential to cause harm—information that could support the future development of medical countermeasures and improved screening tools.

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Under the DARPA Friend or Foe program, Raytheon is developing biosurveillance technology that detects bacterial pathogens as soon as or before they threaten the military and citizens. Current biosurveillance strategies are not effective on undiscovered bacterial strains or on bacteria engineered to evade detection. To overcome this problem, Friend or Foe will characterize bacteria quickly by examining its behavior.

"Population growth, global travel, climate change—all of these factors increase the risk of exposure to unfamiliar bacteria," said Aaron Adler, Ph.D. and principal investigator for the Friend or Foe program at Raytheon BBN Technologies. "Most of those bacteria are harmless or even beneficial, but our goal is to develop a system that lets people know quickly when they are not as a cue to take mitigating action."

The screening process begins with collecting and isolating a single bacterium in a tiny cube with a porous membrane. Sensor arrays in the cube make initial measurements on respiration, consumption of specific nutrients and metabolite production. Suspect bacteria is then extracted and exposed to synthetic substances that mimic human tissues to test for pathogenicity.

"To get a reliable risk assessment, we need to understand not just the bacteria's genetic makeup, or genotype, but how it functions - its phenotype," said Adler. "We're looking at ways to subject the bacteria to a gauntlet of behavior screenings so we can determine its ability to cause disease."

About Raytheon

Raytheon Company, with 2018 sales of \$27 billion and 67,000 employees, is a technology and innovation leader specializing in defense, civil government and cybersecurity solutions. With a history of innovation spanning 97 years, Raytheon provides state-of-the-art electronics, mission systems integration, C5I™ products and services, sensing, effects, and mission support for customers in more than 80 countries. Raytheon is headquartered in Waltham, Massachusetts. Follow us on [Twitter](#).

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