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- [TH \(http://www.nanotec.or.th/th/\)](http://www.nanotec.or.th/th/)
- [EN \(http://www.nanotec.or.th/en/\)](http://www.nanotec.or.th/en/)

Search for:

- [HOME \(http://www.nanotec.or.th/en/\)](http://www.nanotec.or.th/en/)
- [ABOUT US \(http://www.nanotec.or.th/en/?page_id=1899\)](http://www.nanotec.or.th/en/?page_id=1899)
- [SERVICES \(http://www.nanotec.or.th/en/?page_id=39\)](http://www.nanotec.or.th/en/?page_id=39)
- [NEWS & ANOUNCEMENT \(http://www.nanotec.or.th/en/?cat=3\)](http://www.nanotec.or.th/en/?cat=3)
- [TECHNOLOGY UPDATE \(http://www.nanotec.or.th/en/?cat=7\)](http://www.nanotec.or.th/en/?cat=7)
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- [GALLERY \(http://www.nanotec.or.th/en/?cat=14\)](http://www.nanotec.or.th/en/?cat=14)
- [HOME \(http://www.nanotec.or.th/en/\)](http://www.nanotec.or.th/en/)
- [ABOUT US \(http://www.nanotec.or.th/en/?page_id=1899\)](http://www.nanotec.or.th/en/?page_id=1899)
- [SERVICES \(http://www.nanotec.or.th/en/?page_id=39\)](http://www.nanotec.or.th/en/?page_id=39)
- [NEWS & ANOUNCEMENT \(http://www.nanotec.or.th/en/?cat=3\)](http://www.nanotec.or.th/en/?cat=3)
- [TECHNOLOGY UPDATE \(http://www.nanotec.or.th/en/?cat=7\)](http://www.nanotec.or.th/en/?cat=7)
- [NANO SAFETY \(http://www.nanotec.or.th/en/?cat=12\)](http://www.nanotec.or.th/en/?cat=12)
- [DOWNLOAD \(http://www.nanotec.or.th/en/?cat=15\)](http://www.nanotec.or.th/en/?cat=15)
- [CONTACT \(http://www.nanotec.or.th/en/?page_id=76\)](http://www.nanotec.or.th/en/?page_id=76)
- [GALLERY \(http://www.nanotec.or.th/en/?cat=14\)](http://www.nanotec.or.th/en/?cat=14)

[Main Menu](#)

(#)

- [Home \(http://www.nanotec.or.th/en/\)](http://www.nanotec.or.th/en/)
- [Technology Update \(http://www.nanotec.or.th/en/?cat=7\)](http://www.nanotec.or.th/en/?cat=7)
- Antibiotics Wrapped in Nanofibers Turn Resistant Disease-producing Bacteria into Ghosts

Antibiotics Wrapped in Nanofibers Turn Resistant Disease-producing Bacteria into Ghosts

A new technology that encapsulates antibiotics inside nanofibers has the ability to destroy drug-resistant bacteria so completely that scientists describe the remains as mere "ghosts." More than 100,000 people in the United States develop antibiotic-resistant infections each year, with nearly 20,000 deaths resulting. Mohamed H. El-Newehy, Ph.D., a professor in the Department of Chemistry at King Saud University, Riyadh, Saudi Arabia, and leader of the nanofibers research team, said, "The rapid emergence of bacteria resistant to commonly used antibiotics has become a serious public health problem. There is an urgent need to identify new antibiotics that work in different ways that can overcome resistance. Our approach is not a new antibiotic, but a new way of delivering existing antibiotics." El-Newehy was speaking at the 241st National Meeting & Exposition of the American Chemical Society (ACS). The approach, which involves putting common antibiotics inside nanofibers made of polyvinyl alcohol and polyethylene oxide, could be used against a broad range of bacteria to fight disease, prevent bacterial and fungal contamination in the food industry, inhibit the growth of microorganisms in drinking water, and enhance the effects of chemotherapy. "When treated with antibiotics wrapped in nanofibers, the microbes were severely damaged and many cells were enlarged, elongated, fragmented, or left as just empty ghosts," El-Newehy said. "The fibers by themselves, without antibiotic did not affect the bacteria. They seem to work by boosting the power of the antibiotics. By wrapping the anti-microbial agents in the fibers, it makes the drug action more focused and the agents are effective for longer period of time than with conventional delivery techniques." New treatments would also be available to patients much faster than trying to discover and develop brand-new medicines – a process that is lengthy and costly. The article can be viewed online at the link below.

http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=222&content_id=CNBP_026953&use_sec=true&sec_url_var=region1&_uid=39887725-3134-48c9-ae46-39ca2d6f6b65 (http://portal.acs.org/portal/acs/corg/content?_nfpb=true&_pageLabel=PP_ARTICLEMAIN&node_id=222&content_id=CNBP_026953&use_sec=true&sec_url_var=region1&_uid=39887725-3134-48c9-ae46-39ca2d6f6b65)

บทความอื่นๆ ที่เกี่ยวข้อง

- [Prickly structure rethinks catalyst supports \(http://www.nanotec.or.th/en/?p=8234\)](http://www.nanotec.or.th/en/?p=8234)
- [Skyrmion bubbles go gyrotropic \(http://www.nanotec.or.th/en/?p=8230\)](http://www.nanotec.or.th/en/?p=8230)
- [One nanoparticle: six imaging modalities \(http://www.nanotec.or.th/en/?p=8228\)](http://www.nanotec.or.th/en/?p=8228)
- [Nanoclusters act as antioxidants \(http://www.nanotec.or.th/en/?p=8226\)](http://www.nanotec.or.th/en/?p=8226)

- [Quantum-dot TVs seed a bright future \(http://www.nanotec.or.th/en/?p=8177\)](http://www.nanotec.or.th/en/?p=8177)
- [Smartphones look for a cure for Alzheimer's \(http://www.nanotec.or.th/en/?p=8175\)](http://www.nanotec.or.th/en/?p=8175)
- [Silicene makes stable FET \(http://www.nanotec.or.th/en/?p=8173\)](http://www.nanotec.or.th/en/?p=8173)
- [Solvents help print CNT devices \(http://www.nanotec.or.th/en/?p=8171\)](http://www.nanotec.or.th/en/?p=8171)
- [Aramid nanofibres make good battery separators \(http://www.nanotec.or.th/en/?p=8169\)](http://www.nanotec.or.th/en/?p=8169)
- [Triggering mineralization Nature's way \(http://www.nanotec.or.th/en/?p=8150\)](http://www.nanotec.or.th/en/?p=8150)

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