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## 2010-05-24: NIH funds anti-tuberculosis research

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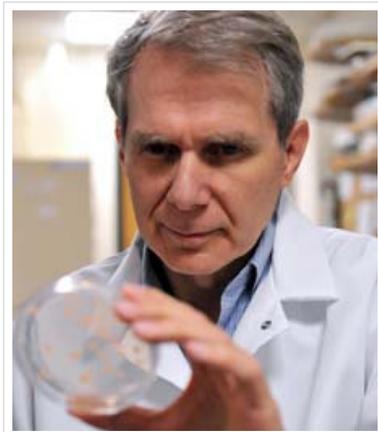
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## NIH funds anti-tuberculosis research



Professor Lewis will lead research to identify new treatments against tuberculosis. Photo by Craig Bailey.

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Northeastern biology professor **Kim Lewis** has received a three-year \$1.16 million grant from the National Institutes of Health to lead the development of new treatments against tuberculosis, a disease that is increasingly resistant to antibiotics, killing nearly two million people worldwide each year.

Lewis, director of **Northeastern's Antimicrobial Discovery Center**, and Ekaterina Gavrish, senior scientist at the center, will collaborate with Northeastern biology professor Slava Epstein and Amy Spoering, a researcher at NovoBiotic Pharmaceuticals, based in Cambridge, MA. Their task: Identify new species of bacteria that produce compounds that can kill *Mycobacterium tuberculosis*, the bacterium that causes tuberculosis.

Only one percent of antibiotic-producing bacteria will grow in the lab, says Lewis, which is why the researchers will focus on growing previously uncultivable forms of bacteria. "By expanding the pool

of resources, we hope to harness the potential to develop novel drugs against tuberculosis," he says.

To begin the growth process, the team will place soil organisms into a diffusion chamber, which has semi-permeable membranes that enclose the bacteria, and return them to the soil. This process tricks the bacteria into perceiving the chamber as their natural environment.

Once the bacteria are isolated, they will be domesticated to grow on a Petri dish.

The Northeastern team will then screen extracts from the isolated bacteria for activity against *M. tuberculosis*. Once identified, the active extracts will be sent to NovoBiotic Pharmaceuticals, where antimicrobial compounds will be purified and subsequently developed into drugs.

Current anti-tuberculosis treatment regimens, developed decades ago, take six months to complete. During the treatment process, the good (symbiotic) bacteria in the human gut are killed along with the bad bacteria, causing undesirable side effects.

Northeastern's novel approach will focus on compounds that specifically target *M. tuberculosis*, says Lewis: "We will have access to untapped resources that could lead to the development of a new generation of antibiotics to treat tuberculosis and other diseases caused by *Mycobacteria*."

The Antimicrobial Discovery Center was founded in 2006 to translate basic science discoveries into novel antimicrobial therapies to combat biowarfare and conventional pathogen threats. The interdisciplinary center, funded by grants from the National Institutes of Health, National Science Foundation and Department of Energy, draws faculty members from biology, chemistry, physics and pharmaceutical sciences.

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