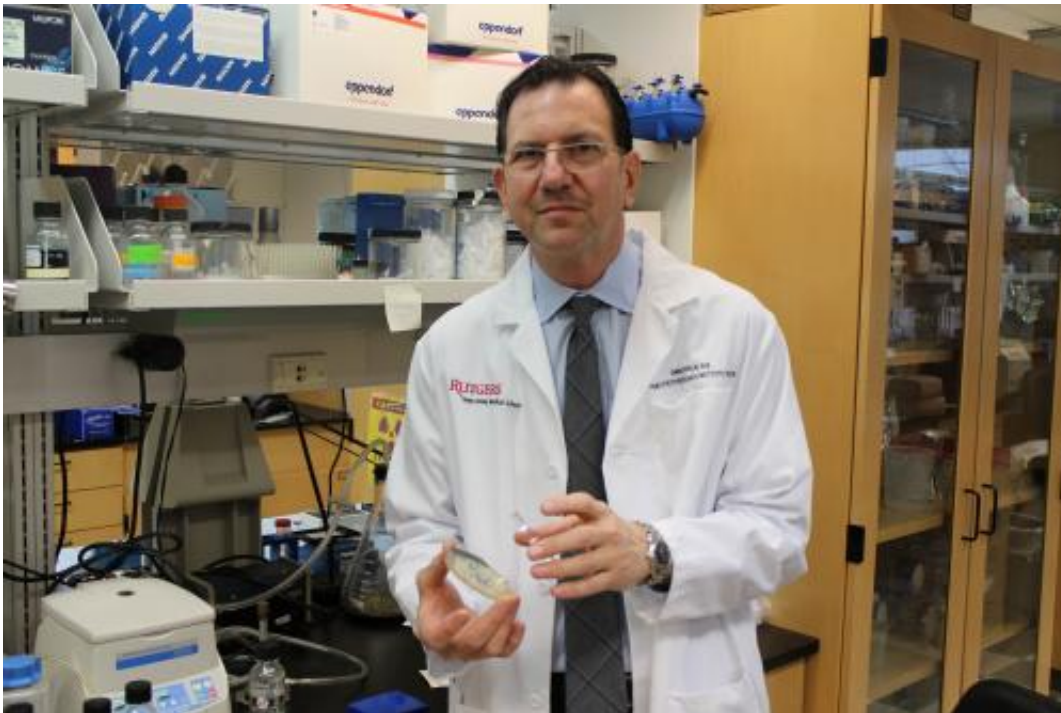


Attacking fungal infection, one of the world's major killers

December 23 2013, by Rob Forman



David Perlin of Rutgers' Public Health Research Institute says the battle against deadly fungal infection needs to be both better funded and more highly organized. Credit: Rob Forman

Ask someone what the term 'fungus' brings to mind, and chances are it will be an image of something that smells or looks disgusting. Ask David Perlin, executive director of the Public Health Research Institute at Rutgers New Jersey Medical School, and the response will be far more somber – because he knows how deadly fungi can be.

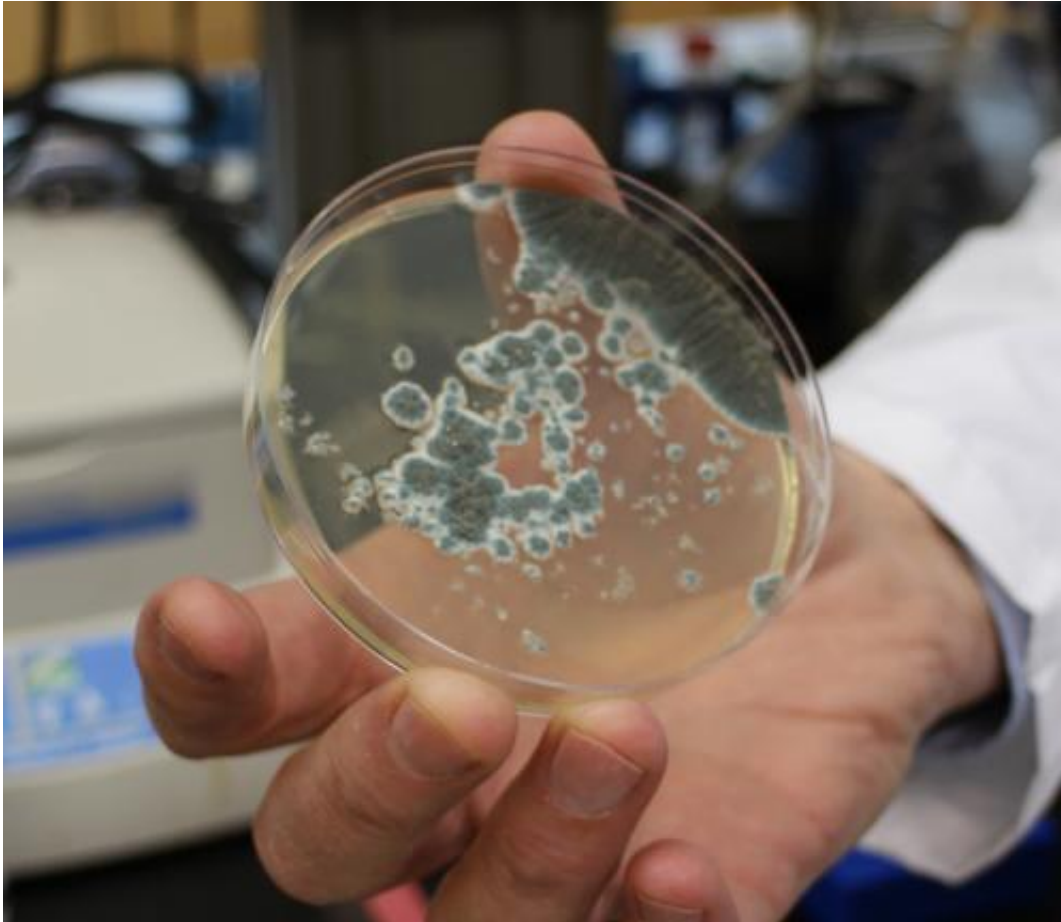
Fungal infections take more than 1.3 million lives each year worldwide, nearly as many as tuberculosis. Perlin has made it his mission to reduce the death toll and severe disability that fungi can cause.

"More than a million people around the world are blind because of fungal infections of the eye," Perlin points out, "and half of the world's 350,000 asthma-related deaths each year stem from fungal infection that could be treated effectively with drugs."

In addition, [fungal infections](#) can complicate the recoveries of organ recipients. They also are the stuff of vaginal yeast infections, which strike nearly three quarters of American women at least once in their lifetimes according to the Centers for Disease Control and Prevention.

Fungi are neither bacteria nor viruses. Their biology is different from both, with a cell nucleus and other internal structures that distinguish them from their infectious distant cousins. But as Perlin is eager to tell anyone who will listen, they are just as big a threat to life and health.

"People know well what a bacterium or a virus can do," says Perlin. "We need to start thinking of fungi in the same terms, and part of that is becoming more aware that fungi are all around us in the environment. Yeast is a fungus. So is mold. Many people don't realize that."



A petri dish filled with *Aspergillus fumigatus*, a fungus responsible for death and serious illness among transplant recipients and people with asthma. Credit: Rob Forman

When at least 64 people died and more than 750 developed meningitis after their back pain was treated with tainted steroid injections in 2012, that, too, was caused by a fungus. During the manufacturing process, *Exserhillum rostratum* had contaminated those patients' medication. As an urgent response to that meningitis outbreak, Perlin co-lead development of a test announced last January that can detect the fungus either in batches of medication or in the bloodstreams of people who are infected. Perlin and his colleagues had previously developed assays for other dangerous [fungi](#).

As he works in his lab on Rutgers' health sciences campus in Newark to unlock the many mysteries of fungal infection, Perlin is also trying passionately to improve the world's often disorganized approach to dealing with this deadly problem. In November, at an event in New York accompanied by a similar announcement at the House of Commons in London, he co-hosted the launch of GAFFI, the Global Action Fund for Fungal Infections. The organization's goals include both large efforts to accurately measure the scope of fungal infection around the world – much of which remains undocumented – and to implement relatively simple solutions where the problems are known but the will, the funding and the infrastructure to address them are absent.

For instance, the cause of fungus-related blindness may be as tragically simple as an irritation caused by an unclean finger. Diagnosis and treatment should be both easy and inexpensive, Perlin says, but are not available in many parts of the world.

Perlin adds that asthma caused by fungal infection is not just a problem of resource-poor countries. "There are people who needlessly suffer and die from asthma here in the developed world because there are physicians who haven't been trained to consider fungal infection as a possible cause," says Perlin. "When fungal infection damages lung function, many patients suffer for years for lack of proper treatment. That suffering is hard to accept because as many as 80 percent of people who receive appropriate drugs see their conditions improve. Many see their health completely transformed."

Fungi are not "sexy," which creates a competitive disadvantage when people like Perlin try to get the attention of governments, major foundations, the media and the public. But Perlin is convinced that getting noticed can translate into saving or improving millions of lives.

"It is tantalizing to know how much can be done if the right pieces fall in

place," he says, "and I will keep doing both the science and the advocacy to help make that happen.

Provided by Rutgers University

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