## Meet the Scientist

# The Fight Against Fungal Infections


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When most people think of infections, they think of viruses or bacteria; the things your doctor might prescribe an antibiotic or an antiviral medication to clear up. But there is another, lesser known but equally insidious organism that causes hundreds of thousands of death each year around the world, and ironically, recent advancements in medicine are partially behind it becoming so prevalent.

Fungal infections, the microscopic cousins of mushrooms and molds, are very different from viruses and bacteria, and normally a healthy human immune system can deal with the threats they pose without issue. In people with compromised immune systems, such as chemotherapy patients, premature babies, or patients with AIDS, however, the fungus can gain a foothold and infect in ways that are extremely difficult to eradicate.

"Fungal infections are increasing sharply in the developed world largely because we're advancing therapies for cancer, premature births, and other diseases so quickly," says Dr. Damian Krysan. "There are new therapies for Crohn's disease, rheumatoid arthritis, and other autoimmune diseases that use what are called monoclonal antibodies, which are fantastic treatments, but we have to be ready to combat the diseases such as fungal meningitis that can strike when these advanced therapies weaken a patient's immune system."

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Dr. Krysan is uncovering genetic weaknesses in the fungal genome. The University of Rochester Medical Center has one of the world's most renown group of fungal geneticists in the country, and when Dr. Krysan saw that URMC's Pediatrics department had a specific focus on opportunistic pathogens, he knew it was a chance to work with the people that would empower his research.

"We're one of the few groups in the academic world working on this," he says. "I had to be where the expertise is."

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