

Researchers discover mechanism leading from trichomoniasis to prostate cancer

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Researchers have identified a way in which men can develop prostate cancer after contracting trichomoniasis, a curable but often overlooked sexually transmitted disease.

Previous studies have teased out a casual, epidemiological correlation between the two diseases, but this latest study suggests a more tangible [biological mechanism](#).

John Alderete, a professor at Washington State University's School of [Molecular Biosciences](#), says the trichomoniasis parasite activates a suite of proteins, the last of which makes sure the proteins stay active.

"It's like switching a [light switch](#) on," he says. "Then, if you don't control the brightness of that light, you can go blind. That's the problem."

Alderete and colleagues at WSU and Washington University in St. Louis report their findings in the recent *PLoS Pathogens*.

Caused by a [protozoan parasite](#), trichomoniasis is often referred to as the most common curable sexually transmitted infection. However, most infected people have no symptoms, so it often goes untreated.

"Most women, it's the Number One sexually transmitted infection," says Alderete. "We're going to have at least 10 million women infected this year and an equal number of men because they all get infected if they come into contact with an infected partner."

Infected women have a greater risk of [pregnancy complications](#) and HIV. Infected men have a 40 percent greater chance of developing prostate cancer, according to a 2006 study led by Siobhan Sutcliffe, a Washington University [epidemiologist](#) and co-author of the recent [PLoS Pathogens](#) paper.

Sutcliffe cautions that the epidemiological link she found is not conclusive and compares the science to the early connections drawn between smoking and [lung cancer](#).

"It's still in a really exploratory phase," she says.

A study after her 2006 research found no connection between trichomoniasis and prostate cancer, while a third out of Harvard found an even greater likelihood of cancer in infected men.

This latest study, she says, "is providing a molecular mechanism that might explain that association."

Much of the study was done in a single building, WSU's Biotechnology and Life Sciences Building, and involved two of the more accomplished researchers on the Pullman campus.

"This is just coincidence. I've only been here five years," says Alderete. "And when I arrived here five years ago, I had no clue that we would be going in this kind of direction. But the more I read and the more we talked in the hallways, the more it became clear that, wait a minute, we may have something here between us."

WSU cancer researcher Nancy Magnuson is an expert on the protein PIM1, a promoter of cancer cell growth, and identified the protein in the cascade of proteins leading from trichomoniasis to [prostate cancer](#). WSU molecular biologist Ray Reeves brought to bear his expertise in

HMGA1. The [protein](#) turns genes on and off and ended up being the actor making sure other proteins in the trichomoniasis-to-cancer sequence stay on.

Alderete hopes knowledge of the mechanism will lead to better diagnosis and treatment.

"What this is also doing is telling the world, 'People, this is a latent infection,'" he says. "'You guys out there, if you've been exposed to it, you've got it in there, and we need now a diagnostic for you.'"

More information: The paper can be found at www.plospathogens.org/article/info%3Adoi%2F10.1371%2Fjournal.ppat.1002801

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