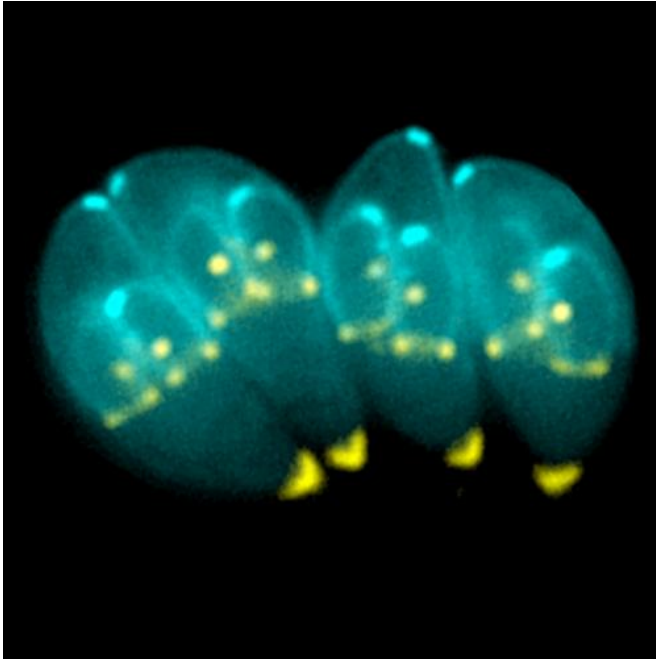


New zebrafish model should speed research on parasite that causes toxoplasmosis

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Toxoplasma gondii. Credit: Wikipedia

Researchers at Oregon State University have found a method to speed the search for new therapies to treat toxoplasmosis – by successfully infecting zebrafish with *Toxoplasma gondii*.

The findings were just published in the *Journal of Fish Diseases*, in work supported by the Tartar Foundation and the National Institutes of Health.

T. gondii, a [protozoan parasite](#), can infect a wide range of hosts, and is one of the most prevalent parasites in the world. It has been estimated to infect about one-third of the human race. Treatment can be difficult because parasites often have biologic similarities to the hosts they infect.

Zebrafish have been found in recent years to be an excellent model for biomedical research because they reproduce rapidly, bear many similarities to

[human genetics](#) and biological systems, and can be used in "high throughput" technologies to literally test hundreds of compounds in a fairly short period of time.

"This advance may provide a very efficient tool for the discovery of new therapies for this parasitic infection," said Justin Sanders, an OSU postdoctoral fellow and lead author on the study. "With it we should be able to more easily screen a large library of compounds, at much less expense, and look at things that are unknown or have never been considered as a possible treatment."

Although it infects many animals, *T. gondii* infection has never been observed prior to this in fish. But the OSU researchers found that by raising the temperature of the water in which [zebrafish](#) lived to a warmer-than-normal 98.6 degrees, or the temperature of a human body, they could become infected with the parasite but also survive.

"*T. gondii* affects a wide range of mammals and birds, and cats are actually one of the most routine hosts," said Michael Kent, a professor of microbiology in the OSU College of Science. "It can cause congenital defects, which is one reason that pregnant women are told not to clean the catbox. Many people become infected for life. These chronic infections can cause serious eye disease and can be fatal to people with weakened immune systems.

"New therapies would clearly be of value, and now we have a better way to find them," he said.

More information: "The zebrafish, *Danio rerio*, as a model for *Toxoplasma gondii*: an initial description of infection in fish." *Journal of Fish Diseases*. doi: 10.1111/jfd.12393

Provided by Oregon State University

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