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# Study finds new insight on therapy for a devastating parasitic disease

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University of Minnesota Medical School researchers have discovered an important new insight into how a commonly prescribed drug may work to treat those infected by a parasitic flatworm.

The *Schistosomasis* parasite infects about 200 million people in tropical areas worldwide and is endemic in more than 70 countries, where people become infected simply by bathing, drinking, or cooking water contaminated with the flatworm. Although not immediately deadly, left untreated, the disease can permanently damage the lungs, kidney, liver, and intestines and ultimately lead to death.

A drug called praziquantel has been used as the main treatment for *Schistosomiasis* for several decades, but surprisingly, scientists have never understood how this drug works to kill the parasitic worms that cause this disease. Deciphering how this drug works is important because scientists could design new drugs that work in similar ways should the parasites develop resistance to praziquantel.

While working in a different species of flatworm widely used to study the basic principles of regenerative biology, researchers in the Pharmacology Department discovered that praziquantel caused a simple, striking effect: the drug subverts normal regeneration to produce two-headed organisms. This simple observation was then used to screen for genes required to control this effect, leading to the identification of molecules that control the effects of praziquantel within a flatworm model.

"Our discovery of this new biological activity of praziquantel provides a foundation for defining the relevant in vivo targets of a very important clinical drug," said Jonathan Marchant, M.A. Ph.D., principal investigator of the study. "Using drugs to make organisms grow two brains may seem bizarre, but the knowledge we gained illustrates the importance of basic scientific research."

The study is published in the June 23 issue of PLoS Neglected Tropical Diseases.

"Discoveries by researchers working in diverse animal models not linked with disease frequently provide insight into long-standing clinical problems," Marchant said. "Basic science feeds into the therapeutic pipeline in unpredictable ways and it is important to foster such diversity."

Source: University of Minnesota (news : web)