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PARASITES

UNDIVIDED AND CONQUERED

FOCUS: Developing novel, broad-based anti-parasitics.

Trypanosomatids are parasites that cause Chagas disease, leishmaniasis and human African trypanosomiasis, serious diseases afflicting millions of patients worldwide. Available treatments have many side effects, and because they are over five decades old, parasites have built up resistance, limiting their effectiveness.

Dr. Wetzel and her team have identified a small molecule that kills trypanosomatids in vitro as effectively as clinically-available drugs—a discovery that had some

serendipity to it. “We were in the process of looking for compounds that affected how the parasites got into human immune cells,” Dr. Wetzel says. “Instead, by sheer accident, we found something that killed them.”

Her team found that if a compound were to interfere with tubulin, a protein crucial to the formation of the skeletal system in a one-celled parasite, the integrity of the cell structure would be compromised. “All cells have an internal skeleton that holds

its shape, and is necessary for the cell to divide,” Dr. Wetzel says. “In a protozoan one-celled parasite, targeting tubulin locks its skeleton in place, preventing it from dividing, and within a few days, the parasite dies.”

With help from the Harrington Discovery Institute, Dr. Wetzel hopes to develop an important breakthrough in what is an extremely limited research and development pipeline for neglected tropical diseases.

“The Harrington Discovery Institute has helped us strategize how to get financing for a drug for a tropical disease that rarely occurs in the US.”

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