



EMBARGOED FOR RELEASE: 17 MAI 2023, 11 PM CEST (5 PM ET)

Media Release

New Treatment for Human Parasitic Worm Infections Shows High Efficacy

A new drug candidate shows promising results in treating parasitic worm infections. Researchers at Swiss TPH tested efficacy and safety of emodepside against the three most important soil-transmitted helminths on Pemba Island in Tanzania. Emodepside is the first new promising drug against parasitic worm infections since several decades. Swiss TPH will now join forces with Bayer to further develop the drug.

ALLSCHWIL (CH). Soil-transmitted helminth infections are caused by different species of parasitic worms, including whipworms, hookworms and roundworms. Worldwide, more than 1.5 billion people are infected with at least one soil-transmitted helminth, with most of the infected population living in low- and middle-income countries.

Infected people can experience symptoms like stomach pain, diarrhoea and anaemia, while heavy infections can lead to malnutrition, impaired growth and physical development. In severe cases, it can even cause blockages in the intestine that may require surgery.

To treat soil-transmitted helminth infections, safe drugs are available but the efficacy varies widely. The current treatments recommended by the World Health Organization (WHO) are albendazole and mebendazole. However, in the case of the whipworm *Trichuris trichiura*, a single dose of these drugs can only cure 17% of the infected people as shown in this study. Moreover, as drug resistance is on the rise, new alternative treatments are urgently needed.

All patients cured

To fill the anthelmintic drug pipeline, Swiss TPH researchers have now tested the drug emodepside for the first time in humans infected with soil-transmitted helminths in a phase IIa study.

“In this study, Emodepside showed high cure rates for all three soil-transmitted helminths,” said Emmanuel Mrimi, PhD candidate and first author of the study. The lowest dose tested, 5 mg of emodepside, cured 83% of people infected with whipworm. “An increase of emodepside to 15 mg resulted in complete cure of all people. Curing people infected with whipworm has never been achieved with the current anthelmintic treatments”. In addition, high efficacy was also observed against roundworm and hookworm.

“The drug has also other important characteristics. It is well tolerated and most adverse events in the trial were mild,” said Mrimi. The results have been published today in the renowned New England Journal of Medicine.

From innovation to application

Emodepside is an anthelmintic treatment used to date in veterinary medicine. “Drug repurposing is a key strategy in research for anthelmintic drug discovery and development that is neglected and underfunded”, said Jennifer Keiser, Head of the Helminth Drug Development unit, “most repurposed drugs come from veterinary medicine.” Swiss TPH already tested the drug in laboratory studies. “Based on the promising results in the laboratory, we saw the potential for treating patients infected with soil-transmitted helminths,” said Jennifer Keiser. That is why the drug was taken forward. “The

recent results of the clinical trials are important and good news in the field of neglected tropical diseases. No new anthelmintic has been developed in the past decades. So this is a huge milestone towards controlling and eliminating soil-transmitted helminthiasis.”

Swiss TPH will now join forces with the life science company Bayer on the further development of the drug. “The aim is to have it approved for use in humans and to make it available to patients in need in the future,” said Keiser.

About the study

The study was conducted together with the Public Health Laboratory Ivo de Carneri (PHL-IdC), on Pemba Island, Tanzania. Overall, 442 study participants that were infected with one or more of the three main soil-transmitted helminths: *Trichuris trichiura* (whipworm), hookworm and *Ascaris lumbricoides* (roundworm), were enrolled and randomly assigned to emodepside, albendazole or placebo treatment groups.

DOI: 10.1056/NEJMoa2212825 (will be available as of 17 May, 5 pm ET)

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About Swiss TPH

Swiss TPH – Excellence in Global Health

The Swiss Tropical and Public Health Institute (Swiss TPH) is a world-leading institute in global health with a particular focus on low- and middle-income countries. Associated with the University of Basel, Swiss TPH combines research, education and services at local, national and international levels. 900 people from 80 nations work at Swiss TPH focusing on infectious and non-communicable diseases, environment, society and health as well as health systems and interventions.

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