PRESS RELEASE

Scientists confirm new drug for treating human parasitic worm infections

Swiss TPH, Ifakara confirms the first new drug against worm infections in decades!
May 18, 2023 – Dar es Salaam. Researchers at Ifakara Health Institute (IHI) the Swiss Tropical and Public Health Institute (Swiss TPH), and Public Health Laboratory – Ivo de Carneri (PHL-IdC) confirm the excellent efficacy of a new drug candidate known as "*Emodepside*" for treating parasitic worm infections. Emodepside is the first new promising drug against parasitic worm infections in several decades.

The researchers confirmed this in a paper published in the renowned New England Journal of Medicine, after conducting a study to evaluate the efficacy and safety of emodepside against *T. trichiura* and hookworm infections.

Researchers at Swiss TPH and Ifakara tested the efficacy and safety of emodepside against the three most important soil-transmitted helminths on Pemba Island in Tanzania. They conducted two clinical trials in collaboration with PHL-IdC from Pemba Island. The trials aimed to assess the percentage of people cured from whipworm and hookworm infections after receiving a single dose of emodepside. Additionally, the researchers also examined the safety of a single dose of emodepside with evaluations done in comparison toalbendazole, a commonly used drug.

About Trichuris trichiura and hookworm infection
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 infectionscan 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 anthelminthic drug pipeline, Swiss TPH researchers have now tested the drug emodepside for thefirst time in humans infected with soil-transmitted helminths in a phase IIa study.

Emmanuel Mrimi, a PhD student from Swiss TPH and first author of the study said, "We are extremely pleasedto announce that emodepside performed exceptionally well in treating whipworm infections. The lowest singledose of 5 mg of emodepside cured 8 out of 10 people infected with whipworm, whereas albendazole only cured 2 out of 10. Moreover, a single dose of 15 mg of emodepside cured all people infected with whipworm. This achievement is unheard of, to the best of our knowledge."

Said Ali, Chief Executive Officer of PHL-IdC said, "This is fantastic news for us, the people of Pemba Island,Tanzania, and other countries affected by these parasitic infections. We have been enduring the hardships caused by these infections for a long time, so this development brings us great joy and hope."

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From innovation to application

Jennifer Keiser, Head of the Helminth Drug Development unit said, "Drug repurposing is a key strategy inresearch for anthelminthic drug discovery and development that is neglected and underfunded, most repurposed drugs come from veterinary medicine." Emodepside is an anthelminthic treatment used to date inveterinary 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 anthelminthic has been developed in the past decades. So, this is a huge milestone towards controlling and eliminating soil-transmitted helminthiases."

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.

Link to the full study: DOI: 10.1056/NEJMoa2212825

About Swiss TPH

The Swiss Tropical and Public Health Institute (Swiss TPH) is a world-leading institute in global health with aparticular 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 andhealth as well as health systems and interventions. *More about Swiss TPH*

About Ifakara Health Institute

Ifakara Health Institute (IHI) is a leading research organization in Africa with a strong track record in developing, testing and validating innovations for health. Driven by a core strategic mandate for research,training and services, the Institute's work now spans a wide spectrum, covering biomedical and ecologicalsciences, intervention studies, health-systems research and policy translation. *More about Ifakara*

About Public Health Laboratory – Ivo de Carneri

Public Health Laboratory – Ivo de Carneri (PHL-IdC) is an integral part of the local health care systemin Zanzibar, and a reference center for monitoring and evaluation of national control programs for endemic diseases and implementing related operational research and studies. It works closely with the Ministry of Health - Zanzibar and the Ivo de Carneri Foundation (Milan, Italy) and WHO. It collaborates with national andInternational scientific institutions to implement global strategies of disease surveillance and control. *More about PHL-IdC*

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