PARASITIC WORMS

Breaking the cycle of infection, disability, and stigma

FACTS

19 million

people living with river blindness

657 million

people at risk of lymphatic filariasis

Over 30 million

women living with female genital schistosomiasis

Most common in tropical and subtropical regions, river blindness, lymphatic filariasis (LF), schistosomiasis, and other helminth diseases caused by parasitic worms affect millions of people worldwide. They take their greatest toll on people who are already vulnerable due to poverty, poor sanitation and housing, and malnutrition – and can cause significant illness, long-term disability and, in severe cases, death.

There are no cures for neglected parasitic worm diseases. Current strategies to control their spread mostly rely on the mass administration of anthelminthic drugs that must be administered to nearly all people in endemic areas for five to ten consecutive years. People living in remote and insecure settings, young children, and pregnant women often go untreated – allowing cycles of infection, illness, and disability to continue.

New treatments that can cure parasitic worm diseases before they cause lasting harm are urgently needed – and these need to be suitable for all people who need them, including young children and pregnant women.

The push for progress

We are advancing in our efforts to develop a safe, effective, and field-adapted treatment for river blindness. **In December 2024, we expanded our portfolio to target LF and schistosomiasis – including female genital schistosomiasis (FGS)**, which causes chronic pain and lasting harm to reproductive health for millions of women (read more). Working with partners, we are designing and implementing innovative studies for new treatments that can help make the sustainable elimination of parasitic worm diseases possible.

OUR GOAL IS NOW to continue our work with partners to raise the profile of helminth diseases and advance the development of new drug candidates that can treat not only river blindness but also a range of diseases caused by parasitic worms.

Potential cures in clinical trials

Emodepside originated at Japanese pharmaceutical company Astellas Pharma Inc. and was commercialized as a veterinary anthelminthic. In collaboration with Bayer AG, DNDi is evaluating emodepside as a potential anti-parasitic macrofilaricidal treatment for river blindness in humans. If proven safe and effective, emodepside will eliminate not only juvenile worms but also adult worms responsible for river blindness and other diseases caused by nematodes. Initiated in 2023, Part 1 of the Phase II trial was completed in 2024 with all patients completing treatment and follow-up at study sites in Ghana, with partners Kumasi Centre for Collaborative Research in Tropical Medicine and Kwame Nkrumah University of Science and Technology, and the Democratic Republic of the Congo (DRC), in partnership with the national programme and the National Biomedical Research Institute (INRB). Initial findings showed a favourable safety profile and initial proof of concept. Results from a separate Phase IIb trial conducted by partner Swiss TPH testing emodepside as a treatment for soil-transmitted helminth (STH) infections – including whipworms, hookworms, and roundworms – confirmed the drug's strong efficacy and good safety profile.

DNDi
Best Science for the Most Neglected

> **One day I went to tend to the fields. I was walking behind one of my children and then I started to see poorly – I almost fell into a hole.**

'MAMA CECILE', from Babagulu, Democratic Republic of the Congo, lost her sight due to river blindness. Now a widow, she lives by herself next door to her daughters, on whom she depends completely for care.

Photo credit: Ley Uwera-DND

Oxfendazole was identified in 2016 as a potential treatment for river blindness capable of eliminating adult worms. With the Helminth Elimination Platform (HELP), a consortium of research institutes, universities, NGOs, and pharmaceutical companies, DNDi and partners conducted a Phase I study in Tanzania to assess the bioavailability of oxfendazole. Following a favourable review of its study protocol, the eWHORM partnership started a Phase II proof-of-concept trial testing the safety and efficacy of oxfendazole in treating multiple helminth infections, including river blindness, loiasis, mansonellosis, and STH infections. In 2025, the Indian Council of Medical Research will also initiate a Phase II trial with DNDi support to study oxfendazole as a treatment for patients with LF.

Working to eliminate lymphatic filariasis

LF is transmitted by mosquitoes. Tiny filarial worms make their way to the lymphatic vessels, where they cause blockages that lead to painful swelling and irreversible skin and tissue damage. Most people with LF are infected during childhood, but the most disabling and irreversible effects are only seen years later. In 2024, DNDi joined with the Indian Council of Medical Research to test oxfendazole as a potential treatment. The Phase II trial that kicked off in India in late 2024 is one of several current proof-of-concept trials testing the drug's effectiveness against a range of helminth diseases. If successful, it could help speed access to the treatment and boost efforts to eliminate the disease.

Advancing pre-clinical research

To help meet the critical need for back-up compounds that could enter future clinical trials, DNDi and partners continued pre-clinical development of DNDI-6166 (formerly CC6166), a potential treatment for helminth infections first identified in 2016 through active screening of drug libraries and lead optimization conducted by DNDi in partnership with Celgene (now part of Bristol-Myers Squibb). Complementing further studies undertaken by pharmaceutical partner AbbVie in 2024, our teams collaborated with the Mahidol Oxford Tropical Medicine Research Unit and Nagasaki University Institute of Tropical Medicine to refine the efficacy of DNDI-6166 and revise the predicted effective dose.

Meeting the needs of the most neglected

Ivermectin has long been used to treat and prevent helminth infections in endemic areas, but young children are excluded from mass drug administration programmes because there is no formulation suited to their unique needs. Following earlier work undertaken with the Global Accelerator for Paediatric formulations (GAP-f), DNDi joined the IVM-KIDS consortium in 2024 with the aim of developing and testing a paediatric formulation of ivermectin for the prevention and treatment of river blindness, LF, and STH infections in young children.