

**Publication****A novel isothermal microcalorimetry tool to assess drug effects on *Ancylostoma ceylanicum* and *Necator americanus*****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 3433356**Author(s)** Flores, Dayana; Panic, Gordana; Braissant, Olivier; Keiser, Jennifer**Author(s) at UniBasel** [Keiser, Jennifer](#) ;**Year** 2016**Title** A novel isothermal microcalorimetry tool to assess drug effects on *Ancylostoma ceylanicum* and *Necator americanus***Journal** Applied microbiology and biotechnology**Volume** 100**Number** 2**Pages / Article-Number** 837-846

Soil-transmitted helminths, which affect the poorest communities, worldwide cause a range of symptoms and morbidity, yet few treatment options are available and drug resistance is a concern. To improve and accelerate anthelmintic drug discovery, novel drug screening tools such as isothermal microcalorimetry (IMC) have been tested with great potential. In this study, we used a novel microcalorimeter, the calScreener™, to study the viability on the hookworms *Necator americanus* and *Ancylostoma ceylanicum* as well as the whipworm *Trichuris muris*. Significant heat flow signals could be obtained with already one adult worm per channel for all three species. High-amplitude oscillations were observed for the hookworms; however, adult *T. muris* showed a twofold heat flow decrease during the first 24 h. Antinematodal effects of ivermectin and levamisole at 1, 10, and 100 µg/ml were evaluated on adult *N. americanus* and *A. ceylanicum*. Levamisole-treated hookworms showed a decline in heat flow and oscillation amplitude in a dose-response manner. Heat flow for ivermectin-treated hookworms increased proportionally with increased concentrations of ivermectin, though the wavelet analysis showed an opposite trend as observed by flatter wavelets. In conclusion, the calScreener™ is an excellent tool to study drug effects on intestinal hookworms at the adult worm stage as it offers a lower detection limit than other IMC devices and the possibility to monitor worm viability online.

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