

Helminth parasites are able to induce immune regulation in their host. Suppression of the host immune system is beneficial for both the parasite, by inhibiting anti-parasite immunity, and for the host, by preventing tissue damage due to excessive inflammation. There are indications that in countries where parasites have been eliminated the immune regulatory network is impaired, leading to inflammatory diseases such as allergies and asthma.

An important player in immune regulation is the regulatory T cell (Treg). We have shown that the number and/or function of Tregs were indeed enhanced in several helminth and also malaria infections in humans. Tregs were not only involved in suppression of anti-parasite responses, but also of responses to other infections or vaccines.

We further investigated the effect of helminth elimination in a randomized placebo-controlled trial. Treatment of helminths led to a strong increase in – mainly pro-inflammatory – immune responses, which confirms the importance of immune regulation during infection. Furthermore, the prevalence of malaria was transiently increased and allergy was slightly on the rise in treated school children. These results further endorse the possible beneficial effects of helminthic therapy, which is currently being tested in a number of clinical trials.