

## ICOPA 2022

Between 21-26 August 2022, I visited the ICOPA conference held in Copenhagen, Denmark organised by the World Federation of Parasitologists. In total more than 1500 participants joined both in-person as well as online. The overarching theme was “living with parasites” which nicely brought together human parasitology, veterinary parasitology, and one health.

In the first plenary, just after the opening ceremony, Peter Nejsum talked about helminths in archaeological samples from all across Europe and shared his experience with a *Trichuris trichiura* self-infection to learn more about its biology and as therapy for psoriasis. This self-infection was interesting for several reasons: 1) it is not uncommon for people to do self-infections in an attempt to treat immune-mediated diseases, but it is rarely done and documented this rigorously; 2) an ethics waiver was given by Danish authorities; and 3) despite  $n=1$ , the infective period was longer than previously reported and suboptimal treatment with a single-dose mebendazole could be confirmed. Towards the end of his presentation, he mentioned the controlled human infection studies performed at the LUMC and other centres, which hopefully sparked interest for the symposium on the last day.

There was a large variety of topics discussed during the different sessions, however I focussed mainly on those about malaria vaccines, schistosomiasis, and controlled human infections. Below are some of the key insights.

### Malaria vaccines

Good progress with Rh5 blood-stage malaria vaccine candidate. A challenge study showed prolonged pre-patency, but no sterile protection potentially due to insufficient antibody titres. Functional activity can be improved through structural design and vaccine platform, e.g. in rats a 10x improvement could be achieved. Studies with monoclonals have been promising with 100% sterile protection. Duration is believed to be 6-9 months, and studies in Mali have now been initiated, both using iv and sc administration. Researchers from University of Washington and Sanaria have completed preclinical studies with new genetically-attenuated malaria parasite vaccination (Mei2 knock-out) and are proceeding to clinical studies in the next year. Data on Pfspz vaccine and Cvac from Indonesia are also expected, giving hopefully some insight in efficacy against *P. vivax*.

### Schistosomiasis

A lot of attention was given to hybrids and the importance of one health in schistosomiasis epidemiology. An interesting observation was that in Malawi ectopic Sm eggs have been observed in urine in an area where there is also Sh. From the snail side, it seems they can become resistant to reinfection with shifts in immune responses. This opens the way for a drug that reduces worm burden in snails. Another important insights came from Shona Wilson, who discussed the development of partial immunity in endemic settings. She noted that if PZQ-induced worm death is important for natural immunity, this may need to be factored in in settings close to elimination.

In the controlled human infection symposium, three speakers discussed the hookworm infection model. First, the irradiated hookworm larvae study from Australia was discussed that showed fewer larvae per g in the vaccinated group. Next, the use of larval therapy for immune-mediated diseases was introduced as well as its use to test preliminary efficacy of the Na-GST-1 vaccine. I presented our work on controlled human *Schistosoma mansoni* infections in the last slot of this session.

The many different presentations and posters provided me a great opportunity to get updated on the latest developments in the field. I thoroughly enjoyed the discussions with peers and other researchers and am grateful for the opportunity to visit the conference in person.