



## **FIND and the University of Aberdeen, UK, in search of blood markers for late stage sleeping sickness**

When a case of sleeping sickness is diagnosed, it is essential to determine if the parasites have entered the brain of the patient, leading to the late stage of disease. This is particularly important as the drugs used to treat the late stage are quite toxic. Presently, staging requires a lumbar puncture (spinal tap), followed by analysis of the cerebrospinal fluid by microscopy or biochemical methods. There are problems with this approach. First, the lumbar puncture is invasive, painful, and requires specially trained clinical staff. Secondly, there is evidence that the cut-off criteria for determining a case as late stage have an intermediate area of uncertainty. We urgently need new, less invasive and more accurate staging methods.

Given that every sleeping sickness patient is diagnosed on the basis of a blood sample, FIND and the University of Aberdeen have been collaborating to determine the feasibility of using the blood sample itself for staging. This would remove the need for a lumbar puncture completely. It has been shown that when the parasite enters the brain, immune cells begin producing a very specific set of molecules. We also know from other diseases that traces of these molecules can be detected in the bloodstream. The levels of these molecules have been studied in retrospective serum samples from sleeping sickness patients to determine whether they can be used for staging patients as accurately (or more) as the conventional lumbar puncture markers. The results, however, were not promising enough to warrant further work, and this project has therefore been put on hold.