

# Immuno-Ethiopia: Sand flies & Leishmaniasis



IUIS-FAIS Immuno-Ethiopia course co-sponsored by the IUIS, FAIS and Volkswagen Foundation took place between 23rd-29th of February. The theme of this meeting was Neglected Tropical Diseases and Malaria challenges in Sub-Saharan Africa. This week we highlight talks by Dr Iva Kolarova (Charles University, Czech Republic) which focus on the *Role of sand flies in Leishmania transmission and immune interactions*.

Dr Iva Kolarova presented a lecture on *"The role of sandflies in transmission of Leishmania parasites"*. She started her lecture by talking about leishmaniasis epidemiology, causative agents, distribution, prevalence and populations at risk (350 million people in 98 countries). She also mentioned that the risk factors of this disease include but are not limited to poverty, migration, climate changes and immunodeficiency. She also highlighted how the disease is transmitted, different species involved, clinical presentations and forms of leishmaniasis. Dr Kolarova talked about the biology of sandflies and how *Leishmania* sp. develop in the digestive tract of the sand fly. At the end of her interesting lecture, she raised a question whether sand flies are the only vectors for *Leishmania* parasites? She suggested that other routes of transmission of *Leishmania* sp. may also occur.

Dr Kolarova's other lecture focused on *"Insights into the sand fly saliva: Blood feeding and immune interactions between sand flies, hosts, and Leishmania"*. Dr Kolarova explained that

sand fly saliva is composed of a diverse group of molecules with pharmacological and immunomodulatory properties that contribute to sand fly hemostasis and blood feeding. Some of these immunomodulatory properties include, anti-haemostasis, anti-vasodilation, anti-inflammation and induction of delayed type hypersensitivity reaction. These properties have an impact of leishamniasis pathology, and can also be harnessed for vaccine development and disease monitoring . For example the development of anti-saliva immunity can be harnessed for transmission-blocking vaccines, or using anti-saliva antibodies as a marker of exposure to sand flies and determining the risk of *Leishmania* transmission.

*Article by Naffesa Al Sheik*