



## Life Sciences Seminar

# Plasmodium Evasion of Mosquito Immunity and Malaria Globalization

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Host: Sylvia Cremer

*Plasmodium falciparum* malaria is transmitted by anopheline mosquitoes. Mosquitoes can mount antiplasmodial responses that effectively limit infection of murine malaria parasites during the early stages of infections, when ookinetes invade the mosquito midgut. However, some *Plasmodium falciparum* strains can escape these defenses and survive. We identified Pfs47, as the surface protein that allows the parasite to evade mosquito immunity by disrupting JNK signaling in mosquito midgut cells. *P. falciparum* malaria originated in Africa and became global as humans migrated to other continents. During this journey, parasites encountered new anopheline mosquito species that were sometimes evolutionarily distant from African vectors. We propose that the mosquito immune system is a major evolutionary force that continuously selects the parasites circulating in a given region, because only those parasites expressing a Pfs47 haplotype compatible with a given vector species are able to evade antiplasmodial immunity and survive. A new model, the lock and key theory of *P. falciparum* globalization, will be presented and its implications will be discussed.

**Monday, May 15, 2017 11:00am - 12:00pm**

I22 Lakeside View (I22.01)



This invitation is valid as a ticket for the ISTA Shuttle from and to Heiligenstadt Station.

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<https://ista.ac.at/en/campus/how-to-get-here/> The ISTA Shuttle bus is marked ISTA Shuttle (#142) and has the Institute Logo printed on the side.