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## Master thesis subject:

### Assesement of behavioural differences of the *Culex pipiens* hybrid populations

*Culex pipiens* species complex is a globally abundant multi-disease vector that transmits, arthropod-borne viruses to both humans and animals. Two biotypes exist: *Cx. pipiens* biotype *pipiens* and *Cx. pipiens* biotype *molestus*, differing in several life traits and in host preference. Amongst other pathogens, it is a vector for West Nile virus, recently becoming endemic in also in Germany. In the frame of a project funded by the Alexander-von-Humboldt-Foundation (“Effects of larval environmental parameters and adult bloodmeal sources on the vector competence of genetically different *Culex pipiens* populations for two human-associated lineages of West Nile virus”), we are investigating the impact of multiple conditions of *Culex pipiens* hybrids on vector competence and pathogen transmission.

### Project description

Initial genetic screening of hybrid samples from the same egg raft showed that they differentiated into their original species or into hybrids. These hybrids occur naturally, but it is not known if differentiated biotypes will continue to have their unique characteristics or they will retain the hybrid behaviour.

The aim of the study is to determine the difference in the differentiated populations that are bred by the hybrid populations regarding

- Feeding preference
- Abundance and fecundity
- Egg laying behaviour.

The research is carried out in Biosafety Level 2 (BSL2) insectaries in the Laboratory of Vector Capacity (<https://www.fli.de/de/institute/institut-fuer-infektionsmedizin-imed/labore/labor-fuer-vektorkapazitaet/>) in the Friedrich-Loeffler-Institut.

Knowledge of any difference within the hybrid populations will inform about possible survival strategy of the members of the complex, which may impact disease spread. Furthermore, conclusions may be drawn for vector competence in field conditions and this will add to further risk assessment of disease spread.

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