**University of Leicester**

**MIBTP studentship project 2026**

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| **Additional Supervisor** |  |

**Section 2 – *Project Information***

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| **Project Title** | Illuminating Mosquito Vision: From Evolution to Disease Control |
| **Project Summary**  |
| Mosquitoes are among the deadliest animals on Earth because they transmitviruses such as Zika and parasites like malaria. With climate change and humanactivity expanding their habitats into new regions, including UK, the threat theypose is expected to increase. Light plays a central role in mosquito behaviour: itinfluences their activity cycles, biting responses, and even their ability to detecthumans. Yet, the organisation of the mosquito visual system and the geneticbasis of light perception remain poorly understood.This PhD project will investigate how mosquitoes see and how their visualsystems have evolved. You will combine cutting-edge methods from genomics,single-cell biology, and advanced imaging to explore three areas:1)Gene evolution – tracing how light-sensitive opsins and phototransductiongenes have diversified in different mosquito species.2) Cell types – building a single-cell atlas of the mosquito eye and comparingmales and females across key disease-vector species.3) Visual circuits – mapping how these cell types are organised using high-resolutionimaging techniques.The project aims to uncover sex- and species-specific differences in mosquitovision that may ultimately help reduce their ability to locate humans.You will gain expertise in both computational and experimental biology, fromgenome analysis to microscopy, while developing transferable skills in datahandling and scientific communication. You will be part of the neurogeneticsresearch group, with strong international links and excellent opportunities fortraining, collaboration, and publication in high-impact journals.Techniques that will be undertaken during the project-Mosquito rearing-Single-cell RNA sequencing-ATAC-sequencing-Bioinformatics analyses-Immunohistochemistry-Confocal.These diverse sets of skills will provide the student with robust training highlyvalued in academia and industry. |
| **References** |
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