Ref: 02/MH
Closing Date: 16.02.26 (close of business)

Project Title: Cell biology and imaging of Lumpy Skin Disease Virus infections

Supervisors: Miguel Hernandez-Gonzalez and Jonas Albarnaz
Research group: Large DNA Virus Assembly and Capripoxvirus Biology

Project Summary:

Poxviruses (POXVs) cause major epidemics in animals and humans. Smallpox alone claimed ~300 million lives in the 20th century. After its eradication, vaccination stopped, leaving human populations vulnerable to POXV infections. Moreover, with scarce antivirals and abundant animal reservoirs, the worldwide spread of mpox further underscores the need to control animal POXVs and be prepared against future zoonotic POXV epidemics.

Among animal POXVs, capripoxviruses represent a particularly serious threat. These viruses can be devastating for farmed animals and have recently spread out of their endemic zones. Regrettably, capripoxviruses remain understudied. Their continued spread and impact highlight the need to understand their fundamental biology and to develop more efficacious control measures.

This project addresses that gap by establishing and applying tools, techniques, and protocols for genetic engineering of viruses and fluorescence microscopy to study replication, assembly and cell egress of lumpy skin disease virus (LSDV), the most prominent capripoxvirus. You will generate a toolkit urgently needed to study the structural, molecular and cellular biology of capripoxvirus infections. **By developing key recombinant fluorescent viruses and applying live-cell imaging, the intern will generate a toolkit urgently needed to directly visualise and quantify the different lifecycle stages of lumpy skin disease virus (LSDV), the most prominent capripoxvirus, inside the infected cell. In doing so, the intern will contribute to advance the understanding of the molecular and cellular biology of capripoxvirus infections.**

Further Details:

The intern will receive training in molecular virology, recombinant virus engineering, fluorescence microscopy and image analysis. Early milestones will be the generation of a first fluorescent recombinant LSDV, and the independent use of a confocal microscope. The intern will be supported throughout the project with supervision, regular feedback and opportunities to share their findings with other colleagues.

This project offers excellent training in advanced methods and a collaborative, supportive, and inspiring environment.

The intern will be supervised and supported by Dr Miguel Hernandez-Gonzalez, as well as Dr Jonas Albarnaz, with additional support by other lab members.

References for Suggested Reading:

Hernandez-Gonzalez, M., G. Larocque, and M. Way. 2021. Viral use and subversion of membrane organization and trafficking. *J Cell Sci*. 134.

McFadden, G. 2005. Poxvirus tropism. *Nat Rev Microbiol*. 3:201–213.

Roberts, K.L., and G.L. Smith. 2008. Vaccinia virus morphogenesis and dissemination. *Trends Microbiol*. 16:472–479.

To Apply: See How to apply. Closing date: 16.02.26 (close of business)