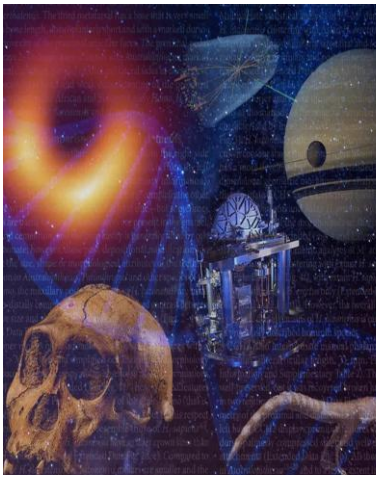
Institut
Grand-Ducal
Section des Sciences

LECTURE SERIES

« Les Chercheurs Luxembourgeois à l'Etranger »

Bibliothèque Nationale du Luxembourg
37D Avenue John F. Kennedy, Kirchberg
Lecture Hall, third floor
Talk & Q&A: 18.00-20.00
Open for free to general public
Registration (*mandatory but free*)**:**
https://bnl.public.lu/en/a-la-une/agenda/2026/viral-pseudotypes.html

Organised by Section des Sciences Naturelles,
Physiques et Mathématiques
de L'INSTITUT GRAND-DUCAL
For further details: https://www.igdss.lu/



05 November
Nigel Temperton
University of Kent, UK

« Using viral pseudotypes for pandemic preparedness» (talk in English)

Pandemics are driven by viruses we may not yet know, making rapid, flexible tools essential for preparedness. Viral pseudotypes are safe, engineered particles that mimic how dangerous viruses enter cells without containing the full infectious virus. This makes them powerful platforms for studying immune responses, testing vaccines and antibodies, and evaluating potential spillover threats before they become global emergencies. Drawing on work with coronaviruses and influenza, this talk will show how pseudotype-based neutralisation assays can reproduce key features of live-virus testing, support surveillance across diverse viral strains, and be adapted rapidly as new variants or "Disease X" threats emerge. During COVID-19, pseudotype assays also proved valuable for evaluating vaccine-induced neutralising responses in immunocompromised patients, revealing substantial gaps in protection against emerging variants even after additional immunisation. By combining safety, scalability and adaptability, viral pseudotypes offer a practical bridge between discovery, surveillance and countermeasure development—helping us prepare earlier, respond faster, and reduce the impact of future pandemics.

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