LUXEMBOURG INSTITUTE OF HEALTH

LECTURE

Dr Auguste Genovesio

28.11.2025

LIH Edison, room Katalin Kariko
1A-B, rue Thomas Edison,
L-1445 Strassen, Luxembourg

14:00 - 15:00

* Please register by sending an email to: **Florence.Henry@lih.lu**

Deep Learning and Generative Modeling for High-Throughput Biological Discovery

This presentation provides an overview of how deep learning and generative models are reshaping high-throughput biology and early-stage drug discovery. I will begin by introducing representation learning approaches that eliminate the need for conventional, hand-engineered image analysis pipelines in phenotypic screening, enabling more efficient and scalable hit detection. I will then show how these learned biological representations can be extended to guide the preselection of compound libraries using Cell Painting data and multimodal learning strategies. Finally, I will illustrate how generative modeling can be used to propose new molecular structures directly from cellular phenotypes, uncover subtle phenotypic changes, and reconstruct cellular, developmental or disease trajectories that may be experimentally inaccessible.

SPEAKER:

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HOST:
Ulf Nehrbass