Submodule Organoids

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STEP4NAMs

Module No.	Lecture Title	Content / Educational Objective	Expert Lecturer
1. Introducing organoid-based in vitro modeling			
1.1 How to: Generation and culturing	Organoid-based cellular modeling: Main approach	- Introduction to *in vitro* modeling using organoids, generation and culturing, advantages and drawbacks, application potential	Giulia Moreni, PhD – University of Luxembourg (LU)
1.2 Personalized medicine concept	Disease modeling using patient-derived material	- Demonstrate the potential of organoids for increased disease modeling relevance	
2. Presentation of different type of organoids			
2.1 Review of organ modelling	Main approaches for organoid generation	- Provide a summary on the current technological approach and display the potential for organoids to model/mimic human organs	Matthieu Gobin, PhD – University of Luxembourg
	Organ modelling: Lineage-specificity		
2.2 Application fields	Demonstration of the diverse set of applications of organoids	- Summary of the different applied utilizations of organoids across the biomedical research/industry fields	
2.3 Midbrain organoids	Implementation of midbrain organoid PD models for compound screening and drug dicsovery	- Showcase the application of human-derived organoids in a service-provider setting	Javier Jarazo, PhD – Organotherapeutics (LU)
3. Planning a project	Guidelines on planning a project based on the usage of organoids	- Introduce and detail statistical and power analysis guidelines for implementing organoids in a research proposal	Matthieu Gobin, PhD – University of Luxembourg
4. Ethical and regulatory aspects	Ethical and GDPR compliance when working with patient-derived cell lines and organoids	- Demonstrate the regulatory aspects to take into account when working with organoids: ethical compliance and GDPR	Matthieu Gobin, PhD – University of Luxembourg
5. Future outlooks	The future advancements of organoid modeling	- Present different more complex organoid models including assembloids, aged organoids,...	Elisa Zuccoli, PhD – University of Luxembourg