



How AI is revolutionizing histological analysis and cellular imaging?

Dr Victor Racine

Founder & CEO of QuantaCell SAS
Hôpital Saint Eloi, IRMB, Montpellier

Thursday, April 30, 2026 at 11:00 AM
IECB auditorium, 2 rue Robert Escarpit, 33600 Pessac

Host: BioFAP Department of CBMN (M Raoux, A Bouter, O Lambert)

Summary:

Bio-imaging is rapidly expanding, from cell culture systems (2D/3D, organoids) to digital histology, yet one major bottleneck remains: limited annotated data and time-consuming analysis.

In this talk, Victor Racine will explore how foundation models are reshaping the field by enabling powerful image analysis across scales:

- Automated analysis in cell culture and high-content screening;
- Robust feature extraction and tumor detection in histology;
- Strong performance, even with limited data.

Through practical examples, he will highlight how these models can accelerate research and open new possibilities in both experimental and clinical settings.

Selected publications related to this presentation:

Ong et al. (2025) Digitalized organoids: integrated pipeline for high-speed 3D analysis of organoid structures using multilevel segmentation and cellular topology. *Nat Methods* 22:1343–1354.

Domblides et al. (2024) Human NLRC4 expression promotes cancer survival and associates with type I interferon signaling and immune infiltration. *J Clin Invest* 134:e166085.

Charrasse et al. (2023) Quantitative assessment of mitochondrial morphology relevant for studies on cellular health and environmental toxicity. *Comput Struct Biotechnol J*. 21:5609-561.

Beghin et al. (2022) Automated high-speed 3D imaging of organoid cultures with multi-scale phenotypic quantification. *Nat Methods* 19:881–892.

Blanc et al. (2020) Artificial intelligence solution to classify pulmonary nodules on CT. *Diagn Interv Imaging* 101:803–810.

Frye et al. (2021) Mitochondrial morphology is associated with respiratory chain uncoupling in autism spectrum disorder. *Transl Psychiatry* 11:527.