Clément Quintard, Ph.D.

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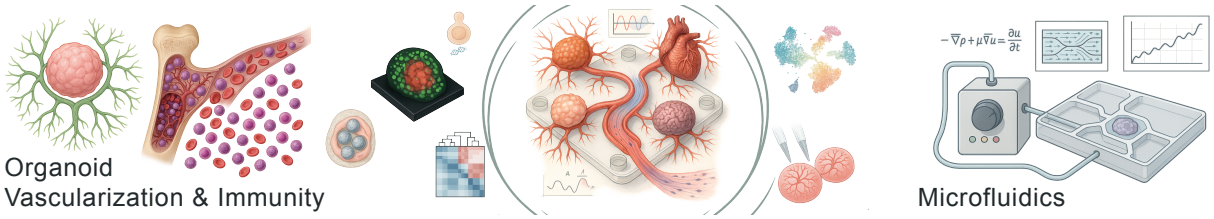
Postdoctoral Fellow in the Josef Penninger Lab, University of British Columbia (Vancouver, Canada). I work at the interface of **stem cell biology, organoid engineering, and microfluidics** to build functionally **vascularized and immune-competent organoids-on-chip**.

- Integrate immune components to model trafficking and interactions in microphysiological systems.
- Advance vascularization strategies across heart, pancreas, lung, brain, and cancer models.



Selected Publications

2025 **Engineering vascularized organoids-on-chip with microfluidic perfusion** — **Quintard, C.**, Wang, J., Pelissier, A., … & Penninger, J.M. **(In revision, Nature Methods)**

2025 **Modeling human hematopoiesis in bone marrow organoids** — **Quintard, C.**, Salewskij, K., Ramisch, S., … & Penninger, J.M. **(In revision, Cell Stem Cell)**

2025 **Organotypic vascularization improves human islet organoids survival and reverses diabetes** — Wang, J., Pelissier, A., Lin, J., **Quintard, C.**, … & Penninger, J.M. **(In revision, Cell Stem Cell)**

2025 **Human assembloid of human blood vessel organoids with pancreatic islets improves insulin secretion over time ex vivo** — Tubbs, E., Mehanović, M., Lopes, M., **Quintard, C.**, … & Gidrol, X. **Cell Reports**

2025 **Organoid models of lymphoid tissues** (Review Article) — Bogoslowski, A., Ren, J., **Quintard, C.** & Penninger, J.M. **Organoids**

2024 **Engineering next generation vascularized organoid constructs** (Review Article) — Werschler, N., **Quintard, C.**, Nguyen, S. & Penninger, J.M. **Atherosclerosis**

2024 **A microfluidic platform integrating functional vascularized organoids-on-chip** — **Quintard, C.**, Tubbs, E., Jonsson, … Penninger, J.M. & Gidrol, X. **Nature Communications**

2022 **Selective plane illumination microscope dedicated to volumetric imaging in microfluidic chambers** — Bissardon, C., Mermet, X., **Quintard, C.**, Sanjuan, F., Fouillet, Y., … & Blandin, P. **Biomedical Optics Express**

2022 **Microfluidic device integrating a network of hyper-elastic valves for automated glucose stimulation and insulin secretion collection from a single pancreatic islet** — **Quintard, C.**, Tubbs, E., Achard, J-L., Navarro, F., Gidrol, X. & Fouillet, Y. **Biosensors and Bioelectronics**

2020 **Optimised hyperbolic microchannels for the mechanical characterisation of bio-particles** — Liu, Y., Zografos, K., Fidalgo, J., Duchene, C., **Quintard, C.**, Darnige, T., … & Lindner, A. **Soft Matter**

2017 **On the origin of the driving force in the Marangoni-propelled gas bubble trapping mechanism** — Miniewicz, A., **Quintard, C.**, Orlikowska, H. & Bartkiewicz, S. **Physical Chemistry Chemical Physics**

Patents

2025 **Scalable, vascularized, perfusable organoids-on-chip and methods thereof — Quintard, C.** & Penninger, J.M. US63/802,864, May 9 2025

2021 **Method for microfluidic perfusion of a spheroid and device suitable for implementing said method — Quintard, C.**, Achard J-L. & Fouillet, Y. EP3878942A1 / US0277349, Sep 9 2021

Research Experience

2022–Present **Postdoctoral Research Fellow,** University of British Columbia (Vancouver, Canada)
Penninger Lab, Department of Medical Genetics.
- Developed new approaches for the functional vascularization of organoids-on-chip.
- Designed new microfluidic systems to enable higher-throughput organoid culture.
- Integrated vascular and immune components in organoids-on-chip models.
- Supervised MSc student Sebastian Ramisch and medical student Joice Ren.

Supervisor: Josef M. Penninger.

2018–2022 **Ph.D. Researcher,** CEA Grenoble (France)
Microfluidic Systems & Bio-Engineering (LSMB) & Biomics Laboratories.
- Developed microfluidic devices for automated insulin monitoring of pancreatic islets.
- Developed iPSC-derived blood vessel organoids-on-chip.
- Published 2 first author research articles, 1 review, 1 patent.
- Supervised MSc student Théo Champion.

Supervisors: Xavier Gidrol, Yves Fouillet.

2018 **Research Intern,** ESPCI Paris & Sanofi (France)
Physics and Mechanics of Heterogeneous Media Laboratory (PMMH).
- Studied the deformation of monoclonal antibody aggregates in microfluidic channels.

Supervisors: Anke Lindner, Charles Duchêne.

2016–2017 **Research Fellow,** Wrocław University of Science and Technology (Poland)
- Investigated optothermal Marangoni effects via laser-driven microfluidics.

Supervisor: Andrzej Miniewicz.

2016 **Research Intern,** Harvard University (USA)
The Holbrook Group, Department of Organismic and Evolutionary Biology.
- Investigated air propagation in porous media using leaves as a biological model.

Supervisors: N. Michele Holbrook, Alexandre Ponomarenko, Uri Hochberg.

2015 **Research Intern,** École Normale Supérieure Paris–Saclay (France)
Quantum and Molecular Photonics Laboratory (LPQM).
- Worked on liquid-state optical resonators for lab-on-chip applications.

Supervisor: Abdel El Abed.

Education

2018 – 2022 **Ph.D., CEA Grenoble (France)** Microfluidic systems, Organs-on-chips, Organoids.
LSMB Laboratory & Biomics Laboratory.

2017 – 2018 **M.Sc. Microfluidics, Institut Pierre-Gilles de Gennes (IPGG) (Paris, France)**
Double degree with ENS Paris-Saclay
Microfluidics, Capillarity and wetting phenomena, Microfabrication, Biology (molecular biology, genomics), Biotechnologies, Chemical engineering, Rheology, Nanofluidics.

2014 – 2018 **Grande École Degree – Fundamental Physics and Applications, ENS Paris-Saclay**
Quantum and statistical physics, Solid state physics, Environmental physics, Particle physics, Soft-matter physics, Fluid mechanics, Astrophysics, Biology, Biophysics, Experimental physics.

2011 – 2014 **Scientific CPGE – Lycée La Martinière Monplaisir (Lyon, France)**
Classes Préparatoires aux Grandes Écoles (CPGE): classes for entrance examinations to France's top engineering and science schools.

Skills

Microfluidics	Chip design and fabrication, Fluid handling techniques, Device integration
Cell Biology	2D and 3D cell culture, RNA-seq (sample preparation and data analysis), Bio-printing
Imaging	Confocal, Fluorescence, Light sheet, Electron microscopy (TEM, SEM)
Coding & Softwares	R, Python, Fortran, Matlab, LaTeX, ImageJ/Fiji, GraphPad, SolidWorks, COMSOL
Languages	English (fluent), French (native), Spanish (intermediate)

Awards & Selected talks

Awards & Fellowships

2024 – 2026 **Michael Smith Health Research BC Research Trainee Fellowship**, $64,500/year (CAD)

2024 **ISSCR Travel Award**, $1125 (USD)

ISSCR Merit Award

2023 **Best PhD Thesis Award**, Doctoral school winner; national-level representative

Conferences & Presentations

2025 **Keystone Symposia (Whistler, Canada) – Speaker**, "Engineering organoids-on-chip with flow dynamics to model organ-specific vascularization and immune-enhanced cellular crosstalk in cardiac tissues"

2024 **EUROoCs (Milan, Italy) – Speaker**, "A microfluidic platform integrating functional vascularized organoids-on-chip"

2019 **Pint of Science – Speaker**, "Organs-on-chips: A promising future for drug development" (public outreach talk)

Interests

General interest in sports (played football and tennis at a competitive level), outdoor activities, science, history, wine, literature, nature, and music.