DR CHRISTOPHE RAYNAUD

Senior Scientist – Oncology, Immuno-Oncology & Cell Therapy

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PROFESSIONAL SUMMARY

Multidisciplinary Senior Scientist with 20+ years of experience across oncology, immuno-oncology, stem cells and translational research. Track record of building CRISPR and stem-cell cores, developing 3D tumor–immune models, and integrating molecular diagnostics into clinical workflows. Lead cross-functional projects from concept to publication, mentor scientists, and collaborate with clinicians to translate complex biology into actionable therapies and decision-support tools.

CORE COMPETENCIES

- Cancer biology and immuno-oncology; tumor microenvironment; immune-checkpoint biology
- CRISPR genome editing (KO, KI, activation, tagging); pooled CRISPR screens
- T cell engineering: CAR-T, TCR, MR1-restricted T cells; primary immune cell assays
- Stem cell biology: iPSC derivation, differentiation, clonal line generation and QC
- 3D spheroid/organoid tumor models; tumor–immune co-culture; live-cell imaging
- Mouse handling and experimentation
- NGS and single-cell omics: bulk and scRNA-seq, ATAC-seq, DNA methylation, ONT sequencing
- Flow cytometry and cell sorting (multi-parameter panels, spectral instruments)
- Translational oncology: biomarker discovery, patient stratification, molecular diagnostics
- Project and lab leadership: core facility setup, budgeting, vendor management, mentoring
- Data analysis: experimental design, statistics, visualization, reproducible reporting

PROFESSIONAL EXPERIENCE

Senior Staff Scientist – Tumor Biology & Immunology Laboratory

Sidra Medicine, Doha, Qatar | 2020–2026

- Led CRISPR-Cas9 functional validation of cancer immunomodulatory genes in pediatric and adult tumors, identifying novel targets for immune-checkpoint and cell-therapy strategies.

- Faced with limited 2D models of immune evasion, designed and implemented 3D tumor spheroid–immune cell co-culture assays, enabling quantitative assessment of immune infiltration and cytotoxicity and becoming a reference platform for internal and collaborative projects.

- Established in-house Oxford Nanopore (ONT) sequencing workflows for CNS tumor DNA methylation and transcriptomic profiling, supporting rapid molecular classification and integration with EPIC array-based classifiers.

- Investigated tumor-microbiome interactions using murine in-vivo cancer models

Senior Staff Scientist & CRISPR–Stem Cell Core Lead

Sidra Medicine, Doha, Qatar | 2015–2020

- Built Sidra's CRISPR–Stem Cell Core from the ground up, providing iPSC derivation, CRISPR gene editing (KO/KI/CRISPRa) and clonal line validation services to multiple research programs.

- Standardized editing pipelines (gRNA design, delivery, clonal screening, QC) and documentation, improving reproducibility and accelerating timelines for disease-modeling projects.

- Managed a high-dimensional flow cytometry and confocal imaging core, including panel design, instrument maintenance, SOP development and user training.

- Advised PIs on experimental design for stem-cell and CRISPR projects, troubleshooting complex editing and differentiation issues and helping move projects from concept to publication.

Staff Scientist

Qatar Cardiovascular Research Center, Doha, Qatar | 2013–2015

- Reprogrammed fibroblasts to induced cardiomyocytes for cardiac-regeneration studies, establishing protocols that underpinned translational collaborations.

Research Associate & Flow Cytometry Core Manager
Weill Cornell Medicine – Qatar, Doha, Qatar | 2009–2013

- Investigated hematopoietic stem-cell interactions with mesenchymal and endothelial cells, supporting basic and translational hematology projects.

- Directed the institutional flow cytometry core, including instrument selection, QA/QC, troubleshooting and user education, which increased assay robustness across labs.

- Served as NY Stem Cell Foundation Fellow, contributing to pluripotent stem-cell workflows and technology transfer.

Postdoctoral Research Associate – Immunology
Institut Cochin, Paris, France | 2008–2009

- Studied NK and dendritic cell interactions in HIV infection, applying advanced flow cytometry and functional assays to dissect innate immune responses.

PhD Candidate – Oncology & Physiology
Atomic Energy Center / Institut Gustave Roussy, Paris, France | 2005–2008

- Investigated telomeres, DNA damage response and genomic instability in lung, colon and breast cancer, contributing to multiple peer-reviewed publications.

Research Engineer
Novartis, Basel, Switzerland | 2005

- Performed cloning, vector design and expression of recombinant proteins in E. coli, HEK and baculovirus systems to support drug-discovery projects.

EDUCATION

- PhD, Oncology & Physiology | University of Paris XI, Paris, France | 2008

- Biotechnology Engineer Degree | Polytech Marseille (ESIL), France | 2005

- MSc, Cell Biology & Microbiology | University of Aix-Marseille II, France | 2003

- University Diploma in Communication | University of Aix-Marseille II, France | 2004

SELECTED PUBLICATIONS

- **Raynaud CM**, et al. *MUC2 expression modulates immune infiltration in colorectal cancer*. Front. Immunol. (2025). PMID: 39926604

- Roelands J, Kuppen PJK, Ahmed EI, Mall R, Masoodi T, Singh P, Monaco G, **Raynaud CM**, et al.; Hendrickx. *Integrated tumor, immune and microbiome atlas of colon cancer*. Nat Med. 2023. PMID: 37202560

- **Raynaud CM**, et al. *Modulation of SLFN11 alters DNA damage response in breast cancer*. Cancer Cell Int. 2023. PMID: 38001424

- Sherif S, Hendrickx W, **Raynaud CM**, et al. *Unusual actionable mutations in pediatric sarcoma*. Pediatr Blood Cancer. 2024. PMID: 37845795

- Yu F, Hubrack S, **Raynaud CM**, et al. *TRPM4 deficiency causes immune dysfunction*. J Allergy Clin Immunol. 2024. PMID: 38750824

Full publication list (40+ articles) available via ORCID: 0000-0003-1551-8075

ACADEMIC & PROFESSIONAL ACTIVITIES

- Associate Editor, *Journal of Translational Medicine*

- Invited Lecturer (Oncology & Stem Cells): Paris XI, Qatar University, HBKU

- Grant & Budget Management, Laboratory Oversight, Student Mentoring

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TECHNICAL & SOFTWARE SKILLS

- Flow cytometry: FlowJo, Diva, FCS Express, SpectroFlow.
- Genomic and transcriptomic tools: RNA-seq analysis, EPI2ME, IPA, DAVID, Partek.
- Imaging and analysis: Confocal and live-cell microscopy, ImageJ, Imaris.
- General data analysis and visualization: GraphPad Prism, R (basic), Python (basic), Vector NTI.
- Platforms: Windows, macOS; standard MS Office and collaborative tools.

LANGUAGES

- French: Native

- English: Fluent

- Spanish: Basic