Claire PECQUEUR – SECTION 26 – COLLEGE A1

Physiologie, physiopathologie, biologie du cancer

DR 2 – CNRS, PhD, HDR

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Claire Pecqueur is a prominent researcher in cancer biology and neuro-oncology, specializing in cellular metabolism, tumor immunology, and therapeutic innovation. She obtained her PhD in 2000 by characterizing the mitochondrial uncoupling protein-2 (UCP2), establishing the foundations for her later research on metabolic reprogramming in cancer. Her current work primarily explores the intricate relationships between tumor metabolism, cell state heterogeneity, and therapeutic resistance in aggressive brain tumors. Claire Pecqueur has made significant contributions to unraveling the roles of glutamine metabolism and tumor microenvironment in shaping cancer cell behavior and treatment response. In parallel, she is advancing next-generation immunotherapies by investigating the use of Vδ2 T cells and developing combinatorial CAR-T cell strategies to improve therapeutic precision. She has been a Research Director since 2018, and deputy team leader of PETRY team at CRCI2NA since 2022. She has co-authored 66 peer-reviewed publications in high-impact journals such as *Nature Genetics, Cell Metabolism, Clinical Cancer Research*, and *Neuro-Oncology*, with 17 papers as principal Author, and secured over €1.5 million in competitive funding in the past five years. Beyond her research, she has actively mentored 11 PhD students, guiding their exploration of cancer metabolism and immunotherapy.

Education and Titles

2019	CNRS Research Director DR2
2012	Habilitation à Diriger les Recherches, Nantes Université
2007	CNRS Senior Research Tenure CR1
2003	CNRS Junior Research Tenure CR2
2000	Ph.D. of Molecular Biology and Biochemistry, Paris XI Université

Professional Experiences

2022-	Deputy manager of PETRY's team at CRCI2NA, France
2010-	Project manager in Metabolism and Cancer at CRCINA, Nantes, France
2009	Project manager at Pfizer, Cambridge, USA
2008	Visiting scientist at Dana Farber Cancer Institute (DFCI), Boston, USA
2007	Visiting scientist at University of Pennsylvania, Philadelphia, USA
2003- 09	Project manager at UPR9078, Paris University, France
2001_2003	Postdoctoral fellow at Washington University, Saint-Louis, USA

Bibliometrics

https://www.researchgate.net/profile/Claire_Pecqueur/
ORCID#000-0002-7612_1672

Web of Science	**Google Scholar**
h factor: 34	h factor: 36

Total citations >2000 Total citations > 4000

Original Publications: 66 (Nat. Genetic, Cell Metab., Nat. Comm., Clin. Cancer Res., Cancer Res., Neuro-Oncology, Cell Report, FASEBJ, JBC, …) - Review Publications: 8

Peer reviewing (past 5 years)

Manuscript Review: Cancer Research, Clinical Cancer Research, Neuro-Oncology, Cancer&Metabolism, Sci. Reports, Cell. Physiology, Cell Death Disease.

Grant review: *Canceropole Emergence, France (2023-24); Call for Junior and Senior Research Projects of the European Science Foundation (FWO), Belgium (2022-24); ITMO Cancer, France (2023); FRFT PhD allocations, France (2023); Belgian Foundation against Cancer, Belgium (2020-24); Research project for a Concerted Research Action (ARC), Belgium (2020, 2021); National Science Center of Poland, Poland (2019-22); The KWF Dutch Cancer Society, Netherlands (2019-22); Canceropoles, France (2023-24)*

Invited communications to scientific meeting (past 5 years)

Spotlight on Stem Cells, Nantes (2024, meeting planner; 2021 invited communication); ESTRO, Allemagne (2019); 12^{e} journées du Canceropole Grand Ouest (2018)

Scientific Networks,& Societies

3DStem Network; MANNER Network; LABEX IGO; GDR MicroNiT

Fundings (past 5 years)

BMS 13th AAP (2024-2025, coordinator, 50 k€) on an innovative approach focuses on developing CAR-T cells that utilize Boolean logic to enhance specificity and efficacy in targeting brain tumor cells while minimizing potential off-target effects; **PLBIO23 (2023-2027, coordinator, 750 k€))**: This project investigates how GBM cells adapt their metabolic states to resist and/or escape radiotherapy, with an emphasis on understanding the mechanisms driving tumor plasticity and resilience; **PAIR Tumeurs cérébrales (2022-2025 coordinator, 560 k€)**: This project aims to harness the unique properties of Vγ9Vδ2 T cells, engineered to express CARs, for targeted elimination of GBM. The goal is to establish a robust platform for CAR T-cell therapy tailored to combat GBM's aggressive nature; **Ligue Contre le Cancer 2021** – on metabolic reprogramming in glioblastoma (GBM) to improve patient prognosis; **Ligue Contre le Cancer 2020** on the *role of IDH mutations in GBM* and their impact on treatment sensitivity; **ARC 2019** - Coordinated a project investigating the role of pyruvate carboxylase (PC) in GBM aggressiveness and recurrence.

PhD student Mentoring (past 10 years)

Julianne Ceroni (2024-2027)*: **Pioneering an advanced CAR-T cell therapy** strategy to improve specificity and safety in treating aggressive HGGs, potentially opening new therapeutic avenues for adult and pediatric patients;* Mélanie Laurent--Blond (2022-2025)*: Creating sophisticated **3D models to personalize treatment strategies**, offering a high-fidelity platform for precision medicine;* Pierre Paris (2021-2025)*: Contributing to developing **novel CAR-T strategies** to overcome subtype-specific resistance in brain tumors;* Pauline Thomas (2019-2023)*: Showcased the promise of **Vδ2-CAR T cells as a potential "off-the-shelf" therapy** for pediatric GBM;* Ophélie Renoult (2019-2022)*: Provided new insights into **metabolic rewiring in GBM**, suggesting novel metabolic vulnerabilities for therapeutic intervention;* Tra-My Doan-Ngoc (2016-2020): ***Identified novel mechanisms of CD8+ TEMRA-mediated transplant rejection**, highlighting therapeutic targets to improve graft outcomes*; Cynthia Chauvin (2014-2017)*: Established a **proof-of-concept for using γδ T cell-based therapies** to tackle resistant GBM subtypes*; Charlotte Degorre (2014-2018**)**: *Highlighted the contribution of **endothelial senescence to radiotherapy resistance and tumor relapse**, identifying new therapeutic targets to enhance treatment response;* Kristell Oizel (2012-2015)*: Unveiled **novel therapeutic avenues using metabolic inhibitors** as adjuvants to personalize GBM treatment.*