Curriculum vitae - Laurence Choulier

Born 21.09.1973 married 3 children

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Education and Career

2012-	CNRS researcher - Laboratoire de Bioimagerie et Pathologies, UMR7021, Illkirch
2004-2011	CNRS researcher - IREBS, UMR7242, Illkirch
2003	Post-doct-Institut Européen de Chimie-Biologie, Bordeaux
2001-2003	Post-doct-Nuffield Department of Obstetrics & Gynaecology, University of Oxford, UK
1997-2001	PhD-Institut de Biologie Moléculaire et Cellulaire, UPR 9021, Strasbourg

Biographical sketch

1997-2001 - University of Strasbourg *(France)* - **PhD in Molecular biology/Immunochemistry**

Laurence Choulier did a PhD in Molecular biology/Immunochemistry, entitled 'Antigen-antibody interaction kinetics: identification of factors influencing binding activity and predictive engineering', *under the supervision of D. Altschuh in the lab directed by MHV Van Regenmortel, who established a long-term collaboration with the research and development department of the Biacore company (Uppsala, Sweden), even before their surface plasmon resonance (SPR) equipment was launched on the market. L. Choulier received a 3-years PhD Thesis Scholarship from the French Ministry of Research and then a 6-months PhD Thesis Scholarship from the Ligue Nationale contre le cancer and was awarded a price for her PhD from the 'Société de Biologie de Strasbourg' (SBS) in 2002.*

2001-2003 - University of Oxford *(UK)* - **Post-doctoral researcher**

In order to extend her expertise towards more complex biological interaction systems (interactions between membrane receptors and extracellular matrix ligands), she moved to Oxford, team of Pr. H. Mardon, as a postdoc fellow on a Medical Research Council project.

2003 - University of Bordeaux *(France)* - **Post-doctoral researcher**

Then, in 2003, she performed a second post-doc in the European Institute of Chemistry and Biology (IECB) in Bordeaux, where she acquired experience in SELEX ('selective evolution of ligands by exponential enrichment' in the team directed by JJ. Toulmé.

2004-2011 - CNRS/University of Strasbourg *- IREBS –* **CNRS researcher**

Laurence Choulier joined CNRS in 2004 in IREBS ('Institut de Recherche de l'Ecole de Biotechnologie de Strasbourg') where she leaded two projects related to the development of fluorescent peptide biosensors and the development of strategies for identifying and optimising molecules of diagnostic and/or therapeutic interest.

Since 2012 - CNRS/University of Strasbourg - LBP - **Group leader**

In 2012, she joined the Laboratory of Bioimaging and Pathologies (LBP, UMR 7021) to lead a research group on nucleic-acid aptamers targeting cell-surface receptors. She got her ***HDR*** *(accreditation to direct research) in 2018.*

Research directions

Aptamers are synthetic single-stranded DNA or RNA sequences selected from combinatorial libraries through the in vitro SELEX process. They are innovative tools for basic and clinical research, related to antibodies for their target binding properties. We are particularly interested in the identification and characterization of aptamers targeting cell-surface receptors, ideal molecules for developing imaging and delivery agents.

A. *In oncology, knowledge of biomarker expression is important to adjust therapeutic strategies. Therefore, the ability to simultaneously identify different biomarkers on the same tissue would facilitate therapeutic decisions. We develop a multiplexing strategy for cell-surface biomarker imaging based on the use of aptamers in glioblastoma tissues. We also propose approaches towards to the application of aptamers in in vivo molecular imaging.*
B. *Aptamers targeting mammalian cell membrane receptors are often internalised with their targets. However, they are unlikely to reach the cytosol of the targeted cells as they remain entrapped in internal compartments like endosomes. We propose to decipher and try to optimise the internalisation dynamics of aptamers targeting different cell surface receptors; a necessary step prior to the use of aptamers as vectorisation vehicles for targeted therapy.*
C. *We are also developing aptamers targeting cell-surface bacteria in an Innovative and multi-disciplinary project combining medieval history, chemistry, biology and biotechnology. The objective of this project is to identify and characterise aptamers targeting antibiotic-resistant bacteria. Aptamers might allow therapeutic agents to be delivered to infected sites, thereby reducing delivery doses and/or serving as probes for imaging.*

In addition to SELEX, I am also pleased to share my expertise in SPR (surface plasmon resonance).

Scientific communications & valorization

43 publications (12 as first, last or corresponding author), *h*-index 20

1 patent 16 oral communications / 27 posters

Teaching

Tutorials, training actions & lectures to L3-M2 students

Jury member in HDR 'habilitation à diriger des recherches', M2, M1, BTS, CST 'comités de suivi de thèse'

Supervision

1 post-doct, 3 PhD, 2 thesis in Pharmacy, 6 M2, 16 M1, 6 L3, 3 BTS

Responsibilities

Member of organizing committees of conferences:

ADDAL Forum ('Association des Docteurs et Doctorants d'Alsace'), Strasbourg (16/06/2000)
SPR user day, ESBS, Illkirch (27/09/2007)
Forum for young researchers (SFBBM), Strasbourg (14-17/09/2010)
Illkirch campus days 2013, 2014 & 2015 (4-5/04/2013, 7-8/04/2014 & 13-14/04/2015)
Forum BioChem, Strasbourg (7-8/06/2018)
EuroSciCon Clinical Research & Biomarkers, Prague (19-20/07/2018)
Postponed: *Symposium Science for and with society on Antibioresistance, Strasbourg (end of 2021)*
Forum BioChem, Strasbourg (early 2022)

Member of the lab council of UMR 7021 (since 2018)

Communication manager & gender equality correspondent of UMR 7021 (since 2020)

Referee of the SBS ('Société de Biologie de Strasbourg) for the pharmacy department of Strasbourg (since 2018)

Topic editor for Cancers (since 2020)

Academic editor for a special issue in Cancers (2018)

Expertise for different journals and for the Cancéropôle Grand-Est

Grants

Principal investigator in 1x PHC 'Projet Hubert Curien', 2x SATT prematurations, 1x IDEX, 1x Ligue

Participation to international (2x PHC), European (2x European contracts)
and national (2x ANR, 1x DGA, 2x ARC, 1x CNRS, 1x IDEX) programs

Science and society

Organisation and/or participation to public events: Fête de la science (2005, 2019, 2020); Relais pour la vie (2007); Ose la Recherche CNRS/Vaisseau (2013, 2014, 2015, 2016, 2017, 2019), Tables rondes/Forums des métiers (2011, 2012, 2017); Kids universities (2015); Les étoiles du savoir (2017); DECLICS (2017); Femmes en sciences (2019); MT180 pre-selection jury (2021)