

FICHE SUJET DE THESE

Sujet N° (à remplir par l'ED) :	FINANCEMENT : <input type="checkbox"/> Demandé <input checked="" type="checkbox"/> Acquis	CAPES
Titre de la thèse : Etude de la dynamique des interactions entre les sphingolipides, les exosomes, et la radiothérapie dans l'angiogenèse et la résistance		3 mots-clés : Sphingolipides Vésicules extracellulaires Angiogenèse
Unité/équipe encadrante : Co-tutelle U1307/ Equipe 6 + School of Pharmaceutical Sciences of Ribeirao Preto		
Directeur de thèse : GAVARD, Julie		N° de tél : Mail : julie.gavard@inserm.fr
<p><u>Contexte socioéconomique et scientifique (env. 10 lignes) :</u> Exosomes are extracellular vesicles released by cells, capable of carrying several signals such as proteins, nucleic acids, and metabolites, to other sites, having an essential role in intercellular communication. Their composition comprises several proteins and lipids, such as proteins in the tetraspanin family, heat shock (HSP), cholesterol, ceramides, and sphingomyelins. Different works have shown exosomes' role in cancer development, contributing to metastasis, angiogenesis, and the microenvironment. Angiogenesis is an essential mechanism for cancer development, and modulation of the microenvironment is paramount for cancerous cells to adapt and activate dormant endothelial cells to begin the angiogenic process. Radiotherapy is one of the most common therapies for cancer, being capable of affecting endothelial cell dysfunction and leading to apoptosis. Besides, pro-survival cytokines are released into the tumoral microenvironment, weakening radiotherapy's effects.</p>		
<p><u>Hypothèses et questions posées (env. 8 lignes) :</u> After radiotherapy, it is unknown how sphingolipids can modulate and participate in extracellular vesicles production and signaling by tumoral cells during radiotherapy, furthermore, how these exosomes impact angiogenesis and resistance.</p>		
<p><u>Grandes étapes de la thèse (env. 12 lignes) :</u> This research will include diverse experimental approaches such as irradiation assays followed by exosome isolation, exosome lipidomic profiling through mass spectrometry, flow orientation assays, and chick chorioallantoic membrane assays. Our work will bring knowledge on the profile and composition of exosomes post-radiotherapy, focusing on potential response markers and strategies to overcome radiotherapy resistance. Ultimately, it can impact in health and care of cancer patients.</p>		
<p><u>Compétences scientifiques et techniques requises par le candidat (2 lignes) :</u> Cell biology and cell culture Biochemistry</p>		
<p><u>3 publications de l'équipe d'accueil relatives au domaine (5 dernières années) :</u></p> <ul style="list-style-type: none"> - Maghe et al, Cell Reports 2024 - Andre-Gregoire et al, iScience 2023 - Trillet et al, J Cell Biol 2022 		
<p><u>Collaborations nationales et internationales :</u></p> <ul style="list-style-type: none"> - Collaboration avec Andréia Machado Leopoldino, PhD, University of São Paulo, School of Pharmaceutical Sciences of Ribeirao Preto, Dept Clinical Analyses, Toxicology and Food Sciences, Ribeirão Preto, SP, Brazil 		