PROGRAMME DE STAGES D'ÉTÉ
Initiation à la recherche biomédicale
au Centre de recherche du CHU Sainte-Justine
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Characterization of mechanism of action of GPR81/HCAR1 and its ligand lactate

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Équipe de recherche

Sylvain Chemtob, M.D., Ph.D. , FRCPC
Néonatalogie
Axe de recherche : Pathologies fœtomaternelles et néonatales

Coordonnées

Sylvain.chemtob@gmail.com ; cquiniou@gmail.com

Centre de recherche du CHU Sainte-Justine
3175 Chemin de la Côte-Ste-Catherine
Montréal, Qc, H3T 1C5

Responsable de la supervision du stagiaire

Christiane Quiniou
Associée de recherche

Description du projet

G coupled Protein Receptors (GPCRs) are a major class of signaling receptors conserved in all eukaryotes. Medically, they are the most important family of proteins as more than %40 of all drugs targets GPCRs. One of the recently discovered GPCRs is HydroxyCarboxylic Acid Receptor 1 (HCAR1) or GPR81 which binds to lactate and is involved in many biological processes such as angiogenesis, inflammation, cancer progression, DNA damage repair and inhibition of lipolysis. Although HCAR1 seems to play some roles in a lot and very different phenomena, its cell and molecular mechanism of signal transduction and action is ill understood.

We are trying to decipher HCAR1 mechanism of action using cell and molecular biology tools mainly at the level of nuclear responses. Potential students will learn and employ cell manipulation, molecular cloning and gene editing tools to perform cellular fractionation, immunofluorescence with confocal imaging, co-immunoprecipitation, western blot analysis, quantitative and reverse transcription PCR for transcriptomic

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analysis and other methods to further enlighten the mechanism by which HCAR1 mediates its various effects.

Mots clés

GPR81, HCAR1, lactate, inflammation, angiogenesis, metabolism, gene editing, cloning, transcriptomic analysis