**Postes étudiants/étudiantes à la maitrise et/ou doctorat biochimie (RÉGÉNÉRATION TISSULAIRE)**

Nous sommes à la recherche d’étudiants/étudiantes motivés pour travailler sur les mécanismes moléculaire et cellulaire de la régénération épimorphique. Notre laboratoire s’intéresse spécifiquement au rôle de la superfamille des TGF-Beta (TGF-β, BMP, GDF, activines) avec une attention particulière à la fonction des voies TGF-β et BMP durant les différentes étapes de la régénération de la patte chez l’Axolotl. Nous utilisons diverses approches de biologie moléculaire, signalisation cellulaires, culture cellulaires et analyses biochimiques et histologiques afin de comprendre ce processus de morphogénèse complexe post-développement. Les axolotls sont des salamandres (originaire du Mexique) qui ont la capacité de régénérer parfaitement la plupart de leur tissues parfaitement tout au long de leur vie.

Les étudiants/étudiantes doivent être motivés et curieux d’apprendre. Nous sommes dans le pavillon JA Bombardier en biochimie (Université de Montréal).

Positions disponible à partir de Mai 2023.

Les gens intéressés SVP contacter professeur Stéphane Roy (stephane.roy@umontreal.ca).

**Master's and/or PhD student positions in biochemistry (TISSUE REGENERATION)**

We are looking for motivated students to work on the molecular and cellular mechanisms of epimorphic tissue regeneration. Our laboratory is specifically interested in the role of the TGF-Beta superfamily (TGF-β, BMP, GDF, activins) with particular attention to the function of the TGF-β and BMP pathways during the different stages of limb regeneration in the Axolotl. We use various approaches of molecular biology, cell signaling, cell culture and biochemical and histological analyzes to understand this complex post-developmental morphogenesis process. Axolotls are salamanders (native to Mexico) that have the ability to regenerate most of their tissues perfectly throughout their lives.

Students must be motivated and curious to learn. We are in the JA Bombardier pavilion in biochemistry (Université de Montréal).

Positions available from May 2023.

Interested people please contact Professor Stéphane Roy ([stephane.roy@umontreal.ca](mailto:stephane.roy@umontreal.ca)).

*Articles sélectionnés/selected articles:*

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| 1. | [Tgf-β superfamily and limb regeneration: Tgf-β to start and Bmp to end.](https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fpubmed.ncbi.nlm.nih.gov%2F34096672%2F&data=05%7C01%7Cstephane.roy%40umontreal.ca%7Cc4dfddfd7460482f31b208db45066f01%7Cd27eefec2a474be7981e0f8977fa31d8%7C1%7C0%7C638179666153933102%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=hyW5dzDaCv457kH%2BtUudxM%2Fz7dmnEm%2BzIsZ41lsrapM%3D&reserved=0)  Sader F, Roy S.  Dev Dyn. 2022 Jun;251(6):973-987. doi: 10.1002/dvdy.379. Epub 2021 Jun 14.  PMID: 34096672 Review. |
| 2. | [BMP signaling is essential for sustaining proximo-distal progression in regenerating axolotl limbs.](https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fpubmed.ncbi.nlm.nih.gov%2F32665245%2F&data=05%7C01%7Cstephane.roy%40umontreal.ca%7Cc4dfddfd7460482f31b208db45066f01%7Cd27eefec2a474be7981e0f8977fa31d8%7C1%7C0%7C638179666153933102%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=ILKagtTJv5EeDCFHGi1J8GpJTbNr%2Bk3DEv%2F1ZCf4NdU%3D&reserved=0)  Vincent E, Villiard E, Sader F, Dhakal S, Kwok BH, Roy S.  Development. 2020 Jul 31;147(14):dev170829. doi: 10.1242/dev.170829.  PMID: 32665245 |
| 3. | [Epithelial to mesenchymal transition is mediated by both TGF-β canonical and non-canonical signaling during axolotl limb regeneration.](https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fpubmed.ncbi.nlm.nih.gov%2F30718780%2F&data=05%7C01%7Cstephane.roy%40umontreal.ca%7Cc4dfddfd7460482f31b208db45066f01%7Cd27eefec2a474be7981e0f8977fa31d8%7C1%7C0%7C638179666153933102%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=prLpO6cHHeR8EK5SzDmZqDJaytGAwXWVVWAxSvNyaT4%3D&reserved=0)  Sader F, Denis JF, Laref H, Roy S.  Sci Rep. 2019 Feb 4;9(1):1144. doi: 10.1038/s41598-018-38171-5.  PMID: 30718780 Free PMC article. |
| 4. | [Activation of Smad2 but not Smad3 is required to mediate TGF-β signaling during axolotl limb regeneration.](https://can01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fpubmed.ncbi.nlm.nih.gov%2F27549395%2F&data=05%7C01%7Cstephane.roy%40umontreal.ca%7Cc4dfddfd7460482f31b208db45066f01%7Cd27eefec2a474be7981e0f8977fa31d8%7C1%7C0%7C638179666153933102%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=eZqW13GHc%2Frct0uWuTLQj7rkHt%2BKn%2BC6xE6pzc8vwm0%3D&reserved=0)  Denis JF, Sader F, Gatien S, Villiard É, Philip A, Roy S.  Development. 2016 Oct 1;143(19):3481-3490. doi: 10.1242/dev.131466. Epub 2016 Aug 22.  PMID: 27549395 |