



Position for a Ph.D. Student

Location: Dr. Marie Trudel
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Laboratory: Molecular Genetics and Development

Web page:

<http://www.ircm.qc.ca/LARECHERCHE/AXES/CANCER/GENETIQUE/PAGES/BIOGRAPHIE.ASPX?PFLG=1036&lan=1036>

Title or research subject/theme:

Characterization of polycystin-1 signaling pathway - Analysis of polycystin-1 role in polycystic kidney disease progression using molecular and transgenic approaches

General Description of project:

Adult polycystic kidney disease (PKD) is believed to be the most frequent (1/500) inherited genetic disorder in humans. We have generated a genetic model of the disease in transgenic mice by introducing a deregulated proto-oncogene *c-myc* specifically expressed in the kidney. In parallel, we have produced mouse models of PKD using the murine orthologous *Pkd1* gene in a BAC that can be targeted by homologous recombination and by conditional ablation. All transgenic mouse lines produced develop reproducibly the adult polycystic kidney disease with the extrarenal phenotypes. The clinical phenotype observed in mice is present at birth and leads to renal insufficiency in young adulthood. These mouse models will serve to define the molecular pathogenic signaling pathway and to investigate the role of *Pkd1* extracellular domain in cellular interactions.

References:

- Thivierge C, et al. *Mol Cell Biol* **26** (4): 1538-1548, 2006.
- Cadieux C, et al. *J Biol Chem* **283**(20): 13817-13824, 2008
- Couillard M, **Trudel M**. *c-myc* is a modulator of renal stem/progenitor cell population. *Dev Dyn* **238**(2):405-14, 2009.
- Kurbegovic A, et al. Transgenic Mice: Adult Model of Polycystic Kidney Disease With Extrarenal and Renal Phenotypes. *Hum Mol Genet* (In Press)
- Beauchemin H, **Trudel M**. *Mol Cell Biol*, **29**(6): 1635-1648, 2009.
- Kurbegovic A*, Côté O*, Couillard M, Ward CJ, Harris PC, **Trudel M**. (* both authors contributed equally) *Hum Mol Gen* **19**(7): 1174-1189, 2010.
- Felfly H, **Trudel M**. *Br J Haematol*. **148**(4):646-58, 2009.
- Ross J, Bottardi S, Bourgoin V, Wollenschlaeger A, Drobetsky E, **Trudel M**, Milot E. *Nucleic Acids Res*. **37**(16):5295-308, 2009.
- Couillard M, **Trudel M**. *Dev Dyn*. **238**(2):405-14, 2009.
- Bottardi S, Ross J, Bourgoin V, Fotouhi-Ardakani N, Affar el B, **Trudel M**, Milot E. *Mol Cell Biol*.; **29**(6):1526-37, 2009.

Disciplines: Molecular Biology, Cellular Biology, and Genetics

Prerequisites:

- Previous research experience and knowledge of the English language are assets
- Candidates must hold a Masters degree in life sciences (Biochemistry, Biology, Biomedical sciences) and will obtain a Ph.D. degree in *Molecular Biology* or *Biochemistry*
- Candidates must send their CV, latest university transcripts along with the name and contact information of three references to: trudelm@ircm.qc.ca or Carole.Marcotte@ircm.qc.ca