



## [Position for a PhD student in Biochemistry](#)

**Site :** Département de biochimie  
Faculté de médecine, Université de Montréal  
Montréal City, Province of Québec, Canada

**Laboratory of :** Dr Christian Baron

**web site:** [http://www.biochimie.umontreal.ca/bottin411/Enseignants/baron\\_c.html](http://www.biochimie.umontreal.ca/bottin411/Enseignants/baron_c.html)

**Laboratory research theme:** Cellular dynamics of protein complexes

### **Project description:**

In the context of our Canadian Institutes of Health Research-funded projects on the mechanism of bacterial type IV secretion systems, positions for Ph.D. students are available in the laboratory of Dr. Christian Baron in the Biochemistry Department. Principal goal of our work is to understand the protein-protein interactions that mediate the assembly and function of type IV secretion systems in the cell envelope of bacterial pathogens. Based on this knowledge, we seek to develop small-molecule inhibitors that could be developed as antivirulence drugs to fight bacterial infectious diseases. The principal model organisms of interest for our work are the plant pathogen *Agrobacterium tumefaciens* and the human pathogen *Brucella*. Our group uses a wide variety of methods from molecular biology to protein biochemistry and small molecule screening, and we are developing structural biology as an additional expertise. Candidates interested in these positions should have a background in protein biochemistry and/or structural biology.

### **References :**

1. Paschos, A., Patey, G., Sivanesan, D., Gao, C., Bayliss, R., Waksman, G., O'Callaghan, D., and Baron, C. (2006) Dimerization and interactions of *Brucella suis* VirB8 with VirB4 and VirB10 are required for its biological activity. *Proc. Natl. Acad. Sci. USA* 103: 7257-7257
2. Yuan, Q., Carle, A., Gao, C., Sivanesan, D., Aly, K., Höppner, C., Krall, L. Domke, N., and Baron, C. (2005) Identification of the VirB4-VirB8-VirB5-VirB2 pilus assembly sequence of type IV secretion systems. *J. Biol. Chem.* 280: 26349-26359
3. Baron, C. (2010) Antivirulence drugs to target bacterial secretion systems. *Curr. Opin. Microbiol.* 13: 100-105
4. Sivanesan, D., Hancock, M. A., Villamil Giraldo, A.M. and Baron, C. (2010) Dynamic model of type IV secretion system core assembly of *Brucella suis*. *Biochemistry* 49: 4483-93.

### **Disciplines/ Qualifications:**

Candidates should have a formal training in molecular biology, biochemistry and/or microbiology have excellent organizational, interpersonal, and communication skills.

### **Contact:**

Applicants should submit a resume, university records, a short statement of research interests, TOEFL results and two letters of recommendation to Dr Baron by email ([Christian.baron@umontreal.ca](mailto:Christian.baron@umontreal.ca)) if possible in one .pdf document.

**Collaboration: Collaboration is possible with a former supervisor or another researcher in that field. Please contact me.**