

# NORMAND CYR, PH.D.

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Département de biochimie et médecine moléculaire  
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## EDUCATION AND RESEARCH TRAINING

- Postdoctoral fellow    Structural Biochemistry, Dept of Biochemistry, Université de Montréal (2012 – )  
Structural characterization of host-pathogen protein-protein interactions involved in the pathogenicity of Rift Valley fever virus.
- Ph.D.                    Biochemical Parasitology, Institute of Parasitology, McGill University (2006 – 2012)  
Thesis work on biophysical characterization of the glycosome biogenesis machinery in the human parasite *Leishmania donovani* and its interaction with the glycosomal membrane.
- M.Sc.                    Biochemical Engineering, Dept of Bioresource Eng, McGill University (2004 – 2006)  
Thesis work on flavour-related metabolic by-products formation during fermentation of malt extracts by the yeast *Saccharomyces cerevisiae* and optimization of fermentation parameters in industrial processes related to fuel ethanol production.
- B.Sc.                    Food Chemistry, Dept of Food Science, McGill University (2000 – 2004)  
Senior project on study of haze-active beer proteins and thermal processing by Fourier-transform infrared spectroscopy.

## TECHNICAL EXPERTISE

### *Biophysics*

- Protein NMR
- Protein X-ray crystallography
- Isothermal titration calorimetry
- Fluorescence spectroscopy
- Circular dichroism
- Electron microscopy
- Langmuir troughs
- FTIR spectroscopy

### *Biochemistry*

- Protein expression and purification
- Electrophoresis
- High-performance liquid chromatography
- Gas chromatography
- Protein-lipid interactions
- Liposomes and lipid bilayers
- Thin layer chromatography

### *Bioinformatics and programming languages*

- Protein homology modelling
- Virtual drug screening
- Linux usage (fluent)
- PyMol scripting (fluent)
- Python programming (intermediate)
- Git version control (intermediate)
- R programming (beginner)

### *Bioprocessing and engineering*

- Biomass production in large-scale bioreactors
- Yeast desiccation
- Beer fermentation (3 to 150 hL scale)
- Biochemical engineering calculations for bio-processes

## SCIENTIFIC PUBLICATIONS

11. **Cyr N**, Smith TK, Boisselier E, Leroux LP, Kottarampatel AH, Davidsen A, Salesse C, Jardim A (2018). "The hydrophobic region of the *Leishmania* peroxin 14 – requirements for association with a glycosome mimetic membrane". *Biochem J* 475: 511-529.
10. Lecoq L, Raiola L, Chabot PR, **Cyr N**, Arseneault G, Legault P, Omichinski JG (2017). "Structural characterization of interactions between transactivation domain 1 of the p65 subunit of NF- $\kappa$ B and transcription regulatory factors". *Nucleic Acids Res* 45: 5564-76.
9. van Bergen B\*, **Cyr N**\*, Strasser R, Blanchette M, Sheppard JD, Jardim A (2016). " $\alpha,\beta$ -Dicarbonyl reduction is mediated by the *Saccharomyces* Old Yellow Enzyme". *FEMS Yeast Res* 16(5). (\* equal contribution)
8. **Cyr, N**, de la Fuente C, Lecoq L, Guendel I, Chabot PR, Kehn-Hall K, Omichinski JG (2015). "A  $\Omega$ XaV motif in the Rift Valley fever virus NSs protein is essential for degrading p62, forming nuclear filaments and virulence". *Proc Natl Acad Sci USA* 112:6021-6.
7. Pilar AV, Strasser R, McLean J, Quinn E, **Cyr N**, Hojjat H, Kottarampatel AH, Jardim A (2014). "Analysis of the *Leishmania* peroxin 7 interactions with peroxin 5, peroxin 14 and PTS2 ligands". *Biochem J* 460:273-282.
6. Dasanayake D, Richaud M, **Cyr N**, Caballero-Franco C, Pitroff S, Finn RM, Ausió J, Luo W, Donnenberg MS, Jardim A (2011). "The N-terminal amphipathic region of the *Escherichia coli* type III secretion system protein EspD is required for membrane insertion and effacement activity". *Mol Microbiol* 81:734-750.
5. Ullman B, **Cyr N**, Choi K, Jardim A (2010). "Acidic residues in the purine binding site govern the 6-oxopurine specificity of the *Leishmania donovani* xanthine phosphoribosyltransferase". *Int J Biochem Cell Biol* 42:253-262.
4. **Cyr N**, Madrid KP, Strasser R, Aourousseau M, Finn R, Ausio J, Jardim A (2008). "*L. donovani* PEX14 undergoes a marked conformational change following association with PEX5". *J Biol Chem* 283:31448-31499.
3. **Cyr N**, Blanchette M, Price SP and Sheppard, JD (2007). "Vicinal diketone production and amino acid uptake by two active dry lager yeasts during beer fermentation". *J Am Soc Brew Chem* 65:138-144.
2. van Bergen B, Strasser R, **Cyr N**, Sheppard JD, Jardim A (2006). " $\alpha,\beta$ -dicarbonyl reduction by *Saccharomyces* D-arabinose dehydrogenase". *Biochim Biophys Acta* 1760:1636-1645.
1. van Zandycke S, Ahlgren S, Bourdaudhui G, **Cyr N**, De Nicola R, Fujita A, Kelly G, Logsdon D, McLean D, Pachello C (2005). "Method for measurement of yeast vitality". *J Am Soc Brew Chem* 63:205-208.

## CONTRIBUTIONS AT CONFERENCES

### Oral presentations

- 2015 American Society for Virology annual conference, London ON, Canada.
- 2015 AÉCSBUM annual retreat, St-Hippolyte QC, Canada.
- 2012 Centre for Host-Parasite Interactions annual conference, Laval QC, Canada
- 2011 Centre for Host-Parasite Interactions annual conference, Ste-Anne-de-Bellevue QC, Canada
- 2011 Interdisciplinary Graduate Students Research Symposium, Montréal QC, Canada
- 2010 British Society for Parasitology, Cardiff, Wales, United Kingdom
- 2010 Centre for Host-Parasite Interactions annual conference, Montréal QC, Canada
- 2009 Association Francophone pour le Savoir (ACFAS), Ottawa, ON, Canada
- 2009 Centre for Host-Parasite Interactions annual conference, Montréal QC, Canada
- 2008 Montreal Structural Biology Meeting, Île-Bizard QC, Canada
- 2008 Centre for Host-Parasite Interactions annual conference, Montréal QC, Canada
- 2005 Canadian Society for Chemical Engineering, Toronto ON, Canada

### *Poster presentations*

- 2014 Groupe de Recherche Axé sur la Structure des Protéines, Montréal QC, Canada
- 2012 PROTEO Annual Symposium, Sherbrooke QC, Canada
- 2012 British Society for Parasitology, Glasgow, Scotland, United Kingdom
- 2011 Kinetoplastid Molecular Cell Biology Meeting, Woods Hole MA, United States
- 2009 Groupe de Recherche Axé sur la Structure des Protéines, Montréal QC, Canada
- 2006 American Society of Brewing Chemists, Palm Springs CA, United States

## **OTHER ACADEMIC ACTIVITIES**

### *Teaching*

- 2016 Faculty lecturer at Université Sainte-Anne for a 3 credits molecular biology course
- 2012 Teacher's assistant for a Bioinformatics in Molecular Parasitology Workshop at McGill University. Funded in part by Paravac (European Commission FP7) and the Québec government (MDEIE program)
- 2005 – 2012 Teacher's assistant for various undergraduate and graduate courses at McGill University: Bi-thermodynamics, Structural bioinformatics, Biochemistry I, Biotechnology laboratory II.
- 2006 – 2010 Lecturer at John Abbott College for the course Principles of industrial fermentation in the Faculty of Continuing Education.

### *Student Governance*

- 2007 – 2011 Elected council member of the Post-graduate Student Society (PGSS) of McGill University
- 2008 – 2010 Member of the PGSS External Affairs Committee
- 2009 – 2010 Member of the PGSS Nominating Committee
- 2001 – 2004 Elected member of the Food Science Association Committee

## **RESEARCH FELLOWSHIPS**

- 2016 Groupe de Recherche sur la Structure des Protéines Postdoctoral award
- 2012 Centre for Host-Parasite Interactions Bridging fund
- 2006 – 2009 Fonds québécois de la recherche sur la nature et les technologies Doctoral research fellowship
- 2004 – 2006 Fonds québécois de la recherche sur la nature et les technologies Masters research fellowship
- 2003, 2004 Natural Sciences and Engineering Research Council of Canada Undergraduate industrial research fellowship (partnership with Lallemand Inc.)

## **AWARDS**

- Best poster presentation, PROTEO symposium (2012)
- Best oral presentation, CHPI2011 conference, Centre for Host-Parasite Interactions (2011)
- CHPI travel fellowship, Centre for Host-Parasite Interactions (2010, 2011, 2012)
- GREAT travel award, McGill University, Travel award for international conference (2010, 2011)
- Jane Rich Foundation Scholarship, Jane Rich Foundation (2003)
- CIFST Prize, Canadian Institute of Food Science and Technology (2002)
- Firmenich Millennium Scholarship in Food Science, Firmenich of Canada (2001)

## MEDIA COVERAGE

- “Promouvoir le cyclisme à l’UdeM”, *Quartier Libre*, 2017.
- “Jouez : 4500 km en un an!”, *Presse21*, 2017.
- “Des chercheurs auraient détecté un « talon d’Achille de virus à fièvres hémorragiques »”, *Carrefour Science et Santé* (Voice of America Afrique), 2015.
- “Endiguer les fièvres hémorragiques une fois pour toutes”, *UdeM Nouvelles*, 2015.
- “Rift Valley fever virus' proteins imitate human DNA repair factors”, *MedicalXpress*, 2015.
- “Rift Valley Virus: NMR clues”, *spectroscopyNOW*, 2015.
- “Drug target for Ebola-like viruses identified”, *The Economic Times*, 2015.

## PROFESSIONAL MEMBERSHIPS

- American Society for Virology
- Canadian Society for Virology
- Canadian Society for Molecular Biosciences

## COMMUNITY INVOLVEMENT

- 2015- Écoleader for Université de Montréal. Implementation of the program Éco-Labo in my laboratory, an environmentally responsible management program.
- 2015- Bicycle mechanic and teacher (volunteer) for Biciklo, a bicycle cooperative at the Université de Montréal where we educate students on bicycle mechanics and how to repair their own.
- 2006-2012 President-elect for the non-profit organization Pro-Vert Sud-Ouest, which manage the Éco-centres in Montréal, as well as offering various environment-related educational activities to the public mainly in the borough Le Sud-Ouest in Montréal.

A detailed synopsis of my research can be found online: <https://www.normandcyr.com>