

# NORMAND CYR

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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 FTIR.

## PUBLICATIONS

- 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.
- 2) van Bergen B, Strasser R, **Cyr N**, Sheppard JD, Jardim A (2006). "α,β-dicarbonyl reduction by *Saccharomyces* D-arabinose dehydrogenase". *Biochim Biophys Acta* 1760:1636-1645.
- 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.
- 4) **Cyr N**, Madrid KP, Strasser R, Aurousseau 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.
- 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.
- 6) Dasanayake D, Richaud M, **Cyr N**, Caballero-Franco C, Pitroff S, Finn RM, Ausio 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.
- 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.
- 8) **Cyr N**, de la Fuente C, Lecoq L, Guendel I, Chabot PR, Kehn-Hall K, Omichinski JG (2015). "A ΩXaV 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.

- 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)
- 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*, in press.

## TECHNICAL EXPERTISE

### *Biophysics*

- Protein NMR
- Protein X-ray crystallography
- Isothermal titration calorimetry
- Electron microscopy
- Fluorescence spectroscopy
- Circular dichroism
- Black lipid membranes
- FTIR spectroscopy

### *Biochemistry*

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

### *Bioprocessing and engineering*

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

## 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

## 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

- “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.

## OTHER ACADEMIC ACTIVITIES

### Teaching

2016	<b>Faculty Lecturer</b> at Université Sainte-Anne (Canada) for a Molecular Biology course (3 credits)
2012	<b>Teacher's assistant</b> for a Bioinformatics in Molecular Parasitology Workshop at McGill University. Funded in part by Paravac (European Commission FP7) and Québec government (MDEIE program)
2005 – 2012	<b>Teacher's assistant</b> for various undergraduate and graduate courses at McGill University: Bio-thermodynamics, Structural bioinformatics, Biochemistry I, Biotechnology laboratory II.
2006 – 2010	<b>Lecturer</b> 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

## 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 (volunteer) for Biciklo, a bicycle cooperative at the Université de Montréal where we teach students how to repair their own bicycle.
- 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.