Department/School: Chemistry and Biomolecular Sciences September 2020

CURRICULUM VITAE

a) NAME:

Campbell-Valois, François-Xavier, Assistant Professor, Employee #: 100246034
Member of the Faculty of Graduate and Postdoctoral Studies.

On the web: Lab website, Google Scholar, Researchgate, Linkedin

b) DEGREES:

Ph.D. Molecular Biology, Université de Montréal, Qc, Canada, 2006 (Supervisor: Prof. Stephen W. Michnick, Department of Biochemistry)

B.sc., Biochemistry, Université de Montréal, Qc, Canada, 1997

c) EMPLOYMENT HISTORY:

2016- Cross-appointment in the Department of Biochemistry, Microbiology and Immunology, University of Ottawa, Ottawa, Canada

2015- Assistant Professor, Department of Chemistry and Biomolecular Sciences, University of Ottawa, Ottawa, Canada

2009-15 Postdoctoral fellow, laboratoire de pathogénie microbienne moléculaire (Directeur: Philippe Sansonetti) Department of Cell Biology and Infection, Institut Pasteur, Paris, France

2006-09 Postdoctoral fellow, Laboratoire de biogenèse du phagosome (Directeur: Michel Desjardins), Département de pathologie et biologie cellulaire, Université de Montréal, Montréal, Canada

d) ACADEMIC HONOURS:

- Fondation pour la Recherche Médicale fellowship, 2011-2013, €55k/year
- Marie-Curie International Reintegration Grant, 2011-2013, €65k
- European Molecular Biology Organization (EMBO) long-term fellowship, 2009-2011, €38k/year
- Canadian Institutes of Health Research (CIHR) research fellowship, 2008-2010, $40k/year
- Thesis scored "Excellent" (within the top 5% of theses submitted at Université de Montréal), 2006
- J.A. de Sève prize, Faculté des études supérieures, Université de Montréal, 2003, $6,000
- CIHR PhD fellowship, 2000-2003, $20k/year
- Thesis prize, Université de Montréal, 2003, $3,000
- Simon-Pierre Noël prize for the best scientific oral communication, Biochemistry Department, Université de Montréal, 2000, $1,000

- PhD training fellowship du Fonds québécois pour la Recherche et les Nouvelles Technologies (FQRNT) 1999-2000, $12k/year
- Traveling award of the American Society for Biochemistry and Molecular Biology (ASBMB), 1999, 2000 and 2002, $450/year awarded
- Prize for the best poster presentation sponsored by the veterinary school, Dept. Molecular Biology, Université de Montréal, 1999, $250

e) SCHOLARLY AND PROFESSIONAL ACADEMIC ACTIVITIES:

Service to uOttawa's community

- Member of the steering committee of the Cell Imaging and Cytometry Facility, 202002-
- Examiner for uOttawa merit scholarship at the graduate studies level (e.g. thesis awards, NSERC Michael Smith, Queen Elisabeth II Scholarship in Science and Technology), 201909-
- Member of the Communication Committee of the Department of Chemistry and Biomolecular Sciences, 201707-

  Tasks: Twitter and other electronic communications; preparation of the inaugural issue of the departmental annual newsletter, 201911
- Co-founder and co-administrator of the bioGARAGE. The bioGARAGE is providing equipment and protocol to enable do-it-yourself led by the undergraduate student of the University of Ottawa, including our iGem team. Following intense lobbying, we were granted internal funding and in-kind contribution of Bio-Rad that will allow us to launch the bioGARAGE laboratory space in the next months. 201805-
- Biochemistry program representative on the user committee of the Morisset Science Library, 201511-
- Biochemistry program representative on the council of the Faculty of Science, 201609-202005

Journal review and editorial activities

- Member of the Editorial board of Bio-protocol, 201604-201712
- Reviewer for journals:
  - Autophagy
  - Molecular Microbiology
  - PloS Pathogens
  - Journal of Immunology
  - Methods
  - Frontiers in Microbiology
  - Frontiers in Cell Microbiology and Infection
  - Current Research in Microbial Sciences

Research proposal examination activities

- Examiner for the PhD fellowship program of the Fonds de Recherches Nature et Technologies du Québec, Cell and Molecular Biology Committee, 2019-
- External examiner for the Austrian Science Fund (FWF) grant program, 2018-

Scientific Society Memberships

- Association Canadienne Française pour l'Avancement des Sciences (ACFAS)
- American Society of Microbiology (ASM)
- American Association for the Advancement of Science (AAAS)
- Canadian Society of Microbiologists (CSM)

f) TRAINEE AND STAFF SUPERVISION

Summary:

Completed

Supervisor:	11 BSc 11 BSc Honours 2 MSc
Co-supervisor:	2 BSc 1 technician
Visiting students:	1 PhD
Mentoring:	1 PhD (Institut Pasteur, Paris)

In progress

Supervisor:	1 High School COOP 1 BSc Honours 1 MSc 3 PhD 1 Postdoctoral fellow
Co-supervisor:	1 MSc (primary) 1 PhD (secondary)

g) TEACHING

Course code/Credits	Course name	Level*	Language	Semester	Percent taught	Enrollment (average)
BCH2733 3 Cr.	Introduction to Biochemistry	U	FR	W2016-	100	200
BCH3525 3 Cr.	Structure and Function of Proteins	U	FR	W2018	100	45
BCH4525 3 Cr.	Cell Regulation and Control	U	FR	W2019-	100	20
BCH4932 1.5 Cr.	Biochemistry Seminar, section F, Microbiology and Immunology	U	EN	F2016-W2020	100	20
CHM8256 Equ. 1.5 Cr.	Seminar I-Biomolecular Science	G	EN	F2017-	50	20
CHM8358¶ 1.5 Cr.	Microbial Molecular Pathogenesis†	G	EN	F2017, 2019	70	12
CHM8304 1.5 Cr.	Bacterial Metabolism and Physiology†	G	EN	S2020	50	9

*U: undergraduate courses; G: graduate courses

Minor contributions

- BIO3124 General Microbiology, Faculty of Science- contributor to the hybrid content of the course on bacterial secretion systems
- BCH8165 Special Topics in Biochemistry (3 units), Faculty of Medicine-Technologies for Microbiome Science- 1.5 hour lecture, summer 2018
- MIC8238 Advanced Topics in Bacteriology: introduction to bacterial secretion systems, Faculty of Medicine, 1 hour lecture, fall 2018
- MIC8236 Pathogenic viruses and virotherapies: phage therapy, Faculty of Medicine, 1 hour lecture, winter 2019

Thesis examination (Type: number of instances)

- Thesis advisory committee and PhD thesis-related examination: 18
- Internal examiner for thesis defense: 10
- Chair of thesis defense committees: 4

h) EXTERNAL RESEARCH FUNDING:

Cumulative external funding of my research program since creation: $1,504,000

Date	Source	Type	My role	Amount
2020/04-2021/03	Title: *An anaerobic chamber to study the behavior of microbes* Source: National Science and Engineering Research Council of Canada (NSERC), Research Tool and Instruments	Equipment grant	Principal applicant	$40k
2018/10-2024/9	Title: *Identification of molecular events enabling vacuole escape of Shigella: an avenue toward novel therapeutic strategies* Source: Canadian Institute of Health Research (CIHR), Project Scheme	Operating grant	Principal (sole) applicant	$577k
2016/4-2022/3*	Title: *Deciphering the Regulation and Functional Mechanisms of the Type III Secretion Apparatus* Source: NSERC, Discovery Grant	Operating grant	Principal (sole) applicant	$155k
2016/1-2016/12	Title: *Deciphering molecular events leading to bacterial pathogens sensing and adaptation to their environment* Source: Canada Foundation for Innovation (CFI) and partners (ORF and FoS), John R. Evans Leader Funds	Equipment grant	Principal (sole) applicant	$582k
2018/4-2024/3	Title: *Technologies for the Microbiome in Science and Engineering (TECHNOMISE)* Source: NSERC, CREATE	Training grant (stipend for students)	1 of 10 Co-applicants	$1,8M My share is approximately $150k

*With a possible one-year extension due to COVID-19

i) INTERNAL RESEARCH FUNDING:

Date	Source	Type	My role	Amount
2020/1**	Title: bioGARAGE startup Source: Faculty of Science (50%) and Vice-president of Research Office (50%)	Equipment grant	Co-applicant With daCosta and Shuhendler	$40k
2015/8	Title: Startup budget of the Host-Microbe Interactions laboratory Source: Faculty of Science	Operating grant	Principal (sole) applicant	$200k

**These funds are for the bioGARAGE, an initiative aiming at fostering do it yourself molecular biology projects by undergraduate students of the University of Ottawa. This sum is not counted in the calculation of the total funding of my research group indicated above.

j) PUBLICATIONS:

i. Lifetime summary according to the following categories

- Books authored.....1
- Books edited.....0
- Refereed Chapters in books 2
- Non-refereed Chapters in books..... 0
- Papers in refereed journal 25
- Papers in refereed conference proceedings..... 3
- Major invited contributions and/or technical reports 2
- Abstracts and/or papers read 0
- Others (workshops presented).....0

Collectively, my publication in peer-reviewed journals have garnered 1095 citations, h-index= 12 and i10-index= 14, according to Google Scholar.

ii. Selected publications

Books authored

1. **Campbell-Valois FX**, Folding of the Polypeptide Sequence of Small Proteins (in French), 2014, Presses Académiques Francophones, ISBN 978-3-8381-4746-8.

Refereed book chapters

1. **Campbell-Valois, FX***, Romero S*. Proteins: From Chemical Properties to Cellular Function: A Practical Review of Actin Dynamics, Bionanocomposites: Integrating Biological Processes for Bioinspired Nanotechnologies, 2017, Chapitre 2.4, 59-88, Wiley, ISBN 978-1-118-94222-2. *Corresponding authors

Papers in refereed journals (co-workers of my group are underlined)

1. Nigro G, Arena ET, Marteyn B, Moya-Nilges M, Sachse M, Sansonetti PJ, **Campbell-Valois FX***. Mapping of Shigella flexneri's tissue distribution and type III secretion apparatus activity during infection of the large intestine of guinea pigs. Pathogens and Disease, 2019. *Corresponding author
2. Tinevez JY, Arena ET, Anderson M, Nigro G, Injarabian L, André A, Ferrari M, **Campbell-Valois FX**, Devin A, Shorte SL, Sansonetti PJ, Marteyn BS. *Shigella*-mediated oxygen depletion is essential for intestinal mucosa colonization. Nat Microbiol. 2019 Aug 5. → *8 citations*
3. Silué N, Marcantonio E, **Campbell-Valois FX***. RNA-Seq analysis of the T3SA regulon in *Shigella flexneri* reveals two new chromosomal genes upregulated in the on-state. Methods. 2019 Mar 21. pii: S1046-2023(18)30336-0. *Corresponding author. → *1 citation*
4. Losier TT, Akuma M, McKee-Muir OC, LeBlond ND, Suk Y, Alsaadi RM, Guo Z, Reshke R, Sad S, **Campbell-Valois FX**, Gibbings DJ, Fullerton MD, Russell RC. AMPK Promotes Xenophagy through Priming of Autophagic Kinases upon Detection of Bacterial Outer Membrane Vesicles. Cell Rep. 2019 Feb 19;26(8):2150-2165. → *10 citations*
5. Kang E†, Crouse A†, Chevallier L†, Pontier SM†, Alzahrani A, Silué N, **Campbell-Valois F-X***, Montagutelli X*, Gruenheid S* and Malo D*, Enterobacteria and host resistance to infection, Mammalian Genome, 2018 Aug;29(7-8):558-576. *Corresponding authors; †equal contribution. → *8 citations*
6. Pinaud L, Ferrari ML, Friedman R, Jehmlich N, von Bergen M, Phalipon A, Sansonetti PJ, **Campbell-Valois FX***. Identification of novel substrates of Shigella T3SA through analysis of its virulence plasmid-encoded secretome. PLoS One. 2017 Oct 26;12(10):e0186920. *Corresponding author. → *6 citations*
7. Pinaud L, Samassa F, Porat Z, Ferrari ML, Belotserkovsky I, Parsot C, Sansonetti PJ, **Campbell-Valois FX**, Phalipon A, Injection of T3SS effectors not resulting in invasion is the main targeting mechanism of *Shigella* towards human lymphocytes, Proc Natl Acad Sci U S A. 2017 Sep 12;114(37):9954-9959. → *9 citations*
8. **Campbell-Valois FX***, Pontier SM, Implications of Spatiotemporal Regulation of *Shigella flexneri* Type III Secretion Activity on Effector Functions: think globally, act locally, Frontiers in Cellular Infection and Microbiology, 2016 Mar 9;6:28. *Corresponding author. → *14 citations*
9. Vonaesch P, **Campbell-Valois FX**, Dufour, A Sansonetti PJ and Schnupf, P. *Shigella flexneri* blocks stress granule formation in epithelial cells, Cell Microbiol. 2016 Jul;18(7):982-97. → *3 citations*
10. Arena ET†, **Campbell-Valois FX**†, Tinevez JY†, Nigro G†, Marteyn B, Nothelfer K, Sansonetti PJ. Bioimage analysis of *Shigella* infection reveals targeting of colonic crypts, *Proc Natl Acad Sci USA.* Proc Natl Acad Sci U S A. 2015 Jun 23;112(25):E3282-90. †Equal contributions. → *39 citations*
11. **Campbell-Valois FX***, Sachse M, Sansonetti PJ, Parsot C. Escape of Actively Secreting *Shigella flexneri* from ATG8/LC3-positive vacuoles is facilitated by IcsB and VirA, MBio, 2015, MBio, 2015, May 26; 6(3). pii: e02567-14. *Corresponding author. → *68 citations*

12. **Campbell-Valois FX**, Sansonetti PJ, Tracking Bacterial Pathogen infection with genetically encoded reporters, FEBS Letters, 2014 Aug 1;588(15):2428-36. → *21 citations*
13. Grishin AM, Condos TEC, Barber KR, **Campbell-Valois F-X**, Parsot C, Shaw GS, Cygler M. Structural basis for the inhibition of host protein ubiquitination by Shigella effector kinase OspG, Structure, 2014 Jun 10;22(6):878-88. → *31 citations*
14. **Campbell-Valois FX**[*], Schnupf P, Nigro G, Sachse M, Sansonetti P, Parsot C. A fluorescent reporter reveals on/off regulation of the Shigella Type III Secretion Apparatus during entry and cell-to-cell spread**,** Cell Host & Microbe. 2014 Feb; 15(2): 177-189. *Corresponding author. → *55 citations*
15. **Campbell-Valois FX**[*,†], Trost M[*,†], Chemali M, Dill BD, Laplante A, Duclos S, Sadeghi S, Rondeau C, Morrow IC, Bell C, Gagnon E, Hatsuzawa K, Thibault P, Desjardins M[*]. Quantitative proteomics reveals that only a subset of the endoplasmic reticulum contributes to the phagosome. Mol Cell Proteomics. 2012 Jul; 11(7): M111.016378. [*]Corresponding authors; [†] equal contribution → *68 citations*
16. **Campbell-Valois FX**, Michnick SW. The transition state of the ras binding domain of Raf is structurally polarized based on Phi-values but is energetically diffuse. J Mol Biol. 2007 Feb 2;365(5):1559-77. → *13 citations*
17. Remy I, **Campbell-Valois FX**, Michnick SW. Detection of protein-protein interactions using a simple survival protein-fragment complementation assay based on the enzyme dihydrofolate reductase. Nat Protoc. 2007;2(9):2120-5. → *73 citations*
18. **Campbell-Valois FX**, Tarassov K, Michnick SW. Massive sequence perturbation of the Raf ras binding domain reveals relationships between sequence conservation, secondary structure propensity, hydrophobic core organization and stability. J Mol Biol. 2006 Sep 8;362(1):151-71. → *10 citations*
19. **Campbell-Valois FX**, Tarassov K, Michnick SW. Massive sequence perturbation of a small protein. Proc Natl Acad Sci U S A. 2005 Oct 18;102(42):14988-93. → *31 citations*
20. Michnick SW, Remy I, **Campbell-Valois FX**, Vallée-Bélisle A, Pelletier JN. Detection of protein-protein interactions by protein fragment complementation strategies. Methods Enzymol. 2000;328:208-30. → *162 citations*
21. Pelletier JN, **Campbell-Valois FX**, Michnick SW. Oligomerization domain-directed reassembly of active dihydrofolate reductase from rationally designed fragments. Proc Natl Acad Sci U S A. 1998 Oct 13;95(21):12141-6. → *436 citations*

Papers in refereed journal, in preparation (2020-2021)

A. Manigat FO, Rössl A, Shuhendler A, daCosta CB, **Campbell-Valois FX**, pUdO, a set of basic plasmids for synthetic biology.
B. Silué N, Tomaro K, Reckers I, Marcantonio E, **Campbell-Valois FX**, IcaR and IcaT are T3SS substrates in *Shigella*.
C. Bajunaid W, Haidar-Ahmad N, Kottarampatel AH, Manigat FO, Silué N, Tchagang CF, Tomaro K, **Campbell-Valois FX**, The T3SS of *Shigella*: structure, expression, function and role in vacuole escape.
D. Bajunaid W, Kottarampatel AH, Desrochers G, Pezacki JP, **Campbell-Valois FX**, Identification of an IcsB-like acytltransferase family.

Invited seminars

1) L'appareil de sécrétion de type III rechargé, Université de Montréal (dépt. de Microbiologie), Montréal, Canada, February 20, 2020.
2) L'appareil de sécrétion de type III rechargé, Université de Sherbrooke (dept. of Biology), Sherbrooke, Québec, Canada, December 12, 2019.
3) Shigella's Type III Secretion System reloaded, Carleton University (dept. of Biology), Ottawa, Ontario, Canada, December 6, 2019.
4) bioGARAGE: A Science Learning Initiative With a New Twist, True North Science Boot Camp, University of Ottawa, May 31, 2019.
5) One buck-a-bug: popular bacteriology, Pint of Science 2019, Ottawa, May 21, 2019.
6) The Type III Secretion System reloaded, Annual Meeting of the Canadian Society of Microbiologists, Winnipeg, Canada, June 17-21, 2018.
7) Sécrétion et signalisation chez la bactérie pathogène *Shigella flexneri*, Congrès Signalisation Québec, Bécancour, Québec, Canada, June 6-8, 2018.
8) Seeing Type III Secretion activity in *Shigella flexneri*: think globally act locally, University of Oxford, United Kingdom, March 11, 2015.
9) Seeing Type III Secretion activity in *Shigella flexneri*: think globally act locally, Microbiology and Immunology Department, Dalhousie University, Halifax, Nova Scotia, Canada, February 24th, 2015.

Poster presentations

1) Manigat F, Shuhendler AJ, daCosta CB, Campbell-Valois FX, Generation of a large set of small plasmids for synthetic biology, Université de Sherbrooke, Québec, Canada June 10-13, 2019.
2) Bajunaid W, **Campbell-Valois FX**, Identification of an IcsB-like acyltransferase family, Université de Sherbrooke, Québec, Canada June 10-13, 2019
3) Silué N**, Campbell-Valois FX**, Identification of 2 novel T3SA substrates in *Shigella flexneri,* Canadian Society of Microbiologists, Université de Sherbrooke, Québec, Canada June 10-13, 2019.
4) Tchagang C, Zhang L, **Campbell-Valois FX**, Mah TF, Lighting-up *Pseudomonas aeruginosa*: reporter system for anaerobic tracking**,** Université de Sherbrooke, Québec, Canada June 10-13, 2019.
5) Silué N**, Campbell-Valois FX**, RNAseq analysis of *Shigella flexneri* transcriptional program reveals two putative T3SS substrates, Canadian Society of Microbiologists, University of Manitoba, Manitoba, Canada, June 10-13, 2019.
6) Alzahrani A, **Campbell-Valois FX**, Study of the role of IcsB virulence protein in vacuolar escape of Shigella flexneri through identification of potential host protein binding partners, Canadian Society of Microbiologists, University of Waterloo, Ontario, Canada June 20-23, 2017
7) **Campbell-Valois FX**, Alzahrani A, Silué N, Wan S, Marcantonio E, Boisvert L, Pinaud L, Schnupf P and Nigro G. *Shigella* Type III Secretion System Reloaded, Canadian Society of Microbiologists, University of Waterloo, Ontario, Canada June 20-23, 2017.
8) **Campbell-Valois FX**, Alzahrani A, Silué N, Wan S, Marcantonio E, Boisvert L, Pinaud L, Schnupf P and Nigro G. *Shigella* Type III Secretion System Reloaded, New Investigator Forum of the Institute of Infection and Immunity of the CIHR, Lac Delage, Québec, Canada May 26-28, 2017.

k) NON-ACADEMIC AND SOCIAL IMPLICATIONS

- Consultant and speaker in elementary school and high schools (occasional), 2009-
  - Ex. : École secondaire Louis-Riel, Gloucester (201802)
- Administrator of the parents run daycare Calinot Singe, Paris, France 201009-201108
- Active member of the think tank Institut du Nouveau Monde: debate animator for workshops on the health care system and the economy, 2003-2009
- Member of the administration council of the graduate student association in biochemistry of the Université de Montréal (AECSBUM), 2000-2002.
- Member of the administration council of the undergraduate student association in biochemistry of the Université de Montréal (AEEBCM), 1995-1997.

SIGNATURE: 

DATE: 2020-05-21