matthew solomonson

scientist

contact

1917 Trafalgar St
Vancouver, British
Columbia
Canada
V6K 3S4
+1 (778) 899 6613
ggmatt@gmail.com
msolo.ca
github.com/mattsolo1

laboratory skills

protein purification
x-ray crystallography
molecular cloning
microbiology
electron microscopy

computer skills

python
unix/linux
git
bioinformatics
rosetta modelling
adobe creative suite
web development

interests

molecular machines
programming
biophysics
data analysis
data representation
synthetic biology
collaboration
robots

personal:
music production
electronics
hiking
cycling
brewing
cooking

education

2010–2015 **Doctor of Philosophy in Biochemistry** University of British Columbia, Vancouver, Canada

2004–2008 **Bachelor of Science, Specialization in Biochemistry** University of Alberta, Canada

research experience

2010–2015 **Doctor of Philosophy in Biochemistry** University of British Columbia, Vancouver, Canada
Structure of the type VII secretion system of Mycobacteria
Supervisor: Dr. Natalie Strynadka

2009-2010 **Laboratory Technologist** University of Alberta, Edmonton, Canada
Biophysical characterization of bacterial respiratory membrane complexes
Supervisor: Dr. Joel Weiner

2008-2009 **Undergraduate Research Thesis** University of Alberta, Edmonton, Canada
Searched for novel respiratory enzymes in E. coli
Supervisor: Dr. Joel Weiner

2008 **Summer Studentship** University of Alberta, Edmonton, Canada
Carried out preliminary work toward engineering biofuel production in bacteria
Supervisor: Dr. Michael Ellison

awards

2014 **Richard A. Robertson Memorial Scholarship**

2010-2014 **Four Year PhD Fellowship**

2009 **Queen Elizabeth II Scholarship**

2009 **ACS Society of Chemical Industry Student Merit Award**

2009 **NSERC Undergraduate Research Award**

2005-2008 **Jason Lang Undergraduate Scholarship**

2006 **Bosch Kitchen Centre Award**

2005 **Grant Macewan Continuing Student Scholarship**

presentations

2015 **Hybrid Structural Methods Keystone, Poster** Lake Tahoe, California

2014 **Earl Davie Symposium, selected abstract talk** Vancouver, British Columbia

2013 **Tuberculosis Keystone Meeting, Poster** Whistler, British Columbia

2012 **Future methods in x-ray crystallography, Poster** Erice, Italy

2011 **Tuberculosis Keystone Meeting, Poster** Vancouver, British Columbia

leadership

2014	**Biochemistry Department Computation Workshop** Python programming instructor
2013-2015	**Biochemistry Graduate Student Association VP** Lead organizer for monthly departmental poster social
2012	**CIHR Synapse Mentor** Directed a volunteer high school student in laboratory research
2010-2012	**"Structure 2 Function" Journal Club** Founder and organizer
2007-2010	**Big Brothers Big Sisters Canada**

programming experience

hmmerclust is a Python package for detecting gene clusters across thousands of bacterial genomes for comparative molecular systems analysis.
https://github.com/mattsolo1/hmmerclust

Coot Control is an iPad app that provides a tactile control surface with tailor-made joysticks, buttons, and sliders to make tedious molecular building tasks fluid and ergonomic. It was written in Objective-C and communicates to a Python server running on the computer. Demo: https://www.youtube.com/watch?v=Tc3N4X-74jg

publications

Baier F., Chen J., **Solomonson M.**, Strynadka N.C., Tokuriki N. (2015). Distinct Metal Isoforms Underlie Promiscuous Activity Profiles of Metalloenzymes. *ACS Chem Biol* 10.1021/acschembio.5b00068.

Solomonson M., Setiaputra D., Makepeace, K.A., Lameignere E., Petrotchenko E.V., Conrady D.G., Bergeron J.R., Vuckovic M., DiMaio F., Borchers C.H., Yip C.K., Strynadka N.C.J. (2015). Structure of the Mycobacterium tuberculosis ESX-1-secreted virulence factor EspB and insights into its export mechanism. *Structure* http://dx.doi.org/10.1016/j.str.2015.01.002.

Sobhanifar S., Worrall L.J., Gruninger R.J., Wasney G., Blaukopf M., Baumann L., Lameignere E., **Solomonson M.**, Brown E.D., Withers S.G., Strynadka N.C.J. (2015). An intimate look at the structure and mechanism of Staphylococcus aureus TarM, the wall teichoic acid α-glycosyltransferase. *Proc Natl Acad Sci U S A* E576–E585, doi: 10.1073/pnas.1418084112.

Solomonson, M., Huesgen, P.F., Wasney, G.A., Watanabe, N., Gruninger, R.J., Prehna, G., Overall, C.M., and Strynadka, N.C.J. (2013). Structure of the mycosin-1 protease from the mycobacterial ESX-1 protein type VII secretion system. *J Biol Chem* 288, 17782-17790.

Rothery RA, Stein B, **Solomonson M.**, Kirk M.L., Weiner J.H. (2012). Pyranopterin conformation defines the function of molybdenum and tungsten enzymes. *Proc Natl Acad Sci U S A* 109(37):14773-8.

Cherney M.M., Zhang Y.F., **Solomonson M.**, Weiner J.H., James M.N.G. 2010. Crystal Structure of Sulfide:Quinone Oxidoreductase from Acidithiobacillus ferrooxidans: Insights into Sulfidotrophic Respiration and Detoxification. *J Mol Biol* 398:292-305.

Zhang Y., Cherney M.M., **Solomonson M.**, Liu J., James M.N.G., Weiner J.H. 2009. *Acta Crystallogr Sect F Struct Biol Cryst Commun* 65:839-42.