

BRIAN MUCHMORE

Current MD candidate at the University of Vermont's Larner College of Medicine.



EDUCATION

2002-2005

Bates College

BA in Russian Studies

📍 Lewiston, Maine

Graduated after six semesters of classes.

2004

Nevskii Institute of Language and Culture

📍 St. Petersburg, Russia

Course work in Russian language, economics and history while living with a Russian family.

2005

Odessa Language Study Center

📍 Odessa, Ukraine

The Institute is a full EAQUALS member and evaluated my Russian language level as C1.

2009-2012

University of Maryland

BSc.

📍 College Park, Maryland

Completed the core requirements of a BSc and took various science electives while working full-time at the NIH.

2018-2021

The University of Vermont's Larner College of Medicine

MD candidate.

📍 Burlington, Vermont

Worked full-time as a Bioinformatician for the first 18 months of school.



RESEARCH EXPERIENCE

2009

Summer Fellowship

Laboratory of Structural Biology; Dr. Alasdair Steven

📍 National Institute of Arthritis and Musculoskeletal and Skin Diseases, NIH

- Cloned mutants of the fungal prion protein Het-s for analysis of structural motifs with electron microscopy.

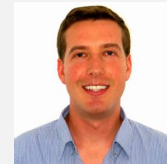
2009-2012

Cancer Research Training Award Fellow

Laboratory of Translational Genomics; Dr. Ludmila Prokunina-Olsson

📍 Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH

- Functional investigation of GWAS cancer signals associated with HCV-related traits and bladder cancer.



CONTACT INFO

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🌐 github.com/bmuchmore

📞 240-408-6061

SKILLS

10,000+ hours of laboratory bench work experience.

10,000+ hours of data science experience with working proficiency in R, Bash, and Python.

Professional proficiency using Docker and Guacamole.

Last updated on 2020-03-23.

2013-
2014

● **Research Scientist**

Bangkok Center of Excellence in Clinical Virology; Dr. Yong Poovorawan

📍 Faculty of Medicine, Chulalongkorn University

- Evolutionary analysis of SNPs and INDELs using various bioinformatics techniques and publicly available data sets such as ancient genomes and 1000 genomes data.

2015-
2018

● **Research Scientist**

Genetics of Complex Diseases Group; Dr. Marta Alarcón Riquelme

📍 Pfizer-University of Granada-Junta de Andalucía Centre for Genomics and Oncological Research (GENYO)

- Part of a multi-national and multi-institutional project led by Dr. Marta Alarcón Riquelme to find clinically useful biomarkers for systemic autoimmune diseases (www.precisesads.eu). Also one of the leads of Spain's first CyTOF/Helios core facility.



PROFESSIONAL EXPERIENCE

2014-
Current

● **Head of Reporting and Recurrent Consultant**

CodoniXnotes EHR Software

📍 Codonix

- Data mining of Codonix's terabyte-plus of patient data.
- Implemented a sophisticated real-time reporting solution using Docker and R (Shiny).
- Created a combined Guacamole-Docker application to serve Codonix's Java applet over HTML5.



PUBLICATIONS

2010

● **From noncoding variant to phenotype via SORT1 at the 1p13 cholesterol locus.**
Nature.

Musunuru K, Strong A, Frank-Kamenetsky M, Lee NE, Ahfeldt T, Sachs KV, Li X, Li H, Kuperwasser N, Ruda VM, Pirruccello JP, **Muchmore B**, Prokunina-Olsson L, Hall JL, Schadt EE, Morales CR, Lund-Katz S, Phillips MC, Wong J, Cantley W, Racie T, Ejebe KG, Orho-Melander M, Melander O, Kotliansky V, Fitzgerald K, Krauss RM, Cowan CA, Kathiresan S and Rader DJ.

2011

● **IL28B rs12979860 genotype and spontaneous clearance of hepatitis C virus in a multi-ethnic cohort of injection drug users: evidence for a supra-additive association.**
J. Infect. Dis.

F. M. Shebl, R. M. Pfeiffer, D. Buckett, **B. Muchmore**, S. Chen, M. Dotrang, L. Prokunina-Olsson, B. R. Edlin and T. R. O'Brien.

2012

● **Common genetic variants in the PSCA gene influence gene expression and bladder cancer risk.**
Proc. Natl. Acad. Sci. U.S.A.

Y. P. Fu, I. Kohaar, N. Rothman, J. Earl, J. D. Figueroa, Y. Ye, N. Malats, W. Tang, L. Liu, M. Garcia-Closas, **B. Muchmore**, N. Chatterjee, M. Tarway, M. Kogevinas, P. Porter-Gill, D. Baris, A. Mumy, D. Albanes, M. P. Purdue, A. Hutchinson, A. Carrato, A. Tardon, C. Serra, R. Garcia-Closas, J. Lloreta, A. Johnson, M. Schwenn, M. R. Karagas, A. Schned, W. R. Diver, S. M. Gapstur, M. J. Thun, J. Virtamo, S. J. Chanock, J. F. Fraumeni, D. T. Silverman, X. Wu, F. X. Real and L. Prokunina-Olsson.

2012

● **IL-29 is the dominant type III interferon produced by hepatocytes during acute hepatitis C virus infection.**
Hepatology.

H. Park, E. Serti, O. Eke, **B. Muchmore**, L. Prokunina-Olsson, S. Capone, A. Folgori and B. Rehmann.

- 2013 ● **A variant upstream of IFNL3 (IL28B) creating a new interferon gene IFNL4 is associated with impaired clearance of hepatitis C virus.**
Nat. Genet.
L. Prokunina-Olsson, **B. Muchmore**, W. Tang, R. M. Pfeiffer, H. Park, H. Dickensheets, D. Hergott, P. Porter-Gill, A. Mumy, I. Kohaar, S. Chen, N. Brand, M. Tarway, L. Liu, F. Sheikh, J. Astemborski, H. L. Bonkovsky, B. R. Edlin, C. D. Howell, T. R. Morgan, D. L. Thomas, B. Rehmann, R. P. Donnelly and T. R. O'Brien.
- 2014 ● **The 19q12 bladder cancer GWAS signal: association with cyclin E function and aggressive disease.**
Cancer Res.
Y. P. Fu, I. Kohaar, L. E. Moore, P. Lenz, J. D. Figueroa, W. Tang, P. Porter-Gill, N. Chatterjee, A. Scott-Johnson, M. Garcia-Closas, **B. Muchmore**, D. Baris, A. Paquin, K. Yaya, M. Schwenn, A. B. Apolo, M. R. Karagas, M. Tarway, A. Johnson, A. Mumy, A. Schned, L. Guede, M. A. Jones, M. Kida, G. M. Hosain, N. Malats, M. Kogevinas, A. Tardon, C. Serra, A. Carrato, R. Garcia-Closas, J. Lloreta, X. Wu, M. Purdue, G. L. Andriole, R. L. Grubb, A. Black, M. T. Landi, N. E. Caporaso, P. Vineis, A. Siddiq, H. B. Bueno-de-Mesquita, D. Trichopoulos, B. Ljungberg, G. Severi, E. Weiderpass, V. Krogh, M. Dorronsoro, R. C. Travis, A. Tjønneland, P. Brennan, J. Chang-Claude, E. Riboli, J. Prescott, C. Chen, I. De Vivo, E. Giovannucci, D. Hunter, P. Kraft, S. Lindstrom, S. M. Gapstur, E. J. Jacobs, W. R. Diver, D. Albanes, S. J. Weinstein, J. Virtamo, C. Kooperberg, C. Hohensee, R. J. Rodabough, V. K. Cortessis, D. V. Conti, M. Gago-Dominguez, M. C. Stern, M. C. Pike, D. Van Den Berg, J. M. Yuan, C. A. Haiman, O. Cussenot, G. Cancel-Tassin, M. Roupret, E. Comperat, S. Porru, A. Carta, S. Pavanello, C. Arici, G. Mastrangelo, H. B. Grossman, Z. Wang, X. Deng, C. C. Chung, A. Hutchinson, L. Burdette, W. Wheeler, J. Fraumeni, S. J. Chanock, S. M. Hewitt, D. T. Silverman, N. Rothman and L. Prokunina-Olsson.
- 2017 ● **CymeR: cytometry analysis using KNIME, docker and R.**
Bioinformatics.
B. Muchmore and M. E. Alarcon-Riquelme.
- 2019 ● **Molecular Characterization of Monocyte Subsets Reveals Specific and Distinctive Molecular Signatures Associated With Cardiovascular Disease in Rheumatoid Arthritis.**
Front Immunol.
Ruiz-Limon P, Ortega-Castro R, Barbarroja N, Perez-Sanchez C, Jamin C, Patiño-Trives AM, Luque-Tovar M, Ibáñez-Costa A, Perez-Sanchez L, de la Rosa IA, Abalos-Aguilera M, Jimenez-Gomez Y, Calvo-Gutierrez J, Font P, Escudero-Contreras A, Alarcon-Riquelme ME, Collantes-Estevez E, López-Pedraza C; PRECISESADS Clinical Consortium and Flow Cytometry Study Group: Marañón C, Le Lann L, Varela N, **Muchmore B**, Dufour A, Alvarez EY, Carlo Montserrat Chizzolini C, De Langhe EN, Cl-P EY, Gerl V, De Groof A, Ducreux J, Trombetta E, Li T, Alvarez-Errico D, Rao S, Pers JO, Beretta L, Aguilar-Quesada R, Aguirre-Zamorano MA, Callejas Rubio JL, Castro-Villegas MC, Cervera R, Chizzolini C, Collantes E, Cornec D, De Langhe E, Devauchelle-Pensec V, Ae-C EY, Espinosa G, Fernández Roldán MC, Gomes Anjos T, Hiepe F, Jiménez Moleón I, Jousse-Joulin S, Lauwerys B, López-Berrio A, Lories R, Marovac J, Meroni PL, Miranda B, Navarro-Linares H, Ortega-Castro R, Ortego N, Pers JO, Ramón Garrido E, Raya E, Ríos Fernández R, Rodríguez-Pintó I, Saraux A.
- 2019 ● **The IFN- λ 4 Conundrum: When a Good Interferon Goes Bad.**
J. Interferon Cytokine Res.
O. O. Onabajo, **B. Muchmore** and L. Prokunina-Olsson.



AWARDS

- 2012 ● **License**
Technology E-217-2011/1 titled "Identification of a Novel Interferon-Analog (IFNAN) Human Protein That Impairs Spontaneous and Treatment-Induced Clearance of Hepatitis C Virus in Humans"
Ludmila Prokunina-Olsson, Thomas R. O'Brien, **Brian Muchmore** and Raymond P. Donnelly. United States Government

2012

● **Patent**

Novel Interferon-Lambda 4 (IFNL4) Protein, Related Nucleic Acid Molecules, and Uses Thereof.

Ludmila Prokunina-Olsson, Thomas R. O'Brien, **Brian Muchmore** and Raymond P. Donnelly.  United States Government