

# BRIAN MUCHMORE

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

## EDUCATION

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|-----------|---|--|
| 2002-2005 | <ul style="list-style-type: none"><li>● <b>Bates College</b><br/>BA in Russian Studies</li></ul>                                  |  Lewiston, Maine          |
|           | Graduated after six semesters of classes.   |  |
| 2004      | <ul style="list-style-type: none"><li>● <b>Nevskii Institute of Language and Culture</b></li></ul>                                |  St. Petersburg, Russia   |
|           | Course work in Russian language, economics and history while living with a Russian family.  |  |
| 2005      | <ul style="list-style-type: none"><li>● <b>Odessa Language Study Center</b></li></ul>   |  Odessa, Ukraine          |
|           | The Institute is a full EAQUALS member and evaluated my Russian language level as C1.   |  |
| 2009-2012 | <ul style="list-style-type: none"><li>● <b>University of Maryland</b><br/>BSc.</li></ul>  |  College Park, Maryland |
|           | Completed the core requirements of a BSc and took various science electives while working full-time at the NIH.                   |  |
| 2018-2021 | <ul style="list-style-type: none"><li>● <b>The University of Vermont's Larner College of Medicine</b><br/>MD candidate.</li></ul> |  Burlington, Vermont    |
|           | Worked full-time as a Bioinformatician for the first 18 months of school.   |  |



## CONTACT INFO

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-  [brian.muchmore@med.uvm.edu](mailto:brian.muchmore@med.uvm.edu)
-  [github.com/bmuchmore](https://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.

## RESEARCH EXPERIENCE

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|-----------|--|
| 2009      | <ul style="list-style-type: none"><li>● <b>Summer Fellowship</b><br/>Laboratory of Structural Biology; Dr. Alasdair Steven<br/> National Institute of Arthritis and Musculoskeletal and Skin Diseases, NIH<ul style="list-style-type: none"><li>• Cloned mutants of the fungal prion protein Het-s for analysis of structural motifs with electron microscopy.</li></ul></li></ul>                              |
| 2009-2012 | <ul style="list-style-type: none"><li>● <b>Cancer Research Training Award Fellow</b><br/>Laboratory of Translational Genomics; Dr. Ludmila Prokunina-Olsson<br/> Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH<ul style="list-style-type: none"><li>• Functional investigation of GWAS cancer signals associated with HCV-related traits and bladder cancer.</li></ul></li></ul> |

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](http://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, Ejebi KG, Orho-Melander M, Melander O, Koteliansky 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.
  - **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. Rehermann.

- 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. Rehermann, 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. Ylaya, M. Schwenn, A. B. Apolo, M. R. Karagas, M. Tarway, A. Johnson, A. Mumy, A. Schned, L. Guedez, 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. Govannucci, 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. Roupert, 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-Tever M, Ibáñez-Costa A, Perez-Sánchez 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-Pedrera C; PRECISEADS 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, AguilarQuesada R, Aguirre-Zamorano MA, Callejas Rubio JL, Castro-Villegas MC, Cervera R, Chizzolini C, Collantes E, Cornejo 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, Lauwers 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.
  - **The IFN-λ4 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”  
 United States Government  
 Ludmila Prokunina-Olsson, Thomas R. O'Brien, **Brian Muchmore** and Raymond P. Donnelly.

2012

● **Patent**

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

📍 United States Government

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