Brian Padfield Muchmore

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EDUCATION

1998 - 2002, Sidwell Friends School, Washington D.C
AP Scholar with Distinction Award; president of Model U.N.; National Commended Scholar.

2002 - 2005, Bates College, Lewiston, Maine
Received a B.A. in Russian Studies; graduated after six semesters of classes.

2003, August - January, Nevskii Institute of Language and Culture, St. Petersburg, Russia
Course work in Russian language, economics and history; lived with a Russian family.

2004, January - August, Odessa Language Study Center, Odessa, Ukraine
The Institute is a full EAQUALS member and evaluated my Russian language level as C1.

2008 - 2011, University of Maryland, College Park
Completed the core requirements of a BSc and took various science electives while working full-time at the NIH. Earned 37 credits; GPA = 3.621

Current - 2021 The University of Vermont
MD candidate.

LANGUAGES

1) English (native)
2) Spanish (formerly conversational)
3) Russian (formerly conversational)
4) Thai (practical/basic conversation)

DATA MINING + COMPUTER LANGUAGES

1) R (expert)
2) KNIME (expert)
3) Python (proficient)
4) SQL (basic)

VOLUNTEERING EXPERIENCE

2005, Spring, The Adult Learning Center, Lewiston, Maine
Tutored recent immigrants in English as part of a course on the culture and impact of community service.

2006, Fall, Upward Bound Program, Brunswick, Maine
Tutored students in Biology as part of a federally funded program that aims to provide certain categories of high school students with better opportunities for attending college.

2006, Spring, Ukrainian Public School, Donetsk, Ukraine
Taught English bi-weekly at a school for children with severe speech impediments and children whose parents were unfit to care for them.

2008 - 2009, DC Public Schools, Washington D.C. (multiple locations)
Tutored lower, middle and high school students in various subjects.

2012 - 2017, Summer, Camp Fantastic, Front Royal, VA
Volunteer for ten days a summer as a camp counselor at a sleep-away camp for children with cancer, which is sponsored by the NIH and run by the organization Special Love. The camp has the highest patient acuity of any cancer camp.

RECENT FULL-TIME EMPLOYMENT

2009, May - September, Summer Fellowship
Laboratory of Structural Biology, National Institute of Arthritis and Musculoskeletal and Skin Diseases, NIH, laboratory of Dr. Alasdair Steven
Cloned mutants of the fungal prion protein Het-s for analysis of structural motifs with electron

microscopy.

2009, September - 2012, August, Cancer Research Training Award Fellow
Laboratory of Translational Genomics, Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH, laboratory of Dr. Ludmila Prokunina-Olsson
Functional investigation of GWAS cancer signals associated with HCV-related traits and bladder cancer.

2013, February - 2014, January, Research Scientist
Bangkok Center of Excellence in Clinical Virology, Faculty of Medicine, Chulalongkorn University, laboratory of Dr. Yong Poovorawan
Evolutionary analysis of SNPs and INDELs using various bioinformatics techniques and publicly available data sets such as ancient genomes and 1000 genomes data.

2014, February - 2015 February, Data Mining Specialist and "Codonix Flu Project" Design Leader
CodoniXnotes EHR Software database, Codonix, supervised by Debra Mathein, Vice President of Strategic Processes and Technologies
Data mining of Codonix's terabyte-plus of patient data in order to identify important epidemiological or business trends. Also, developed a website that allows visitors to query real-time flu data deposited in the Codonix database.

2015, March - Current, Research Scientist
Pfizer-University of Granada-Junta de Andalucía Centre for Genomics and Oncological Research (GENYO), Genetics of Complex Diseases Group, laboratory of Dr. Marta Alarcón Riquelme
Am 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). Am also the head of Spain's first CyTOF core facility.

PATENT

Ludmila Prokunina-Olsson, Thomas R. O'Brien, **Brian Muchmore**, and Raymond P. Donnelly. "Novel Interferon-Lambda 4 (IFNL4) Protein, Related Nucleic Acid Molecules, and Uses Thereof." U.S. application filed March 28, 2012; International application filed March 14, 2013: http://www.google.com/patents/WO2013148272A1?cl=en

LICENSE

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

SCIENTIFIC PUBLICATIONS

1) 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** et al. "From noncoding variant to phenotype via SORT1 at the 1p13 cholesterol locus." ***Nature.*** 2010
2) Shebl FM, Pfeiffer RM, Buckett D, **Muchmore B** et al. "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." ***Journal of Infectious Diseases.*** 2011
3) Fu YP, Kohaar I, Rothman N, Earl J, Figueroa JD, Ye Y, Malats N, Tang W, Liu L, Garcia-Closas M, **Muchmore B** et al. "Common genetic variants in the PSCA gene influence gene expression and bladder cancer risk." ***Proceedings of the National Academy of Sciences USA.*** 2012
4) Park H, Serti E, Eke O, **Muchmore B** et al. "IL-29 is the Dominant Type III Interferon Produced by Hepatocytes During Acute Hepatitis C Virus Infection." ***Hepatology.*** 2012

5) Prokunina-Olsson L, **Muchmore B** et al. “A variant upstream of IFNL3 (IL28B) creating a new interferon gene IFNL4 is associated with impaired clearance of hepatitis C virus.” ***Nature Genetics*****.** 2013
    A) **Muchmore B** et al. “RNA-sequencing of normal human PolyIC activated hepatocytes.” ***GenBank direct submission.*** 2011
6) Fu YP, Kohaar I, Moore LE, Lenz P, Figueroa JD, Tang W, Porter-Gill P, Chatterjee N, Scott-Johnson A, Garcia-Closas M, **Muchmore B** et al. “The 19q12 Bladder Cancer GWAS Signal: Association with Cyclin E Function and Aggressive Disease.” ***Cancer Res.*** 2014
7) **Muchmore** B and M. E. Alarcon-Riquelme. “CymeR: cytometry analysis using KNIME, docker and R.” ***Bioinformatics.*** 2017
8) O. O. Onabajo, **Muchmore B** and L. Prokunina-Olsson. “The IFN-λ4 Conundrum: When a Good Interferon Goes Bad.” ***J. Interferon Cytokine Res.*** 2019