

CONTACT INFORMATION

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EDUCATION

<i>University of Washington</i>	PhD	2017 – present	Genome Sciences
<i>University of Vermont</i>	MS	2010	Physics
<i>University of Vermont</i>	BA	2004	Physics; minors in mathematics and philosophy

PUBLICATIONS (* = co-first authorship)

WS DeWitt, L Mesin, GD Victora, VN Minin, FA Matsen. *Using genotype abundance to improve phylogenetic inference*. [arXiv:1708.08944](https://arxiv.org/abs/1708.08944) [q-bio.PE] (2017) (under review)

WS DeWitt, KK Quan, D Wilburn, A Sherwood, M Vignali, SC De Rosa, CL Day, TJ Scriba, HS Robins, W Swanson, RO Emerson, P Bradley, C Seshadri. *HLA-independent T-Cell receptor motifs are enriched during tuberculosis disease*. [bioRxiv 123174](https://doi.org/10.1101/123174) (2017) (under review)

RO Emerson*, **WS DeWitt***, M Vignali, J Gravley, JK Hu, EJ Osborne, C Desmarais, M Klinger, CS Carlson, JA Hansen, M Rieder, HS Robins. *Immunosequencing identifies signatures of cytomegalovirus exposure history and HLA-mediated effects on the T cell repertoire*. [Nature Genetics](https://doi.org/10.1038/ng.3252) 49, 659–665 (2017)

WS DeWitt*, P Lindau*, TM Snyder*, AM Sherwood, M Vignali, CS Carlson, PD Greenberg, N Duerkopp, RO Emerson, HS Robins. *A Public Database of Memory and Naive B-Cell Receptor Sequences*. [PLoS ONE](https://doi.org/10.1371/journal.pone.0158000) 11(8) (2016)

WS DeWitt, P Lindau, TM Snyder, M Vignali, RO Emerson, HS Robins. *Replicate Immunosequencing as a Robust Probe of B Cell Repertoire Diversity*. [arXiv:1410.0350](https://arxiv.org/abs/1410.0350) [q-bio.QM] (2014)

RO Emerson, A Sherwood, **WS DeWitt**, B Howie, M Rieder, HS Robins. *A next-gen pipeline for generation, error correction and annotation of high-throughput immunosequencing data*. [J Immunol](https://doi.org/10.1093/immk/dkt010) 2014 192:69.10

WS DeWitt, RO Emerson, P Lindau, M Vignali, TM Snyder, C Desmarais, C Sanders, H Utsugi, EH Warren, J McElrath, KW Makar, A Wald, HS Robins. *Dynamics of the Cytotoxic T Cell Response to a Model of Acute Viral Infection*. [J Virol](https://doi.org/10.1093/infdis/jit456) 89:4517–4526 (2014)

X Xu, Y Shen, **WS DeWitt**, D Pandya, FZ Bischoff, KD Crew, DL Hershman, MA Maurer, R Parsons, K Kalinsky. *Mutational analysis of circulating tumor cells in breast cancer patients by targeted clonal sequencing*. [J Clin Oncol](https://doi.org/10.1200/JCO.2011.21.1516) 30, 2012 (suppl; abstr 10516)

WS DeWitt, K. Chu. *Imaging Protein Statistical Substate Occupancy in a Spectrum-Function Phase Space*. [Phys. Rev. Lett.](https://doi.org/10.1103/PhysRevLett.105.098101) 105, 098101 (2010)

J. Wu, J. Pepe, **WS DeWitt**. *Nonlinear Behaviors of Contrast Agents Relevant to Diagnostic and Therapeutic Applications*. [Ultrasound Med Biol.](https://doi.org/10.1002/ulm.10004) 2003 Apr;29(4):555-62.

INVENTIONS

Multiplexed digital quantitation of rearranged lymphoid receptors in a complex mixture. [US 20160138011 A1](#)

Characterization of adaptive immune response to vaccination or infection using immune repertoire sequencing. [WO 2016086029 A1](#)

Methods for diagnosing infectious disease and determining HLA status using immune repertoire sequencing. [WO 2016138122 A1](#)

PROFESSIONAL EXPERIENCE

Fred Hutchinson Cancer Research Center	Programmer/Analyst II, Matsen group	Aug 2016 – Sep 2017
Adaptive Biotechnologies	Sr. Computational Biologist Sr. Bioinformatics Scientist	Apr 2015 – Aug 2016 Oct 2012 – Mar 2015
Columbia Genome Center	Senior Scientific Programmer	Nov 2011 – Sep 2012
Bloomberg L.P.	R&D Developer	Aug 2011 – Oct 2011
Ascension Technology Corp.	Computational Physicist Numerical Analyst	Jun 2010 – Aug 2011 Jun 2007 – Jun 2010
Dr. Kelvin Chu, UVM Physics Dept.	Summer Research Assistant	Summer 2005
Dr. Junru Wu, UVM Physics Dept.	Summer Research Assistant	May 2002 – Aug 2002

TEACHING EXPERIENCE

UVM Physics Dept.	Adjunct Teaching Assistant	Feb 2007 – May 2007
VT HITEC Inc.	Teaching Consultant	Jul 2006 – Sep 2006
UVM Physics Dept.	Teaching Assistant	Sep 2004 – Jun 2006
UVM Physics Dept.	Tutor	Spring 2001 – Spring 2004

TALKS

July 27, 2017	Using genotype abundance to improve phylogenetic inference Rockefeller University
October 9, 2015	Quantitative methods for analysis of immunosequencing data Google Life Sciences (formerly Google[x], currently Verily)
September 15, 2014	Seattle Workshop on Computational Immunology Adaptive Biotechnologies and Fred Hutchinson Cancer Research Center
December 14, 2010	Biocomputing Department, DFG Research Center MATHEON Freie Universität Berlin, Berlin Germany

November 1, 2010

Department of Theoretical and Computational Biophysics
Max Planck Institute for Biophysical Chemistry, Göttingen Germany

PRESS/BLOG COVERAGE

Using genotype abundance to improve phylogenetic inference, Matsen group blog

With immunosequencing, what is past is prologue Fred Hutch Science Spotlight

Immunosequencing reveals diagnostic signatures of chronic viral infection in T cell memory, Haldane's Sieve.

Immune response to yellow fever vaccine examined to a T, Fred Hutch Science Spotlight.

Slicing Proteins with Occam's Razor, PhysOrg

HONORS, AWARDS, OFFERS

NIH/NHGRI Genome Training Grant, September 2017 – September 2018

PhD admissions:

- Stanford: Computational and Systems Immunology
- University of Washington: Genome Sciences
- University of Washington: Molecular and Cellular Biology
- University of New South Wales, Sydney: Kirby Institute Scientia Fellow
- Max Planck Institute for Biophysical Chemistry, Göttingen: Theoretical and Computational Biophysics
- Freie Universität Berlin: International Max Planck Research School for Computational Biology and Scientific Computing

Erdős number: 4 (Matsen, Evans, Diaconis, Erdős)

Offered Quantitative Analyst position at Google Life Sciences (formerly Google[x], currently Verily), 2015

Summer internship at Ascension Technology Corporation, 2007

Vermont EPSCoR summer research assistant, 2005