Brittany A. Goods

Biological Engineer

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Education

MASSACHUSETTS INSTITUTE OF TECHNOLOGY — CAMBRIDGE, MA
Ph.D. in Biological Engineering — JANUARY 2017
Advisor: Professor Christopher J. Love

THAYER SCHOOL OF ENGINEERING, DARTMOUTH COLLEGE — HANOVER, NH
B.Eng., Concentration in Chemical and Biochemical Engineering — JUNE 2011
Advisor: Professors Karl Griswold and Ron Taylor

COLBY COLLEGE — WATERVILLE, ME
B.A. in Biochemistry, Cum Laude with Honors — MAY 2010
Advisor: Professor Frank Fekete

Publications

Goods BA*, Lowther DE*, Hernandez AL*, Lucca LE, Lerner BA, Raddassi K, van Dijk D, Duan X, Gunel M, Coric V, Krishnaswamy S, Love JC, Hafler DA. Functional Differences Between PD-1^{+} and PD-1^{-} $CD4^{+}$ Effector T Cells in Healthy Donors and Patients with Glioblastoma Multiforme. *Submitted*.

Taylor RA, Chang C, **Goods BA**, Hammond MD, MacGrory B, Ai Y, McCullough LD, Scott E. Kasner SE, Mullen MT, Hafler DA, Love JC, Sansing LH. TGF-β1 Modulates Microglial Phenotype and Promotes Recovery after Intracerebral Hemorrhage. J Clin Invest. 2017 Jan 3;127(1):280-292. doi: 10.1172/JCI88647.

Huang Y, Ferrari G, Alter G, Forthal DN, Kappes JC, Lewis GK, Love JC, Borate B, Harris L, Greene K, Gao H, Phan TB, Landucci G, **Goods BA**, Dowell KG, Cheng HD, Bailey-Kellogg C, Montefiori DC, Ackerman ME. Diversity of Antiviral IgG Effector Activities Observed in HIV-Infected and Vaccinated Subjects. J Immunol. 2016 Dec 15;197(12):4603-4612.

Lowther DE*, **Goods BA***, Lucca LE*, Lerner BA, Raddassi K, van Dijk D, Hernandez AL, Duan X, Gunel M, Coric V, Krishnaswamy S, Love JC, Hafler DA. PD-1 marks dysfunctional regulatory T cells in malignant gliomas. JCI Insight. 2016 Apr 21;1(5). pii: e85935.

Cao Y, Nylander A, Ramanan S, **Goods BA**, Ponath G, Zabad R, Chiang VL, Vortmeyer AO, Hafler DA, Pitt D. CNS demyelination and enhanced myelin-reactive responses after ipilimumab treatment. Neurology. 2016 Apr 19;86(16):1553-6. doi:

Ozkumur AY*, **Goods BA***, Love JC. Development of a High-Throughput Functional Screen Using Nanowell-Assisted Cell Patterning. Small. 2015 Sep;11(36):4643-50. doi: 10.1002/smll.201500674. Epub 2015 Jun 29.

Shah KA, Clark JJ, **Goods BA**, Politano TJ, Mozdzierz NJ, Zimnisky RM, Leeson RL, Love JC, Love KR. Automated pipeline for rapid production and screening of HIV-specific monoclonal antibodies using *pichia pastoris*. Biotechnol Bioeng. 2015 Dec;112(12):2624-9. doi: 10.1002/bit.25663. Epub 2015 Jul 31.

Cao Y*, **Goods BA***, Raddassi K, Nepom GT, Kwok WW, Love JC, Hafler DA. Functional inflammatory profiles distinguish myelin-reactive T cells from patients with multiple sclerosis. Sci Transl Med. 2015 May 13;7(287):287ra74. doi: 10.1126/scitranslmed.aaa8038.

Ogunniyi A, **Thomas BA**, Politano TJ, Varadarajan N, Landais E, Poignard P, Walker BD, Kwon DS, Love JC. Profiling human antibody responses by integrated single-cell analysis. Vaccine. 2014 May 19;32(24):2866-73. doi: 10.1016/j.vaccine.2014.02.020.

* Denotes equal author contribution.

Patents

John Christopher Love, Ayca Yalcin-Ozkumar, and **Brittany Thomas**. "Methods for patterning cells and assessing functional responses." Provisional application number 61878090, September 16, 2013.

John Christopher Love, Li-Lun Ho, and **Brittany Thomas**. "Method for sequencing spatially addressed arrays of antibody genes." Provisional application number 61878107, September 16, 2013.

Honors and Awards

Seibel Scholar	2016
National Science Foundation Graduate Research Fellow	2013-PRESENT
Howard A. 1925 and Florence Bellenot Schroedel Fellow	2010-11
Barry M. Goldwater Scholarship Honorable Mention	2009

Presentations

POSTER AND TALK*:* Nano-well assisted patterning of cells for high-throughput screening. **Brittany Goods**, Ayca Ozkumur, Chris Love. Annual Single Cell Analysis Investigators Meeting in Rockville, Maryland, 2014.

POSTER*:* Functional inflammatory profiles distinguish myelin-reactive T cells from patients with multiple sclerosis. **Brittany Goods**, Yonghoon Cao, Raddassi K, Nepom GT, Kwok WW, Love JC, Hafler DA. Immune profiling in Health and Disease in Seattle, Washington, 2015.

POSTER*:* Functional differences between $PD1^+$ and $PD1^-$ $CD4^+$ T effector cells in healthy donors and glioblastoma patients. **Brittany Goods**, Daniel Lowther, Liliana Lucca, Benjamin Lerner, Murat Gunel, Christopher Love, David A. Hafler. Society for Neuro-Oncology in San Antonio, Texas, 2015.

POSTER AND PRESENTATION: Functional inflammatory profiles distinguish myelin-reactive T cells from patients with multiple sclerosis. **Brittany Goods**, Yonghoon Cao, Raddassi K, Nepom GT, Kwok WW, Love JC, Hafler DA. Systems Immunology: From Molecular Networks to Human Biology in Big Sky, Montana, 2016.

Research Experience

MASSACHUSETTS INSTITUTE OF TECHNOLOGY — CAMBRIDGE, MA
Graduate Research Fellow in Biological Engineering, Dr. Chris Love Lab — SEPTEMBER 2012 - PRESENT
Our research seeks to characterize the molecular state of T cells across several central nervous system diseases, including multiple sclerosis, ischemic stroke, and glioblastoma.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY — CAMBRIDGE, MA
Technical Assistant in Chemical Engineering, Dr. Chris Love Lab — JUNE 2011 – AUGUST 2012
Developed a high-throughput process for the production and characterization of antibodies that were isolated from HIV-infected patients using microengraving technology.

THAYER SCHOOL OF ENGINEERING — HANOVER, MA
Research Assistant in Protein Engineering, Dr. Karl Griswold — JANUARY 2007 – MAY 2010
Designed and implemented a plate-based selection for yeast secreting hLys variants active against *S. aureus*

COLBY COLLEGE — WATERVILLE, ME
Research Assistant in Microbiology, Dr. Frank Fekete Lab — JANUARY 2007 – MAY 2010

Identified chemical and environmental factors that significantly affect the transfer frequency of a multidrug resistance megaplasmid to the intestinal pathogen *Vibrio cholerae*.

DARTMOUTH MEDICAL SCHOOL — HANOVER, NH
Research Assistant in Microbiology, Dr. Ron Taylor Lab — NOVEMBER 2008 – JUNE 2009
Research focused on *Vibrio cholerae* pathogenesis, with an emphasis on identification and knockout of factors involved in initial infection and colonization.

Teaching Experience

Biological Engineering Senior Design Teaching Assistant (MIT)	2014
Biological Engineering Senior Design Teaching Assistant (Dartmouth)	2011
Introduction to Engineering Teaching Assistant (Dartmouth)	2010-2011
Materials Science Teaching Assistant (Dartmouth)	2010-2011
Microbiology Laboratory Teaching Assistant (Colby College)	2007-2010

Mentorship Experience

JACKIE VAHEY — JANUARY 2016-PRESENT
Project: Comparison of sample handling methods for generating transcriptional data from ultra-low input clinical samples and subsequent data analysis methods.

KARI STROMHAUG — JANUARY 2016
Project: Development and validation of a 16-color image cytometry-based phenotyping panel for human T cell subsets.

BRITNEY WASHINGTON, MSRP PROGRAM — JUNE -AUGUST 2015
Project: Optimization of protocols for differentiation of human T cell subsets.

Community Outreach

Blogger, Multiple Perspectives in Multiple Sclerosis for Health Care Journey	2014-2016
MIT Women's Initiative President	2013-2014
Biological Engineering Social Chair	2013-2014
MIT Coop Service Leader	2012-2014
After School Science Student Coordinator, Thayer School of Engineering	2009-2011
Colby College After School Science Program, Waterville, ME	2010

Professional Activities

Communication Lab Fellow (48 client appointments to date)
Advisory Board for Big Data Bioinformatics conference, Boston 2016
Engineer in Training Certification (NCEES EIT Serial #5691)
Society of Women Engineers (Member)
American Institute of Chemical Engineers (Member)

References available upon request.

Last updated January 2017