

Katharine Ng

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Education

Ph.D. candidate in Microbiology and Immunology Stanford University, Department of Microbiology and Immunology 4.03 GPA, expected graduation date August 2014	Sep 2008 – Present
B.S. in Microbiology, Immunology and Molecular Genetics University of California, Los Angeles 3.88 GPA, graduated <i>summa cum laude</i> with College Honors	Sep 2004 – Jun 2008

Awards/Honors

National Science Foundation Graduate Research Fellowship	Sep 2010 – Aug 2013
Stanford Graduate Fellowship	Sep 2008 – Aug 2013
Best Poster Award, Cell & Molecular Biology Research Symposium	Apr 2011
Howard Hughes Undergraduate Research Scholar	Oct 2006 – Jun 2008

Publications

Ng KM*, Ferreyra JA*, Higginbottom SK, Lynch JB, Kashyap PC, Gopinath S, Naidu N, Choudhury B, Weimer BC, Monack DM, Sonnenburg JL. Microbiota-liberated host sugars facilitate post-antibiotic expansion of enteric pathogens. *Nature* 2013 Oct 3;502(7469):96-9.

Ferreyra JA*, Ng KM*, Sonnenburg JL. The Enteric Two-Step: nutritional strategies of bacterial pathogens within the gut. *Cellular Microbiology* 2014 May 5; doi: 10.1111/ cmi.12300.

*co-first author

Research Experience

Laboratory of Professor Justin Sonnenburg, Ph.D. <i>Graduate Student</i> Thesis: <i>Salmonella</i> exploits microbiota-liberated mucin polysaccharides during emergence <ul style="list-style-type: none">Demonstrated an increase in the mucin-derived sugar sialic acid in the mouse cecum after antibiotic treatmentElucidated the importance of mucin monosaccharide utilization for <i>Salmonella typhimurium</i> colonization of the antibiotic-treated gut	Apr 2009 – Present
Laboratory of Professor Stephen Smale, Ph.D. <i>Student Researcher</i> <ul style="list-style-type: none">Characterizing the chromatin changes in the control regions of pro-inflammatory genes during a bacterial-induced immune response	Jan 2006 – Aug 2008
Energy Technology Department - The Aerospace Corporation <i>Technical Staff</i> Mentors: Warren Hwang, Ph.D., Margot Wasz, Ph.D.	Aug 2003 – Aug 2006

- Performed destructive physical analysis (DPA) of nickel-cadmium and silver-zinc flight cells and assisted in construction and wiring of equipment in the GEO/MEO/LEO Li-Ion Battery Life Test
- Designed and programmed Visual Basic for Applications (VBA) scripts for data analysis of an overheating problem in a F16 Defense Meteorological Satellite Program satellite

Research Presentations

Ng KM, Ferreyra JA, Sonnenburg JL. "Microbiota-liberated host sugars facilitate post-antibiotic emergence of enteric pathogens." Oral presentation. SialoGlyco 2012, Taipei, Taiwan. Sep 2012

Ng KM, Higginbottom S, Naidu N, Choudhury B, Weimer BC, Monack DM, Sonnenburg JL. "Salmonella exploits microbiota-liberated mucin polysaccharides during emergence."

Poster presentation. San Diego Glycobiology Symposium, San Diego, CA. Feb 2011

Ng KM, Higginbottom S, Naidu N, Choudhury B, Weimer BC, Monack DM, Sonnenburg JL. "Salmonella exploits microbiota-liberated mucin polysaccharides during emergence."

Poster presentation. Cell & Molecular Biology Research Symposium, Stanford, CA. Apr 2011

Ng KM, Higginbottom S, Monack DM, Sonnenburg JL. "Dynamics of Salmonella-Intestinal Microbiota Interactions In Vivo." Poster presentation. Department of Microbiology & Immunology retreat, Santa Cruz, CA. Nov 2010

Ng KM, Higginbottom S, Monack DM, Sonnenburg JL. "Salmonella exploits microbiota-liberated mucin polysaccharides during emergence." Oral presentation. Department of Microbiology & Immunology retreat, Santa Cruz, CA. Nov 2010

Ng KM, Ramirez-Carrozzi V, Pope SD, Bhatt DM, Smale ST. "The Differential Regulation of Pro-Inflammatory Genes During a Lipopolysaccharide (LPS)-Induced Immune Response." Poster presentation. UCLA Undergraduate Science Poster Day, Los Angeles, CA. Jun 2007 & 2008

Teaching and Mentorship

Scientific Illustration and Animation

Spring 2013 & 2014

Teaching assistant

Assisted in developing and running a scientific illustration and animation workshop that enabled students to use cel and stop motion animation to enhance scientific presentations.

Stanford Biosciences Student Association Mentorship Program

Fall 2013 - Present

Mentor

Met regularly with a first year graduate student to provide guidance and mentorship throughout their first year at Stanford.

Stanford Biosciences Student Association NSF Fellowship

Fall 2013

Mentorship Program

Mentor

Worked with a first year graduate student on their NSF GRFP application, providing feedback on their research proposal and personal essays.

Advanced Pathogenesis, Innate Immunology

Winter & Spring 2011

Teaching assistant

Led discussion sections for introductory microbiology and immunology courses.

Stanford Splash!: Bacteria & the Human Body: A Loving Relationship

Fall 2009

Instructor

Taught high school students about the human microbiota and the important role that bacteria play in daily life.

Activities

Goggles Optional

Mar 2014 - present

<http://www.gogglesoptional.com/>

Writer

- Researcher and writer for science podcast featuring Stanford graduate students and postdoctoral scholars.

Retreat-planning committee

Jul 2012 - present

Department of Microbiology & Immunology, Stanford University

Member

- Contribute to the design of career-oriented panel discussions and plan and execute team-building networking events.

Campaign for Stanford Medicine Lab Crawl

Nov 2013 & Jan 2014

Stanford University Medical Center

Presenter and guide

- Co-presented an introduction to the microbiota and the Sonnenburg laboratory's research to a lay audience for a fundraising event.

Skills and interests

Laboratory skills

- Construction of targeted mutants in *Salmonella typhimurium* and *Bacteroides thetaiotaomicron*
- Transcriptional profiling of *in vitro* cultures and tissue-derived samples by qRT-PCR and GeneChip analysis
- Design and execution of gnotobiotic and conventional mouse experiments
- Quantification of free sialic acids through derivatization and detection by reverse-phase HPLC

Computer skills

- Familiar with basic HTML, CSS, JavaScript
- Beginner in Python and MATLAB
- Proficient in Adobe Photoshop and Flash
- Familiar with Adobe Illustrator
- Scientific illustration and animation: <http://katecholamine.org/illustration/>