Stanford

Denise M. Monack

Professor of Microbiology and Immunology

Microbiology & Immunology

CONTACT INFORMATION

- **Alternate Contact**

  Email dmonack@stanford.edu

Bio

ACADEMIC APPOINTMENTS

- Professor, Microbiology & Immunology
- Member, Bio-X
- Member, Maternal & Child Health Research Institute (MCHRI)
- Faculty Fellow, Stanford ChEM-H

HONORS AND AWARDS

- Terman Fellowship, Terman Fellows Program (10/1/08-9/30/11)
- Baxter Faculty Scholar Award, Baxter Foundation (May 2008)

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PROFESSIONAL EDUCATION

- Ph.D., Stanford University , Microbiology & Immunology (2002)

LINKS

- MY LAB WEBSITE: http://monacklab.stanford.edu

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

The primary focus of our research is to understand the genetic and molecular mechanisms of intracellular bacterial pathogenesis.

One major focus is to understand how the host recognizes and responds to intracellular bacterial pathogens. We have shown that cytosolic recognition of some bacteria leads to Type I Interferon signaling and Inflammasome activation. We take both a genetic and biochemical approach to understand the molecular mechanisms involved in host recognition pathways leading to inflammation and pathogen evasion mechanisms.

Another major focus involves the study of Salmonella interactions with the host. Salmonella is acquired by ingesting contaminated food or water and thus interacts with the microbes in our gut. We study how the interactions between Salmonella, the gut microbiota and the immune system influence chronic infection and transmission to

new hosts. Since some strains of Salmonella, e.g., Salmonella typhi cause systemic diseases such as typhoid fever. we also explore interactions between Salmonella and immune cells, such as macrophages. We have shown that persisting Salmonella exploit the metabolic immune state of alternatively activated macrophages in order to cause chronic infections.

Teaching

COURSES

2018-19

- Advanced Pathogenesis of Bacteria, Viruses, and Eukaryotic Parasites: MI 210 (Aut)

2017-18

- Advanced Pathogenesis of Bacteria, Viruses, and Eukaryotic Parasites: MI 210 (Aut)

2016-17

- Advanced Pathogenesis of Bacteria, Viruses, and Eukaryotic Parasites: MI 210 (Aut)

2015-16

- Advanced Pathogenesis of Bacteria, Viruses, and Eukaryotic Parasites: MI 210 (Win)

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STANFORD ADVISEES

Postdoctoral Faculty Sponsor

Sky Brubaker, Phoom Chairatana, Krystal Thomas-White

Doctoral Dissertation Advisor (AC)

Susan Brewer, Kyler Lugo

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Immunology (Phd Program)
- Microbiology and Immunology (Phd Program)

Publications

PUBLICATIONS

- **Escalating Threat Levels of Bacterial Infection Can Be Discriminated by Distinct MAPK and NF-kappaB Signaling Dynamics in Single Host Cells.** *Cell systems*

  Lane, K., Andres-Terre, M., Kudo, T., Monack, D. M., Covert, M. W.

  2019

- **Western diet regulates immune status and the response to LPS-driven sepsis independent of diet-associated microbiome.** *Proceedings of the National Academy of Sciences of the United States of America*

  Napier, B. A., Andres-Terre, M., Massis, L. M., Hryckowian, A. J., Higginbottom, S. K., Cumnock, K., Casey, K. M., Haileselassie, B., Lugo, K. A., Schneider, D. S., Sonnenburg, J. L., Monack, D. M.

  2019; 116 (9): 3688–94

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