




Michal Tal

Instructor, Institute for Stem Cell Biology and Regenerative Medicine

 Resume available Online

Bio

BIO

I am very interested in the host-pathogen interface from the time that the body first recognizes an infection through the co-evolution arms race between the pathogen and host as they struggle between colonization and clearance respectively. My PhD research focused on how cellular processes impact immune recognition of invading viruses. In my postdoctoral research I am currently investigating mechanisms of immune regulation that rein in the immune response and can be targeted to enable clearance of chronic infection. I am most excited about the notion of applying immunology to real world applications.

I currently lead the infectious disease team within the laboratory of Irving Weissman where I study the immunomodulatory mechanisms by which the CD47-SIRPa axis impacts immune clearance of infectious disease. I'm also fascinated with the impact of temperature (local, systemic, and external) on the host immune response and the implications that this has for how we monitor and treat immune responses as well as how climate change will impact invertebrate host responses and the spread of disease. In general I think that we should be tracking infectious disease and immune responses more closely and accurately. I am passionate about developing highly accurate and accessible diagnostics that integrate big data to strive towards precision medicine in infectious disease.

Our immune system has the most sophisticated diagnostics capability known to man, with a pathogen recognition system that has been refined under tremendous selective pressure for millions of years. I would like to develop tools that allow us to tap into our own immune diagnostics and learn from them.

ACADEMIC APPOINTMENTS

- Instructor, Institute for Stem Cell Biology and Regenerative Medicine

HONORS AND AWARDS

- Inaugural Early Career Janeway Symposium, Yale University (2019)
- Emerging Leader Award, Bay Area Lyme Foundation (2018-2019)
- NIH NRSA F32 Postdoctoral Training Grant, NIAID (2016-2017)
- NIH T32 Stanford Immunology Training Grant, NIH (2014-2016)
- NIH NRSA F31 Predoctoral Training Grant, National Institute on Aging (2010-2012)
- Gershon Fellowship, Immunobiology department at Yale University (2009-2010)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Postdoctoral committee, Immunology Department (2015 - present)

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Investigating how the CD47-SIRPa axis modulates multiple facets of immunity

Publications

PUBLICATIONS

- **A functional subset of CD8+ T cells during chronic exhaustion is defined by SIRPalpha expression.** *Nature communications*
Myers, L. M., Tal, M. C., Torrez Dulgeroff, L. B., Carmody, A. B., Messer, R. J., Gulati, G., Yiu, Y. Y., Staron, M. M., Angel, C. L., Sinha, R., Markovic, M., Pham, E. A., Fram, et al
2019; 10 (1): 794
- **Absence of autophagy results in reactive oxygen species-dependent amplification of RLR signaling** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Tal, M. C., Sasai, M., Lee, H. K., Yordy, B., Shadel, G. S., Iwasaki, A.
2009; 106 (8): 2770-2775
- **Mx1 reveals innate pathways to antiviral resistance and lethal influenza disease** *SCIENCE*
Pillai, P. S., Molony, R. D., Martinod, K., Dong, H., Pang, I. K., Tal, M. C., Solis, A. G., Bielecki, P., Mohanty, S., Trentalange, M., Homer, R. J., Flavell, R. A., Wagner, et al
2016; 352 (6284): 463-466
- **Mitochondrial DNA stress primes the antiviral innate immune response** *NATURE*
West, A. P., Khoury-Hanold, W., Staron, M., Tal, M. C., Pineda, C. M., Lang, S. M., Bestwick, M., Duguay, B. A., Raimundo, N., MacDuff, D. A., Kaeck, S. M., Smiley, J. R., Means, et al
2015; 520 (7548): 553-?
- **Autophagy and selective deployment of Atg proteins in antiviral defense** *INTERNATIONAL IMMUNOLOGY*
Yordy, B., Tal, M. C., Hayashi, K., Arojo, O., Iwasaki, A.
2013; 25 (1): 1-10
- **Mitoxosome: a mitochondrial platform for cross-talk between cellular stress and antiviral signaling** *IMMUNOLOGICAL REVIEWS*
Tal, M. C., Iwasaki, A.
2011; 243: 215-234
- **Autophagic control of RLR signaling** *AUTOPHAGY*
Tal, M. C., Iwasaki, A.
2009; 5 (5): 749-750
- **Autophagy and Innate Recognition Systems** *AUTOPHAGY IN INFECTION AND IMMUNITY*
Tal, M. C., Iwasaki, A.
2009; 335: 107-121