

Stanford



Wang, Taia

Assistant Professor of Medicine (Infectious Diseases) and of Microbiology and Immunology

Medicine - Infectious Diseases

CONTACT INFORMATION

- **Lab Manager**

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Bio

ACADEMIC APPOINTMENTS

- Assistant Professor, Medicine - Infectious Diseases
- Assistant Professor, Microbiology & Immunology
- Member, Maternal & Child Health Research Institute (MCHRI)

HONORS AND AWARDS

- Searle Scholars Award, The Searle Scholars Program (2018)
- Investigator, Chan Zuckerberg Biohub (2017)
- Young Physician-Scientist Award, The American Society for Clinical Investigation (2017)
- Leona M. and Harry B. Helmsley Scholar, Helmsley Charitable Trust (2015)
- Niarchos Scholar, Stavros Niarchos Foundation (2014)
- Iris and Junming Le Scholar, The Iris and Junming Le Foundation (2013)

BOARDS, ADVISORY COMMITTEES, PROFESSIONAL ORGANIZATIONS

- Member, Infectious Diseases Society of America (2019 - present)
- Member, Henry Kunkel Society (2018 - present)
- Member, American Society for Microbiology (2016 - present)
- Associate Scientific Advisor, Science Translational Medicine (2015 - 2016)
- Member, The American Association of Immunologists (2012 - present)
- Member, New York Academy of Sciences (2007 - present)

PROFESSIONAL EDUCATION

- Postdoctoral training, Rockefeller University , Fc receptor biology and human immunology (2016)
- MSCI, Rockefeller University , Masters of Science in Clinical Investigation (2015)
- MD, Mount Sinai School of Medicine , Medicine (2012)

- PhD, Mount Sinai School of Medicine , Virology (2010)

LINKS

- Wang, assistant professor of medicine, of microbiology and of immunology, received two seven-year awards to study influenza immunity: a \$1.5 million grant from St. Jude Children's Research Hospital for improving knowledge of how influenza immunity develops during infancy and childhood, and a \$2.2 million grant from the Icahn School of Medicine at Mount Sinai for developing longer-lasting influenza vaccines.: <http://med.stanford.edu/news/all-news/brands/notable.html>
- Stanford faculty named in first cohort of Chan Zuckerberg Biohub investigators: <http://news.stanford.edu/2017/02/08/stanford-faculty-named-first-cohort-chan-zuckerberg-biohub-investigators/>
- An Open Label Study of IgG Fc Glycan Composition in Human Immunity: <https://clinicaltrials.gov/ct2/show/NCT01967238?term=taia+wang&rank=1>
- 5 Questions: Taia Wang on why some develop severe dengue disease: <https://med.stanford.edu/news/all-news/2017/02/5-questions-taia-wang-on-clues-to-severe-dengue-disease.html>
- Influenza antibody archaeology: <http://stm.sciencemag.org/content/8/320/320ec4>
- Two-pronged approach to prevent pneumonia: <http://stm.sciencemag.org/content/7/296/296ec121>
- A puzzling path from infection to Guillain-Barré syndrome: <http://stm.sciencemag.org/content/8/326/326ec28>
- Original antigenic sin strikes again?: <http://stm.sciencemag.org/content/7/290/290ec94.e-letters>
- Polypharmacy repercussions: <http://stm.sciencemag.org/content/7/314/314ec200>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Studies in our lab are aimed at defining mechanisms in human immunity and disease. We are particularly interested the hypothesis that IgG repertoire diversity is a central driver of heterogeneity in human immune functioning and susceptibility to infectious diseases. Our work is defining how diversity that exists in the IgG Fc domain repertoire among people, which we define by serum IgG subclass and Fc glycoform distributions, impacts immune processes such as vaccine responses and susceptibility to antibody-dependent enhancement of dengue disease (Wang TT, Cell. 2015 and Wang TT, Science. 2017). IgG subclass and Fc glycoform distributions are key regulators of immunity because these determine the structure of Fc domains within immune complexes that form during vaccination or infection. Fc structure, in turn, determines the affinity of immune complexes for various Fc receptors on effector cells. Thus, we are studying how the Fc domain repertoire of an individual impacts the quality of effector cell responses that can be recruited during immune activation and how selectivity of effector responses contributes to immunity and disease.

We are particularly interested in training students and postdocs who will go on to be independent investigators in mechanistic studies relevant to human disease.

Current clinical studies:

Recruiting:

An Open Label Study of IgG Fc Glycan Composition in Human Immunity

Principal Investigator: Taia T. Wang, MD, PhD

ClinicalTrials.gov Identifier:

NCT01967238

Teaching

COURSES

2019-20

- Advanced Immunology II: IMMUNOL 202 (Spr)

2018-19

- Advanced Immunology II: IMMUNOL 202 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Julia McKechnie

Postdoctoral Faculty Sponsor

Sravani Banerjee, Cindy Buffone, Saborni Chakraborty, Nimish Kathale, Markus Xie

Postdoctoral Research Mentor

Sravani Banerjee, Cindy Buffone, Saborni Chakraborty, Nimish Kathale, Markus Xie

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

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

Publications

PUBLICATIONS

- **IgG Fc Glycosylation in Human Immunity.** *Current topics in microbiology and immunology*
Wang, T. T.
2019
- **Immunity by Design.** *Cell host & microbe*
Wang, T. T.
2018; 23 (4): 430–31
- **The Role of Fc Gamma Receptors in Broad Protection against Influenza Viruses.** *Vaccines*
Thulin, N. K., Wang, T. T.
2018; 6 (3)
- **Immunological responses to influenza vaccination: lessons for improving vaccine efficacy.** *Current opinion in immunology*
Wang, T. T., Bournazos, S., Ravetch, J. V.
2018; 53: 124–29
- **IgG antibodies to dengue enhanced for Fc γ RIIIA binding determine disease severity.** *Science (New York, N.Y.)*
Wang, T. T., Sewatanon, J., Memoli, M. J., Wrammert, J., Bournazos, S., Bhaumik, S. K., Pinsky, B. A., Chokephaibulkit, K., Onlamoon, N., Pattanapanyasat, K., Taubenberger, J. K., Ahmed, R., Ravetch, et al
2017; 355 (6323): 395–98
- **Increasing the breadth and potency of response to the seasonal influenza virus vaccine by immune complex immunization.** *Proceedings of the National Academy of Sciences of the United States of America*
Maamary, J., Wang, T. T., Tan, G. S., Palese, P., Ravetch, J. V.
2017
- **Signaling by Antibodies: Recent Progress** *Annual Review of Immunology*
Bournazos, S., Wang, T. T., Dahan, R., Maamary, J., Ravetch, J. V.
2017; 35 (April 26): 285-311
- **The Role and Function of Fc γ Receptors on Myeloid Cells.** *Microbiology spectrum*
Bournazos, S., Wang, T. T., Ravetch, J. V.
2016; 4 (6)

- **Sex Differences in Autoimmune Disease** *Hormones, Brain and Behavior*
Voskuhl, R., Wang, T. T.
Academic Press.2016; 3: 445–465

- **Anti-HA Glycoforms Drive B Cell Affinity Selection and Determine Influenza Vaccine Efficacy** *CELL*
Wang, T. T., Maamary, J., Tan, G. S., Bournazos, S., Davis, C. W., Krammer, F., Schlesinger, S. J., Palese, P., Ahmed, R., Ravetch, J. V.
2015; 162 (1): 160-169

- **Immune Complexes: Not Just an Innocent Bystander in Chronic Viral Infection** *IMMUNITY*
Wang, T. T., Ravetch, J. V.
2015; 42 (2): 213-215

- **Type I and type II Fc receptors regulate innate and adaptive immunity** *NATURE IMMUNOLOGY*
Pincetic, A., Bournazos, S., DiLillo, D. J., Maamary, J., Wang, T. T., Dahan, R., Fiebiger, B., Ravetch, J. V.
2014; 15 (8): 707-716

- **Emergence and evolution of the 1918, 1957, 1968, and 2009 pandemic virus strains** *Textbook of Influenza*
Wang, T. T., Palese, P.
John Wiley & Sons.2013; 2

- **Seroevidence for H5N1 Influenza Infections in Humans: Meta-Analysis** *SCIENCE*
Wang, T. T., Parides, M. K., Palese, P.
2012; 335 (6075): 1463-1463

- **H5N1 influenza viruses: Facts, not fear** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Palese, P., Wang, T. T.
2012; 109 (7): 2211-2213

- **Hemagglutinin stalk antibodies elicited by the 2009 pandemic influenza virus as a mechanism for the extinction of seasonal H1N1 viruses** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Pica, N., Hai, R., Krammer, F., Wang, T. T., Maamary, J., Eggink, D., Tan, G. S., Krause, J. C., Moran, T., Stein, C. R., Banach, D., Wrammert, J., Belshe, et al
2012; 109 (7): 2573-2578

- **Why Do Influenza Virus Subtypes Die Out? A Hypothesis** *MBIO*
Palese, P., Wang, T. T.
2011; 2 (5)

- **Biochemistry. Catching a moving target.** *Science*
Wang, T. T., Palese, P.
2011; 333 (6044): 834-835

- **Vaccination with a synthetic peptide from the influenza virus hemagglutinin provides protection against distinct viral subtypes** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Wang, T. T., Tan, G. S., Hai, R., Pica, N., Ngai, L., Ekiert, D. C., Wilson, I. A., Garcia-Sastre, A., Moran, T. M., Palese, P.
2010; 107 (44): 18979-18984

- **A Nine-Segment Influenza A Virus Carrying Subtype H1 and H3 Hemagglutinins** *JOURNAL OF VIROLOGY*
Gao, Q., Lowen, A. C., Wang, T. T., Palese, P.
2010; 84 (16): 8062-8071

- **PB1-F2 Expression by the 2009 Pandemic H1N1 Influenza Virus Has Minimal Impact on Virulence in Animal Models** *JOURNAL OF VIROLOGY*
Hai, R., Schmolke, M., Varga, Z. T., Manicassamy, B., Wang, T. T., Belser, J. A., Pearce, M. B., Garcia-Sastre, A., Tumpey, T. M., Palese, P.
2010; 84 (9): 4442-4450

- **Influenza Virus Vaccine Based on the Conserved Hemagglutinin Stalk Domain** *MBIO*
Steel, J., Lowen, A. C., Wang, T. T., Yondola, M., Gao, Q., Haye, K., Garcia-Sastre, A., Palese, P.
2010; 1 (1)

- **Broadly Protective Monoclonal Antibodies against H3 Influenza Viruses following Sequential Immunization with Different Hemagglutinins** *PLOS PATHOGENS*

Wang, T. T., Tan, G. S., Hai, R., Pica, N., Petersen, E., Moran, T. M., Palese, P.
2010; 6 (2)

● **Unraveling the Mystery of Swine Influenza Virus** *CELL*

Wang, T. T., Palese, P.
2009; 137 (6): 983-985

● **Universal epitopes of influenza virus hemagglutinins?** *NATURE STRUCTURAL & MOLECULAR BIOLOGY*

Wang, T. T., Palese, P.
2009; 16 (3): 233-234

● **The capsule of Bacillus anthracis behaves as a thymus-independent type 2 antigen** *INFECTION AND IMMUNITY*

Wang, T. T., Lucas, A. H.
2004; 72 (9): 5460-5463

● **Induction of opsonic antibodies to the gamma-D-glutamic acid capsule of Bacillus anthracis by immunization with a synthetic peptide-carrier protein conjugate** *FEMS IMMUNOLOGY AND MEDICAL MICROBIOLOGY*

Wang, T. T., Fellows, P. F., Leighton, T. J., Lucas, A. H.
2004; 40 (3): 231-237