# Maya Takahashi

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## RELEVANT TECHNICAL AND PROFESSIONAL SKILLS

* 7 years of experience in immunology, virology, and molecular biology research in various model organisms (zebrafish, rat) focusing on viral immunity, protein interactions and immune system development
* Extensive experience troubleshooting and optimizing immunohistochemistry protocols (antibody staining to visualize immune cell populations in intact zebrafish larvae)
* Proficient in confocal microscopy to visualize immune responses (GFP-tagged neutrophils at infection sites)
* Expertise in molecular biology techniques including protein/RNA/DNA isolation from challenging samples (low cell count, cartilage-rich tissues), RT-PCR/qPCR, vector design, gel electrophoresis, and protein quantification and quality assessment
* Understanding of viral pathogenesis and host response analysis (interferon pathway activation and cytokine expression)
* Working knowledge of Python programming and Tableau for analysis of large datasets, statistics and visualization

## RESEARCH EXPERIENCE

**Genentech, South San Francisco, CA**  
PhD Fellow – Intern, Viral Immunology group within the Infectious Disease Platform  
04-2022 – 11-2022  
Supervised by Emily Chang, PhD, and Robert Willis, PhD

* Assisted in the development and validation of high-throughput screening assays (sample handling, data processing (Python, Tableau)) to evaluate antiviral compound efficacy against emerging viral pathogens.

**Oregon State University, Corvallis, OR**  
Graduate Research Assistant – Laboratory of James Nakamura, PhD, Department of Immunology  
09-2017 – 03-2023  
Thesis: Characterization of Interferon Response Gene (IRG) Expression and Regulation in Zebrafish Models of Viral Infection

* Generated novel viral infection models to identify immune response patterns, characterize pathogenesis phenotypes and survey cytokine expression in transgenic reporter lines
* Investigated the regulation of IRG clusters through genetic and cytological analysis of mutants using immunohistochemistry and fluorescence microscopy with fluorescent reporter constructs
* Developed novel fusion protein constructs consisting of viral RNA sensors tethered to fluorescent proteins to identify viral replication sites and assess immune activation in-vivo

**Allen Institute for Immunology, Seattle, WA**  
Research Technician – Laboratory of Sarah Johnson, PhD, Adaptive Immunity Division  
08-2016 – 08-2017

* Genetically characterized established rat models mutant for newly identified immune receptors that are only found in specific lymphocyte subpopulations to assess immune response defects
* Performed genetic screens to identify modulators of viral tropism in zebrafish to understand host-pathogen interactions

**Oregon State University, Corvallis, OR**  
Undergraduate Research Assistant – Laboratory of Michael Chen, PhD, Department of Microbiology  
09-2013 – 06-2015

* Investigated proteins involved in pathogen recognition in a zebrafish model of bacterial infection to validate immune phenotypes observed in patients with primary immunodeficiencies

## EDUCATION

**Oregon State University, Corvallis, OR**

* PhD, Immunology (2023)
* BS, Microbiology (2015)

## PUBLICATIONS AND PRESENTATIONS

Takahashi M, Nakamura J. Insights into interferon response gene cluster regulation through characterization of isogenic knockout models. Journal of Immunology. 2023 Aug 15;225(4):jy22075. doi: 10.4049/jimmunol.jy22075. PMID: 37654321.

Takahashi M, Nakamura J. Under the microscope: The dynamics of interferon response gene expression. Semin Immunol. 2022 Mar 15;128:25-36. doi: 10.1016/j.smim.2021.12.008. Epub 2022 Jan 10. PMID: 34876543; PMCID: PMC9087652.

Johnson S, Rivera D, Hernandez F, Takahashi M, Lopez R, Miller T, Anderson P, Cooper C, Brandt L, Peters J. B cell developmental defects in rats lacking novel immunoreceptors. PLoS Pathog. 2019 Nov 15;17(11):e3000876. doi: 10.1371/journal.ppat.3000876. PMID: 31876543; PMCID: PMC6753210.

Chen M, Rivera D, Takahashi M, Martinez J, Cooper C, Anderson P. A zebrafish model of granulomatous inflammation reveals conserved patterns of macrophage activation. Elife. 2018 Sep 22;7:e39755. doi: 10.7554/eLife.39755. PMID: 30246108; PMCID: PMC6207410.

2022 – poster presentation – 15th Annual Zebrafish Disease Models Conference, Boston, MA  
2021 - poster presentation – Graduate Research Symposium, Corvallis, OR - Best Poster for Immunology Department

## TRAINING, MEMBERSHIPS, AWARDS AND INTERESTS

2017-2022 – RISE (Research Initiative for Scientific Excellence) Fellow  
2017-2022 – Oregon State University/Daiwa Foundation Diversity in Science Partnership Fellow  
2022-present – Member – American Association of Immunologists  
2019 – participant – Harvard Immunology Summer Program, Boston, MA  
2019 – Komatsu travel scholarship  
2019 – attendee – Virtual Immunology Conference, online  
2018 – attendee – 14th International Zebrafish Conference, Madison, WI  
2018 – attendee – Viral Pathogenesis Symposium, Denver, CO  
2017-2018 – Member – American Society for Virology