

# ABIGAIL PAJULAS

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## SUMMARY OF QUALIFICATIONS

- Interdisciplinary collaborator with 7+ years of animal and human research experience in kinesiology, neuroscience, psychology, microbiology, and immunology.
- Experienced in designing and developing assays in compliance with GLP studies. Expert in cellular immune responses, molecular biology, animal disease models.
- Demonstrated written and oral communication to various audiences through conference presentations and authorship in peer-reviewed journals.
- Engages in a diverse set of STEM outreach initiatives geared towards K-12 thru graduate-level trainees.

## EDUCATION

**Ph.D. in Microbiology and Immunology | Minor in Life Science** 8/2018-present  
Indiana University, School of Medicine | Indianapolis, IN *Expected Defense: 3/2023*

**B.S. in Kinesiology – Exercise Science | Honors Track** 8/2014-5/2018  
California State University, Northridge | Northridge, CA

## RESEARCH EXPERIENCE

**Indiana University, Department of Microbiology and Immunology** 1/2019-present  
*Graduate Research Assistant*

- Utilized cellular-based systems and genetically modified mouse models to identify the role of  $\gamma\delta$  T cells in wound healing. Results were published in *Journal of Investigative Dermatology*.
- Conducted studies to characterize IL-9-dependent pro-tumorigenic effects in solid tumor mouse models by performing histology, immunohistochemistry, and flow cytometry. Results published in *Nature Communications*
- Elucidated the mechanism for T cell IL-9-mediated mast cell expansion in allergic airway inflammation using in vitro assays (ELISA, qPCR, migration assays), in vivo mouse models, and sequencing assays. Results are under peer-review in *Journal of Allergy and Clinical Immunology*.
- Collaborated with other research groups at IU to design and conduct innovative studies on defining the contribution of IL-9 in urinary tract infections using bacterial burden assays, animal models, and in vitro assays. Results are ongoing, and manuscript is in preparation for submission to *Proceedings of the National Academy of Sciences (PNAS)*.
- Mentored 3 rotation students on short term projects and 4 junior students on general research practices and laboratory techniques.

## PUBLICATIONS

\* These authors contributed equally to this work, and authorship was listed according to project seniority

1. Wang J\*, Pajulas A\*, ...Kaplan, MH.  $\gamma\delta$  T cell-mediated Wound Healing is Diminished by Allergic Skin Inflammation. *Journal of Investigative Dermatology*. DOI: 10.1016/j.jid.2022.03.012.
2. Fu Y, Pajulas A, ...Kaplan, MH. Pulmonary interstitial macrophages are required to mediate the pro-tumorigenic effects of IL-9. *Nature Communications*. DOI: 10.1038/s41467-022-31596-7.
3. Fu Y, Wang J, Zhou B, Pajulas A, ...Kaplan, MH. An IL-9-pulmonary macrophage axis defines the allergic lung inflammatory environment. *Science Immunology*. DOI: 10.1126/sciimmunol.abi9768.
4. Ulrich BJ\*, Kharwadkar R\*, Chu M, Pajulas A, ...Kaplan, MH. IL-9 is required for multi-cytokine producing tissue-resident memory CD4+ T cell-dependent allergic airway recall responses. *Science Immunology*. DOI: 10.1126/sciimmunol.abg9296.

## MANUSCRIPTS IN PREPARATION/SUBMISSION/REVIEW

\* These authors contributed equally to this work, and authorship was listed according to alphabetical order

1. Pajulas A, ...Kaplan, MH. Interleukin-9 promotes mast cell progenitor proliferation and CCR2-dependent mast cell migration in allergic airway inflammation. *Manuscript submitted to the Journal of Allergy and Clinical Immunology*.

2. Chu M, Gao H, Esparza P, **Pajulas A**, ...Kaplan, MH. Chronic developmental hypoxia alters rat lung immune cell transcriptomes during allergic airway inflammation. *Manuscript submitted to American Journal of Physiology*.
3. Canas JJ\*, **Pajulas A\***, ...Kaplan, MH. Bladder epithelial cells facilitate an IL-9-dependent anti-inflammatory response in cystitis. *Manuscript in preparation for submission to PNAS*.

## TECHNICAL SKILLS & CERTIFICATIONS

**Molecular biology:** Genomic RNA/DNA isolation, RT-qPCR, ELISA, Western blots, SDS-PAGE, Gel electrophoresis, Multiplex, Chromatin immunoprecipitation, Cloning with restriction enzymes, transfection, and primer design

**Cellular biology:** Multi-color flow cytometry (BD, Attune, and Aurora), intracellular and nuclear transcription factor staining for flow-cytometry, Human and mouse primary immune cell culture (T cells, macrophages, mast cells, and dendritic cells), mammalian cell line cultures (B16 melanoma, HEK293T, and HeLa cells), cell migration assay, co-culture systems, and cell proliferation assay (Ki67, BrdU, and CFSE)

**Animal (mouse) model techniques:** Tissue collection and processing (Blood, Trachea, Lymph nodes, Lungs, BAL, Bone marrow, Liver, Intestines, Spleen, Bladder, Kidney, and Ureter), Administration routes (intranasal, tail vein, retroorbital, intraperitoneal, oral gavage, subcutaneous, and intradermal), tumor inoculation and growth monitoring, in vivo survival surgery, bone marrow chimera transplantation, airway hyperresponsiveness (AHR) testing, and mouse models (allergic asthma, atopic dermatitis, B16 lung cancer, arthritis, urinary tract infection).

**Imaging techniques:** Multiplex Immunohistochemistry staining, Immunofluorescence staining, Tissue histology, functional near-infrared spectroscopy (fNIRS), and Confocal Microscopy

**Computer:** Flow cytometry analysis (FlowJo), Microsoft Office Suite (Word, Excel, PowerPoint, OneNote), GraphPad Prism, Adobe Photoshop and Illustrator, IBM SPSS Statistics software, ImageJ, Leica Application Suite, and Familiar with R and Python

## SELECT CONFERENCE PRESENTATIONS: 1 oral presentation and 9 poster presentations

1. **Pajulas, A.**, ...Kaplan, MH. (2022, May). *T<sub>H</sub>9-derived IL-9 promotes CCR2-dependent mast cell accumulation in the allergic lung*. Poster accepted for oral presentation at American Association of Immunologist Annual Meeting, Portland, Oregon.
2. **Pajulas, A.**, ...Kaplan, MH. (2021, May). *Generation of mice with a conditional I19 allele*. Poster accepted for presentation at American Association of Immunologist Annual Meeting, Virtual Conference.

## PROFESSIONAL EXPERIENCE

**Indiana University, Department of Microbiology and Immunology**

7/2022-present

*Student Representative*

- Delegate student-seminar committee members to assist with inviting and hosting a student-invited seminar speaker and roundtable discussions
- Advocate and secure \$2,000 in annual funding for department student travel; developed travel award
- Review travel award grants for students applying for the Indiana BioMedical Gateway travel grant

## SELECT HONORS and AWARDS

\$350   Diversity Affairs Trainee Travel Grant, IUSM	8/2022
\$750   American Association of Immunologist Travel Award, AAI	5/2022
\$78,000 + 60% Tuition   T32 AI060519 Immunology & Infectious Disease Training, IUSM	3/2019-3/2022
\$24,000 + 60% Tuition   NIH Maximizing Access to Research Careers Fellowship, CSUN	6/2016-5/2018
\$1,500   SACNAS Conference Travel Scholarship, SACNAS	10/2017
\$4,000   Graduate Experiences for Multicultural Students, UC Denver	6/2017-7/2017
\$10,000   Presidential Scholarship Awardee, CSUN	8/2017
\$2,000   Associated Students Scholarship Awardee, CSUN	8/2014