

# KELLEN JAMES CAVAGNERO

Contact: [kecavagn@health.ucsd.edu](mailto:kecavagn@health.ucsd.edu)

## EDUCATION:

University of California, San Diego	2019 – 2024
Doctor of Philosophy, Biomedical Sciences	
University of California, Santa Barbara	2010 – 2014
Bachelor of Science, Pharmacology	

## FELLOWSHIPS:

National Science Foundation Graduate Research Fellowship (NSF 2038238)	2021 – 2024
UCSD Gastroenterology T32 Predoctoral Fellowship (NIH DK007202)	2020 – 2021

## OTHER AWARDS & HONORS:

ARCS Foundation Scholarship	2022 – 2024
Travel Award, Society for Investigative Dermatology (SID)	2024
Regulation of Barrier Immunity Keystone Scholarship	2024
AAI Outstanding Presentation Award, La Jolla Immunology Conference	2023
Outstanding Presentation Award, UCSD BMS Retreat	2023
Travel Award, Society for Investigative Dermatology (SID)	2023
Outreach Award, National Cancer Institute	2022
Travel Award, Society for Investigative Dermatology (SID)	2022
Future Leaders Retreat Invitation, Society for Investigative Dermatology (SID)	2022

## FIRST AUTHOR ORIGINAL ARTICLES:

- Cavagnero KJ, ..., Gallo RL. *CXCL12+ dermal adipocyte lineage fibroblast subsets drive neutrophil recruitment and host defense through recognition of IL-17*. **J Exp Med**. 2024. **Featured on the journal cover**.
- Marotz C\*, Cavagnero KJ\*, ..., Knight R. *Evaluation of the effect of storage methods on fecal, saliva, and skin microbiome composition*. **mSystems**. 2021. **\*Authors contributed equally to this work**.
- Cavagnero KJ, ..., Doherty T. *Cyclic-di-GMP induces STING-dependent ILC2 to ILC1 shift during innate type 2 lung inflammation*. **Front Immunol**. 2021.
- Cavagnero KJ, ..., Doherty T. *Unconventional ST2- and CD127-negative lung ILC2 populations are induced by the fungal allergen Alternaria*. **J Allergy Clin Immunol**. 2019.
- Karta M\*, Cavagnero K\*, ..., Doherty T\*, Broide D\*. *Platelets attach to lung type 2 innate lymphoid cells (ILC2s) expressing P-selectin glycoprotein ligand 1 and influence ILC2 function*. **J Allergy Clin Immunol**. 2019. **\*Authors contributed equally to this work**.

## COAUTHORED ORIGINAL ARTICLES:

- Dokoshi T, Chen Y, Cavagnero KJ, ..., Gallo RL. *Dermal injury disrupts the intestinal microbiome and immune homeostasis*. **Nat Commun**. 2024.
- Khalil S, Cavagnero KJ, ..., Gallo RL. *Regulation of epidermal ferritin expression influences systemic iron homeostasis*. **J Invest Dermatol**. 2023.
- Badrani J, Cavagnero K, ..., Doherty T. *Lower serum 15-HETE level predicts nasal ILC2 accumulation during COX-1 inhibition in AERD*. **J Allergy Clin Immunol**. 2023.
- O'Neill A, Cavagnero KJ, ..., Gallo RL. *Genetic and functional analyses of Cutibacterium acnes isolates reveal association of a linear plasmid with skin inflammation*. **J Invest Dermatol**. 2023.
- Almoughrabie S, Cau L, Cavagnero KJ, ..., Gallo RL. *Commensal Cutibacterium acnes induce epidermal lipid synthesis important for skin barrier function*. **Sci Advan**. 2023.
- Nakatsuji T, Brinton SL, Cavagnero KJ, ..., Gallo RL. *Host antimicrobial peptides compete with bacteriocins from commensal Staphylococci to promote Staphylococcus aureus survival during Th2 inflammation*. **Cell Reports**. 2023.
- Badrani J, ..., Cavagnero K, ..., Doherty T. *RNA-binding protein RBM3 negatively regulates innate Lymphoid Cells (ILCs) and lung inflammation*. **Nat Commun**. 2022.
- O'Neill A, ..., Cavagnero KJ, ..., Gallo RL. *Antimicrobial production by perifollicular dermal preadipocytes is essential to the pathophysiology of acne*. **Sci Transl Med**. 2022.
- Dokoshi T, Seidman JS, Cavagnero KJ, ..., Gallo RL. *Skin inflammation activates intestinal stromal fibroblasts and promotes colitis*. **J Clin Invest**. 2021.
- Lund SJ, Portillo A, Cavagnero K, ..., Doherty TA. *Leukotriene C4 potentiates IL-33-induced group 2 innate lymphoid cell activation and lung inflammation*. **J Immunol**. 2017.
- Eastman JJ, Cavagnero KJ, ..., Doherty TA. *Group 2 innate lymphoid cells are recruited to the nasal mucosa in patients with aspirin-exacerbated respiratory disease*. **J Allergy Clin Immunol**. 2017. **Highlighted as 'The Editor's Choice'**.
- Tkachenko E, ..., Cavagnero K, ..., Aceves SS. *Rigid substrate induces esophageal smooth muscle hypertrophy and eosinophilic esophagitis fibrotic gene expression*. **J Allergy Clin Immunol**. 2016.

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## REVIEWS, COMMENTARIES, & TEXTBOOK CHAPTERS:

- Cavagnero KJ. *How I found broader impact as a PhD student through podcasting*. **Nature**. 2023.
- Cavagnero KJ, Gallo RL. *Essential immune functions of fibroblasts in innate host defense*. **Front Immunol**. 2022.
- Cavagnero KJ, Doherty TA. *Lipid-mediated innate lymphoid cell recruitment and activation in AERD*. **Ann Allergy Asthma Immunol**. 2020.
- Cavagnero KJ, Doherty TA. *ILC2s: Are they what we think they are?* **J Allergy Clin Immunol**. 2020.
- Doherty TA, Cavagnero K. *Chapter 13: Innate Lymphoid Cells*. **Middleton's Allergy 9th edition**. 2019.
- Cavagnero K, Doherty TA. *Cytokine and lipid mediator regulation of group 2 innate lymphoid cells (ILC2s) in human allergic airway disease*. **J Cytokine Biol**. 2017.

## INVITED SPEAKING ENGAGEMENTS:

- *Transcriptomics of neutrophilic dermatoses identifies IFN signal in fibroblasts from Sweet's syndrome*. SID (2024). 10min.
- *Immune acting fibroblasts: key players in skin inflammation and host defense*. Keystone (2024). 15min.
- *Immune acting fibroblasts: key players in skin inflammation and host defense*. LJIC (2023). 20min.
- *Immune acting fibroblasts: key players in skin inflammation and host defense*. UCSD BMS Retreat (2023). 20min.
- *Dermal fibroblasts drive neutrophil recruitment to the skin*. ISID (2023). 12min.
- *STING agonist cyclic di-GMP suppresses ILC2s in type 2 lung inflammation*. UCSD BMS Recruitment (2023). 25min.
- *STING agonist cyclic di-GMP suppresses ILC2s in type 2 lung inflammation*. AAAAI (2023). 25min.
- **Plenary:** *Immune fibroblastic cell (IFC)-neutrophil communication during bacterial infection*. SID (2022). 15min.
- *CDG induces STING-dependent ILC2 to ILC1 shift during innate type 2 lung inflammation*. AAAAI (2021). 5min.
- *Unconventional ST2- and CD127-negative lung ILC2 populations are induced by Alternaria*. AAAAI (2019). 5min.
- *Innate mechanisms of allergic airway inflammation*. UCSD Allergy Scientific Retreat (2019). 15min.

## RESEARCH EXPERIENCE:

Postdoctoral Scholar, Gallo Lab, UC San Diego. La Jolla, CA.	2024 – Present
Ph.D. Student, Gallo Lab, UC San Diego. La Jolla, CA.	2020 – 2024
Lab Manager, Staff Research Associate III, Doherty Lab, UC San Diego. La Jolla, CA.	2017 – 2019
<ul style="list-style-type: none"><li>• Studied the underlying mechanisms of allergic airway disease, with a focus on group 2 innate lymphoid cells (ILC2s), using human samples and mouse models</li><li>• Conceived of studies, designed and performed experiments, analyzed data and generated figures for manuscripts, wrote and peer reviewed manuscripts, presented findings</li><li>• Oversaw a team that included a staff research associate, two master's students, and four undergraduate students</li><li>• Recruited undergraduate and master's students, and taught students how to perform mouse asthma models and downstream assays – with an emphasis on flow cytometry (also consulted other labs in flow cytometry)</li><li>• Served as the EH&amp;S Area Safety Coordinator</li><li>• Held responsibility for lab procurement</li><li>• Awarded UCSD Green Labs Platinum Certification</li></ul>	
Lab Manager, Staff Research Associate II, Doherty Lab, UC San Diego. La Jolla, CA.	2017
Lab Manager, Staff Research Associate I, Doherty Lab, UC San Diego. La Jolla, CA.	2015 – 2017
Volunteer Research Assistant, Croft Lab, LJI. La Jolla, CA.	2014 – 2015
Laboratory Technician, Critical Care Diagnostics. San Diego, CA.	2014 – 2015
Undergraduate Research Assistant, Mazer Lab, UC Santa Barbara. Goleta CA.	2012 – 2013

## RELEVANT VOLUNTEER, OUTREACH, & LEADERSHIP EXPERIENCE:

Associate Faculty Member, F1000Prime.	2020 – Present
Host and Creator of the Science Podcast “Inflammatory Content”. <i>Sponsored by the National Cancer Institute</i>	2019 – Present
Head Graduate Instructional Apprentice, UC San Diego BIMM124 Medical Microbiology	2022
UC San Diego Biomedical Sciences Graduate Program. La Jolla, CA.	
<ul style="list-style-type: none"><li>• President</li><li>• Vice President</li><li>• Admissions &amp; Recruitment Committee Member</li><li>• Student Invited Speaker Committee Member</li><li>• Welcome Committee Member</li><li>• Journal Club Committee Member</li></ul>	<ul style="list-style-type: none"><li>2022 – 2023</li><li>2021 – 2022</li><li>2021 – 2022</li><li>2021 – 2022</li><li>2020 – 2021</li><li>2019 – 2020</li></ul>
Teaching Assistant, UC Santa Barbara. Goleta, CA.	2012 – 2013