

Richard Van

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EDUCATION

PhD Candidate, Biology

Massachusetts Institute of Technology

September 2021 – Present

BS, Biochemistry and Molecular Biology, *cum laude*

University of California, Davis

September 2015 – June 2019

GPA: 3.78/4.0

RESEARCH EXPERIENCE

PhD Candidate

Massachusetts Institute of Technology

June 2022 – Present

Stefani Spranger Lab – *Koch Institute for Integrative Cancer Research*

Cambridge, MA

- ❖ Investigate how route of therapeutic vaccination impacts anti-tumor immune responses, particularly dendritic cell-T cell interactions, for the rational design of immunotherapy
- ❖ Integrate immune engineering and mouse modeling to advance fundamental and translational research

Junior Specialist

University of California, San Francisco

August 2019 – July 2021

San Francisco, CA

Frank McCormick Lab – *Helen Diller Family Comprehensive Cancer Center*

- ❖ Dissected the biochemical mechanism of RIT1 GTPase-mediated MAPK activation using primarily cell culture models and mouse models
- ❖ Spearheaded and designed experiments while optimizing and troubleshooting original/existing protocols

Undergraduate Research Assistant

University of California, Davis

June 2016 – June 2019

Davis, CA

Mark Huising Lab – *Dept. of Neurobiology, Physiology, and Behavior*

- ❖ Developed an automated fluorescence-based cell identification algorithm within ImageJ (Fiji)
- ❖ Investigated whether the hormone signal Urocortin-3 is involved in pancreatic islet cell plasticity using mouse models and confocal immunofluorescence microscopy
- ❖ Managed and monitored hundreds of experimental animals using a robust system to organize breedings and maintain efficient colonies
- ❖ Oversaw training of new undergraduate research assistants in maintaining a smooth workflow environment

Summer Research Intern

BioMarin Pharmaceutical Inc.

June 2018 – September 2018

San Rafael, CA

Translational Biology

- ❖ Developed high-throughput immunohistochemical assays for markers of skeletal muscle pathology
- ❖ Implemented and optimized automated image analysis algorithms to provide important project endpoints and encourage quality progression of the exploratory-stage project
- ❖ Presented data to company-wide poster event and to cross-functional department meetings

TEACHING EXPERIENCE

MSRP Mentor

Massachusetts Institute of Technology

May 2025 – August 2025

Cambridge, MA

MIT Summer Research Program (MSRP)

- ❖ Mentored visiting undergraduate student from non-traditional background in immunology, communication skills, and project development
- ❖ Assisted in preparation for two poster presentations with one outstanding poster presentation award and a fully funded invitation to present at another conference

UROP Mentor

Koch Institute for Integrative Cancer Research

MIT Undergraduate Research Opportunities Program (UROP)

September 2023 – August 2025

Cambridge, MA

- ❖ Empowered undergraduate student on skills in research, presentation, and writing
- ❖ Nominated student successfully for the Association of MIT Alumnae (AMITA) Senior Academic Award
- ❖ Facilitated participation and poster presentation at two conferences with one poster presentation award
- ❖ Coached student through graduate school applications and interviews leading to enrollment at Stanford's Immunology PhD program

Teaching Assistant

Massachusetts Institute of Technology

Department of Biology

Fall 2022, Spring 2025

Cambridge, MA

- ❖ Planned and led semi-weekly recitations to supplement undergraduate learning in introductory biology
- ❖ Assisted students during weekly office hours and provide constructive feedback on graded problem sets and exams
- ❖ Attended a series of pedagogy workshops and implement strategies conducive to a supportive and inclusive learning environment

Graduate Mentor

Massachusetts Institute of Technology

Biology Application Assistance Program

2021, 2022

Cambridge, MA

- ❖ Supported and mentored prospective graduate students from underrepresented or non-traditional backgrounds by reducing the associated application information gap
- ❖ Engaged with mentees through office hours, student panels, and individual meetings to set goals and regularly provide constructive feedback on application materials

Peer Tutor

University of California, Davis

Academic Assistance and Tutoring Centers

September 2016 – March 2019

Davis, CA

- ❖ Promoted college students' learning in general chemistry, physics, and statistics
- ❖ Communicated effective problem-solving skills to peers while combining interactive teamwork dynamics in the tutor-tutee relationship

Learning Assistant

University of California, Davis

College of Biological Sciences

January 2017 – March 2017

Davis, CA

- ❖ Facilitated a lower-division introductory biology lab class alongside a graduate student consisting of 30 undergraduate students
- ❖ Assisted students through group exercises and help cultivate efficient group collaboration

PUBLICATIONS

Wisdom, A.J., **et al.** (2026). Radiation therapy synergizes with mRNA vaccination to overcome microglia-mediated suppression of dendritic cell migration and T cell priming in glioblastoma. *BioRxiv*. doi: <https://doi.org/10.64898/2026.09.18.752741>

Rodrigues, K., **et al.** (2025). Vaccines combining slow release and follicle targeting of antigens increase germinal center B cell diversity and clonal expansion. *Science Translational Medicine*. **17** doi: <https://doi.org/10.1126/scitranslmed.adw7499>

Morgan, D., Horton, B., Bhandarkar V., **Van, R.**, Dinter, T., Zagorulya, M., Love, J.C., Spranger, S. (2024). Expansion of tumor-reactive CD8+ T cell clonotypes occurs in the spleen in response to immune checkpoint blockade. *Science Immunology* **9** doi: <https://doi.org/10.1126/sciimmunol.adi3487>

Cuevas-Navarro, A.[†], Wagner, M.[†], **Van, R.**, Swain, M., Mo, S., Columbus, J., Allison, M., Cheng, A., Messing, S., Turbyville, T., Simanshu, D., Sale, M., McCormick, F., Stephen, A., Castel, P. (2023). Ras-dependent RAF-MAPK hyperactivation by pathogenic RIT1 is a therapeutic target in Noonan syndrome-associated cardiac hypertrophy. *Science Advances* **9** doi: <https://doi.org/10.1126/sciadv.adf4766>

Kontaridis, M., **et al.** (2022). The seventh international RASopathies symposium: Pathways to a cure—expanding knowledge, enhancing research, and therapeutic discovery. *American Journal of Medical Genetics* **188**, 1915–1927 doi: <https://doi.org/10.1002/ajmg.a.62716>

Cuevas-Navarro, A., **Van, R.**, Cheng, A., Urisman, A., Castel, P. and McCormick, F. (2021) The RAS GTPase RIT1 compromises mitotic fidelity through spindle assembly checkpoint suppression. *Current Biology* **31**, 3915–3924 doi: <https://doi.org/10.1016/j.cub.2021.06.030>

Van, R., Cuevas-Navarro, A., Castel, P., & McCormick, F. (2020). The molecular functions of RIT1 and its contribution to human disease. *Biochemical Journal* **477**, 2755–2770 doi: <https://doi.org/10.1042/BCJ20200442>

Huang, J. L., Lee, S., Hoek, P., van der Meulen, T., **Van, R.**, & Huising, M. O. (2020). Genetic deletion of Urocortin 3 does not prevent functional maturation of beta cells. *The Journal of endocrinology* **246**, 69–78 doi: <https://doi.org/10.1530/JOE-19-0535>

PRESENTATIONS

Poster Presentation

Van, R., Gul, S., Valtierra, C., Schuler, E., Wolczanski, G., Chatterjee, F., Pogostin, P., Irvine, D., & Spranger, S. (2026). Routes of therapeutic vaccination shape CD8⁺ T cell responses against lung cancer, Poster presented at the Keystone Symposia on Cancer Immunotherapy, Québec, QC, Canada.

Poster Presentation

Van, R., Gul, S., Valtierra, C., Irvine, D., & Spranger, S. (2025). Routes of therapeutic vaccination shape CD8⁺ T cell responses against lung cancer, Poster presented at the MBG-Merck Symposium, Cambridge, MA.

Poster Presentation

Van, R., Irvine, D., & Spranger, S. (2024). Routes of therapeutic vaccination shape CD8⁺ T cell responses against lung cancer, Poster presented at the Ludwig Retreat, Dedham, MA.

Oral Presentation

Van, R., & Wagner, M. (2021). Biochemical analysis of RIT1 reveals preferential interaction with RAF1 and provides evidence for therapeutic intervention of cardiac hypertrophy, Presented virtually at the International RASopathies Symposium.

Oral Presentation

Van, R. (2019). Automated image analysis of fluorescence-based cell identification and quantification in pancreatic islets, Presented at the UC Davis Undergraduate Research Conference, Davis, CA.

Oral Presentation

Van, R. (2018). Role of urocortin3 in maintaining delta cell identity, Presented at the UC Davis Undergraduate Research Conference, Davis, CA.

Poster Presentation

Van, R., & Lau, E. (2017). How to change delta cells into beta cells in pancreatic islets, Poster presented at the UC Davis Undergraduate Research Conference, Davis, CA.

AWARDS AND HONORS

DAVID H. KOCH GRADUATE FELLOWSHIP <i>Koch Institute for Integrative Cancer Research</i>	September 2026
EARLY CAREER INVESTIGATOR AWARD <i>Society for Immunotherapy of Cancer (SITC)</i>	August 2026
JOSEPH C. JEFFERDS, JR. TRAVEL AWARD <i>Koch Institute for Integrative Cancer Research</i>	August 2026
KEYSTONE SYMPOSIA SCHOLARSHIP <i>Keystone Symposia on Cancer Immunotherapy</i>	November 2025
PETER KARCHES MENTORSHIP PRIZE <i>Koch Institute for Integrative Cancer Research, MIT</i>	October 2025
SCHOOL OF SCIENCE QUALITY OF LIFE AWARD <i>School of Science, Massachusetts Institute of Technology</i>	February 2024
SPOT APPRECIATION AWARD <i>School of Science, Massachusetts Institute of Technology</i>	February 2023
PRESIDENTIAL GRADUATE FELLOWSHIP AWARD <i>Office of Graduate Education, Massachusetts Institute of Technology</i>	September 2021
JUNIOR INVESTIGATOR AWARD <i>International RASopathies Symposium, RASopathies Network</i>	July 2021
DEPARTMENTAL CITATION AWARD <i>Biochemistry and Molecular Biology, UC Davis College of Biological Sciences</i>	May 2019
DEAN'S HONOR LIST (6 Quarters) <i>UC Davis College of Biological Sciences</i>	September 2015 – March 2019
DISTINGUISHED SCHOLAR AWARD <i>Biochemistry and Molecular Biology, UC Davis College of Biological Sciences Dean's Office</i>	March 2019
THE STANLEY & JACQUELINE SCHILLING UNDERGRAD RESEARCH AWARD <i>Development Office and Dean's Office, UC Davis College of Biological Sciences</i>	February 2018
PROVOST'S UNDERGRADUATE FELLOWSHIP <i>UC Davis Undergraduate Research Center</i>	December 2017 – June 2018

PROFESSIONAL DEVELOPMENT

BUILDING WITH AI: A COURSE FOR SCIENTISTS AND ENGINEERS <i>Schwarzman College of Computing, Massachusetts Institute of Technology</i>	August 2026
BIOLOGY PEDAGOGY CERTIFICATE <i>Department of Biology, Massachusetts Institute of Technology</i>	December 2022

SERVICE AND LEADERSHIP

VICE PRESIDENT, EXTERNAL AFFAIRS <i>Graduate First-Gen/Low-Income@MIT</i>	August 2023 – 2024
CONTENT COMMITTEE MEMBER <i>11th Annual First Gen Summit</i>	April 2023 – November 2023