

Tyler Lewy

Ph.D. Virology · Postdoctoral Fellow, Rocky Mountain Laboratories, NIAID

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EDUCATION

2025	Ph.D., Virology The Rockefeller University, New York, NY
2015	B.S., Microbiology University of California, Davis, CA

RESEARCH EXPERIENCE

2025 – present	Rocky-Bethesda Postdoctoral Fellow Laboratory of Neurological Infections and Immunity, Neurovirology Unit, NIAID, Hamilton, MT · Co-mentors: Rahul K. Suryawanshi and Hao Jin
2018 – 2025	Graduate Fellow Laboratory of Virology & Infectious Disease, The Rockefeller University, New York, NY · PI: Charles M. Rice
2016 – 2017	Post-Baccalaureate Fellow Laboratory of Biology of Vector-Borne Viruses, NIAID, Hamilton, MT · PI: Marshall E. Bloom
2014 – 2016	Undergraduate / Post-Baccalaureate Researcher NeuroMab (PI: James S. Trimmer) and Medical Microbiology & Immunology (PI: Michael D. George), University of California, Davis, CA
2012 – 2013	Quality Assurance / Quality Control Intern PCAS-Nanosyn LLC, Santa Rosa, CA

PEER-REVIEWED RESEARCH ARTICLES

Brain endothelial cells orchestrate a neuroprotective antiviral state in the central nervous system in response to peripheral viral pattern sensing.

Lewy T, Sierra MA, Pourshadi N, Hoffmann HH, Dinno KH, Gola A, Wang W, Chen HA, Quirk C, Zhang H, Doyle MP, Mason CE, Diehl GE, Hohl TM, Fuchs E, MacDonald MR, Wu Z, Crowe JE, Rice CM, Lercher A.
Immunity 2026;59(7):1825–1842.e11. doi:10.1016/j.immuni.2026.06.009

An immunocompetent murine model of virus-elicited liver fibrosis and hepatocellular carcinoma.

Batista MN, Bordignon J, Pamplona Mosimann AL, Bobrowski T, Chen HA, Tobin-Xet G, Barrall EA, Prokhnevskaya N, Vaidya AB, **Lewy T**, Dinno KH, Seifert LL, Zeck B, Quirk C, Ho YJ, Filliol A, Wolfisberg R, Jiang C, Cogliati B, Chiriboga L, Theise N, MacDonald MR, Kamphorst AO, Scheel TK, Sheahan TP, Billerbeck E, Lowe SW, Rosenberg BR, Rice CM.
Journal of Hepatology 2026. doi:10.1016/j.jhep.2026.02.020

Antiviral innate immune memory in alveolar macrophages following SARS-CoV-2 infection ameliorates secondary influenza A virus disease.

Lercher A, Cheong JG, Bale MJ, Jiang C, Hoffmann HH, Ashbrook AW, **Lewy T**, Yin YS, Quirk C, DeGrace EJ, Chiriboga L, Rosenberg BR, Josefowicz SZ, Rice CM.
Immunity 2024;57(11):2530–2546.e13. doi:10.1016/j.immuni.2024.08.018

A genome-wide arrayed CRISPR screen identifies PLSCR1 as an intrinsic barrier to SARS-CoV-2 entry that recent virus variants have evolved to resist.

Le Pen J, Paniccia G, Bauer M, Hoffmann HH, Kinast V, Moncada-Velez M, Pinharanda A, Ricardo-Lax I, Stenzel AF, Rosado-Olivieri EA, Ashbrook AW, Dinno KH, Doyle WC, Freije CA, Hong SH, Lee D, **Lewy T**, Luna JM, Peace A, Schmidt C, Schneider WM, Winkler R, Larson C, McGinn T, Menezes MR, Ramos-Espiritu L, Banerjee P, Poirier JT, Sánchez-Rivera FJ, Zhang Q, Casanova JL, Carroll TS, Glickman FJ, Michailidis E, Razouky B, MacDonald MR, Rice CM.
PLoS Biology 2024;22(9). doi:10.1371/journal.pbio.3002767

PERK-mediated unfolded protein response signaling restricts replication of the tick-borne flavivirus Langat virus.

Lewy TG, Offerdahl DK, Grabowski JM, Kellman E, Mlera L, Chiramel A, Bloom ME.
Viruses 2020;12(3):328. doi:10.3390/v12030328

Oral microbiome in HIV-infected women: shifts in the abundance of pathogenic and beneficial bacteria are associated with aging, HIV load, CD4 count, and antiretroviral therapy.

Lewy T, Hong BY, Weiser B, Burger H, Tremain A, Weinstock G, Anastos K, George MD.
AIDS Research and Human Retroviruses 2019;35(3):276–286. doi:10.1089/AID.2017.0200

REVIEWS

Spatial omics technologies at multimodal and single cell/subcellular level.

Park J, Kim J, **Lewy T**, Rice CM, Elemento O, Rendeiro AF, Mason CE.
Genome Biology 2022;23(1):256. doi:10.1186/s13059-022-02824-6

BiP: master regulator of the unfolded protein response and crucial factor in flavivirus biology.

Lewy TG, Grabowski JM, Bloom ME.
Yale Journal of Biology and Medicine 2017;90(2):291–300. PMID 28656015

WRITING FOR GENERAL AUDIENCES

Misuse of antibiotics leads to antibiotic resistant bacteria.

Lewy TG.
Prized Writing, University of California, Davis. 2014;25:113–119

SELECTED PRESENTATIONS

2025	BMECs orchestrate a neuroprotective antiviral state in the CNS in response to peripheral viral pattern sensing Poster · Cell Symposia: Neuro-immune axis — Charting the periphery, New York, NY
2024	CNS-immune dialogues: how early peripheral immune sensing dictates encephalitic outcome Oral · Kavli Internal Seminar Series, New York, NY
2017	BiP: regulator of the unfolded protein response and proviral factor in tick-borne flavivirus infection Oral · American Society for Virology Annual Meeting, Madison, WI
2016	The role of BiP in Langat virus infection Oral · RML Summer Student Symposium; Poster · Metabolism and Pathogens Symposium, Hamilton, MT

2015	Effect of aging on viral co-infection in HIV-infected patients Oral · UC Davis Undergraduate Research Conference, Davis, CA
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TEACHING & MENTORING

2026 – present	Post-Baccalaureate Advisor Zachary Jaffrey · Rocky Mountain Laboratories, Hamilton, MT
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2026	Summer Student Advisor Colten Danelski · Rocky Mountain Laboratories, Hamilton, MT
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2022 – 2023	Rotation Student Advisor Maria Sierra · The Rockefeller University, New York, NY
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2017 – 2018	Lecturer, Biomedical Research After-School Scholars (BRASS) Rocky Mountain Laboratories, Hamilton, MT
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HONORS & DISTINCTIONS

2026	Rocky Mountain Laboratories–Bethesda Postdoctoral Fellowship
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2015	Provost Undergraduate Fellowship Medical Microbiology and Immunology, University of California, Davis
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2015	College of Biological Sciences Microbiology Departmental Citation University of California, Davis
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References available on request.