Daniel A. Bachovchin, Ph.D.

Memorial Sloan Kettering Cancer Center
Chemical Biology Program
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New York, NY 10065

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Professional Appointments:

- **Member**, Chemical Biology Program, Sloan Kettering Institute, Memorial Sloan Kettering Cancer Center (MSKCC), June 2024 – present
- **Associate Member**, Chemical Biology Program, Sloan Kettering Institute, Memorial Sloan Kettering Cancer Center (MSKCC), June 2021 – present
- **Assistant Member**, Chemical Biology Program, Sloan Kettering Institute, MSKCC, September 2015 – June 2021
- **Faculty Member**, Tri-Institutional PhD Program in Chemical Biology of MSKCC, The Rockefeller University, and Weill Cornell Medical College, September 2015 – present
- **Faculty Member**, Gerstner Sloan-Kettering Graduate School of Biomedical Sciences, MSKCC, September 2015 – present
- **Faculty Member**, Pharmacology Program, Weill Graduate School of Medical Sciences, Cornell University, September 2015 – present

Education:

- **The Broad Institute of MIT and Harvard**, Cambridge, MA
  Postdoctoral Research Fellow, June 2011- August 2015
  Research Advisor: Professor Todd R. Golub
- **The Scripps Research Institute**, La Jolla, CA
  Ph.D. in Chemistry, May 2011
  Research Advisor: Professor Benjamin F. Cravatt
- **Harvard College**, Cambridge, MA
  A.B. in Chemistry, June 2005
  Magna Cum Laude, High Honors in Field
  Research Advisor: Professor M.-Christina White

Honors and Awards:

- David P. Hajjar Excellence in Teaching and Mentoring Award, Weill Cornell Graduate School, May 2023

- Geoffrey Beene Junior Faculty Chair, March 2022-March 2026
- Louise and Allston Boyer Young Investigator Award for Distinguished Achievement in Basic Research, June 2021
- Anna Fuller Award, March 2021-February 2022
- Gabrielle's Angel Foundation Fellowship, July 2018-June 2021
- Pershing Square Sohn Prize for Young Investigators in Cancer Research, July 2018-June 2021
- Alfred P. Sloan Foundation Fellow in Chemistry, February 2018
- Pew-Stewart Scholar Award for Cancer Research, July 2017-June 2021
- Stand Up to Cancer (SU2C) Innovative Research Grant, July 2017-June 2020
- Josie Robertson Investigator (MSKCC), September 2015 – August 2020
- California Breast Cancer Research Program Graduate Fellowship, July 2010-May 2011
- National Science Foundation Predoctoral Fellowship, September 2006-September 2009
- The Scripps Research Institute Dean's Fellowship, January 2005-January 2006
- John Harvard Scholar, 2003-2004 (Top 5% of Class GPA)
- Harvard College Research Program Fellowship, June 2003-August 2003
- Harvard College Scholar, 2001-2002, 2002-2003, 2004-2005

Publications:

†Equal contribution
*Corresponding author

Published and in press:

48. Tsamouri, L.P; Hsiao, J.C.; Wang, Q.; Geeson, M.B; Huang, H.-C.; Nambiar, D.R.; Zou, M.; Ball, D.P.; Chui, A.J.; **Bachovchin, D. A.*** "The hydrophobicity of the CARD8 N-terminus tunes inflammasome activation." *Cell Chem Biol*, 2024, *in press*.

47. Geeson, M.B†; Hsiao, J.C. †; Tsamouri, L.P; Ball, D.P.; **Bachovchin, D. A. *** "The interaction between NLRP1 and oxidized TRX1 involves a transient disulfide bond." *Cell Chem Biol*. 2024, 31, 955-961.

46. Bhattacharjee, A.; **Bachovchin, D. A.*** "DPP8/9 are not required to cleave most proline containing peptides." *Israel Journal of Chemistry*, 2023, e202200117.

45. Chen, Q.; Wang, A.; Covelli, D.J.; Orth-He, E.L.; Rao, S.D.; Huang, H.C.; Ball, D.P.; Hsiao, J.C.; **Bachovchin, D. A.*** "Optimized M24B Aminopeptidase Inhibitors for CARD8 Inflammasome Activation." *J Med Chem*, 2023, 66, 111965.

44. Orth-He, E.L.†; Huang, H.C. †; Rao, S.D.; Wang, Q.; Chen, Q.; O'Mara, C.M.; Chui, A.J.; Saoi, M.; Griswold, A.R.; Bhattacharjee, A.; Ball, D.P.; Cross, J.R.; **Bachovchin, D. A.*** "Protein folding stress potentiates NLRP1 and CARD8 inflammasome activation." *Cell Reports*, 2023, 42, 111965.

43. Wang, Q. Hsiao, J.C.; Yardeny, N.; Huang, H.C.; O'Mara, C.M.; Orth-He, E.L.; Ball, D.P.; Zhang, Z.; **Bachovchin, D. A.*** "The NLRP1 and CARD8 inflammasomes detect reductive stress." *Cell Reports*, 2023, 42, 111966.

42. Ball, D.P.; Tsamouri, L.P.; Wang, A.E.; Warren, C.D.; Wang, Q.; Edmonson, I.H.; Griswold, A.R.; Rao, S.D.; Johnson, D.C.; **Bachovchin, D. A.***; "Oxidized thioredoxin-1 restrains the NLRP1 inflammasome." *Science Immunol*. 2022, 7, eabm7200.

41. Volpe, M.R.; Velilla, J.A.; Daniel-Ivad, M; Yao, J.J.; Stornetta, A.; Villalta, P.W.; Huang, H.C.; **Bachovchin, D.A.**; Balbo, S.; Gaudet, R.; Balskus, E.P. "A small molecule inhibitor prevents gut bacterial genotoxin production," *Nat Chem Biol.* 2022, 19, 159-167.

40. Hsiao, J.C.; Neugroschl, A.R.; Chui, A.J.; Taabazuing, C.Y.; Griswold, A.R.; Wang, Q.; Huang, H.C.; Orth-He, E.L.; Ball, D.P.; Hiotis, G.; **Bachovchin, D.A.*** "A ubiquitin-independent proteasome pathway controls activation of the CARD8 inflammasome," *J Biol Chem*. 2022, 298, 102032.

39. Griswold, A.R.[*]; Huang, H.C.; **Bachovchin, D.A.*** "The NLRP1 Inflammasome induces pyroptosis in human corneal epithelial cells," *Invest Opthalmol Vis Sci*. 2022, 63, 2.

38. Rao, S.D.[†]; Chen, Q.[†]; Wang, Q.[†]; Orth-He, E.L.[†]; Saoi, M.; Griswold, A.R.; Bhattacharjee, A.; Ball, D.P.; Huang, H.-C.; Chui, A.J.; Covelli, D.J.; You, S.; Cross, J.R.; **Bachovchin, D.A.*** "M24B aminopeptidase inhibitors selectively activate the CARD8 inflammasome." *Nat Chem Biol*. 2022, 18, 565-574.

37. Sharif, H.[†]; Hollingsworth, R.L. [†]; Griswold, A.R.[†]; Hsiao, J.C.; Wang, Q.; **Bachovchin, D.A. ***; Wu, H. **** "Structural mechanism of CARD8 regulation by DPP9." *Immunity,* 2021, 54, 1392-1404.

36. Hollingsworth, R.L. [†]; Sharif, H. [†]; Griswold, A.R. [†]; Fontana, P.; Mintseris, J.; Dagbay, K.B.; Paulo, J.A.; Gygi, S.P.; **Bachovchin, D.A. ***; Wu, H. * "DPP9 sequesters the NLRP1 C-terminus to repress inflammasome activation." *Nature*, 2021, 592, 778-783.

35. Hollingsworth, R.L. [†]; David, L.[†]; Li, Y.[†]; Griswold, A.R.; Ruan, J.; Sharif, H.; Fontana, P.; Orth-He, E.L.; Fu, T.M.; **Bachovchin, D.A.**; Wu, H. "Mechanism of filament formation in UPA-promoted CARD8 and NLRP1 inflammasomes" *Nature Commun*. 2021, 12, 189.

34. Chui, A.C.; Griswold, A.R.; Taabazuing, C.Y.; Orth, E.L.; Gai, K.; Rao, S.D.; Ball, D.P.; Hsiao, J.C.; **Bachovchin, D.A. *** "Activation of the CARD8 inflammasome requires a disordered region." *Cell Reports*. 2020, 33, 108264.

33. Johnson, D.C.; Okondo, M.C.; Orth, E.L.; Rao, S.D.; Huang, H.C.; Ball, D.P.; **Bachovchin, D.A.*** "DPP8/9 inhibitors activate the CARD8 inflammasome in resting lymphocytes." *Cell Death Dis*. 2020, 11, 628.

32. Ball, D.P.[†]; Taabazuing, C.Y.[†]; Griswold, A.R.; Orth, E.L.; Rao, S.D.; Kotliar, I.B.; Vostal, L.E.; Johnson, D.C.; **Bachovchin, D.A. *** "Caspase-1 interdomain linker cleavage is required for pyroptosis." *Life Sci Alliance*. 2020, 3, e202000664.

31. Griswold, A.R.; Ball, D.P.; Bhattacharjee, A.; Chui, A.J.; Rao, S.D.; Taabazuing, C.Y.; **Bachovchin, D.A. *** "DPP9's enzymatic activity and not its binding to CARD8 inhibits inflammasome activation." *ACS Chem Biol*. 2019, 14, 2424-2429.

30. Gai, K.[†]; Okondo, M.C.[†]; Rao, S.D.; Chui, A.J.; Ball, D.P.; Johnson, D.C.; **Bachovchin, D.A. *** "DPP8/9 Inhibitors are universal activators of functional NLRP1 alleles." *Cell Death Dis*. 2019, 10, 587.

29. Griswold, A.R.; Cifani, P.; Rao, S.D.; Axelrod, A.J.; Miele, M.M.; Hendrickson, R.C.; Kentsis, A.; **Bachovchin, D.A.*** "A chemical strategy for protease substrate profiling." *Cell Chem Biol*. 2019, 26, 901-907.

28. Chui, A.J[†]; Okondo, M.C.[†]; Rao, S.D.[†]; Gai, K.; Griswold, A.R.; Johnson, D.C.; Ball, D.P.; Taabazuing, C.Y.; Orth, E.L.; Vittimberga, B.A.; **Bachovchin, D.A.*** "N-terminal degradation activates the Nlrp1b inflammasome." *Science*. 2019, 365, 82-85.

27. Buckley B.J.; Aboelela, A.; Minaei, E.; Jiang, L.X.; Xu, Z.; Ali, U; Fildes, K; Cheung, C.Y.; Cook, S.M.; Johnson, D.C.; **Bachovchin, D.A.**; Cook, G.M.; Apte, M.; Huang, M.; Ranson, M.; Kelso, M.J. "6-Substituted Hexamethylene Amiloride (HMA) Derivatives as Potent and Selective Inhibitors of the Human Urokinase Plasminogen Activator for Use in Cancer." *J Med Chem*. 2018, 61, 8299-8320.

26. Johnson, D. C. [†]; Taabazuing, C. Y. [†]; Okondo, M. C.; Chui, A. J.; Rao, S. D.; Brown, F. C; Reed, C.; Peguero, E.; de Stanchina, E.; Kentsis, A.; **Bachovchin, D. A.*** "DPP8/9 inhibitor-induced pyroptosis for treatment of acute myeloid leukemia." *Nat Med*. 2018, 24, 1151-1156.

25. Okondo, M. C.[†]; Rao, S. D.[†]; Taabazuing, C. Y.[†]; Chui, A. J.; Poplawski, S. E.; Johnson, D. C.; **Bachovchin, D. A.*** "Inhibition of Dpp8/9 Activates the Nlrp1b Inflammasome." *Cell Chem Biol*. 2018, 25, 262-267.

24. Goel, P.; Jumpertz, T.; Mikles, D.C.; Tichá, A.; Nguyen, M.T.N.; Verhelst, S.; Hubalek, M.; Johnson, D.C.; **Bachovchin, D.A.**; Ogorek, I.; Pietrzik, C.U.; Strisovsky, K.; Schmidt, B.; Weggen, S. "Discovery and Biological Evaluation of Potent and Selective N-Methylene Saccharin-Derived Inhibitors for Rhomboid Intramembrane Proteases." *Biochemistry*. 2017, 56, 6713-6725.

23. Tichá, A.; Stanchev, S.; Vinothkumar, K.R.; Mikles, D.C.; Pachl, P.; Began, J.; Škerle, J.; Švehlová, K.; Nguyen, M.T.N.; Verhelst, S.H.L.; Johnson, D.C.; **Bachovchin, D.A.**; Lepšík, M.; Majer, P.; Strisovsky, K. "General and Modular Strategy for Designing Potent, Selective, and Pharmacologically Compliant Inhibitors of Rhomboid Proteases." *Cell Chem Biol*. 2017, 24, 1523-1536.

22. Taabazuing, C. Y.; Okondo, M. C.; **Bachovchin, D. A.*** "Pyroptosis and apoptosis pathways engage in bidirectional crosstalk in monocytes and macrophages." *Cell Chem Biol*. 2017, 24, 507-514.

21. Keckesova, Z.; Donaher, J.; DeCock, J.; Freinkman, E.; Lingrell, S.; **Bachovchin, D. A**.; Bierie, B.; Tischler, V.; Noske, A.; Reinhardt, F.; Thiru, P.; Golub, T.R.; Vance, J., Okondo, M.; Weinberg, R. "LACTB, a tumor suppressor that modulates lipid metabolism and differentiation." *Nature.* 2017, 543, 681-686.

20. Okondo, M.C.; Johnson, D. C., Sridharan, R., Go, E. B., Chui, A. J., Wang, M. S., Poplawski, S. E., Wu, W., Liu, Y.; Lai, J. H.; Sanford, D. G.; Arciprete, M. O.; Golub, T. R.; Bachovchin, W. W.; **Bachovchin, D. A**.* "Inhibition of DPP8/9 induces pro-caspase-1-dependent pyroptosis in monocytes and macrophages." *Nat Chem Biol.* 2017, 13, 46-53.

19. Hatzios, S. K.; Abel, S.; Martell, J.; Hubbard, T.; Sasabe, J.; Munera, D.; Clark, L.; **Bachovchin, D. A.**; Qadri, F.; Ryan, E. T.; Davis , B. M.; Weerapana, E.; Waldor, M. K. "Chemoproteomic profiling of host and pathogen enzymes active in cholera." *Nat Chem Biol.* 2016*,* 12, 268-274.

18. Zhao, N.; Darby, C.; Small, J.; **Bachovchin, D. A.**; Jiang, X.; Burns-Huang, K.; Botella, H.; Ehrt, S.; Boger, D.; Anderson, E.; Cravatt, B. F.; Speers, A.; Fernandez-Vega, V.; Rosen, H.; Spicer, T.; Nathan, C. "A target-based screen against mycobacterial acid resistance protease implicates an additional periplasmic serine protease in regulation of intrabacterial pH homeostasis in *Mycobacterium tuberculosis*." *ACS Chem Biol.* 2015, 10, 364-371.

17. **Bachovchin, D. A.**; Koblan, L. W.; Wu, W.; Liu, Y.; Li, Y.; Zhao, P.; Woznica, I.; Shu, Y.; Lai, J. H.; Poplawski, S. E.; Kiritsy, C. P.; Healey, S. E.; DiMare, M.; Sanford, D. G.; Munford, R. S.; Bachovchin, W. W.; Golub, T. R. "A high-throughput, multiplexed assay for superfamily-wide profiling of enzyme activity." *Nat Chem Biol.* 2014, 10, 656-663.

16. Liu, X.; Dix, M.; Speers, A.; **Bachovchin, D. A**.; Zuhl, A. M.; Cravatt, B. F.; Kodadek, T. "Rapid development of a potent photo-triggered inhibitor of the serine hydrolase RBBP9." *ChemBioChem.* 2012, 13, 2082-2093.

15. Adibekian, A.; Martin, B.; Chang, J. W.; Hsu, K. L.; Tsuboi, K.; **Bachovchin, D. A**.; Speers, A. E.; Brown, S. J.; Spicer, T.; Fernandez-Vega, V.; Rosen, H.; Cravatt, B. F. "Confirming target engagement of reversible inhibitors in vivo by kinetically tuned activity-based probes." *J Am Chem Soc.* 2012, 134, 10345-10348.

14. Dillon, M. B.; **Bachovchin, D. A**.; Brown, S. J.; Finn, M. J.; Rosen, H.; Cravatt, B. F.; Mowen, K. A. "Novel inhibitors for PRMT1 discovered by high-throughput screening using activity-based fluorescence polarization." *ACS Chem Biol.* 2012, 7, 1198-1204.

13. Zuhl, A. M.; Mohr, J. T.; **Bachovchin, D. A.**; Niessen, S.; Hsu, K. L.; Berlin, J. M.; Dochnahl, M.; Lopez-Alberca, M. P.; Fu, G. C.; Cravatt, B. F. "Competitive activity-based protein profiling identifies aza-β-lactams as a versatile chemotype for serine hydrolase inhibition." *J Am Chem Soc.* 2012, 134, 5068-5071.

12. Tsuboi, K.; **Bachovchin, D. A.**; Speers, A. E.; Spicer, T. P.; Fernandez-Vega, V.; Hodder, P.; Rosen, H.; Cravatt, B. F. "Potent and selective inhibitors of glutathione *S*-transferase omega 1 that impair cancer drug resistance." *J Am Chem Soc.* 2011, 133, 16605-16616.

11. Lone, A. M.; **Bachovchin, D. A.**; Westwood, D.; Speers, A. E.; Spicer, T. P.; Fernandez-Vega, V.; Chase, P.; Hodder, P. S.; Rosen, H.; Cravatt, B. F.; Saghatelian, A. "A substrate-free activity-based protein profiling screen for the discovery of selective PREPL inhibitors." *J Am Chem Soc*. 2011, 133, 11665-11674.

10. **Bachovchin, D. A**.[†]; Zuhl, A. M.[†]; Speers, A. E.; Wolfe, M. R.; Weerapana, E.; Brown, S. J.; Rosen, H.; Cravatt, B. F. "Discovery and optimization of sulfonyl acrylonitriles as selective, covalent inhibitors of protein phosphatase methylesterase-1." *J Med Chem*. 2011, 54, 5229-5226.

9. Adibekian, A.; Martin, B. R.; Wang, C.; Hsu, K.; **Bachovchin, D. A.**; Niessen, S.; Hoover, H.; Cravatt, B. F. "Click-generated triazole ureas as a versatile scaffold for ultrapotent in vivo-active serine hydrolase inhibitors." *Nat Chem Biol.* 2011, 7, 469-478.

8. **Bachovchin, D. A.**; Mohr, J. T.; Speers, A. E.; Wang, C.; Berlin, J. M.; Spicer, T. P.; Fernandez-Vega, V.; Chase, P.; Hodder, P. S.; Schürer, S. C.; Nomura, D. K.; Rosen, H.; Fu, G. C.; Cravatt, B. F. "Academic cross-fertilization by public screening yields a remarkable class of protein phosphatase methylesterase-1 inhibitors." *Proc Natl Acad Sci.* 2011, 108, 6811-6816.

7. Weerapana, E.[†]; Wang, C.[†]; Simon, G. M.; Khare, S.; Richter, F.; Dillon, M. B.; **Bachovchin, D.**

A.; Mowen, K.; Baker, D.; Cravatt, B. F. "Quantitative reactivity profiling predicts functional cysteines in native and designed proteins." *Nature.* 2010, *468*, 790-795.

6. **Bachovchin, D. A.**[†]; Ji, T.[†]; Li, W.[†]; Simon, G. M.; Hoover, H.; Niessen, S.; Cravatt, B. F. "A superfamily-wide portrait of serine hydrolase inhibition achieved by library-versus-library screening." *Proc Natl Acad Sci.* 2010, *107*, 20941-20946.

5. Knuckley, B.; Jones, J. E.; **Bachovchin, D. A.**; Slack, J.; Causey, C. P.; Brown, S. J.; Rosen, H.; Cravatt, B. F.; Thompson, P. R. "A Fluopol-ABPP HTS Assay to Identify PAD Inhibitors." *Chem Comm.* 2010, *46,* 7175-7177.

4. **Bachovchin, D. A.**; Wolfe, M. R.; Masuda, K.; Brown, S. J.; Spicer, T. P.; Fernandez-Vega, V.; Chase, P.; Hodder, P.S.; Rosen, H.; Cravatt, B. F. "Oxime esters as selective, covalent inhibitors of the serine hydrolase retinoblastoma-binding protein 9 (RBBP9)." *Bioorg Med Chem Lett*. 2010, *20*, 2254-2258.

3. **Bachovchin, D. A.;** Brown, S. J.; Rosen, H.; Cravatt, B. F.; "Identification of selective inhibitors of uncharacterized enzymes by high-throughput screening with fluorescent activity-based probes." *Nat. Biotechnol.* 2009, *27*, 387-394.

2. Fraunhoffer, K. J.; **Bachovchin, D. A.;** White, M.C. "Hydrocarbon oxidation *vs.* C-C Bond forming approaches for efficient syntheses of oxygenated molecules." *Org Lett.* 2005, *7,* 223-226.

1. Haddad, K. C.; Sudmeier, J. L.; **Bachovchin, D. A.**; Bachovchin, W.W.; "α-lytic protease can exist in two separately stable conformations with different His57 mobilities and catalytic activities." *Proc Natl Acad Sci.* 2005, *102*, 1006-1011.

Reviews and Commentaries:

3. **Bachovchin, D.A. *** "NLRP1: A jack of all trades, or a master of one?" *Mol. Cell*, 2021, 81, 423-425.

2. Taabazuing, C.Y.; Griswold, A.R.; **Bachovchin, D.A.*** "The NLRP1 and CARD8 inflammasomes." *Immunological Reviews*. 2020, doi: 10.1111/imr.12884.

1. **Bachovchin, D. A**.; Cravatt, B. F. "The pharmacological landscape and therapeutic potential of serine hydrolases." *Nat Rev Drug Discov.* 2012, 11, 52-68.

<u>Teaching</u>:

Weill Cornell, Pharmacology I: Chemical Biology 2015-present
Lecture: Pharmacological landscape and therapeutic potential of covalent inhibitors

Weill Cornell, Molecular Pharmacology Cancer Course 2016-present
Lecture: Chemical biology approaches for target and inhibitor discovery in cancer

TPCB, Chemistry in Biology & Medicine 2016-present
Lecture (biennial): Basic biology and therapeutic potential of proteases

Weill Cornell, Pharmacology II: Signal Transduction 2017-present
Lecture: The structure and function of protein kinases

Weill Cornell, Next-Gen Methods 2019-present
Lecture: Chemical screening

Weill Cornell, Systems Pharmacology 2022-present
Lecture: Anti-inflammatory Drugs: Non-steroidals

Weill Cornell, Advanced Topics in Immunology 2019
Lecture: Innate Immune Sensing and Human Disease

TPCB, Principles of Chemical Biology 2015
Lecture: Activity-based protein profiling

Grant Reviews and Study Sections:

NIH Study Sections

Drug Discovery and Molecular Pharmacology (Ad Hoc)	10/2021
Drug Discovery and Molecular Pharmacology (Ad Hoc)	10/2022
Innate Immunity and Inflammation (Ad Hoc)	06/2023
Drug Discovery and Molecular Pharmacology C (Ad Hoc)	10/2023

Additional

Emerson Collective	2019-present
US-Israel Binational Science Foundation (BSF)	2020
Technology Development Fund (MSKCC)	2023-present

Journal Reviewer:

Science, Nature, Nature Biotechnology, Nature Chemistry, Nature Chemical Biology, Molecular Cell, The Journal of the American Chemical Society, *Cell Chemical Biology*, *ACS Chemical Biology, The Journal of Biological Chemistry, Israel Journal of Chemistry, Cell Reports, Cancer Research, Science Signaling, ELife, Cell Death & Disease, Biochemistry, Molecular Pharmaceutics, PeerJ,* and *Trends in Biochemical Sciences*

Mentoring:

Current lab Members:

Graduate students
1. Jeffrey C. Hsiao, *Pharmacology graduate student*, May 2020–present. Understanding redox control of the CARD8 inflammasome.
2. Hsin-Che Huang, *TPCB graduate student*, June 2020–present. Understanding metabolic control of the NLRP1 and CARD8 inflammasomes.
3. Lydia Tsamouri, *Cornell Pharmacology graduate student*, May 2022–present. Characterizing the relationship between reductive stress and protein disorder.
4. Anqi (Nora) Zhou, *TPCB graduate student*, June 2022–present. Characterization of inflammasome-activation danger signals.
5. Ashley Tucewicz, *Cornell BCMB student*, June 2022–present. Characterizing the relationship between metabolism and inflammasome activation.

Postdoctoral fellows
6. Daniel P. Ball, PhD., *postdoctoral fellow*, September 2017–present. Activation of human NLRP1.
7. Qinghui Wang, PhD., *postdoctoral fellow*, October 2018–present. Identification and characterization of small molecules that regulate inflammasome activation.
8. Michael Geeson, PhD., *postdoctoral fellow*, September 2022–present. Determining how cells sense reductive stress.
9. Timothy Bishop, PhD., *postdoctoral fellow*, April 2023-present. Identification and characterization of inflammasome-activating danger signals.
10. Zhencheng Lai, PhD., *postdoctoral fellow*, April 2023-present. Identification and characterization of inflammasome-activating danger signals.

Technicians
11. Kathleen Bishop, June 2023-present. Identification and characterization of inflammasome-activating danger signals.

Undergraduates
12. Judey DaRos, June 2023-present. Investigating homeostasis-altering perturbations that activate inflammasomes.

Former lab members:

Undergraduates
1. Alex Nazzaro, *GSK summer student,* June 2016–August 2016. *Current position*: Graduate Student, New York University.
2. Brooke A. Vittimberga, *GSK summer student,* June 2017–August 2017. *Current position* Undergraduate student, Stanford University.
3. Sophie Kong, ChBSP summer student, June 2018–August 2018. *Current position*: Graduate student, UCSF.
4. Shaochen You, ChBSP summer student, June 2019–August 2019. *Current position*: Graduate student, Scripps Research.
5. Charles Warren, ChBSP summer student, June 2020–August 2020. *Current position*: Graduate student, TPCB.
6. Dominic Covelli, ChBSP summer student, June 2021–August 2021. *Current position*: Graduate student, Caltech.
7. Atara Neugroschl, ChBSP summer student and part time researcher, June 2021–June 2022. *Current position*: Graduate student, TPCB.
8. Isabelle Edmonson, ChBSP summer student, June 2022–August 2022. *Current position*: Undergraduate student, Middlebury College.
9. Judey DaRos, June 2023-December 2023. Investigating homeostasis-altering perturbations that activate inflammasomes.

Technicians
10. Kuo Gai**,** *research technician*, September 2017–May 2020. *Current position:* N/A (could not return from China during the COVID-19 pandemic)
11. Marian C. Okondo, M.S., *research technician,* November 2015–August 2020. *Current position*: Graduate student, Rockefeller University.
12. Alvin Wang**,** *research technician*, January 2021–December 2022. Characterization of NLRP1's N-terminal domains. *Current position*: Applying to graduate schools.
13. Claire O'Mara**,** *research technician*, August 2021–present. Characterization of the NLRP3 and NLRC4 inflammasomes. *Current position*: Graduate student, Harvard University.

Graduate students
14. Darren C. Johnson, Ph.D., *TPCB graduate student*, May 2016–July 2020. *Current position*: Postdoctoral fellow, Pfizer.
15. Ashley J. Chui, Ph.D., *TPCB graduate student*, May 2016–June 2020. *Current position*: Postdoctoral fellow, Pagano Lab, New York University.
16. Sahana D. Rao, *TPCB graduate student*, May 2017–June 2021. Mechanisms of Nlrp1b activation by diverse stimuli. *Current position*: Postdoctoral fellow, Mootha Lab, MGH-Broad Institute.
17. Andrew R. Griswold, *MD-PhD graduate student*, September 2017–September 2021. Development and application of a chemical strategy for protease inhibitor discovery. *Current position*: Resident, Massachusetts Eye and Ear, Harvard University.
18. Elizabeth L. Orth-He, *TPCB graduate student*, May 2018–April 2022. Identification and characterization of the DPP8/9 danger signal. *Current position*: Management consulting.

Postdoctoral fellows
19. Cornelius Y. Taabazuing, PhD., *postdoctoral fellow*, April 2016–December 2021. Mechanism of CARD8 activation by DPP8/9 inhibitors. *Current position*: Assistant Professor, University of Pennsylvania.
20. Qifeng Chen, PhD., *postdoctoral fellow*, April 2020–September 2022. Synthesis and characterization of protease inhibitors. *Current position*: Assistant Professor, Sichuan University.
21. Abir Bhattacharjee, PhD., *postdoctoral fellow*, August 2018–September 2022. Synthesis and characterization of small molecule inflammasome modulators. *Current position*: Research Scientist, Brady Lab, Rockefeller University.

Invited Seminars:

- "Innate Immune Sensing of Intracellular Redox Potential." July 18, 2024, Gordon Research Conference, Thiol-Based Redox Regulation and Signaling, Barcelona, Spain.

- "Innate Immune Sensing of Intracellular Redox Potential." May 3, 2024, Scripps Research, San Diego, CA.

- "The NLRP1 and CARD8 Inflammasomes." November 28, 2023, Inflammasome Therapeutics Meeting, Boston, MA.

- "Small molecule activators of the NLRP1 inflammasome." October 19, 2023, Woodward Department Colloquium Series, Department of Chemistry and Chemical Biology, Harvard University, Cambridge, MA.

- "Small molecule activators of the NLRP1 and CARD8 inflammasomes." September 12, 2023, Abbvie Inc, Chicago, IL.

- "Small molecule activators of the NLRP1 and CARD8 inflammasomes." August 3, 2023, Gordon Research Conference, High Throughput Chemistry and Chemical Biology, New London, NH.

- "The NLRP1 and CARD8 inflammasomes." May 4-5, 2023, Case Western Reserve University, Inflammasomes & gasdermin proteins as regulators of innate immunity symposium, Cleveland, OH.

- "The NLRP1 and CARD8 inflammasomes." January 26, 2023, ViiV Healthcare, Branford, CT.

- "The NLRP1 and CARD8 inflammasomes." December 8, 2022, Pew Annual Meeting, Los Suenos, Costa Rica.

- "The NLRP1 and CARD8 inflammasomes." December 1, 2022, Inflammasome Therapeutics Meeting, Boston, MA.

- "The NLRP1 and CARD8 inflammasomes" April, 28, 2022, Oregon Health Sciences University Chemical Biology & Physiology Symposium, Portland, OR.

- "The NLRP1 and CARD8 inflammasomes" February 18, 2022, Biochemistry and Molecular Biology Seminar Series, University of Massachusetts Medical School, Worcester, MA.

- "The NLRP1 and CARD8 inflammasomes" January 12, 2022, UNC Lineberger Seminar Series, University of North Carolina, NC (virtual seminar)

- "The NLRP1 and CARD8 inflammasomes" January 10, 2022, Pathology Seminar Series, New York University, New York, NY (virtual seminar)

- "Recent insights into NLRP1 and CARD8 inflammasome activation" October 27, 2021, Molecular Discovery Seminar Series for the Chemical Biology Laboratory, National Cancer Institute, Frederick, MD (virtual seminar)

- "A Chemical Strategy for Protease Substrate Profiling" October 19, 2021, Pershing Square Sohn Cancer Research Alliance Retreat, New York, NY

- "Recent insights into NLRP1 and CARD8 inflammasome activation" September 22, 2021, EMBO Workshop – The Inflammasomes: The next frontier, Martinsried, Germany

- "Activation of the NLRP1 and CARD8 Inflammasomes" May 10, 2021, Department of Pathology, Weill Cornell Medical College, New York, NY (virtual seminar)

- "Activation of the NLRP1 Inflammasome" March 23, 2021, EPFL Seminar Series, Lausanne, Switzerland (virtual seminar)

- "Activation of the NLRP1 Inflammasome" February 8, 2021, Gene Center, Ludwig-Maximilians Universitat, Munich, Germany (virtual seminar)

- "Activation of the NLRP1 Inflammasome" November 6, 2020, Inflammasome Therapeutics Summit, Boston, MA, 2020 (virtual seminar)

- "Activation of the NLRP1 Inflammasome" November 3, 2020, Department of Pharmacology, Weill Cornell Medicine, New York, NY (virtual seminar)

- "Recent insights into CARD8 activation" October 26, 2020, InflammaZoom Webinar Series, Cambridge Immunology Network, University of Cambridge, UK (virtual seminar)

- "Activation of the NLRP1 Inflammasome" February 4, 2020, Oregon Health Sciences University, Portland, OR.

- "Activation of the CARD8 Inflammasome" November 14, 2019, Gabrielle's Angel Foundation

Symposium, Miami, FL.

- "Activation of the NLRP1 Inflammasome" October 31, 2019, Inflammasome Therapeutics Summit, Boston, MA.

- "Activation of the NLRP1 Inflammasome" October 1, 2019, Merck/NYC Symposium, New York, New York.

- "Activation of the NLRP1 Inflammasome" July 23, 2019, FASEB Microbial Pathogenesis, Aspen Snowmass, Colorado.

- "A Chemical Strategy for Protease Substrate Profiling" June 6, 2019, Pfizer Pershing Square Sohn Retreat, Pearl River, New York.

- "DPP8/9 inhibitor-induced pyroptosis." March 27, 2019, Immunology and Microbiology Program, University of Massachusetts Medical School, Worcester, Massachusetts.

- "DPP8/9 inhibitor-induced pyroptosis." September 26, 2018, EMBO Workshop – The Inflammasomes, Martinsried, Germany.

- "Small molecule inducers of pyroptosis." June 5, 2018, Gordon Research Conference – Proteolytic enzymes and their inhibitors, Lucca, Italy.

- "Mechanism and therapeutic potential of small molecule inducers of pyroptosis." April 12, 2018, Center for Experimental Therapeutics Retreat, New York, NY.

- "Mechanism and therapeutic potential of small molecule inducers of pyroptosis." March 18, 2018, Pew Annual Meeting, Marana, AZ.

- "Inhibition of DPP8/9 induces pyroptosis in monocytes and macrophages." March 10, 2017, Department of Chemical and Biomolecular Engineering, New York University Tandon School of Engineering, New York, New York.

- "Inhibition of DPP8/9 induces pyroptosis in monocytes and macrophages." February 8, 2017, GTCBio 3rd Protease Inhibitors in Drug Discovery Conference, San Diego, California.

- "Inhibition of DPP8/9 induces pyroptosis in monocytes and macrophages." February 6, 2017, Department of Chemistry and Biochemistry, Queens College, New York, New York.

- "Mechanism and therapeutic potential of small molecule pyroptosis inducers." January 12, 2017, Pediatric Grand Rounds, Memorial Sloan Kettering Cancer Center, New York, New York.

- "Small molecule inducers of pyroptotic cell death." October 25, 2016, New York Academy of Sciences – Emerging Paradigms in Drug Discovery & Chemical Biology, New York, New York.

- "Inhibition of DPP8/9 induces pro-caspase-1-dependent pyroptosis in monocytes and macrophages." September 15, 2016, Baruch College, New York, New York.

- "EnPlex: High-throughput, family-wide profiling of enzyme activity." March 2, 2016, GTCBio 2nd Protease Inhibitors in Drug Discovery Conference, San Diego, California.

- "EnPlex: High-throughput, family-wide profiling of enzyme activity." October 7, 2015, International Proteolysis Society Annual Meeting, Penang, Malaysia.

- "A High-Throughput Multiplexed Assay for Superfamily-wide Profiling of Enzyme Activity." November 5, 2014, Cambridge Biomedical and Luminex Technical Seminar, Cambridge, MA.

- "High-throughput, family-wide profiling of serine hydrolase inhibitors." November 13, 2013, Broad Institute Retreat, Boston, MA.

- "Multiplexed, high-throughput activity-based protein profiling of serine hydrolases." February 19, 2013, Broad Cancer Program Meeting, Cambridge, MA.

- "Aza-β-lactams as selective, covalent inhibitors of serine hydrolases." September 14, 2011, Applied Pharmaceutical Analysis Conference, Boston, MA.

- "Discovery of a remarkable class of protein phosphatase methylesterase-1 (PME-1) inhibitors." May 1, 2011, World Molecular Engineering Network Meeting, San Jose del Cabo, Mexico.

- "Discovery and characterization of an aza-β-lactam inhibitor of protein phosphatase methylesterase-1 (PME-1)." May 2, 2010, World Molecular Engineering Network Meeting, San Jose del Cabo, Mexico.

- "Identification of selective inhibitors of uncharacterized enzymes by high-throughput screening with fluorescent activity-based probes." September 11, 2009, TSRI Graduate Student Retreat, San Diego, CA.