CURRICULUM VITAE

PERSONAL INFORMATION

LINDSEY INGERMAN JAMES, Ph.D.

ingerman@email.unc.edu · 919-962-4870

3202 Marsico Hall, CB 7363 · 125 Mason Farm Rd · Chapel Hill, NC 27599

EDUCATION

June 2010	**University of North Carolina**, Chapel Hill, NC Ph.D. Bioorganic Chemistry
May 2005	**Colgate University**, Hamilton, NY Bachelor of Arts (B.A.) in chemistry, Minor in sociology

PROFESSIONAL EXPERIENCE

2019 – present	**Member**, Molecular Therapeutics Program**,** Lineberger Comprehensive Cancer Center, The University of North Carolina, Chapel Hill, NC
2019 – present	**Member**, UNC HIV Cure Center**,** The University of North Carolina, Chapel Hill, NC
2019 – present	**Assistant Professor**, Division of Chemical Biology and Medicinal Chemistry, UNC Eshelman School of Pharmacy, The University of North Carolina, Chapel Hill, NC
2017 – present	**Director of Chemical Biology**, Center for Integrative Chemical Biology and Drug Discovery, UNC Eshelman School of Pharmacy, The University of North Carolina, Chapel Hill, NC
2017 – 2019	**Research Associate Professor**, Division of Chemical Biology and Medicinal Chemistry, UNC Eshelman School of Pharmacy, The University of North Carolina, Chapel Hill, NC
2013 – 2016	**Research Assistant Professor**, Division of Chemical Biology and Medicinal Chemistry, UNC Eshelman School of Pharmacy, The University of North Carolina, Chapel Hill, NC
2012 – 2014	**Visiting Scientist**, GlaxoSmithKline, Research Triangle Park, NC ▪ Chemical Biology, Sponsor: Timothy Willson ▪ Utilized chemical proteomics to study epigenetic chemical probes and their targets
2010 – 2012	**Post-doctoral Fellow**, Division of Chemical Biology and Medicinal Chemistry, UNC Eshelman School of Pharmacy, The University of North Carolina, Chapel Hill, NC ▪ Advisor: Stephen Frye ▪ Designed, synthesized, and studied novel small molecule antagonists of epigenetic targets, specifically methyl-lysine binding proteins

Three maternity leaves taken: 01/2014 – 04/2014, 12/2016 – 03/2017, 11/2021 – 02/2022

HONORS AND AWARDS

2023	UNC Creativity Hubs Finalist
2017	UNC Junior Faculty Development Award
2016	UNC Lineberger Development Award

2016 CNIHR (Creative and Novel Ideas in HIV Research) Awardee
2014 Structural Genomics Consortium Fellow
2008 Chemical and Biological Physical Science and Technology scholarship, 2008
2008 ACS Division of Organic Chemistry Travel Award
2006 Graduate Teaching Award, UNC
2005 McGregory Fellowship in Chemistry for top graduating chemistry student, Colgate University
2005 Scholarship Achievement Award, Colgate University
2002 CRC PRESS Chemistry Achievement Award for top performing general chemistry student, Colgate University

OTHER NOTABLE RECOGNITIONS

2022 Lineberger Comprehensive Cancer Center feature article: 'Lindsey James: Building a career, one molecule at a time' (https://unclineberger.org/news/lindsey-james-building-a-career-one-molecule-at-a-time/)
2022 UNC undergraduate admissions brochure feature
2020 Feature article in UNC's publication Well Said: 'Investigating potential cancer treatments' (https://www.unc.edu/discover/well-said-investigating-potential-cancer-treatments/)

BIBLIOGRAPHY AND PRODUCTS OF SCHOLARSHIP

REFERRED PAPERS (*denotes corresponding author)
Citation statistics from Google Scholar (July 2022): *h-index: 25; citations: 2,125*

Publications from UNC tenure-track position

1. Zhu, Z.; Johnson, R. L.; Zhang, Z.; Herring, L. E.; Jiang, G.; Damania, B.; **James, L. I.***; Liu, P.* "Development of VHL-recruiting STING PROTACs that suppress innate immunity." *Cell Reports Medicine*, submitted, Jan. **2023**.

2. Vital, T.; Wali, A.; Butler, K. V.; Foster, J. P.; Marcel, S. S.; McFadden, A. W.; Nguyen V. U.; Bailey, B. M.; Lamb, K. N.; **James, L. I.**; Frye, S. V.; Mosely, A. L.; Jin, J.; Pattenden, S. G.; Davis, I. J.* "UNC0621MS0621, a novel small-molecule modulator of Ewing sarcoma chromatin accessibility, interacts with an RNA-associated macromolecular complex and influences RNA splicing." *Front. Oncol.*, accepted, Jan. **2023**.

3. Potjewyd, F. M.; Foley, C. A.; Ong, H. W.; Rectenwald, J. M.; Hanley, R. P.; Norris-Drouin, J. L.; Cholensky, S. H.; Mills, C. A.; Pearce, K. H.; Herring, L. E.; Kireev, D.; Frye, S. V.; **James, L. I.*** "PROTAC linkerology leads to an optimized bivalent chemical degrader of Polycomb Repressive Complex 2 (PRC2) components." *ACS Chem. Biol.*, under revision, Dec. **2022**.

4. Hanley, R. P.; Nie, D. Y.; Tabor, J. R.; Li, F.; Sobh, A.; Xu, C.; Barker, N. K.; Dilworth, D.; Hajian, T.; Gibson, E.; Szewczyk, M. M.; Brown, P. J.; Barsyte-Lovejoy, D.; Herring, L. E.; Wang, G. G.; Licht, J. D.; Vedadi, M.; Arrowsmith, C. H.*; **James, L. I.*** "Discovery of a potent and selective targeted NSD2 degrader for reduction of H3K36me2." *JACS*, under revision, Sept. **2022**.

5. Spangler, C. J.; Skrajna, A.; Foley, C. A.; Nguyen, A.; Budziszewski, G. R.; Azzam, D. N.; Arteaga, E. C.; Simmons, H. C.; Smith, C. B.; Wesley, N. A.; Wilkerson, E.; McPherson, J-M. E.; Kireev, D.; **James, L. I.**; Frye, S. V.; Goldfarb, D.; McGinty, R. K.* "Structural basis of paralog-specific KDM2A/B nucleosome recognition." *Nat. Chem. Biol.*, accepted, Oct. **2022**.

6. Shell, D. J.; Rectenwald, J. M.; Buttery, P. H.; Johnson, R. L.; Foley, C. A.; Guduru, S. K.; Uguen, M.; Rubiano, J. S.; Zhang, X.; Li, F.; Norris-Drouin, J. L.; Hardy, P. B.; Vedadi, M.; Frye, S. V.; **James, L. I.**; Pearce, K. H.* "Discovery of hit compounds for methyl-lysine reader proteins from a target class DNA-encoded library." *SLAS Discov.* **2022**, *27*, 428-439.

7. Healy, E.; McCole, R.; Monger, C.; Brien, G. L.; Wang, C.; Neikes, H. K.; Potjewyd, F.; Vermeulen, M.; **James, L. I.**; Bracken, A. P.* "Canonical PRC1 recruitment is promoted by EZH1-PRC2 in quiescent cells independently of active H3K27me3 deposition." *Mol. Cell*, under revision, April **2022**.

8. Falcinelli, S. D.; Peterson, J. J.; Turner, A-M. W.; Irlbeck, D.; Read, J.; Raines, S. L. M.; James, K. S.; Sutton, C.; Sanchez, A.; Emery, A.; Sampey, G.; Ferris, R.; Allard, B.; Ghofrani, S.; Kirchherr, J. L.; Baker, C.; Kuruc, J. D.; Gay, C. L.; **James, L. I.**; Wu, G.; Zuck, P.; Rioja, I.; Furze, R. C.; Prinjha, R. K.; Howell, B. J.; Swanstrom, R.; Browne, E. P.; Srahl, B. D.; Dunham, R. M.; Archin, N. M.; Margolis, D. M.* "Combined noncanonical NF-KB agonism and targeted BET bromodomain inhibition reverse HIV latency ex vivo." *J. Clin. Investig.* **2022**, 132(8): e157281.

9. Lu, D.; Foley, C. A.; Birla, S. V.; Hepperla, A. J.; Simon, J. M.; **James, L. I.***; Hathaway, N. A.* "Bioorthogonal chemical epigenetic modifiers enable dose-dependent CRISPR targeted gene activation." *ACS Synth. Biol*. **2022**, *11*, 1397-1407.

10. Sun, Z-W.; Waybright, J. M.; Beldar, S.; Chen, L.; Foley, C. A.; Norris-Drouin, J. L.; Lyu, T-J.; Dong, A.; Min, J.; Wang, Y-P; **James, L. I.***; Wang, Y.* "Cdyl deficiency brakes neuronal excitability and nociception through promoting Kcnb1 transcription in peripheral sensory neurons." *Adv. Sci*. **2022**, 2104317.

11. Kean, K.; Baril, S.; Lamb, K. N.; Dishman, S. N.; Treacy, J.; Houk, K.; Brustad, E.; **James, L. I.**; Waters, M. L.* "Systematic variation of both the aromatic cage and dialkyllysine reveal mechanistic insights in CBX5 reader protein binding." *J. Med. Chem*. **2022**, *65*, 2646-2655.

12. Lamb, K. N.; Dishman, S. N.; Waybright, J. M.; Engelberg, I. A.; Rectenwald, J. M.; Norris-Drouin, J. L.; Cholensky, S. H.; Pearce, K. H.; **James, L. I.**; Frye, S. V.* "Discovery of Potent Peptidomimetic Antagonists for Heterochromatin Protein 1 Family Proteins." *ACS Omega* **2022**, *7*, 716-732.

13. Suh, J. L.; Bsteh, D.; Hart, B.; Si, Y.; Weaver, T. M.; Pribitzer, C.; Lau, R.; Soni, S.; Ogana, H.; Rectenwald, J. M.; Norris, J. L.; Cholensky, S. H.; Sagum, C.; Umana, J. D.; Li, D.; Hardy, B.; Bedford, M. T.; Mumenthaler, S. M.; Lenz, H-J.; Kim, Y-M.; Wang, G. G.; Perace, K. H.; **James, L. I.**; Kireev, D. B.; Musselman, C. A.; Frye, S. V.*; Bell, O.* "Reprogramming CBX8-PRC1 function with a positive allosteric modulator." *Cell Chem. Biol*. **2022**, *29*, 1-17.

14. Dilworth, D.; Hanley, R. P.; Rerreira de Freitas, R.; Allali-Hassani, A.; Zhou, M.; Mehta, N.; Marunde, M. R.; Ackloo, S.; Machado, R. A. C.; Yazdi, A. K.; Owens, D. D. G.; Vu, V.; Nie, D. Y.; Alqazzaz, M.; Marcon, E.; Li, F.; Chau, I.; Bolotokova, A.; Qin, S.; Lei, M.; Liu, Y.; Szewczyk, M. M.; Dong, A.; Kazemzadeh, S.; Abramyan, T.; Pipova, I. K.; Hall, N. W.; Meiners, M. J.; Cheek, M. A.; Gibson, E.; Kireev, D.; Greenblat, J. F.; Keogh, M-C.; Min, J.; Brown, P. J.; Vedadi, M.; Arrowsmith, C. H.; Barsyte-Lovejoy, D.*; **James, L. I.***; Schapira, M.* "A chemical probe targeting the PWWP domain alters NSD2 nucleolar localization." *Nat. Chem. Biol.* **2022**, *18*, 56-64.

15. Waybright, J. M.; Clinkscales, S. E.; Barnash, K. D.; Budziszewski, G. R.; Rectenwald, J. M.; Chiarella, A. M.; Norris-Drouin, J. L.; Cholensky, S. H.; Pearce, K. H.; Herring, L. E.; McGinty, R. K.; Hathaway, N. A.; **James, L. I.*** "A peptidomimetic ligand targeting the chromodomain of MPP8 reveals HRP2's association with the HUSH complex." *ACS Chem. Biol*. **2021**, *16*, 1721-1736.

16. Engelberg, I. A.; Liu, J.; Norris, J. L.; Cholensky, S. H.; Ottavi, S. A.; Frye, S. V.; Kutateladze, T. G.*; **James, L. I.*** "Discovery of an H3K36me3-derived peptidomimetic ligand with enhanced affinity for plant homeodomain finger protein 1 (PHF1)." *J. Med. Chem*. **2021**, *64*, 8510-8522.

17. Engelberg, I. A.; Foley, C. A.; **James, L. I.**; Frye, S. V.* "Improved methods for targeting epigenetic reader domains of acetylated and methylated lysine." *Curr. Opin. Chem. Biol*. **2021**, *63*, 132-144.

18. Rerreira de Freitas, R.; Liu, Y.; Szewczyk, M. M.; Mehta, N.; Li, F.; McLeod, D.; Zepeda-Velazquez, C.; Dilworth, D.; Hanley, R. P.; Gibson, E.; Brown, P. J.; Al-Awar, R.; **James, L. I.**; Arrowsmith, C. H.; Barsyte-Lovejoy, D.; Min, J.; Vedadi, M.; Schapira, M.*; Allali-Hassani, A.* "Discovery of small molecule antagonists of the PWWP domain of NSD2." *J. Med. Chem.* **2021**, *64*, 1584-1592.

19. Jefferys, S. R.; Burgos, S. D.; Peterson, J. J.; Selitsky, S. R.; Turner, A-M. W.; **James, L. I.**; Tsai, Y-H.; Coffey, A. R.; Margolis, D. M.; Parker, J.; Browne, E. P.* "Epigenomic characterization of latent HIV infection identifies latency regulating transcription factors." *PLOS Pathog.* **2021**, *17*, e1009346.

20. Dong, C.; Liu, Y.; Lyu, T.; Beldar, S.; Lamb, K. N.; Tempel, W.; Li, Y.; Li, Z.; **James, L. I.**; Qin, S.*; Wang, Y.*; Min, J.* "Structural basis for the binding selectivity of human CDY chromodomains." *Cell Chem. Biol*. **2020**, *27*, 827-838.

21. Turner, A-M. W.; Dronamraju, R.; Potjewyd, F.; James, K. M.; Winecoff, D. K.; Kirchherr, J. L.; Archin, N. M.; Browne, E. P.; Strahl, B. D.; Margolis, D. M.*; **James, L. I.*** "Evaluation of EED inhibitors as a new class of PRC2-targeted small molecules for HIV latency reversal." *ACS Infect. Dis*. **2020**, *6*, 1719-1733. (**ACS Editors' Choice article**)

22. Foley, C. A.; Potjewyd, F.; Lamb, K. N.; **James, L. I.**; Frye, S. V.* "Assessing the cell permeability of bivalent chemical degraders using the chloroalkane penetration assay." *ACS Chem. Biol*. **2020**, *15*, 290-295.

23. Potjewyd, F.; Turner, A-M. W.; Beri, J.; Rectenwald, J. M.; Norris-Drouin, J. L.; Cholensky, S. H.; Margolis, D. M.; Pearce, K. H.; Herring, L. E.; **James, L. I.*** "Degradation of Polycomb Repressive Complex 2 with an EED-targeted bivalent chemical degrader." *Cell Chem. Biol*. **2020**, *27*, 47-56.

24. Waybright, J. M.; **James, L. I.*** "Getting a handle on chemical probes of epigenetic readers." *Future Med. Chem*. **2020**, *13*, 749-763.

25. Ervin, S. M.; Hanley, R. P.; Lim, L.; Walton, W. G.; Pearce, K. H.; Bhatt, A. P.; **James, L. I.**; Redinbo, M. R.* "Targeting regorafenib-induced toxicity through inhibition of gut microbial β-glucuronidases." *ACS Chem. Biol*. **2019**, *14,* 2737-2744.

26. Hu, L.; Xie, H.; Liu, X.; Potjewyd, F.; **James, L. I.**; Wilkerson, E. M.; Herring, L. E.; Xie, L.; Chen, X.; Cabrera, J. C.; Hong, K.; Liao, C.; Tan, X.; Baldwin, A. S.; Gong, K.; Zhang, Q.* "TBK1 is a synthetic lethal target in cancers with VHL loss." *Cancer Discov.* **2019**, *14*, 2737-2744.

Publications from UNC research-track position

27. Lamb, K. N.; Bsteh, D.; Dishman, S. N.; Moussa, H. F.; Fan, H.; Stuckey, J. I.; Norris, J. L.; Cholensky, S. H.; Li, D.; Wang, J.; Sagum, C.; Stanton, B. Z.; Bedford, M. T.; Kenakin, T. P.; Kireev, D. B.; Wang, G. G.; **James, L. I.**; Bell, O.*; Frye, S. V.* "Discovery and characterization of a cellularly potent positive allosteric modulator of the Polycomb Repressive Complex 1 chromodomain, CBX7." *Cell Chem. Biol*. **2019**, *26*, 1365-1379.

28. Rectenwald, J. M.; Hardy, P. B.; Norris-Drouin, J. L.; Cholensky, S. H.; **James, L. I.**; Frye, S. V.; Pearce, K. H.* “A general TR-FRET assay platform for high-throughput screening and characterizing inhibitors of methyl-lysine reader proteins.” *SLAS Discov*. **2019**, *24*, 693-700.

29. Moussa, H. F.; Betsh, D.; Yelagandula, C. P.; Stecher, K.;Bartalska, K.; Michetti, L.; Wang, J.; Zepeda-Martinez, J. A.; Elling, U.; Stuckey, J. I.; **James, L. I.**; Frye, S. V.; Bell, O.* “Canonical PRC1 controls sequence-independent propagation of Polycomb-mediated gene silencing.” *Nat. Commun*. **2019**, *10*, 1931-1942.

30. Suh, J. L.; Barnash, K. D.; Abramyan, T. M.; Li, F.; The, J.; Engelberg, I. A.; Vedadi, M.; Brown, P. J.; Kireev, D. B.; Arrowsmith, C. H.*; **James, L. I.**; Frye, S. V.* “Discovery of selective activators of PRC2 mutant EED-I363M.” *Sci. Rep*. **2019**, *9*, 6524-6533.

31. Hopcraft, S. E.; Pattenden, S. G.; **James, L. I.**; Frye, S. V.; Dittmer, D. P.; Damania, B.* “Chromatin remodeling controls Kaposi's sarcoma-associated herpesvirus reactivation from latency.” *PLOS Pathogens*. **2018**, *14*, e1007267.

32. Pellock, S. J.; Creekmore, B. C.; Walton, W. G.; Mehta, N.; Biernat, K. A.; Cesmat, A. P.; Ariyarathna, Y.; Dunn, Z. D.; Li, B.; Jin, J.; **James, L. I.**; Redinbo, M. R.* “Gut Microbial β-Glucuronidase Inhibition via Catalytic Cycle Interception.” *ACS Cent. Sci*. **2018**, *4*, 868-879.

33. Suh, J. L.; Watts, B.; Stuckey, J. I.; Norris-Drouin, J. L.; Cholensky, S. H.; Dickson, B. M.; An, Y.; Mathea, S.; Salah, E.; Knapp, S.; Khan, A.; Adams, A. T.; Strahl, B. D.; Sagum, C. A.; Bedford, M. T.; **James, L. I.**; Kireev, D. B.*; Frye, S. V.* “Quantitative characterization of bivalent probes for a dual bromodomain protein, Transcription Initiation Factor TFIID subunit 1, TAF1.” *Biochemistry* **2018**, *57*, 2140-2149.

34. Juliano, R. L.*; Wang, L.; Tavares, F.; Brown, E. G.; **James, L. I.**; Ariyarathna, Y.; Ming, X.; Mao, C.; Suto, M. “Structure-activity relationships and cellular mechanism of action of small molecules that enhance the delivery of oligonucleotides.” *Nucleic Acids Res*. **2018**, *46*, 1601-1613.

35. Barnash, K. D.; **James, L. I.**; Frye, S. V.* “Target class drug discovery.” *Nat. Chem. Biol*. **2017**, *13*, 1053-1056.

36. Barnash, K. D.; Lamb, K. N.; **James, L. I.**; Frye, S. V.* “Peptide technologies in the development of chemical tools for chromatin-associated machinery.” *Drug Dev. Res*. **2017**, *78*, 300-312.

37. Wang, L.; Ariyarathna, Y.; Ming, X.; Yang, B.; **James, L. I.**; Kreda, S. M.; Porter, M.; Janzen, W.; Juliano, R. L.* “A novel family of small molecules that enchance the intracellular delivery and pharmacological effectiveness of antisense and splice switching oligonucleotides.” *ACS Chem. Bio*. **2017**, *12*, 1999-2007.

38. Barnash, K. D.; The, J.; Norris-Drouin, J. L.; Cholensky, S. H.; Worley, B. M.; Li, F.; Stuckey, J. I.; Brown, P. J.; Vedadi, M.; Arrowsmith, C. H.; Frye, S. V.*; **James, L. I.*** “Discovery of peptidomimetic ligands of EED as allosteric inhibitors of PRC2.” *ACS Comb. Sci*. **2017**, *19*, 161-172.

39. Stuckey, J. I.; Simpson, C.; Norris-Drouin, J. L.; Cholensky, S. H.; Lee, J.; Pasca, R.; Cheng, N.; Dickson, B. M.; Pearce, K. H.; Frye, S. V.*; **James, L. I.*** “Structure-activity relationships and kinetic studies of peptidic antagonists of CBX chromodomains.” *J. Med. Chem*. **2016**, *59*, 8913-8923.

40. Zhou, H.; Che, X.; Bao, G.; Wang, N.; Peng, L.; Barnash, K. D.; Frye, S. V.; **James, L. I.***; Bai, X.* "Design, synthesis, and protein methyltransferase activity of a unique set of constrained amine containing compounds." *Bioorg. Med. Chem. Lett*. **2016**, *26*, 4436-4440.

41. Barnash, K. D.; Lamb, K. N.; Stuckey, J. I.; Norris, J. L.; Cholensky, S. H.; Kireev, D. B.; Frye, S. V.*; **James, L. I.*** "Chromodomain ligand optimization via target-class directed combinatorial repurposing." *ACS Chem. Biol*. **2016**, *11*, 2475-2483.

42. **James, L. I.**; and Frye, S. V.* "Chemical probes for methyl lysine reader domains." *Curr. Opin. Chem. Biol*. **2016**, *33*, 135-141.

43. Stuckey, J. I.; Dickson, B. M.; Cheng, N.; Liu, Y.; Norris, J. L.; Cholensky, S. H.; Tempel, W.; Qin, S.; Huber, K. G.; Sagum, C.; Black, K.; Li, F.; Huang, X-P; Roth, B. L.; Baughman, B. M.; Senisterra, G.; Pattenden, S. G.; Vedadi, M.; Brown, P. J.; Bedford, M. T.; Min, J.; Arrowsmith, C. H.; **James, L. I.***; Frye, S. V.* "A cellular chemical probe targeting the chromodomains of Polycomb Repressive Complex 1." *Nat. Chem. Biol.* **2016**, *12*, 180-187.

44. Perfetti, M. T.; Baughman, B. M.; Dickson, B. M.; Mu, Y.; Cui, G.; Mader, P.; Dong, A.; Norris, J. L.; Rothbart, S. B.; Strahl, B. D.; Brown, P. J.; Janzen, W. P.; Arrowsmith, C. H.; Mer, G.; McBride, K. M.; **James, L. I.***; Frye, S. V.* "Identification of a fragment-like small molecule ligand for the methyl-lysine binding protein, 53BP1." *ACS Chem. Biol.* **2015**, *10*, 1072-1081.

45. Camerino, M. A.; Zhong, N.; Dong, A.; Dickson, B. M.; **James, L. I.**; Baughman, B. M.; Norris, J. L.; Kireev, D. B.; Janzen, W. P.; Arrowsmith, C. H.; Frye, S. V.* "The structure-activity relationships of L3MBTL3 inhibitors: flexibility at the dimer interface." *Med. Chem. Commun.* **2013**, *4*, 1501-1507.

46. Konze, K. D.; Ma, A., Li, F.; Barsyte-Lovejoy, D.; Parton, T.; MacNevin, C. J.; Liu, F.; Gao, C.; Huang, X.-P., Kuznetsova, E.; Rougie, M.; Jiang, A.; Pattenden, S. G.; Norris, J. L.; **James, L. I.**; Roth, B. L.; Brown, P. J.; Frye, S. V.; Arrowsmith, C. H.; Hahn, K. M.; Wang, G. G.; Vedadi, M.; Jin, J.* "An orally bioavailable chemical probe of the lysine methyltransferases EZH2 and EZH1." *ACS Chem. Biol.* **2013**, *8*, 1324-1334.

Publications from post-doctoral and graduate research

47. Beaver, J. E.; Peacor, B. C.; Bain, J. V.; **James, L. I.**; Waters, M. L.* "Contributions of pocket depth and electrostatic interactions to affinity and selectivity of receptors for methylated lysine in water." *Org. Biomol. Chem*. **2015**, *13*, 3220-3226.

48. **James, L. I.**; Korboukh, V. K.; Krichevsky, L.; Baughman, B. M.; Herold, J. M.; Norris, J. L.; Jin, J.; Kireev, D. B.; Janzen, W. P.; Arrowsmith, C. H.; Frye. S. V.* "Small-molecule ligands of methyl-lysine binding proteins: optimization of selectivity for L3MBTL3." *J. Med. Chem.* **2013**, *56*, 7358-7371.

49. **James, L. I.**; Beaver, J. E.; Rice, N. W.; Waters, M. L.* "A synthetic receptor for asymmetric dimethylarginine." *J. Am. Chem. Soc.* **2013**, *135*, 6450-6455.

50. **James, L. I.**; Frye, S. V.* "Targeting chromatin readers." *Clin. Pharmacol. Ther.* **2013**, *93*, 312-314.

51. **James, L. I.**; Barsyte-Lovejoy, D.; Zhong, N.; Krichevsky, L.; Korboukh, V. K.; Herold, J. M.; MacNevin, C. J.; Norris, J. L.; Sagum, C. A.; Tempel, W.; Marcon, E.; Guo, H.; Gao, C.; Huang, X.-P.; Duan, S.; Emili, A.; Greenblatt, J.; Kireev, D. B.; Jin, J.; Janzen, William P.; Brown, P. J.; Bedford, M. T.; Arrowsmith, C. H.*; Frye, S. V.* "Discovery of a chemical probe for a methyl-lysine reader domain: L3MBTL3." *Nat. Chem. Biol.* **2013**, *9*, 184-191. (**Cover story**)

52. Herold, J. M.; **James, L. I.**; Korboukh, V. K.; Gao, C.; Coil, K. E.; Bua, D. J.; Norris, J. L.; Kireev, D. B.; Brown, P. J.; Jin, J.; Janzen, W. P.; Gozani, O.; Frye, S. V.* "Structure-activity relationships of methyl-lysine reader antagonists." *Med. Chem. Commun.* **2012**, *3*, 45-51.

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54. Herold, J. M.; Wigle, T. J.; Norris, J. L.; Lam, R.; Korboukh, V. K.; Gao, C.; **Ingerman, L. A.**; Kireev, D. B.; Senisterra, G.; Vedadi, M.; Tripathy, A.; Brown, P. J.; Arrowsmith, C. H.; Jin, J.; Janzen, W. P.; Frye. S. V.* "Small-molecule ligands of methyl-lysine binding proteins." *J. Med. Chem.* **2011**, *54*, 2504-2511.

55. **Ingerman, L. A.**; Cuellar, M. E.; Waters, M. L.* "A small molecule receptor that selectively recognizes trimethyl lysine in a histone peptide with native protein-like affinity." *Chem. Commun.* **2010**, *46*, 1839-1841. (**Selected as 'hot article'**)

56. Ghosh, S.; **Ingerman, L. A.**; Frye, A. G.; Lee, S. J.; Gagne, M. R.*; Waters, M. L.* "Dynamic cyclic thiodepsipeptide libraries from thiol-thioester exchange." *Org. Lett.* **2010**, *12*, 1860-1863.

57. **Ingerman, L. A.**; Waters, M. L.* "Photoswitchable dynamic combinatorial libraries: coupling azobenzene photoisomerization with hydrazone exchange." *J. Org. Chem.* **2009**, *74*, 111-117.

58. Hou, Y.-M.*; Gu, S.-Q.; Zhou, H.; **Ingerman, L.** "Metal-ion-dependent catalysis and specificity of CCA-adding enzymes: a comparison of two classes." *Biochemistry* **2005**, *44*, 12849-12859.

BOOK CHAPTERS

1. Frye S. V., **James L. I**. Small-molecule modulation of methyl-lysine-mediated interactions. In: *Histone Recognition.* Zhou, M.-M. (ed.), Springer International Publishing, **2015**, 243-271.

PATENT APPLICATIONS

1. Hathaway, N. A.; **James, L. I.**; Lu, D.; Foley, C. "Use of Chemical Epigenetic Modifiers to Modulate Gene Expression." Application No. 63/317,373. Filed 3/7/2022.

2. Collins, J. L.; Hanley, R. P.; **James, L. I.**; Tabor, J. T. "NSD2-Targeted Chemical Degraders and Compositions and Methods of Use Thereof." Application No. 63/280,237. Filed 11/17/2021.

3. Juliano, R. L.; Wang, L.; James, L. I.; Ariyarathna, R. A. Y.; Ming, X. "Benzimidazoles That Enhance the Activity of Oligonucleotides." Application No. 62/416,986. Filed 11/3/2016.

4. Redinbo, M. R.; Jin, J.; **James, L. I.**; Pellock, S.; Ariyarathna, R. A. Y.; Frye, S. V. "Inhibitors of Microbial Beta-Glucuronidase Enzymes and Uses Thereof." Application No. 62/365,124. Filed 7/21/2016.

5. Waters, M. L. and **James, L. I.** "Synthetic Receptors for Identification of Protein Post-translational Modifications." US 20120190586 A1, published on 7/26/2012. (priority date 10/15/2009, US 13/296,825)

INVITED ORAL PRESENTATIONS

1. 23rd R. Bryan Miller Symposium, UC Davis, Davis, CA, March 2024

2. Histone and DNA Modifications Gordon Research Conference, *Chromatin Modifications in Health and* Disease, Smithfield, RI, June 2023

3. Oerth Bio, Durham, NC, Feb. 2023

4. Declined invitation: 2023 American Society for Biochemistry and Molecular Biology Annual Meeting, Seattle, WA, March 2023

5. Dana Farber Cancer Institute Targeted Protein Degradation webinar series, Boston, MA, Oct. 2022 (virtual)

6. Commercialization of Therapies: MT/RDC/IMM joint retreat, Chapel Hill, NC, Sept. 2022

7. St. Jude Children's Research Hospital, Chemical Biology and Therapeutics, Memphis, TN, April 2022 (virtual)

8. Declined invitation: 2022 American Society for Biochemistry and Molecular Biology Annual Meeting, Philadelphia, PA, April 2022

9. UNC Board of Trustees meeting, Chapel Hill, NC, Jan. 2022

10. Declined invitation (maternity leave): 10th Epigenetics in Cancer Therapy Workshop, San Diego, CA, Jan. 2022

11. Declined invitation (maternity leave): 10th Annual Conference of the International Chemical Biology Society (ICBS), Nov. 2021 (virtual)

12. American Association of Pharmaceutical Scientists (AAPS) 2021 PharmSci360, *Symposium – Advancements in chemical knockdowns of disease-relevant targets*, Philadelphia, PA, Oct. 2021 (virtual)

13. UCSF Quantitative Biosciences Institute Symposium, *Frontiers in Epigenetics and Chromatin: From fundamentals to the clinic*, San Francisco, CA, Sept. 2021 (virtual)

14. ProxiDrugs Lecture Series: *Targeted degradation as a new mode of action for drugs*, March 2021 (virtual)

15. Hackensack Meridian Health Center for Discovery and Innovation, Nutley, NJ, Jan. 2021 (virtual)

16. Target 2035: A probe for every protein – *Targeted protein degradation and proximity pharmacology*, Dec. 2020 (virtual)

17. Lineberger Comprehensive Cancer Center Scientific Retreat, Chapel Hill, NC, Dec. 2020 (virtual)

18. Lineberger Comprehensive Cancer Center Junior Faculty Forum, Chapel Hill, NC, Nov. 2020 (virtual)

19. AstraZeneca, Boston, MA & Cambridge, UK, Sept. 2020 (virtual)

20. UNC Breast Cancer SPORE Meeting, Chapel Hill, NC, Sept. 2020 (virtual)

21. Structural Genomics Consortium Board Meeting, Chapel Hill, NC, March 2020

22. Carolina Chromatin Consortium, Chapel Hill, NC, Nov. 2019

23. 257th American Chemical Society National Meeting, *Symposium – The Messy Business of Target (In)Validation: Chemistry's Role and Challenges in Early Discovery*, Orlando, FL, April 2019

24. Structural Genomics Consortium Symposium, *Harnessing Protein Degradation for Drug Discovery*, Toronto, ON, March 2019

25. 19th Annual UNC Neuroscience Symposium, Chapel Hill, NC, Oct. 2018

26. Chromatin Control of Viral Infection Meeting, Bethesda, MD, Sept. 2018

27. Creative and Novel Ideas in HIV Research (CNIHR) 2018 Workshop, Bethesda, MD, Aug. 2018

28. Collaboratory of AIDS Researchers for Eradication (CARE) Meeting, Chapel Hill, NC, June 2018

29. Creative and Novel Ideas in HIV Research (CNIHR) 2017 Workshop, Bethesda, MD, Aug. 2017

30. 254th American Chemical Society National Meeting, *Symposium - Recent Advances in the Treatment of HIV-1 Infection & Approaches to a Cure*, Washington, DC, Aug. 2017

31. Collaboratory of AIDS Researchers for Eradication (CARE) Meeting, Chapel Hill, NC, Oct. 2016

32. 14th Annual Discovery on Target Conference, Boston, MA, Sept. 2016

33. Creative and Novel Ideas in HIV Research (CNIHR) 2016 Workshop, Bethesda, MD, Aug. 2016

34. Cancer Epigenomics Symposium, MD Anderson Cancer Center, Houston, TX, Nov. 2015

35. American Association for Cancer Research Annual Meeting, Major Symposium, Philadelphia, PA, April 2015

36. Duke University, Durham, NC, April 2015

37. 5th Annual EpiCongress Conference, Boston, MA, July 2014

38. 11th Annual Discovery on Target Conference, Boston, MA, Sept. 2013

39. Keystone Symposium, *Addressing the Challenges of Drug Discovery – Novel Targets, New Chemical Space and Emerging Approaches*, Tahoe City, CA, March 2012

POSTER PRESENTATIONS

1. Irlbeck, D.; Zhao, Y.; Remlinger, K.; Favre, D.; Axtman, A.; Zuercher, B.; Margolis, D.; **James, L. I.** "Combination Screen of Epigenetic Modifiers with Kinase Inhibitors to Discovery Synergistic HIV Latency Reversing Agents." Collaboratory of AIDS Researchers for Eradication (CARE) Meeting, Chapel Hill, NC, June 2017.

2. **James, L. I.**; Barsyte-Lovejoy, D.; Zhong, N.; Krichevsky, L.; Korboukh, V. K.; MacNevin, C. J.; Norris, J. L.; Tempel, W.; Kireev, D. B.; Jin, J.; Janzen, W. P.; Brown, P. J.; Bedford, M. T.; Arrowsmith, C. H.; Frye, S. V. "Promoting Illiteracy: Inhibition of Methyl-Lysine Readers by Small Molecule Chemical Probes." Keystone Symposium: *Epigenetic Marks and Cancer Drugs*, Santa Fe, NM, March 2013.

3. **James, L. I.**; Barsyte-Lovejoy, D.; Zhong, N.; Krichevsky, L.; Korboukh, V. K.; MacNevin, C. J.; Norris, J. L.; Tempel, W.; Kireev, D. B.; Jin, J.; Janzen, W. P.; Brown, P. J.; Bedford, M. T.; Arrowsmith, C. H.; Frye, S. V. "Promoting Illiteracy: Inhibition of Methyl-Lysine Readers by Small Molecule Chemical Probes." *Southeastern Regional Meeting of the American Chemical Society*, Raleigh, NC, November 2012.

4. **James, L. I.**; Barsyte-Lovejoy, D.; Krichevsky, L.; Korboukh, V. K.; Gao, C.; Herold, J. M.; Norris, J. L.; MacNevin, C. J.; Jin, J.; Kireev, D.; Bedford, M. T.; Janzen, W. P.; Brown, P. J.; Arrowsmith, C. H.; Frye, S. V. "Promoting Illiteracy: Inhibition of Methyl-Lysine Reader L3MBTL3 by a Small Molecule Chemical Probe." *NIH Roadmap Epigenomics Program Investigators' Meeting*, Bethesda, MD, May 2012.

5. **James, L. I.**; Barsyte-Lovejoy, D.; Krichevsky, L.; Korboukh, V. K.; Gao, C.; Herold, J. M.; Norris, J. L.; MacNevin, C. J.; Jin, J.; Kireev, D.; Bedford, M. T.; Janzen, W. P.; Brown, P. J.; Arrowsmith, C. H.; Frye, S. V. "Promoting Illiteracy: Inhibition of Methyl-Lysine Readers." Keystone Symposium: *Addressing the Challenges of Drug Discovery – Novel Targets, New Chemical Space and Emerging Approaches*, Tahoe City, CA, March 2012.

6. **James, L. I.**; Barsyte-Lovejoy, D.; Korboukh, V. K.; Gao, C.; Herold, J. M.; Norris, J. L.; Jin, J.; Kireev, D.; Janzen, W. P.; Brown, P. J.; Arrowsmith, C. H.; Frye, S. V. "Chemical Biology of Chromatin Regulation: Small Molecule Probes for Methyl-Lysine Binding Proteins." *Nature Chemical Biology* Symposium 2011: Cancer Chemical Biology, Boston, MA, October 2011.

7. **James, L. I.**; Barsyte-Lovejoy, D.; Korboukh, V. K.; Gao, C.; Herold, J. M.; Norris, J. L.; Jin, J.; Kireev, D.; Janzen, W. P.; Brown, P. J.; Arrowsmith, C. H.; Frye, S. V. "Small Molecule Probes for Methyl-Lysine Binding Proteins." *Lineberger Comprehensive Cancer Center Postdoc-Faculty Research Day*, Chapel Hill, NC, September 2011.
   *** Received best poster award**

8. **Ingerman, L. A.**; Waters, M. L. "Selective Recognition of Methylated Post-Translational Modifications in Histone Peptides with Small Molecule Receptors Identified by Dynamic Combinatorial Chemistry." Gordon Research Conference on the Chemistry and Biology of Peptides, Ventura, CA, March 2010.
   *** Received best poster award**

9. **Ingerman, L. A.**; Waters, M. L. "Doubly Dynamic Combinatorial Libraries for the Development of Smart Receptors: Introduction of a Photoswitch." Chemical and Biological Defense Physical Science and Technology Conference, New Orleans, LA, November 2008.

10. **Ingerman, L. A.**; Waters, M. L. "Expanding the Scope of Dynamic Combinatorial Chemistry: New Building Blocks for the Development of Novel Receptors." 235th National ACS Meeting, New Orleans, LA, April 2008.

TEACHING ACTIVITIES

LECTURES

Year	Course name	Course no.	Lectures	Enrolled	Course type	Evaluation
2018 F	Advanced Topics in Chromatin & Epigenetics	BIOC 702	1	22	Graduate	N/A
2019 S	Biochemical Foundations of Chemical Biology	CBMC 804A	2	12	Graduate	N/A
2019 F	Advanced Topics in Chromatin & Epigenetics	BIOC 702	1	13	Graduate	N/A
2020 S	Biochemical Foundations of Chemical Biology	CBMC 804A	2	11	Graduate	4.70, 4.90

2021 S	Biochemical Foundations of Chemical Biology	CBMC 804A	2	8	Graduate	4.50, 4.50
2021 F	Pharmacy Bridging Course – organic module	PHCY 500	2	151	Professional	4.3, 4.31
2021 F	Advanced Topics in Chromatin & Epigenetics	BIOC 702	1	15	Graduate	Available upon request
2022 S	Biochemical Foundations of Chemical Biology	CBMC 804A	2	9	Graduate	4.6, 4.6
2022 F	Pharmacy Bridging Course – organic module	PHCY 500	2	139	Professional	4.44, 4.43
2023 S	Biochemical Foundations of Chemical Biology	CBMC 804A	2	9	Graduate	
2023 F	Seminar in Pharmaceutical Sciences*	PHRS 899	0		Graduate	

*Denotes course organizer

ADVISING

Current graduate students

1. Lilyan Mather: Chemical Biology & Medicinal Chemistry graduate student, 2022-present
   B.S. University of Georgia, M.S. Loyola University Chicago
   Chemical Biology Interface T32 training program awardee

2. Juanita Sanchez: Chemistry graduate student, 2021-present
   B.S. Harriet L. Wilkes Honors College of Florida Atlantic University

3. Rebecca Johnson: Chemical Biology & Medicinal Chemistry graduate student, 2020-present
   B.S. Hope College
   Received NSF graduate research fellowship

4. Peter Buttery: Chemical Biology & Medicinal Chemistry graduate student, 2020-present
   B.S. University of Minnesota

5. Caroline Foley (co-mentored): Chemistry graduate student, 2018-present
   B.S. Providence College
   Received ACS MEDI fellowship

Current post-doctoral fellows

1. John Tabor: 2020-present
   Ph.D. University of Washington
   NIH T32 Cancer Epigenetics Training Program awardee

Former graduate students

1. Isabelle Engelberg (co-mentored): Chemical Biology & Medicinal Chemistry graduate student, Ph.D. 2022
   B.S. Johns Hopkins University
   Thesis: Discovery of First-in-class Inhibitors for Polycomb Repressive Complex 2 Accessory Proteins PHF1 and PHF19
   Current position: Informatics engineer at Astrix

2. Bryce Hart: Chemical Biology & Medicinal Chemistry graduate student, M.S. 2022
   B.S. University of Nevada-Las Vegas
   Thesis: Design and Characterization of Chemical Probes for Polycomb Chromodomains
   Current position: Business Analyst at Zifo RnD Solutions
   Received 2020 Eshelman Institute for Innovation trainee grant

3. Kenneth Guzman Rodriguez: Chemical Biology & Medicinal Chemistry graduate student, M.S. 2021
   B.S. University of Puerto Rico-Cayey
   Thesis: Probing the Degradability of Methyl-Lysine Reader Proteins Using Heterobifunctional Molecules
   Current position: Associate Scientist at Cambrex

Former post-doctoral fellows

1. Dr. Ronan Hanley: 2018-2021
   Ph.D. University of Victoria
   Current position: Research Scientist I, C4 Therapeutics

2. Dr. Jarod Waybright: postdoctoral fellow, 2017-2021
   Ph.D. University of North Carolina at Chapel Hill
   Current position: Senior Scientist at Design Therapeutics
   Received 2021 Eshelman Institute for Innovation trainee grant, NIH T32 Cancer Epigenetics Training Program awardee

3. Dr. Frances Potjewyd (co-mentored): 2017-2020
   Ph.D. University of Strathclyde
   Current position: Postdoc at SGC UNC

4. Dr. Naimee Mehta: 2016-2018
   Ph.D. Northeastern University
   Current position: Scientist at Nurix Therapeutics

5. Dr. Yamuna Ariyarathna: 2014-2016
   Ph.D. University of Kansas
   Current position: Scientist at Catalent Pharma

Former undergraduate students

1. Llana Abella: UNC CHEM395 undergraduate student and intern, 2019-2020
   Current position: Clinical Research Associate IQVIA

2. Alex Muma: UNC CHEM395 undergraduate student and intern, 2018-2019,
   Current position: PhD student at Yale

3. Sarah Dishman: UNC CHEM395 undergraduate student and intern, 2016-2018
   Current position: PhD student at UC Davis

4. Arielis Estevez: SOLAR student, summer 2016
   Current position: PhD student at University of Wisconsin

5. Changfeng Cheng: SMART student, summer 2016

Current position: PhD student at University of Illinois at Chicago

6. Beau Worley: UNC CHEM395 undergraduate student and intern, 2015-2016
   Current position: Clinical Research Associate at IQVIA

7. Ryan Pasca: UNC CHEM395 undergraduate student, fall 2015
   Current position: Account Executive at Oracle

8. Katherine Huber: UNC CHEM395 undergraduate student, spring 2015

Former technicians

1. Sina Kazemzadeh: research technician, 2017-2018
   Current position: Medical student at East Carolina University

Student thesis committees

1. Coral Del Mar Alicea Pauneto: Thaxton lab, Pharmacology, 2023 – present

2. Jacob Capener: Axtman lab, Chemical Biology and Medicinal Chemistry, 2022 – present

3. Brian Anderson: Drewry lab, Chemical Biology and Medicinal Chemistry, 2022 – present

4. Anna Welton-Arndt: Aubé lab, Department of Chemistry, 2022 – present

5. Kyla Stingley: Waters lab, Department of Chemistry, 2022

6. Ryan Sherrier: Aubé lab, Department of Chemistry, 2022 – present

7. Meghan Ricciardi (Chair): Waters lab, Department of Chemistry, 2022 – present

8. Chris Travis: Waters lab, Department of Chemistry, 2022 – present

9. Sara Wasserman: Hathaway lab, Chemical Biology and Medicinal Chemistry, 2021 – present

10. Anthony Sanchez (Chair): Margolis lab, Chemical Biology and Medicinal Chemistry, 2020 – 2022
    *Also served as research mentor on his Translational Medicine T32 award

11. Ashley Trojniak (Chair): Aubé lab, Chemical Biology and Medicinal Chemistry, 2020 – present

12. Xiaoyan Chen: Li lab, Department of Chemistry, 2019 – present

13. Jessica Umana: Hathaway lab, Chemical Biology and Medicinal Chemistry, 2019 – present

14. Parth Jariwala: Redinbo lab, Department of Chemistry, 2019 – 2021

15. Samantha Ottavi: Aubé lab, Chemical Biology and Medicinal Chemistry, 2019 – present

16. Sabrina Iskandar (Chair): Bowers lab, Chemical Biology and Medicinal Chemistry, 2019 – present

17. Dongbo Lu (Chair): Hathaway lab, Chemical Biology and Medicinal Chemistry, 2019 – 2022

18. Sarah Clinkscales (Chair): Hathaway lab, Chemical Biology and Medicinal Chemistry, 2019 – 2023

19. Cathy Anderson: McGinty lab, Chemical Biology and Medicinal Chemistry, 2018 – 2022

20. Emilia Zywot: Lawrence lab, Chemical Biology and Medicinal Chemistry, 2018 – 2021

Other graduate student and postdoctoral committees

1. Justin Sperlazza: Davis lab, Cancer Epigenetics Training Program Postdoctoral Advisory Committee, 2022 – present

2. Henry Dieckhaus: First year student advisory committee, 2022 – 2023

3. Ivanna Zhilinskaya: First year student advisory committee, 2021 – 2022

4. Taylor Lundy: Strahl lab, Cancer Epigenetics Training Program Postdoctoral Advisory Committee, 2020 – 2021

5. Jon-Michael Beasley: First year student advisory committee, 2020 – 2021

6. Merrill Froney: First year student advisory committee, 2019 – 2020

7. David Shirley: First year student advisory committee, 2019 – 2020

8. Sarah Clinkscales: First year student advisory committee, 2017 – 2018

9. Nick Klus: First year student advisory committee, 2015 – 2016

RESEARCH FUNDING

CURRENT GRANT SUPPORT

(PI: James) 11/14/2022 – 11/13/2023
Office of Technology Commercialization $75,000
Partnership with OpenBench, Inc. to search for potent small molecule that bind to human Histone-lysine N-methyltransferase (NSD3)
This proposal aims to collaborate with the virtual screening company, OpenBench, to discover novel antagonists of the PWWP1 domain of NSD3 for use in the future development of NSD3 targeted degraders.

4R33DA047023-04 (PI: James) 6/1/2022 – 5/31/2024
NIH, NIDA $1,756,996
Polycomb Repressive Complexes as Key Regulators of HIV Latency and Targets for Latency Reversal
In this proposal we seek to investigate Polycomb regulation of proviral quiescence in HIV infected patients and the role of drugs of abuse in this process in order to advance our current understanding of persistent HIV infection and guide the develop of novel therapeutics, specifically latency reversing agents, toward an HIV cure.

(PI: Savoldo) 9/30/2022 - 9/29/2025
Department of Defense (waiting on details from LCCC)
GD2 CASRT for Lung Cancer

We propose that autologous iC9.GD2.CAR.IL15 expressing T cells will be well-tolerated in patients with GD2+ lung cancers and that IL15 will sustain T-cell proliferation and persistence in the peripheral blood and at the tumor site, ultimately promoting enhanced antitumor activity. We aim to demonstrate that iC9.GD2.CAR.IL15 expressing T cells are safe and effective, and that combining EZH2 inhibition and CAR-T cells will increase GD2 expression and thus response.
Role: Investigator

(PI: James) 10/1/2020 - 9/30/2023
UNC Breast Cancer SPORE $50,000
Targeting Oncogene Selective Dependencies for the Development of Novel Triple Negative Breast Cancer Therapeutics
This project aims to develop potent ligands for MPP8 to evaluate the effects of MPP8 antagonism on tumorigenicity in triple negative breast cancer and as novel therapeutics.

RX03202108 (PI: James) 6/1/2020 – 5/31/2023 (NCE)
UNC Eshelman Institute for Innovation $500,000
Development of Novel Therapeutics for Multiple Myeloma
This project aims to develop potent ligands for a novel target recently identified as a mediator of tumorigenicity and novel therapeutic target in multiple myeloma. Newly developed ligands will be used to evaluate the effects of target inhibition on tumorigenicity in MM model systems and explored as potential therapeutics for the treatment of MM.

(PI: James) 12/5/2019 - 12/4/2024
Pinnacle Hill, LLC $1,679,860
Development of Targeted Therapeutics for Multiple Myeloma
The overarching objective for this project is to discover an IND-ready degrader with suitable properties for progression to clinical trials in patients with multiple myeloma. A joint Pinnacle Hill/UNC team will collaborate to execute this goal.
*Highlighted in interview on UNC podcast Well Said (https://www.unc.edu/discover/well-said-investigating-potential-cancer-treatments/)

1R01CA242305-03 (PI: James) 8/23/2019 - 7/31/2025
NIH, NCI $1,684,222
Discovery of First-In-Class NSD2 Degraders for Cancer Therapy
We aim to apply medicinal chemistry, chemical biology, and cancer biology approaches to discover first-in-class NSD2 bifunctional degraders in order to better understand NSD2 cancer biology, to assess NSD2 preclinical target validity, and as potential therapeutic agents.

(PI: Margolis) 1/1/2017 - 12/31/2023 (NCE)
Qura Therapeutics, LLC $374,442 (direct costs for subproject 5F - James)
Profiling Chromatin Regulators in HIV latency
The goal of this project is to validate and screen novel epigenetic regulators for HIV latency reactivation via combinatorial shRNA/small molecule inhibitor screens and mechanistic studies, as well as corroborate the functional relevance of target epigenetic regulators in a primary cell model.
Role: Investigator

1UM1AI164567-01 (PI: Margolis) 8/16/2021 - 4/30/2026
NIH, NIAID $26,234,170
Collaboratory of AIDS Researchers for Eradication (CARE)
A persistent viral reservoir in the T-cells of HIV patients receiving potent antiretroviral therapy (ART) is a significant barrier preventing an HIV cure. Including scientists from leading universities, Merck Research

Laboratories, Qura Therapeutics, Emmune, ViiV Healthcare, and Macrogenics, the Collaboratory of AIDS Researchers for Eradication (CARE) will develop and test therapies to destroy the viral reservoir and allow ART-free remission.
Role: Investigator

W81XWH2110748 (PI: Crona) 9/1/2021 - 8/31/2024
Department of Defense $933,000
Discovery of a First-in-Class MPP8 Antagonist to Reverse Lineage Plasticity in Treatment-Resistant Prostate Cancer
This study proposes a technically innovative strategy to target an epigenomic regulator of epithelial-mesenchymal transition (EMT) in preclinical models of advanced prostate cancer.
Role: Investigator

W81XWH2110876 (PI: Crona) 9/15/2021 - 9/14/2024
Department of Defense $622,000
Discovery of a First-in-Class MPP8 Antagonist to Reverse Lineage Plasticity in Bladder Cancer
This study proposes a technically innovative strategy to target an epigenomic regulator of epithelial-mesenchymal transition (EMT) in preclinical models of advanced bladder cancer.
Role: Investigator

PENDING GRANT SUPPORT

None

COMPLETED GRANT SUPPORT

1R61DA047023-01 (PI: James) 8/15/2018 - 5/31/2022
NIH, NIDA $2,672,850
Polycomb Repressive Complexes as Key Regulators of HIV Latency and Targets for Latency Reversal
In this proposal we seek to investigate Polycomb regulation of proviral quiescence in HIV infected patients and the role of drugs of abuse in this process in order to advance our current understanding of persistent HIV infection and guide the develop of novel therapeutics, specifically latency reversing agents, toward an HIV cure.

1R01CA218392-01A1 (PI: Frye) 4/1/2018 - 3/31/2022
NIH, NCI $1,769,748
Discovery of in vivo chemical probes for Polycomb CBX domains
The overarching objective of this program is to develop an in vivo chemical probe of the CBX reader domains of Polycomb repressive complex 1 (PRC1). The deliverable from this effort will be a high-quality in vivo chemical probe, freely available to the academic community, with confirmed activity and well characterized mechanism versus the CBX readers of PRC1 to catalyze progression of this target toward new therapeutic discoveries in oncology and potentially other diseases.
Role: Co-investigator

RX03202106 (PIs: Hathaway, James) 6/1/2020 - 8/31/2021
UNC Eshelman Institute for Innovation $50,000
Novel Bioorthogonal Chemical Epigenetic Modifier Development
This project aims to use novel bifunctional molecules to precisely regulate gene expression in a dose dependent and reversible manner and translate this strategy to clinically relevant targets.

5R01GM100919-07 (PI: Frye) 8/1/2016 - 7/31/2021
NIH, NIGMS $1,497,598

Discovery of Chemical Probes for Chromatin Readers
The overarching objectives of this program are to develop chemical probes of chromatin reader domains that exploit three distinct mechanisms of molecular recognition: 1) reader domains that function as dimers; 2) reader domains that operate via a dynamic, induced-fit recognition mechanism; and 3) multivalent reader domains.
Role: Co-Investigator

RX03812119 (PI: James) 6/1/2018 - 12/31/2020
UNC Eshelman Institute for Innovation $200,000
Transforming CRISPR-Cas9 Genome-Editing Efficiency with 53BP1 Chemical Probes
The primary object of this proposal is to develop first-in-class chemical probes of the DNA damage repair protein, 53BP1, and demonstrate their ability to improve both the efficiency and specificity of CRISPR-Cas9 gene editing technologies.

(PI: James) 2/1/2020 – 6/30/2020
UNC School of Medicine $10,000
NMR Study of Ligand Binding Specificity to Chromodomain Targets
We will assess the structural and dynamic basis for ligand binding affinity to targeted chromodomains. These studies will advance known mechanisms of binding specificity and enable more efficient design of selective chemical probes within the chromodomain family.

1R01CA207416-03 (PI: Redinbo) 8/1/2016 - 7/31/2020
NIH, NCI $1,745,932
Microbiome-Targeted probes to eliminate chemotherapy-induced GI toxicity
Our hypothesis is that microbial enzymes expressed by the GI microbiome can be inhibited using targeted small molecules to prevent the unwanted reactivation of potent antineoplastic drugs in the intestinal lumen. We will test this hypothesis using chemical synthesis, *in vitro* characterization, and *in vivo* validation in mouse models of chemotherapy-induced toxicity.
Role: Co-Investigator

(PIs: James, Headey) 1/2/2018 - 12/31/2019
PharmAlliance $48,000 (total award direct costs to UNC only)
Discovery of Novel Inhibitors for SETDB1 for Cancer Therapy using a Fragment-Based Screening Approach
The objective of this proposal is to employ fragment-based screening and follow up medicinal chemistry strategies to arrive at lead inhibitors of the Tudor domain of SETDB1 for future development as high-quality chemical probes.

(PI: James) 1/1/2017 - 12/31/2019
UNC Lineberger Developmental Grant $200,000
Discovery of Novel Chemical Probes for Polycomb Complexes for Cancer Therapy
This proposal aims to significantly improve our current understanding of the role of PRC1 and PRC2 complexes in cancer biology. Specifically, we intend to develop and characterize potent chemical probes for PRC1 and PRC2, characterize the activity of lead inhibitors in a cellular context, and use chemical probes to decipher the roles of PRC1 and PRC2 Kme reader proteins in cancer and evaluate their therapeutic potential.

5P30AI027767-29 (PI: James) 6/1/2016 - 11/30/2018
NIH, CNIHR $300,000
Development of MPP8 Inhibitors as a Novel Approach for HIV Latency Disruption
This proposal aims to develop first-in-class small molecule inhibitors of the epigenetic regulator and methyl-lysine reader protein, MPP8, as latency reversing agents (LRAs), as knockdown of MPP8 has been shown to result in transcriptional activation and depression of silent HIV reporter proviruses.

(PIs: James, Headey) 1/18/2016 - 12/22/2017
PharmAlliance $53,000 (total award direct costs to UNC only)
Discovery of Inhibitors for the Methyl-Lysine Reader Protein, 53BP1, Using Fragment-Based Screening
The overarching objective of this proposal is to employ fragment-based screening techniques and follow up medicinal chemistry strategies to arrive at lead inhibitors of the tudor domain of the methyl-lysine reader protein, 53BP1, for future development as high-quality chemical probes.

(PI: James) 1/1/2017 - 12/31/2017
Junior Faculty Development Award $7,500
Evaluation of the Effects of CBX Chromodomain Chemical Probes on the Genome-Wide Occupancy of Polycomb Repressive Complexes (PRCs)
The overarching objective of this proposal is to expand our knowledge of endogenous Polycomb signaling and transcription utilizing the key chemical probes developed in our lab, as well as better characterize the consequences of probe engagement on Polycomb function.

1R41TR001330-01 (PIs: Juliano/Frye) 8/15/2015 - 8/14/2016
Initos Pharmaceuticals, LLC/NIH $94,764 (total direct costs to UNC)
STTR: Development of Small Molecules that Enhance the Delivery and the Pharmacological Effects of Oligonucleotides
The UNC Center for Integrative Chemical Biology and Drug Discovery will partner with Initos Pharmaceuticals to develop new compounds with oligonucleotide enhancing effects.
Role: Co-Investigator

PROFESSIONAL SERVICE

PROFESSIONAL SERVICE TO THE DISCIPLINE

Grant reviewer activities

2022 AICRIstart cancer research program grant reviewer
2022 NIH NCI Clinical and Translational Cancer Research study section ad hoc
2020 Eshelman Institute for Innovation student application reviewer
2017 – 2019 Lineberger Comprehensive Cancer Center, University Cancer Research Fund grant reviewer

Ad hoc scientific manuscript reviewer

ACS Chemical Biology, Nature Chemical Biology, Nature, Journal of the American Chemical Society, Nature Communications MedChemComm, Biochemistry, Bioorganic & Medicinal Chemistry Letters, ChemBioChem, Future Medicinal Chemistry, SLAS Discovery

Professional organizations

2020 – present International Chemical Biology Society
2008 – present American Chemical Society, organic division

UNIVERSITY SERVICE

School of pharmacy activities

2022 – present Search committee member for CBMC executive assistant

2022	Interviewer for SOP Candidate's Day for prospective PharmD students
2022 – present	Search committee member for CBMC tenure track faculty member
2022 – present	School of Pharmacy 2023 Research & Graduate Education Retreat Planning Committee
2022	Search committee member for CICBDD computational research professor
2020 – 2021	School of Pharmacy 2021 Research & Graduate Education Retreat Planning Committee
2019	Participation in CBMC promotional video
2019	Interviewed UR candidates for SOP
2018 – 2020	Search committee member for CICBDD Director
2017 – 2020	Research Assistant Professor CBMC committee

University of North Carolina activities

2022 – present	Cancer Epigenetics Training Program (CETP) oversight committee member
2022	Presented at January 2022 UNC Board of Trustees meeting
2021 – present	T32 Chemical Biology Interface Training Program faculty member
2021 – 2022	ITCMS (Integrated Training in Cancer Model Systems) faculty preceptor
2019 – present	Cancer Epigenetics Training Program (CETP) faculty mentor
2019 – present	Chromatin and Epigenetics Certificate Program (CECP) advisory committee
2019 – present	Biological & Biomedical Sciences Program (BBSP) admissions committee for structural biology, chemical biology, and pharmaceutical sciences
2019 – present	Interviewer for BBSP program
2019	UNC Chancellor's Philanthropic Council panel member
2019 – present	Participant in Carolina Chromatin Consortium (C3) group
2017	Faculty Mentoring Workshop for Biomedical Researchers

External activities

2022	Judge for the North Carolina Louis Stokes Alliance for Minority Participation (NC-LSAMP) annual research conference
2022 – present	Structural Genomics Consortium Chemical Probes Scientific Committee
2020 – present	Scientific Advisory Board member for the Chemical Probes Portal
2019	Outreach event with Durham Academy, Girls Excelling in Math and Science afterschool enrichment program
2017 – 2020	Southeastern Chemical Biology Symposium advisory committee
2013 – present	Structural Genomics Consortium Joint Management Committee member