LINDSEY INGERMAN JAMES

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EDUCATION

University of North Carolina, Chapel Hill, NC — June 2010
Ph.D. Bioorganic Chemistry

Colgate University, Hamilton, NY — May 2005
B.A. Chemistry, Minor – Sociology

PROFESSIONAL EXPERIENCE

UNIVERSITY OF NORTH CAROLINA, Chapel Hill, NC — 2019 – present
Lineberger Comprehensive Cancer Center: Member, Molecular Therapeutics Program

UNIVERSITY OF NORTH CAROLINA, Chapel Hill, NC — 2019 – present
UNC HIV Cure Center: Member

UNIVERSITY OF NORTH CAROLINA, Chapel Hill, NC — 2013 – present
Division of Chemical Biology and Medicinal Chemistry, Eshelman School of Pharmacy
Assistant Professor, tenure track (June 1, 2019 – present)
Director of Chemical Biology, Center for Integrative Chemical Biology and Drug Discovery (2017 – present)
Research Associate Professor (2017 – 2019)
Research Assistant Professor (2013 – 2016)

- Main areas of research: chemical probe discovery for epigenetic proteins to facilitate the study of chromatin biology, novel cancer therapeutics, epigenetic regulation of HIV latency
- Serve as mentor to graduate students, postdoctoral fellows, and undergraduate students
- Three maternity leaves taken: 01/2014 – 04/2014, 12/2016 – 03/2017, 11/2021 – 02/2022

GLAXOSMITHKLINE, Research Triangle Park, NC — 2012 – 2014
Visiting Scientist (Chemical Biology, *Sponsor: Timothy Willson*)

- Utilized chemical proteomics to study epigenetic chemical probes and their targets

UNIVERSITY OF NORTH CAROLINA, Chapel Hill, NC — 2010 – 2012
Center for Integrative Chemical Biology and Drug Discovery, Eshelman School of Pharmacy
Postdoctoral Research Fellow (*Advisor: Stephen V. Frye*)

- Designed, synthesized, and studied novel small molecule antagonists of epigenetic targets, specifically methyl-lysine binding proteins

UNIVERSITY OF NORTH CAROLINA, Chapel Hill, NC — 2005 – 2010
Graduate Research Assistant (Chemistry Department, *Advisor: Marcey L. Waters*)

- Used dynamic combinatorial chemistry to identify novel receptors for biomolecules, with a focus on small molecule receptors for post-translational modifications

COLGATE UNIVERSITY, Hamilton, NY — 2004 – 2005
Undergraduate Research Assistant (Chemistry Department, *Advisor: Rick Geier*)

- Synthesized beta-linked dipyrroalkanes in the preparation of altered porphyrin macrocycles

THOMAS JEFFERSON UNIVERSITY, Philadelphia, PA — 2003 – 2004
Undergraduate Research Assistant (Department of Biochemistry and Molecular Biology, Advisor*: Ya-Ming Hou*)

- Investigated the metal preference of class I and class II CCA-adding enzymes

HONORS AND AWARDS

- UNC Junior Faculty Development Award, 2017
- UNC Lineberger Development Award, 2016
- CNIHR (Creative and Novel Ideas in HIV Research) 2016 Awardee
- Structural Genomics Consortium Fellow, 2014
- Chemical and Biological Physical Science and Technology scholarship, 2008
- ACS Division of Organic Chemistry Travel Award, 2008
- Graduate Teaching Award, 2005-2006
- McGregory Fellowship in Chemistry, 2005
- Scholarship Achievement Award, 2005
- CRC PRESS Chemistry Achievement Award, 2002

PEER REVIEWED PUBLICATIONS (*denotes corresponding author)

FROM UNC TENURE-TRACK POSITION

1. 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.; 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.; Swanstrom, R.; Browne, E. P.; Srahl, B. D.; Dunham, R. M.; Archin, N. M.; Margolis, D. M.* "HIV latency reversal via combined non-canonical NF-κB agonism and targeted BET family bromodomain inhibition." *J. Clin. Investig.* submitted, Dec. 2021.

2. 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*. submitted, Dec. 2021.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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**)

15. 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.

16. 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.

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

18. 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.

19. 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.

FROM UNC RESEARCH-TRACK POSITION

20. 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.

21. 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.

22. 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.

23. 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.

24. 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.

25. 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.

26. 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.

27. 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.

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

29. 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.

30. 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.

31. 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.

32. 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.

33. 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.

34. 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.

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

36. 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.

37. 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.

38. 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.

39. 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.

FROM GRADUATE AND POSTDOCTORAL RESEARCH

40. 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.

41. **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.

42. **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.

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

44. **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**)

45. 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.

46. Herold, J. M.; **Ingerman, L. A.**; Gao, C.; Frye, S. V.* "Drug discovery toward antagonists of methyl-lysine binding proteins." *Curr. Chem. Genomics* **2011**, *5*, 51-61.

47. 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.

48. **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'**)

49. 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.

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

51. 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. 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.
2. 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.
3. 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.
4. 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)

ORAL PRESENTATIONS

1. St. Jude Children's Research Hospital, Chemical Biology and Therapeutics, Memphis, TN, April 2022 (virtual)
2. Declined invitation: 2022 American Society for Biochemistry and Molecular Biology Annual Meeting, Philadelphia, PA, April 2022
3. UNC Board of Trustees meeting, Chapel Hill, NC, Jan. 2022
4. Declined invitation (maternity leave): 10th Epigenetics in Cancer Therapy Workshop, San Diego, CA, Jan. 2022
5. Declined invitation (maternity leave): 10th Annual Conference of the International Chemical Biology Society (ICBS), Nov. 2021 (virtual)
6. American Association of Pharmaceutical Scientists (AAPS) 2021 PharmSci360, *Symposium – Advancements in chemical knockdowns of disease-relevant targets*, Philadelphia, PA, Oct. 2021 (virtual)
7. UCSF Quantitative Biosciences Institute Symposium, *Frontiers in Epigenetics and Chromatin: From fundamentals to the clinic*, San Francisco, CA, Sept. 2021 (virtual)
8. ProxiDrugs Lecture Series: *Targeted degradation as a new mode of action for drugs*, March 2021 (virtual)
9. Hackensack Meridian Health Center for Discovery and Innovation, Nutley, NJ, Jan. 2021 (virtual)
10. Target 2035: A probe for every protein – *Targeted protein degradation and proximity pharmacology*, Dec. 2020 (virtual)
11. Lineberger Comprehensive Cancer Center Scientific Retreat, Chapel Hill, NC, Dec. 2020 (virtual)
12. Lineberger Comprehensive Cancer Center Junior Faculty Forum, Chapel Hill, NC, Nov. 2020 (virtual)
13. AstraZeneca, Boston, MA & Cambridge, UK, Sept. 2020 (virtual)
14. UNC Breast Cancer SPORE Meeting, Chapel Hill, NC, Sept. 2020 (virtual)
15. Structural Genomics Consortium Board Meeting, Chapel Hill, NC, March 2020
16. Carolina Chromatin Consortium, Chapel Hill, NC, Nov. 2019
17. 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
18. Structural Genomics Consortium Symposium, *Harnessing Protein Degradation for Drug Discovery*, Toronto, ON, March 2019

19. 19th Annual UNC Neuroscience Symposium, Chapel Hill, NC, Oct. 2018
20. Chromatin Control of Viral Infection Meeting, Bethesda, MD, Sept. 2018
21. Creative and Novel Ideas in HIV Research (CNIHR) 2018 Workshop, Bethesda, MD, Aug. 2018
22. Collaboratory of AIDS Researchers for Eradication (CARE) Meeting, Chapel Hill, NC, June 2018
23. Creative and Novel Ideas in HIV Research (CNIHR) 2017 Workshop, Bethesda, MD, Aug. 2017
24. 254th American Chemical Society National Meeting, *Symposium - Recent Advances in the Treatment of HIV-1 Infection & Approaches to a Cure*, Washington, DC, Aug. 2017
25. Collaboratory of AIDS Researchers for Eradication (CARE) Meeting, Chapel Hill, NC, Oct. 2016
26. 14th Annual Discovery on Target Conference, Boston, MA, Sept. 2016
27. Creative and Novel Ideas in HIV Research (CNIHR) 2016 Workshop, Bethesda, MD, Aug. 2016
28. Cancer Epigenomics Symposium, MD Anderson Cancer Center, Houston, TX, Nov. 2015
29. American Association for Cancer Research Annual Meeting, Major Symposium, Philadelphia, PA, April 2015
30. Duke University, Durham, NC, April 2015
31. 5th Annual EpiCongress Conference, Boston, MA, July 2014
32. 11th Annual Discovery on Target Conference, Boston, MA, Sept. 2013
33. Keystone Symposium, *Addressing the Challenges of Drug Discovery – Novel Targets, New Chemical Space and Emerging Approaches*, Tahoe City, CA, March 2012

PROFESSIONAL ACTIVITIES

SCHOOL OF PHARMACY ACTIVITIES

- School of Pharmacy 2021 Research & Graduate Education Retreat Planning Committee, 2020 – 2021
- Eshelman Institute for Innovation student application reviewer, 2020
- Participation in CBMC promotional video, 2019
- Interviewed UR candidates for SOP, 2019
- CICBDD Director search committee, 2018 – 2020
- Research Assistant Professor CBMC committee, 2017 – 2020

UNC ACTIVITIES

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

EXTERNAL ACTIVITIES

- Scientific Advisory Board member for the Chemical Probes Portal, 2020 – present

- Outreach event with Durham Academy, Girls Excelling in Math and Science afterschool enrichment program, 2019
- Southeastern Chemical Biology Symposium advisory committee, 2017 – present
- Structural Genomics Consortium Joint Management Committee member, 2013 – present
- International Chemical Biology Society member
- American Chemical Society member, organic division
- Reviewer – ACS Chemical Biology, Nature Chemical Biology, Nature, Journal of the American Chemical Society, MedChemComm, Biochemistry, Bioorganic & Medicinal Chemistry Letters, ChemBioChem, Future Medicinal Chemistry, SLAS Discovery

CONSULTING ACTIVITIES

- Acuta Capital Partners, 2021
- Huya Bioscience International, 2021
- Novartis Venture Fund, 2020

STUDENTS AND FELLOWS MENTORED

CURRENT STUDENTS AND FELLOWS

- Juanita Sanchez: chemistry graduate student, 2021-present
- John Tabor: postdoctoral fellow, 2020-present
- Rebecca Johnson: CBMC graduate student, 2020-present (*received NSF fellowship)
- Peter Buttery: CBMC graduate student, 2020-present
- Caroline Foley (co-mentored): chemistry graduate student, 2018-present (*received ACS MEDI fellowship)

FORMER STUDENTS AND FELLOWS

- Bryce Hart: CBMC graduate student (*received 2020 Eshelman Institute for Innovation trainee grant), 2019-2022, Associate Analyst at Zifo RnD Solutions
- Kenneth Guzman: CBMC graduate student, 2019-2021, Scientist at Cambrex
- Llana Abella: CHEM395 undergraduate student and intern, 2019-2020, Clinical Research Associate IQVIA
- Isabelle Engelberg (co-mentored): CBMC graduate student, 2018-2022, Business Analyst at Zifo RnD Solutions
- Ronan Hanley: postdoctoral fellow, 2018-2021, Research Scientist I, C4 Therapeutics
- Alex Muma: CHEM395 undergraduate student and intern, 2018-2019, PhD student at Yale
- Sina Kazemzadeh: research technician, 2017-2018, medical student at East Carolina University
- Jarod Waybright: postdoctoral fellow (*received 2021 Eshelman Institute for Innovation trainee grant), NIH T32 Cancer Epigenetics Training Program awardee, 2017-2021, Senior Scientist at Design Therapeutics
- Frances Potjewyd (co-mentored): postdoctoral fellow, 2017-2020, Postdoc at SGC UNC
- Sarah Dishman: CHEM395 undergraduate student and intern, 2016-2018, PhD student at UC Davis
- Naimee Mehta: postdoctoral fellow, 2016-2018, Scientist I at Nurix
- Kelsey Lamb (PhD mentor: Stephen Frye): CBMC graduate student (*received ACS MEDI fellowship), 2014-2019, Scientist at Vividion
- Junghyun Lee Suh (PhD mentor: Stephen Frye): CBMC graduate student, 2013-2019, Postdoc at UNC HIV Cure Center
- Kimberly Barnash (PhD mentor: Stephen Frye): CBMC graduate student (*received Eshelman Institute for Innovation student grant), 2012-2017, Senior Scientist at Interline Therapeutics
- Jacob Stuckey (PhD mentor: Stephen Frye): CBMC graduate student, 2011-2016, Founding Scientist and Senior Director of Biochemistry and Chemical Biology at Flare Therapeutics
- Yamuna Ariyarathna: postdoctoral fellow, 2014-2016, Scientist at Catalent Pharma
- Arielis Estevez: SOLAR student, summer 2016, PhD student at University of Wisconsin
- Changfeng Cheng: SMART student, summer 2016, PhD student at University of Illinois at Chicago
- Beau Worley: CHEM395 undergraduate student and intern, 2015-2016, Clinical Research Associate at IQVIA
- Ryan Pasca: CHEM395 undergraduate student, fall 2015, thesis title, Account Executive at Oracle

- Katherine Huber: CHEM395 undergraduate student, spring 2015

STUDENT THESIS COMMITTEES

- Ryan Sherrier: Aubé lab, Department of Chemistry, 2022 –
- Meghan Ricciardi: Waters lab, Department of Chemistry, 2022 –
- Chris Travis: Waters lab, Department of Chemistry, 2022 –
- Sara Wasserman: Hathaway lab, Chemical Biology and Medicinal Chemistry, 2021 –
- Anthony Sanchez (Chair): Margolis lab, Chemical Biology and Medicinal Chemistry, 2020 – 2022
  *Also served as research mentor on his Translational Medicine T32 award
- Ashley Trojniak (Chair): Aubé lab, Chemical Biology and Medicinal Chemistry, 2020 –
- Xiaoyan Chen: Li lab, Department of Chemistry, 2019 –
- Jessica Umana: Hathaway lab, Chemical Biology and Medicinal Chemistry, 2019 –
- Parth Jariwala: Redinbo lab, Department of Chemistry, 2019 – 2021
- Samantha Ottavi: Aubé lab, Chemical Biology and Medicinal Chemistry, 2019 –
- Sabrina Iskandar (Chair): Bowers lab, Chemical Biology and Medicinal Chemistry, 2019 –
- Dongbo Lu (Chair): Hathaway lab, Chemical Biology and Medicinal Chemistry, 2019 –
- Sarah Clinkscales (Chair): Hathaway lab, Chemical Biology and Medicinal Chemistry, 2019 –
- Cathy Anderson: McGinty lab, Chemical Biology and Medicinal Chemistry, 2018 – 2022
- Emilia Zywot: Lawrence lab, Chemical Biology and Medicinal Chemistry, 2018 – 2021

OTHER GRADUATE STUDENT AND POSTDOCTORAL COMMITTEES

- Ivanna Zhilinskaya: First year student advisory committee, 2021-2022
- Taylor Lundy: Strahl lab, Cancer Epigenetics Training Program Postdoctoral Advisory Committee, 2020 –
- Jon-Michael Beasley: First year student advisory committee, 2020-2021
- Merrill Froney: First year student advisory committee, 2019-2020
- David Shirley: First year student advisory committee, 2019-2020
- Sarah Clinkscales: First year student advisory committee, 2017-2018
- Nick Klus: First year student advisory committee, 2015-2016

TEACHING ACTIVITIES

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
2022 S	Biochemical Foundations of Chemical Biology	CBMC 804A	2		Graduate	

RESEARCH FUNDING

CURRENT SUPPORT

(PI: James) 10/1/2020 - 9/30/2022
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 - 5/31/2022
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/)

1R01CA242305-01 (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.

1R61DA047023-01 (PI: James) 8/15/2018 - 5/31/2022 NCE
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.

(PI: Margolis) 1/1/2017 - 12/31/2022
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 SUPPORT

(PI: Savoldo) 1/1/2022 - 12/31/2024
Department of Defense $1,278,300
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. After demonstrating that iC9.GD2.CAR.IL15 expressing T cells are safe and effective, we also hypothesize that combining EZH2 inhibition and CAR-T cells will increase GD2 expression and thus response.
Role: Investigator

SELECTED PREVIOUS SUPPORT

1R01CA218392-01A1 (PI: Frye) 4/1/2018 - 3/31/2022 NCE
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 (PI: 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

(PI: 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: Creative and Novel Ideas in HIV Research $3000,000
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.

(PI: 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.