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Recent Accomplishments:

- Awarded two NIH grants: UG3 DA050820-01A1 (NIDA) and R21 AG068833-01A1 (NIA)
- Awarded NIDDK Research Contract 75N94021P00319
- Awarded Junior Faculty Development Award to facilitate SARS-CoV-2 drug development
- Translational Scicence Course Lead for the Molecules to Market certificate program
- Invited seminar at UNC Greensboro on September 17, 2021
- Five research journal articles accepted for publication in 2021

Education:

INSTITUTION AND LOCATION	DEGREE	DATES	FIELD OF STUDY
Virginia Tech, Blacksburg, VA	B.S.	Aug 1993 - May 1998	Chemistry
Virginia Tech, Blacksburg, VA	B.A.	Aug 1993 - May 1998	German literature
University of Delaware, Newark, DE	Ph.D.	Aug 2000 - Jan 2006	Chemistry and biochemistry
University of Kansas, Lawrence, KS	Postdoctoral	Jan 2006 - Jan 2009	Organic chemistry

Professional Experience:

Relevant work experience:

July 2015–present Research Assistant Professor, Center for Integrative Chemical Biology and Drug Discovery
UNC Eshelman School of Pharmacy, Chapel Hill, NC 27599
Direct supervisor: Professor Jeffrey Aubé

January 2014–July 2015 Assistant Research Professor, Higuchi Biosciences Center
University of Kansas, Lawrence, KS 66047
Direct supervisor: Professor Jeffrey Aubé

January 2009–January 2014 Research Associate, Specialized Chemistry Center
University of Kansas, Lawrence, KS 66047
Direct supervisor: Frank Schoenen

July 1998–August 2000 Laboratory technician, James F. Wolfe research group, Virginia Tech, Blacksburg, VA 24061

Professional organizations and other experience:

2004–present Member, American Chemical Society

2015–present Member, National Center for Faculty Development & Diversity

1994–2000 Squad Leader, Virginia Army National Guard B-Co 1/116th Infantry Battalion

2000–2003 Reconnaissance Team Leader, Maryland Army National Guard E-Co 629th Military Intelligence Battalion (Airborne)

Honors and awards:

2021 IBM and RJ Reynolds Junior Faculty Development Award

2016 Training in Neurotherapeutics Discovery and Development for Academic Scientists Course, Bethesda MD *(Sponsored workshop through NINDS Grant 1R25NS077582)*

2015 9th Chapel Hill Pharmaceutical Sciences Conference 2nd Place Poster Winner

2009 University of Kansas Pharmacy Graduate Honors Symposium Oral Presenter

2008 Stereochemistry Gordon Research Conference Exceptional Accomplishments in Organic Chemistry Award

2004 ACS Delaware Local Section, 2nd Place Poster Award Winner

Bibliography and Products of Scholarship:

Refereed papers/articles:

1. Wang, F; Frankowski, KJ* Divergent Electrochemical Carboamidation of Cyclic Amines *J. Org. Chem.* **2022**, ASAP, doi.org/10.1021/acs.joc.1c02534.

2. Potjewyd, FM; Annor-Gyamfi, JK; Aubé, J; Chu, S; Conlon, IL; Frankowski, KJ; Guduru, SKR; Hardy, BP; Hopkins, MD; Kinoshita, C; Kireev, DB; Mason, ER; Moerk, CT; Nwogbo, F; Pearce Jr, KH; Richardson, T; Rogers, DA; Soni, DM; Stashko, M; Wang, X; Wells, C; Willson, TM; Frye, SV; Young, JE; Axtman, AD Utilization of AD Informer Set compounds to explore validity of novel targets in Alzheimer's disease pathology *Alzheimer's Dement.* **2022** In Press, doi: 10.1002/trc2.12253

3. Potjewyd, FM; Annor-Gyamfi, JK; Aubé, J; Chu, S; Conlon, IL; Frankowski, KJ; Guduru, SKR; Hardy, BP; Hopkins, MD; Kinoshita, C; Kireev, DB; Mason, ER; Moerk, CT; Nwogbo, F; Pearce Jr,

KH; Richardson, T; Rogers, DA; Soni, DM; Stashko, M; Wang, X; Wells, C; Willson, TM; Frye, SV; Young, JE; Axtman, AD AD Informer Set: Chemical tools to facilitate Alzheimer's disease drug discovery *Alzheimer's Dement.* **2022** In Press, doi: 10.1002/trc2.12246

4. Frankowski, KJ; Brust, T; Lovell, KM; Yoo, E; Bohn, LM; Aubé, J Structure–activity relationship investigation of triazole-based kappa opioid receptor agonists *Med. Chem. Res.* **2021**, *30*, 1386–1396

5. Luderman, KD; Jain, P; Free, RB; Conroy, JL; Aubé, J; Sibley, DR*; Frankowski, KJ* "Development of pyrimidone D1 dopamine receptor positive allosteric modulators" *Bioorg. Med. Chem. Lett.* **2021**, *30*, 127696

6. Ma, CD; Imamura, M; Talley, DC; Rolt, A; Xu, X; Wang, AQ; Le, D; Uchida, T; Osawa, M; Teraoka, Y; Li, K; Hu, X; Park, SB; Chalasani, N; Irvin, PH; Dulcey, AE; Southall, N; Marugan, JJ; Hu, Z; Chayama, K; Frankowski, KJ; Liang, TJ "Fluoxazolevir inhibits hepatitis C virus infection in humanized chimeric mice by blocking viral membrane fusion" *Nat. Microbiol.* **2020**, *5*, 1532–1541

7. Klus, NJ; Kapadia, K; McDonald, P; Roy, A; Frankowski, KJ; Muma, NA; Aubé, J "Discovery of sultam-containing small-molecule disruptors of the huntingtin-calmodulin protein-protein interaction" *Med. Chem. Res.* **2020**, *29*, 1187–1198

8. Moritz, AE; Free, RB; Weiner, WS; Akano, EO; Gandhi, D; Abramyan, A; Keck, TM; Ferrer, M; Hu, X; Southall, N; Steiner, J; Aubé, J; Shi, L; Frankowski, KJ*; Sibley, DR* "Discovery, optimization, and characterization of ML417: A novel and highly selective D3 dopamine receptor agonist" *J. Med. Chem.* **2020**, *63*, 5526–5567

9. Vilimas, T; Wang, AQ; Patnaik, S; Hughes, EA; Singleton, MD; Knotts, Z; Li, D; Frankowski, K; Schlomer, JJ; Guerin, TM; Springer, S; Drennan, C; Dextras, C; Wang, C; Gilbert, D; Southall, N; Ferrer, M; Huang, S; Kozlov, S; Marugan, J; Xu, X; Rudloff, U "Pharmacokinetic evaluation of the PNC disassembler metarrestin in wild-type and Pdx1-Cre;LSL-KrasG12D/+;Tp53R172H/+ (KPC) mice, a genetically engineered model of pancreatic cancer" *Cancer Chemother. Pharmacol.* **2018**, *82*, 1067–1080

10. Luderman, KD; Conroy, JL; Free, RB; Southall, N; Ferrer, M; Sanchez-Soto, M; Moritz, AE; Willette, BKE; Fyfe, TJ; Jain, P; Titus, S; Hazelwood, LA; Aubé, J; Lane, JR; Frankowski, KJ; Sibley, DR "Identification of positive allosteric modulators of the D1 dopamine receptor that act at diverse binding sites" *Mol. Pharmacol.* **2018**, *94*, 1197–1209

11. Frankowski, KJ; Wang, C; Patnaik, S; Schoenen, FJ; Southall, N; Li, D; Teper, Y; Sun, W; Kandela, I; Hu, D; Dextras, C; Knotts, Z; Bian, Y; Norton, J; Titus, S; Lewandowska, MA; Wen, Y; Farley, KI; Griner, LM; Sultan, J; Meng, Z; Zhou, M; Vilimas, T; Powers, AS; Kozlov, S; Nagashima, K; Quadri, HS; Fang, M; Long, C; Khanolkar, O; Chen, W; Kang, J; Huang, H; Chow, E; Goldberg, E; Feldman, C; Xi, R; Kim, HR; Sahagian, G; Baserga, SJ; Mazar, A; Ferrer, M; Zheng, W; Shilatifard, A; Aubé, J; Rudloff, U; Marugan, JJ; Huang, S "Metarrestin, a perinucleolar compartment inhibitor, effectively suppresses metastasis" *Sci. Transl. Med.* **2018**, *10*, eaap8307

12. Chun, LS; Vekariya, RH; Free, RB; Li, Y; Lin, D-T; Su, P; Liu, F; Namkung, Y; Laporte, SA; Moritz, AE; Aubé, J; Frankowski, KJ*; Sibley, DR* "Structure-activity investigation of a G protein-

biased agonist reveals molecular determinants for biased signaling of the D2 dopamine receptor" *Front. Synaptic Neurosci.* **2018**, *10*, 2. doi: 10.3389/fnsyn.2018.00002

13. He, S; Li, K; Lin, B; Hu, Z; Xiao, J; Hu, X; Wang, AQ; Xu, X; Ferrer, M; Southall, N; Zheng, W; Aubé, J; Schoenen, FJ; Marugan, JJ; Liang, TJ*; Frankowski, KJ* "Development of an aryloxazole class of hepatitis C virus inhibitors targeting the entry stage of the viral replication cycle" *J. Med. Chem*. **2017**, *60*, 6364–6383

14. McLeod, MC; Aubé, J; Frankowski, KJ* "Decahydrobenzoquinolin-5-one sigma receptor ligands: divergent development of both sigma 1 and sigma 2 receptor selective examples" *Bioorg. Med. Chem. Lett.* **2016**, *26*, 5689–5694

15. Scarry, SM; Lovell, KM; Frankowski, KJ; Bohn, LM; Aubé, J "Synthesis of kappa opioid antagonists based on pyrrolo[1,2-α]quinoxalinones using an *N*-arylation/condensation/oxidation reaction sequence" *J. Org. Chem.* **2016**, *81*, 10538–10550

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17. Gui, L; Zhang, X; Li, K; Frankowski, KJ; Li, S; Wong, DE; Moen, DR; Porubsky, PR; Lin, HJ; Schoenen, FJ; Chou, TF "Evaluating p97 inhibitor analogues for potency against p97-p37 and p97-Npl4-Ufd1 complexes" *Chem Med Chem* **2016**, *11*, 953–957

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36. Frankowski, KJ; Ghosh, P; Setola, V; Tran, TB; Roth, BL; Aubé, J "*N*-Alkyl-octahydroisoquinolin-1-one-8-carboxamides: a novel class of selective, nonbasic, nitrogen-containing κ-opioid receptor ligands" *ACS Med. Chem. Lett.* **2010**, *1*, 189–193

37. Frankowski, KJ; Neuenswander, B; Aubé, J "Explorations of *stemona* alkaloid-inspired analogues: skeletal modification and functional group diversification" *J. Comb. Chem.* **2008**, *10*, 721–725

38. Frankowski, KJ; Golden, JE; Zeng, Y; Lei, Y; Aubé, J "Syntheses of the *stemona* alkaloids stenine, neostenine, and 13-epineostenine using a stereodivergent Diels–Alder/azido-Schmidt reaction" *J. Am. Chem. Soc.* **2008**, *130*, 6018–6024

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40. Taber, DF; Sikkander, MI; Berry, JF, Frankowski, KJ "Preparation of 2-iodo allylic alcohols from 2-butyne-1,4-diol." *J. Org. Chem.* **2008**, *73*, 1605–1607

41. Frankowski, KJ; Hirt, EE; Zeng, Y; Neuenswander, B; Fowler, D; Schoenen, F; Aubé, J "Synthesis of isoquinol-1-one-8-carboxylic acid libraries using a tandem Diels-Alder/acylation sequence" *J. Comb. Chem.* **2007**, *9*, 1188–1192

42. Taber, DF; Frankowski, KJ "Grubbs' Cross metathesis of eugenol with *cis*-1,4-butenediol to make a natural product. an organometallic experiment for the undergraduate lab" *J. Chem. Ed.* **2006**, *83*, 283–284

43. Taber, DF; Frankowski, KJ "Synthesis of (+)-sulcatine G" *J. Org. Chem.* **2005**, *70*, 6417–6421

44. Taber, DF; Frankowski, KJ "Grubbs' catalyst in paraffin: an air-stable preparation for alkene metathesis" *J. Org. Chem.* **2003**, *68*, 6047–6048

Books and book chapters:

1. Frankowski, KJ; Wrobleski, A; Aubé, J "Synthesis of amphibian alkaloids using the intramolecular Schmidt reaction" in *Strategies and Tactics in Organic Synthesis* **2007**, Volume 7, chapter 12, pages 408–459

Refereed other products of scholarship (NIH Molecular Libraries Program probe reports published on the NCBI Bookshelf):

1. Moritz, AE; Free, RB; Weiner, WS; Barnaeva, E; Southall, N; Ferrer, M; Hu, X; Jain, P; Aubé, J; Sibley, DR; Frankowski, KJ "Identification of a novel D3 dopamine receptor-selective agonist with allosteric properties" (2015) Under Embargo

2. He, S; Li, K; Ferrer, M; Southall, N; Hu, Z; Lin, B; Xiao, J; Hu, X; Zheng, W; Marugan, JJ; Aubé, J; Schoenen, FJ; Frankowski, K; Liang, TJ "Discovery of Inhibitors of the Hepatitis C Virus using a Cell-Based Infection Assay" (2014) Under Embargo

3. Li, K; Frankowski, KJ; Hanson, AM; Ndjomou, J; Shanahan, MA.; Mukherjee S; Kolli, R; Shadrick WR; Sweeney NL; Belon, CA; Neuenswander, B; Ferguson, J; Aubé, J; Schoenen, FJ; Blagg, BSJ; Frick, DN "Hepatitis C Virus NS3 Helicase Inhibitor Discovery" (2012) http://www.ncbi.nlm.nih.gov/books/NBK143540/

4. Frankowski, K; Patnaik, S; Schoenen, F; Huang, S; Norton, J; Wang, C; Titus, S; Ferrer, M; Zheng, W; Southall, N; Day, VW; Aubé, J; Marugan, JJ "Discovery and Development of Small Molecules That Reduce PNC Prevalence" (2011) http://www.ncbi.nlm.nih.gov/books/NBK143533/

5. Chou, T-F; Li, K; Nordin, BE; Porubsky, P; Frankowski, K; Patricelli, MP; Aubé, J; Schoenen, FJ; Deshaies, R "Selective, reversible inhibitors of the AAA ATPase p97" (2011) http://www.ncbi.nlm.nih.gov/books/NBK133422/

6. Hedrick, MP; Gosalia, P; Li, K; Frankowski, K; Shi, S; Prisinzano, TE; Schoenen, F; Aubé, J; Su, Y; Vasile, S; Sergienko, E; Gray, W; Harihan, S; Milan, L; Heynen-Genel, S; Chung, TDY; Dad, S; Caron, M; Bohn, LM; Barak, LS "Selective KOP Receptor Antagonists: Probe 2" (2011) http://www.ncbi.nlm.nih.gov/books/NBK66151/

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8. Hedrick, MP; Gosalia, P; Frankowski, K; Shi, S; Prisinzano, TE; Schoenen, F; Aubé, J; Su, Y; Vasile, S; Sergienko, E; Gray, W; Harihan, S; Ghosh, P; Milan, L; Heynen-Genel, S; Chung, TDY; Dad, S; Caron, M; Bohn, LM; Barak, LS "Selective KOP Receptor Antagonists: Probe 1" (2010) http://www.ncbi.nlm.nih.gov/books/NBK50689/

Other products of scholarship (patent applications):

1. Sibley, DR; Moritz, AE; Free, RB; Southall, N; Ferrer, M; Hu, X; Gandhi, D.; Frankowski, K "D3 dopamine receptor-selective negative allosteric modulators and methods of use thereof" Provisional U.S. Patent Appl. (2021) 63/228660

2. Sibley, DR; Luderman, KD; Conroy, JL; Free, RB; Jain, P; Aube, J; Frankowski, K "Positive allosteric modulators of dopamine 1 receptor and method of use thereof" U.S. Patent Appl. (2018), No. 62/639,271

3. He, C; Huang, S; Wang, C; Rocchi, A; Marugan, JJ; Ferrer, M; Patnaik, S; Chen, Y; Frankowski, K; Schoenen, FJ "Autophagy inducers for treatment of CNS conditions" PCT Int. Appl. (2018), WO 2018140630 A1

4. Sibley, DR; Moritz, AE; Free, RB; Steiner, JP; Southall, NT; Ferrer, M; Hu, X; Weiner, WS; Aube, J; Frankowski, K "Preparation of selective D3 dopamine receptor agonists and methods of their use" PCT Int. Appl. (2017), WO 2017181004 A1

5. Aubé, J; Frankowski, K; Prisinzano, T; Bohn, L "Tetrahydroisoquinoline derivatives as antagonists of the kappa opioid receptor and their preparation" PCT Int. Appl. (2016), WO 2016086149 A1

6. Liang, T; Hu, Z; Marugan, JJ; Southall, NT; He, S; Hu, X; Xiao, J; Ferrer, M; Zheng, W; Frankowski, KJ; Schoenen, FJ; Li, K "Heterocyclic compounds and methods of use thereof" PCT Int. Appl. (2015) WO 2015192077 A1

7. Frankowski, K; Patnaik, S; Schoenen, F; Huang, S; Norton, J; Wang, C; Titus, S; Ferrer, M; Zheng, W; Southall, N; Day, VW; Aubé, J; Marugan, JJ "Preparation of substituted 4-iminopyrrolo[2,3-d] pyrimidine derivatives as PNC inhibitor useful for the treatment cancer" PCT Int. Appl. (2013) WO 2013090912 A1 and U.S. Pat. Appl. (2014), US 20140323438 A1 20141030.

8. Aubé, J; Bohn, L; Prisinzano, TE; Schoenen, FJ; Frankowski, KJ "Kappa opioid effectors and uses" PCT Int. Appl. (2013), WO 2013040321 A1

9. Aubé, J; Blagg, BSJ; Frankowski, KJ; Frick, DN; Li, K; Schoenen, FJ "HCV helicase inhibitors and methods of use thereof" PCT Int. Appl. (2013), WO 2013036749 A1

10. Deshaies, RJ; Chou, T-F; Schoenen, FJ; Li, KL; Frankowski, KJ; Aubé, J; Gerritz, SW; Zhou, H-J "Methods and composition for inhibition of the translational endoplasmic reticulum ATPase" PCT Int. Appl. (2011), WO2011140527 A2

11. Aubé, J; Roth, BL; Ghosh, P; Frankowski, KJ "Preparation of functionalized octahydroisoquinolin-1-one-8-carboxamides, octahydro-isoquinolin-1-one-8-carboxylic esters, and analogs as opioid receptor modulators useful in the treatment of diseases" U.S. Patent Appl. (2010), US 20100256142 A1 20101007 and PCT Int. Appl. (2010), WO 2010037050 A2

12. Taber, DF; Li, H-Y; Frankowski, KJ "Novel stable compositions of water and oxygen sensitive compounds and their method of preparation" Provisional U.S. Patent Appl. (2004) 583,054; June 25, 2004

Invited Lectures:

1. University of North Carolina, Greensboro Chemistry Department seminar series; "Nitrogenous heterocyles: electrochemical diversification and therapeutic applications"; September 17, 2021; University of North Carolina, Greensboro.

2. Carolina Cancer Nanotechnology Training Program (CCNTP) T32 seminar series; "Development of Metarrestin: a New Antimetastasis Compound Class that Disassembles the Perinucleolar Compartment (PNC)"; October 21, 2019; University of North Carolina at Chapel Hill.

3. Gordon Research Conference on Heterocyclic Compounds; "Development of Selective Molecular Tools for Dopamine Signaling"; June 19, 2018; Salve Regina University.

Teaching Activities:

Course Lead for Translational Science, a required course in the Molecules to Market online certificate program (Fall 2021–Spring 2022)

Lecture Instructor for ITPS virtual symposium (July 2020)

Co-Instructor for CBMC 807 (Fall 2019)

Guest lecturer for Chem 262H (Spring 2017)

Funding:

IBM and RJ Reynolds Junior Faculty Development Award "Repurposing hepatitis C virus entry inhibitors for the development of anti-SARS-CoV-2 agents" (PI) 01/01/22 – 12/31/22

NIA 1 R21 AG068833-01A1 "D1 dopamine receptor positive allosteric modulators as a practical treatment for cognitive decline" (PI) 09/15/21 – 05/31/23

NIDA 1 UG3 DA050820-01A1 "Negative allosteric modulators of the D3 dopamine receptor as therapeutic leads for substance use disorders" (PI) 07/01/21 – 06/30/23

NIDDK Research Contract 75N94021P00319 for anti-viral potency optimization (UNC PI, NIDDK PI: T. Jake Liang) 05/01/21 – 04/30/22

Eshelman Institute for Innovation Tier 2 award "Metarrestin derivatives as selective anti-cancer agents with reduced CNS exposure" (contact PI, co-PI: Sui Huang) 06/01/20 – 05/31/22

NC TraCS Matched Funding Pilot award "Development of viral entry inhibitors for the improved treatment of HCV" (contact PI, co-PI: Eugene Muratov) 08/01/19 – 07/31/20

Eshelman Institute for Innovation Tier 2 award "Allosteric dopamine modulators for the treatment of CNS disorders" (PI) 06/01/18 – 05/31/20

Eshelman Institute for Innovation Tier 2 award "Inspired by nature: enhancing the UNC compound collection" (contact PI, co-PI: Sarah Scarry) 06/01/17 – 05/31/19

NC TraCS 2K Pilot award "Allosteric D3 receptor antagonists as potential therapeutic leads for addiction and schizophrenia" (PI) 04/01/17 – 03/31/18

Professional Service:

Student Advisory Committee member for Benjamin Strickland, UNC CBMC Division

Ph.D. dissertation committee member for Anthony Carestia, UNC Department of Chemistry.

Ad hoc peer reviewer in 2021 for *The Journal of Medicinal Chemistry*, *Bioorganic and Medicinal Chemistry Letters* and *Organic Letters*.