


Samuel Charles Fehling, PhD

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Education

University of Alabama at Birmingham (UAB) 2014 – 2019  Birmingham, AL
Doctor of Philosophy in Biomedical Sciences / Cancer Biology GPA: 3.69/4.00

University of Wisconsin – Eau Claire (UWEC) 2010 – 2014  Eau Claire, WI
Bachelor of Science in Biochemistry & Molecular Biology GPA: 3.41/4.00

Work Experience

BioCryst Pharmaceuticals Inc.

Sr. Research Biologist July 2025 – Present

- Designed and qualified novel total and free drug target assays on the Gyrolab xPlore platform for non-human primate (NHP) pharmacokinetic studies, authoring formal validation reports.
- Accelerated preclinical programs by screening antibody candidates and generating data packages, figures and study reports to support regulatory Investigational New Drug (IND) filings.
- Independently performed surface plasmon resonance (SPR) assays on the Biacore T200 utilizing Protein A and CM5 chips to evaluate binding kinetics and cross-reactivity for antibody therapeutics.

Research Biologist December 2022 – July 2025

- Screened and characterized drug efficacy and mechanism of action of thousands of small-molecule therapeutics and antibody candidates using high-throughput cell-based and cell-free in vitro assays to drive medicinal chemistry and protein science pipelines.
- Evaluated rodent and NHP pharmacokinetics by analyzing plasma samples from treated models to quantify total and free protein expression levels.

BioGX Inc.

Research and Development Scientist February 2020 – December 2022

- Engineered 30+ direct-addition PCR assays for custom and FDA EUA-approved diagnostics, executing developments and IQ/OQ/PQ qualifications on BD MAX, QuantStudio, Bio-Rad and ABI 7500 platforms.
- Utilized data modeling and QC risk assessments to validate outgoing products, guide design decisions and train technical personnel.

University of Alabama at Birmingham (UAB)

Graduate Research Assistant August 2014 – December 2019

- Discovered synergistic drug combinations targeting cholangiocarcinoma by evaluating BET bromodomain inhibitors to downregulate c-Myc and Chk1.
- Established gemcitabine-resistant liver cancer models using advanced in vitro and in vivo techniques to study translational resistance mechanisms.
- Executed in vivo studies using athymic nude and C57BL/6 mice, managing oral gavage, IP injections and high-fidelity PDX models.

Research Experience

Collaborative Undergraduate Research

“Molecular Dynamic Simulations and *In Silico* Mutations for the Identification of Amino Acid Residues that Promote Dynamical Coupling between Domains in *Aminoacyl-tRNA Synthetase*” with Dr. Sudeep Bhattacharyay and Dr. Sanchita Hati at the University of Wisconsin – Eau Claire (UWEC). Summer 2013 - 2015. *Study the effect of site-directed mutagenesis on the collective dynamics of E. coli methionyl- and prolyl-tRNA synthetases.*

“Molecular Dynamics Simulations and Principal Component Analysis for Classification of Proteins Based on their Intrinsic Dynamics” with Dr. Sudeep Bhattacharyay and Dr. Sanchita Hati at the University of Wisconsin – Eau Claire (UWEC). Summer 2013 - 2015. *Long-time scale simulations are being carried out to explore if the substrate specificity of proteins are related to their intrinsic dynamics.*

Publications *Denotes Undergraduate Collaboration

Aubrey L Miller, **Samuel C Fehling**, Rebecca B Vance, Dongquan Chen, Eric Josh Brown, M Iqbal Hossain, Eric O Heard, Shaida Andrabi, Hengbin Wang, Eddy S Yang, Donald J Buchsbaum, Robert CAM van Waardenburg, Susan L Bellis, Karina J Yoon. *“BET Inhibition Decreases HMGCS2 and Sensitizes Resistant Pancreatic Tumors to Gemcitabine.”* Cancer Letters. 2024 June 28. (PMID: 38704133)

Aubrey L. Miller, Patrick L. Garcia, **Samuel C. Fehling**, Tracy L. Gamblin, Rebecca B. Vance, Leona N. Council, Dongquan Chen, Eddy S. Yang, Robert CAM van Waardenburg, Karina J. Yoon. *“The BET Inhibitor JQ1 Augments the Antitumor Efficacy of Gemcitabine in Preclinical Models of Pancreatic Cancer.”* Cancers. 2021 July 11. (PMCID: PMC8303731)

Samuel C. Fehling, Aubrey L. Miller, Patrick L. Garcia, Rebecca B. Vance, Karina J. Yoon. *“The Combination of BET and PARP Inhibitors is Synergistic in Models of Cholangiocarcinoma.”* Cancer Letters. 2019 October 9. (PMCID: PMC7017643)

Miller AL, **Fehling SC**, Garcia PL, Gamblin TL, Council LN, van Waardenburg RCAM, Yang ES, Bradner JE, Yoon KJ. *“The BET Inhibitor JQ1 Attenuates Double Strand Break Repair and Sensitizes Models of Pancreatic Ductal Adenocarcinoma to PARP Inhibitors”.* EBioMedicine. 2019 June. (PMCID: PMC6604668)

Kreitzburg KM, **Fehling SC**, Landen CN, Gamblin TL, Vance RB, Arend RC, Katre AA, Oliver PG, van Waardenburg RCAM, Alvarez RD, Yoon KJ. *“FTY720 Enhances the Anti-Tumor Activity of Carboplatin and Tamoxifen in a Patient-Derived Xenograft Model of Ovarian Cancer”.* Cancer Letters. 2018 August 15(18): 30527-5. (PMCID: PMC6756795)

Meares GP, Rajbhandari R, Gerigk M, Tien CL, Chang C, **Fehling SC**, Rowse A, Mulhern KC, Nair S, Gray GK, Berbari NF, Bredel M, Benveniste EN, Nozell SE. *“MicroRNA-31 is Required for Astrocyte Specification”.* Glia. 2018 May, 66(5): 987-998. (PMCID: PMC5851835)

Fehling SC*, Strom AM*, Lehman BP*, Andrews RJ*, Bhattacharyya S, Hati S. *“A Comparative Study of All-atom Molecular Dynamics Simulation and Coarse-Grained Normal Mode Analysis in Identifying Pre-Existing Residue Interaction Networks that Promote Coupled-Domain Dynamics in Escherichia coli Methionyl-tRNA Synthetase”.* American Journal of Undergraduate Research. 2017 June; 14(2): 27-44

McFarland BC, Marks MP, Rowse AL, **Fehling SC**, Gerigk M, Qin H, Benveniste EN. *“Loss of SOCS3 in Myeloid Cells Prolongs Survival in a Syngeneic Model of Glioma”.* Oncotarget. 2016 April 12; 7(15): 20621-35. (PMCID: PMC4991480)

Rajbhandari R, McFarland BC, Patel A, Gerigk M, Gray GK, **Fehling SC**, Bredel M, Berbari NF, Kim H, Marks MP, Meares GP, Sinha T, Chuang J, Benveniste EN, Nozell SE. *“Loss of Tumor Suppressive microRNA-31 Enhances TRADD/NF- κ B Signaling in Glioblastoma”.* Oncotarget. 2015 July 10; 6(19): 17805-16. (PMCID: PMC4627347)

Dorner ME*, McMunn RD*, Bartholow TG*, Calhoun BE*, Conlon MR*, Dulli JM*, **Fehling SC***, Fisher CR*, Hodgson SW*, Keenan SW*, Kruger AN*, Mabin JW*, Mazula DL*, Monte CA*, Olthafer AG*, Sexton AE*, Soderholm BR*, Strom AM*, Hati S. "Comparison of Intrinsic Dynamics of Cytochrome p450 Proteins Using Normal Mode Analysis". *Protein Science*. 2015 September; 24(9): 1495-507. (PMCID: PMC4570543)

Strom AM*, **Fehling SC***, Bhattacharyya S, Hati S. "Probing the Global and Local Dynamics of Aminoacyl-tRNA Synthetases using All-Atom and Coarse-Grained Simulations". *Journal of Molecular Modeling*. 2014 May; 20(5): 2245 (PMCID: PMC4030129)

National and Regional Presentations **Denotes Undergraduate Collaboration*

Samuel C. Fehling, Aubrey L. Miller, Patrick L. Garcia, Karina J. Yoon. *BET Inhibition Sensitizes Cholangiocarcinoma Cells to PARP Inhibition*. Oral presentation. UAB Department of Pharmacology and Toxicology Seminar. Birmingham, AL. April 25, 2019.

Samuel C. Fehling, Aubrey L. Miller, Karina J. Yoon. *JQ1 Induces Cell Death and Disrupts BET Protein Binding to the MYC Locus in Cholangiocarcinoma Cells*. Poster. Abstract #6299. American Association for Cancer Research. Atlanta, GA. March 30 – April 3, 2019.

Samuel C. Fehling, Aubrey L. Miller, Rebecca B. Vance, James E. Bradner, Karina J. Yoon. *The BET Inhibitor JQ1 Sensitizes Cholangiocarcinoma Cells to PARP Inhibitors*. Oral presentation. Comprehensive Cancer Center Trainee Research Seminar. Birmingham, AL. December 5, 2018.

Samuel C. Fehling, Aubrey L. Miller, James E. Bradner, Karina J. Yoon. *The BET Inhibitor JQ1 Sensitizes Cholangiocarcinoma Cells to PARP Inhibitors*. Poster. Abstract #313. Comprehensive Cancer Center Retreat. Birmingham, AL. November 16, 2018.

Samuel C. Fehling, Aubrey L. Miller, James E. Bradner, Karina J. Yoon. *The BET Inhibitor JQ1 Sensitizes Cholangiocarcinoma Cells to PARP Inhibitors*. Poster. Abstract #5824. American Association for Cancer Research. Chicago, IL. April 14 – 18, 2018.

Samuel Fehling, Aubrey Miller, Patrick Garcia, Tracy Gambelin and Karina Yoon. *BET Bromodomain Inhibition as an Approach for Treatment of Gemcitabine Resistant Cholangiocarcinoma*. Poster #324. Comprehensive Cancer Center Retreat. Birmingham, AL. October 30th, 2017.

Samuel C. Fehling, Aubrey L. Miller, Patrick L. Garcia, Karina J. Yoon. *BET Bromodomain Inhibition as an Approach for Treatment of Cholangiocarcinoma*. Oral presentation. UAB Department of Pharmacology and Toxicology Seminar. Birmingham, AL. October 12, 2018.

Samuel C. Fehling, Kory J. Dees, Braden C. McFarland and Ety N. Benveniste. *Evaluating the Therapeutic Efficacy of FDA-Approved Ruxolitinib for the Treatment of Glioblastoma*. Poster #318. Comprehensive Cancer Center Retreat. Birmingham, AL. October 17th, 2016.

Samuel C. Fehling, Braden C. McFarland, Ety N. Benveniste. *Ruxolitinib Inhibits STAT3 Activation in Glioma*. Oral presentation. Brain Tumor Research in Progress. Birmingham, AL. July 22nd, 2016.

Samuel C. Fehling, Braden C. McFarland, Ety N. Benveniste. *Ruxolitinib Inhibits STAT-3 Activation in Glioblastoma*. Poster. Abstract #3861. American Association for Cancer Research. New Orleans, LA. April 16 – 20, 2016.

Samuel Fehling, Braden McFarland, Ety Benveniste. *Ruxolitinib Inhibits STAT-3 Activation in Glioblastoma*. Poster. Cellular, Developmental and Integrative Biology Retreat. Lake Guntersville, AL. September 18th, 2015.

Samuel Fehling*, Alexander Strom*, Dr. Sudeep Bhattacharyya, Dr. Sanchita Hati. *Principal Component Analysis to Explore Transition Pathway of the Conformational Change in E. Faecalis Prolyl – tRNA Synthetase upon Substrate Binding*. Poster. Celebration of Excellence in Research and Creative Activity. Office of Research and Sponsored Programs. Eau Claire, WI. May 2, 2014.

Samuel Fehling*, Alexander Strom*, Dr. Sudeep Bhattacharyya, Dr. Sanchita Hati. *Application of Statistical – Thermal Coupling Analysis to Identify Residue – Residue Interaction Networks that Facilitate Coupled – Domain Dynamics in E. coli Methionyl–tRNA Synthetase*. Poster 12C. National Conference on Undergraduate Research. Office of Research and Sponsored Programs. Lexington, Kentucky. April 3 – 5, 2014.

Samuel Fehling*, Alexander Strom*, Dr. Sudeep Bhattacharyya, Dr. Sanchita Hati. *Application of Statistical – Thermal Coupling Analysis to Identify Residue – Residue Interaction Networks that Facilitate Coupled – Domain Dynamics in E. coli Methionyl–tRNA Synthetase*. Poster 23. MERCURY Education and Research Consortium. Office of Research and Sponsored Programs. Pennsylvania. July 25 – 27, 2013.

Grants, Scholarships and Awards

Grants

- “Molecular Dynamic Simulations and Mutational Studies to Explore the Role of Transfer RNA in Prolyl-tRNA Synthetase Allostery” with Dr. Sudeep Bhattacharyya and Dr. Sanchita Hati. Office of Research and Sponsored Programs, UWEC, Spring 2013 (**\$2,000 awarded**)
- “Continued Effort to Explore the Role of Transfer RNA in Prolyl-tRNA Synthetase Allostery using Molecular Dynamic Simulations and Mutational Studies” with Dr. Sudeep Bhattacharyya and Dr. Sanchita Hati. Office of Research and Sponsored Programs, UWEC, Fall 2013 (**\$2,300 awarded**)
- NIH Grant # 5T32NS048039-08 T32 Brain Tumor Training Grant, July 2015 to November 2016

Scholarships and Awards

- Recipient of academic distinction: Fall 2010, Fall 2011, Spring 2012, Fall 2012, Spring 2013
- College of Arts and Sciences Dean’s List: Spring 2014
- Graduation Distinction: Cum Laude, 2014

Travel Awards

- Bertram Marx Student Research Endowment: Spring 2016 and Spring 2018
- Amanda Layne Isom Travel Award: Spring 2018

Memberships and Distinctions

UWEC Biology Club – Member (2012 – 2014), Treasurer (2013 – 2014)

UWEC Molecular Movement – Member (2012 – 2014), Treasurer (2013 – 2014)

American Association for Cancer Research (AACR) – Member (2015 – Present)

Outreach and Service

University of Alabama at Birmingham Cancer Biology Newsletter

Editorial Board: Fall 2015 to Winter 2019

University of Alabama at Birmingham Cancer Biology Student Seminar

Co-Organizer: Summer 2016 to Summer 2017

University of Alabama at Birmingham Graduate Career Awareness and Trends (GCAT)

Communications Director: Summer 2018 to Winter 2019