

# 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

**Research Biologist at BioCryst Pharmaceuticals** 2022 – Present

- Design, validate & conduct *in vitro* biological and immunological assays for the pharmacological characterization of new small molecule drug candidates.
- Design & conduct *in vivo* studies for evaluating new drug candidates and current investigational drugs for efficacy in disease models & pharmacokinetics in rodents.

**Research & Development Scientist at BioGX** 2020 – 2022

- Developed molecular diagnostic assays for custom order & FDA EUA approved products.
- Skilled in various industry areas including R&D, Quality Control & training of personnel.
- Assisted in developing new product line, product platform conversions & a new PCR platform.
- Experienced in PCR platforms including BD MAX, QuantStudio, Bio-Rad CFX & ABI 7500.
- Improved upon current procedures & approaches to save development down-time & money spent.

**University of Alabama at Birmingham (UAB) Graduate Research Assistant** 2014 – 2019

- Developed & analyzed therapeutic drug combinations for use in liver cancer (cholangiocarcinoma).
- Devised a variety of techniques to develop & characterize preclinical chemotherapeutic resistant liver cancer models.
- Experienced with athymic nude & C57BL/6 mice, oral gavage, intraperitoneal (IP) injection & patient derived xenograft (PDX) models.
- Utilized commercially available cell culture lines & developed novel primary cell culture lines from patient tumors.

## 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 <sup>\*</sup>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- $\kappa$ B Signaling in Glioblastoma.*" Oncotarget. 2015 July 10; 6(19): 17805-16. (PMCID: PMC4627347)

Dorner ME\*, McMunn RD\*, Bartholow TG\*, Calhoon 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 & 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 & 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 Gamblin and Karina Yoon. *BET Bromodomain Inhibition as an Approach for Treatment of Gemcitabine Resistant Cholangiocarcinoma*. Poster #324. Comprehensive Cancer Center Retreat. Birmingham, AL. October 30<sup>th</sup>, 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 & 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 17<sup>th</sup>, 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 22<sup>nd</sup>, 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 18<sup>th</sup>, 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 & Creative Activity. Office of Research & 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 & 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 & Mutational Studies” with Dr. Sudeep Bhattacharyya & Dr. Sanchita Hati. Office of Research & Sponsored Programs, UWEC, Fall 2013 (**\$2,300 awarded**)

NIH Grant # 5T32NS048039-08 T32 Brain Tumor Training Grant, July 2015 to November 2016

### Scholarships & Awards

Recipient of academic distinction: Fall 2010, Fall 2011, Spring 2012, Fall 2012, Spring 2013

College of Arts & Sciences Dean’s List: Spring 2014

Graduation Distinction: Cum Laude, 2014

### Travel Awards

Bertram Marx Student Research Endowment, Spring 2016 & Spring 2018

Amanda Layne Isom Travel Award, Spring 2018

## Memberships & 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 & 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 & Trends (GCAT)**

Communications Director: Summer 2018 to Winter 2019

## References

**Karina J. Yoon, PhD**

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