

Austin S. Draycott

Contact Information

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Education

Yale University, New Haven, CT May 2023
Ph.D. Molecular Biophysics and Biochemistry,
Advisor: Dr. Wendy V. Gilbert May 2015
Brown University, Providence, RI
B.Sc. Biology, Honors,
Advisor: Dr. Mark A. Johnson

Positions

Co-Founder and CEO, Cloverleaf Bio May 2024 – present
Visiting Scientist, Yale University May 2023 – present
Department of Molecular Biophysics & Biochemistry
Graduate Student, Yale University
Wendy Gilbert Lab, Department of Molecular Biophysics & Biochemistry September 2017 – May 2023
Life Science Research Associate, Stanford University
Alice Ting Lab, Department of Genetics June 2016 – July 2017
Technical Assistant, Massachusetts Institute of Technology
Alice Ting Lab, Department of Chemistry May 2015 – June 2016
Undergraduate Research Associate, Brown University
Mark Johnson Lab, Department of Biology June 2012 – May 2015

Publications

A. S. Draycott, M. C. Wang, D. M. Saucedo, L. Escobar-Hoyos, W. V. Gilbert Dihydrouridine synthase 2 sustains levels of tRNACys and prevents ferroptosis in lung cancer. *In revision*.

O. Fanari, A. Makhamreh, **A. S. Draycott**, H. Gamper, Y-H. Hou, W. V. Gilbert, M. Wanunu, S. H. Rouhanifard, Control-guided nanopore sequencing maps DUS2-dependent dihydrouridylation across the human transcriptome *In preparation*.

C. J.T. Lewis, L. H. Xie, S. M. Bhandarkar, D. Jin, K. Abdallah, **A. S. Draycott**, Y. Chen, C. C. Thoreen, W. V. Gilbert. Quantitative profiling of human translation initiation reveals elements that potentially regulate endogenous and therapeutically modified mRNAs. *Molecular Cell*. **2025**, 85(2), 445-459

A. S. Draycott, C. Schaening-Burgos, M. F. Rojas-Duran, W. V. Gilbert. D-seq: Genome wide detection of dihydrouridines in RNA. *Methods in Enzymology*. **2023** 692 3-22.

A. S. Draycott, C. Schaening-Burgos, M. F. Rojas-Duran, L. Wilson, L. Schärffen, K. M. Neugebauer, S. Nachtergaele, W. V. Gilbert. Transcriptome-wide mapping reveals a diverse dihydrouridine landscape including mRNA. *PLoS Biology* **2022**, 20(5), e3001622.

◦ *Primer: S. Dixit and S. R. Jaffrey*. Expanding the epitranscriptome: Dihydrouridine in mRNA *PLoS Biology* **2022**, 20(7), e3001720

K. H. Loh, P. S. Stawski, **A. S. Draycott**, N. D. Udeshi, E. K. Lehrman, D. K. Wilton, T. Svinkina, T. Deerinck, M. H. Ellisman, B. Stevens, S. A. Carr, and A. Y. Ting. Proteomic analysis of unbounded cellular compartments: synaptic clefts. *Cell* **2016**, 166, 1295-1307

Patents

A. S. Draycott, C. JT. Lewis, W. V. Gilbert. “RNA-based inhibitors of tRNA modifying enzymes” **2024** Filing # 18106

A. S. Draycott, C. JT. Lewis, W. V. Gilbert. “Programmable RNA-based inhibitors of tRNA modifying enzymes” **2023** 63/691,051

Presentations

A. S. Draycott, M. C. Wang, D. M. Saucedo, L. Escobar-Hoyos, W. V. Gilbert. Dihydrouridine synthase 2 sustains levels of tRNACys and prevents ferroptosis lung cancer. Selected talk, 2023 Cold Spring Harbor Asia RNA Biology Meeting

A. S. Draycott, W.V. Gilbert Lung cancer cells require dihydrouridine synthase 2 to sustain levels of tRNACys and production of cysteine-rich proteins. Selected talk, 2022 Cold Spring Harbor Translational Control Meeting

A. S. Draycott, C. Schaening-Burgos, M. F. Rojas-Duran, L. Wilson, L. Schärffen, K. M. Neugebauer, S. Nachtergaele, W. V. Gilbert. Dihydrouridine modification alters mRNA structure and function. Selected talk, 2022 EMBO RNA Structure Meets Function Workshop

A. S. Draycott, W.V. Gilbert. Lung cancer cells require dihydrouridine synthase 2 to sustain levels of tRNACys and production of cysteine-rich proteins. Selected talk, 2021 Cold Spring Harbor RNA Processing Meeting (Virtual)

A. S. Draycott, W.V. Gilbert. Lung cancer cells require dihydrouridine synthase 2 to sustain levels of tRNACys and production of cysteine-rich proteins. Selected talk, 2021 EMBO Translational Control Meeting (Virtual)

A. S. Draycott, C. Schaening-Burgos, M. F. Rojas-Duran, W.V. Gilbert. Uncovering dihydrouridines transcriptome-wide with single-nucleotide resolution. Selected talk, 2020 Yale RNA Center Modification Workshop (Virtual)

Professional Experience

- Co-Founder and CEO, Cloverleaf Bio, Inc. **2024-present**
- Consultant, FL63/Alltrna, Inc. **2021-2023**

Fellowships and Awards

- National Cancer Institute CONCEPT Awardee **2025**
- National Cancer Institute Small Business Transition Grant Awardee **2025**
- American Cancer Society Bright Edge Entrepreneur Fellow **2024**
- Ruth L. Kirschstein Predoctoral Individual National Research Service Award (F31), **2020**
- Gruber Foundation Graduate Research Fellowship, **2017**

Teaching

Yale University

- Guest Lecturer, MB&B 743, Advanced Eukaryotic Molecular Biology, Spring **2023**
- Teaching Assistant, BIOL 101, Biochemistry, Spring **2021**
- Teaching Assistant, BIOL 101, Biochemistry, Fall **2019**
- Teaching Assistant, MB&B 460L, Advanced Biochemistry Lab, Spring **2018**

Brown University

- Teaching Assistant, BIOL440, Plant Organism, Fall **2014**
- Teaching Assistant, TAPS260 Stage Lighting, Fall **2013**
- Teaching Assistant, TAPS1280R, Puppet Theater Workshop, Fall **2012**
- Teaching Assistant, TAPS250 Introduction to Technical Theater, Fall **2011**- Spring **2015**

Mentorship

Yale University

- Undergraduate Thesis Projects (**2**)
- Summer Undergraduates (**3**)
- Rotation Students (**10**)

Stanford University

- Rotation Students (**1**)

Brown University

Distinctions,
Prizes & Fellowships
Mentees

- Summer Undergraduates (8)
- Vanessa Cheng, Pierson College Richter Summer Fellowship **2022**
- Mayerling Colin, Yale STARS Summer Research Fellowship **2021**
- Mitchell Lee, Yale College Dean's Research Fellowship in the Sciences **2020**