



Rachel Turn

Postdoctoral Scholar, Microbiology and Immunology

 Curriculum Vitae available Online

Bio

BIO

I am a cell biologist with extensive training in molecular mechanisms that regulate cell function, with a particular focus on primary cilia function, the G0 transition program, and fate change. I apply multidisciplinary approaches to identify conserved G0 programs across diverse cell types and define their molecular markers, with the aim of identifying G0 transition checkpoints. My research background combines expertise in ciliary biology, signaling pathways, and cutting-edge biological mass spectrometry with advanced imaging technologies to uncover molecular events governing cell fate.

HONORS AND AWARDS

- NIH K99/R00 Pathway to Independence Award Award #: 1K99GM154060, NIGMS (07/01/2024-present)
- NIH Ruth L. Kirschstein National Research Service Award (NRSA) F32 Award #: 1F32GM142180, NIGMS (05/2023 - 06/2024)
- Stanford School of Medicine Dean's Fellowship, Stanford University (03/2022 - 04/2023)
- GDBBS Graduate Career Award, Emory University (April 2021)
- NIH Ruth L. Kirschstein National Research Service Award (NRSA) F31 Award #: 1F31CA236493, NCI (June 2018 - April 2021)
- NIH NRSA BCMB Institutional Training Grant trainee T32 Grant #: 5T32GM8367, NIGMS (June 2016 - June 2018)

PROFESSIONAL EDUCATION

- Doctor of Philosophy, Emory University (2020)
- BA, Harriet L. Wilkes Honors College, Biology (2015)

STANFORD ADVISORS

- Peter Jackson, Postdoctoral Faculty Sponsor

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Expertise in cell bio, small GTPases, cell signaling, primary cilia, G0

LAB AFFILIATIONS

- Peter Jackson, Baxter Laboratories (4/1/2021)

Publications

PUBLICATIONS

- **A genome-wide, CRISPR-based screen reveals new requirements for translation initiation and ubiquitination in driving adipogenic fate change.** *Genes & development*
Turn, R. E., Hilgendorf, K. I., Johnson, C. T., Han, K., Aziz-Zanjani, M. O., Swails Bollinger, S., Domizi, P., Cheng, R., Rabiee, A., Zhu, Y., Jiang, Z., Asthana, A., Demeter, et al
2025
- **Synchronized temporal-spatial analysis via microscopy and phosphoproteomics (STAMP) of quiescence.** *Science advances*
Azizzanjani, M. O., Turn, R. E., Asthana, A., Linde-Garelli, K. Y., Xu, L. A., Labrie, L. E., Mobedi, M., Jackson, P. K.
2025; 11 (17): eadt9712
- **Metabolic STAMP for deciphering GPCR-regulated insulin secretion by pancreatic β cells** *bioRxiv*
Aziz-Zanjani, M., Turn, R. E., Hang, Y., Asthana, A., LaBrie, L., Mobedi, M., Xu, L. A., Kim, S. K., Jackson, P. K.
2025
- **Antibody characterization is critical to enhance reproducibility in biomedical research.** *eLife*
Kahn, R. A., Virk, H., Laflamme, C., Houston, D. W., Polinski, N. K., Meijers, R., Levey, A. I., Saper, C. B., Errington, T. M., Turn, R. E., Bandrowski, A., Trimmer, J. S., Rego, et al
2024; 13
- **SARS-CoV-2 replication in airway epithelia requires motile cilia and microvillar reprogramming.** *Cell*
Wu, C., Lidsky, P. V., Xiao, Y., Cheng, R., Lee, I. T., Nakayama, T., Jiang, S., He, W., Demeter, J., Knight, M. G., Turn, R. E., Rojas-Hernandez, L. S., Ye, et al
2022
- **Phylogenetic profiling and cellular analyses of ARL16 reveal roles in traffic of IFT140 and INPP5E.** *Molecular biology of the cell*
Deweese, S. I., Vargova, R., Hardin, K. R., Turn, R. E., Devi, S., Linnert, J., Wolfrum, U., Caspary, T., Elias, M., Kahn, R. A.
2022: mbcE21100509T
- **Roles for ELMOD2 and Rootletin in ciliogenesis.** *Molecular biology of the cell*
Turn, R. E., Linnert, J., Gigante, E. D., Wolfrum, U., Caspary, T., Kahn, R. A.
2021; 32 (8): 800-822
- **The ARF GAPs ELMOD1 and ELMOD3 act at the Golgi and Cilia to Regulate Ciliogenesis and Ciliary Protein Traffic.** *Molecular biology of the cell*
Turn, R. E., Hu, Y., Dewees, S. I., Devi, N., East, M. P., Hardin, K. R., Khatib, T., Linnert, J., Wolfrum, U., Lim, M. J., Casanova, J. E., Caspary, T., Kahn, et al
2021: mbcE21090443
- **The ARF GAP ELMOD2 acts with different GTPases to regulate centrosomal microtubule nucleation and cytokinesis.** *Molecular biology of the cell*
Turn, R. E., East, M. P., Prekeris, R., Kahn, R. A.
2020; 31 (18): 2070-2091
- **ELMOD2 regulates mitochondrial fusion in a mitofusin-dependent manner, downstream of ARL2.** *Molecular biology of the cell*
Schiavon, C. R., Turn, R. E., Newman, L. E., Kahn, R. A.
2019; 30 (10): 1198-1213
- **Meeting report-Small GTPases in membrane processes: FASEB summer research conference.** *Traffic (Copenhagen, Denmark)*
Turn, R. E., D'Souza, R. S., Wall, A. A.
2019; 20 (3): 259-262
- **The ARL2 GTPase regulates mitochondrial fusion from the intermembrane space.** *Cellular logistics*
Newman, L. E., Schiavon, C. R., Turn, R. E., Kahn, R. A.
2017; 7 (3): e1340104
- **Higher order signaling: ARL2 as regulator of both mitochondrial fusion and microtubule dynamics allows integration of 2 essential cell functions.** *Small GTPases*

Francis, J. W., Turn, R. E., Newman, L. E., Schiavon, C., Kahn, R. A.
2016; 7 (4): 188-196

- **Autocrine selection of a GLP-1R G-protein biased agonist with potent antidiabetic effects.** *Nature communications*
Zhang, H., Sturchler, E., Zhu, J., Nieto, A., Cistrone, P. A., Xie, J., He, L., Yea, K., Jones, T., Turn, R., Di Stefano, P. S., Griffin, P. R., Dawson, et al
2015; 6: 8918

PRESENTATIONS

- "Establishing the G0 Entry Point." - Invited Speaker: New England Cilia Group, Organizer: Gregory Pazour, UMass Chan Medical School, Worcester, MA. (Virtual).
- "Temporal-spatial regulation of protein synthesis and degradation serves as a key checkpoint of G0 transition and fate change" - Cell Bio 2025 (December 10, 2025 - December 10, 2025)
- "Standing at the Crossroads: How does a cell determine its fate"
- "Mapping the mechanisms at the crossroads of primary cilia axonemogenesis."
- "Mechanisms at the crossroads of Primary Cilia Axonemogenesis"
- "Ciliogenesis and Licensing of the G0 Program."
- "Temporal Mapping of the Phospho-Footsteps of Ciliogenesis."
- "Roles for ELMOD2 and Rootletin in Ciliogenesis."
- "Mapping the Mechanisms at the Crossroads of Primary Cilia"
- "GPCR pathway-specific regulatory mechanisms drive β cell insulin secretion.
- "Ciliogenesis and Ciliary Signaling revealed by STAMP (Synchronized Time-lapse Analysis via Microscopy and Phosphoproteomics)." - ASCB
- "Temporal Mapping of the Phospho-Footsteps of Ciliogenesis." - EMBO
- "Temporal Phosphoproteomics of Ciliogenesis in Human Nasal Epithelia"
- "A CRISPR-based genome-wide screen for adipogenesis reveals critical roles for translational control in mitotic expansion and lipogenesis." - Stanford Diabetes Research Conference
- "How Cancer loses primary cilia and the quiescent signature." - University of New York at Fredonia (Virtual)