Tess Brewer, PhD

Nationality: American *OrcID*: 0000-0001-7855-5610 *Languages*: English (native),
Email: tess.brewer@eawag.ch *Github*: github.com/tessbrewer/ German (intermediate)

Education

Ph.D. Molecular, Cellular, and Developmental Biology University of Colorado Boulder (USA)
2013 – 2019, Advisor: Noah Fierer

Dual B.S. Biochemistry & Biology with Honors Florida State University (USA)
2008 – 2012, Advisor: Kathryn M. Jones

Employment History

Scientist, EAWAG *2025 – present | Dave Johnson | Dübendorf, CH*

- Researching sequences that cause ribosomal pausing using ribosomal profiling and RNA seq data

Postdoctoral researcher, LMU Munich *2023 – 2025 | Jürgen Lassak | Munich, DE*

- Conceived and led a large collaborative project on post-translational modifications
- Contributed to developing a FACS-based fluorescent reporter to quantify ribosomal stalling
- Co-organized and ran an R workshop explicitly for experimental microbiologists

Postdoctoral researcher, University of Zurich *2019 – 2023 | Andreas Wagner | Zurich, CH*

- Conceived and led a comparative genomics project on growth rates across the bacterial tree of life
- Conceived and led a project which on complications arising from HGT in diverse bacterial lineages

Visiting Ph.D. student, Institut Pasteur *2018 | Eduardo Rocha | Paris, FR*

- Conceived and led a collaborative project to detect unlinked rRNA genes (non-operonic 16S and 23S) in environmental samples using long read sequencing through the Chateaubriand Fellowship

Ph.D. student, University of Colorado Boulder *2014 – 2019 | Noah Fierer | Boulder, CO, USA*

- Assembled genomes from metagenomic data to characterize deep-soil microbial communities
- Contributed to developing a 'global atlas' of the 500 most abundant soil bacterial species, categorized these species into distinct ecological clusters and predicted their distribution worldwide
- Led the analysis of one of the first metagenome-assembled genomes of an uncultivated soil bacterium

Funding history

2025 **Postdoc Mobility Return Fellowship**, Swiss National Science Foundation
The Role of Ribosomal Pausing and Rescue Mechanisms in Bacterial Genome Evolution (**162,000 CHF**)

2023 **BioMentoring program**, LMU Faculty of Biology (**10,000 €**)

2022 **Postdoc Mobility Fellowship**, Swiss National Science Foundation
The impact of growth rate on polyproline proteome and EF-P evolution (**128,000 CHF**)

2018 **Chateaubriand Fellowship**, French Embassy to the United States
Unlinked operons are widespread in Bacteria and Archaea (**7,500 €**)

Memberships in panels and boards

2021-present Editorial Board Member at International Society for Microbial Ecology ISME

Memberships in scientific societies

2019 – 2023 Swiss Institute of Bioinformatics

Supervision of junior researchers

2023 – 2024 Master's supervisor: Simon Schuldt, Naira Amiri
2019 – 2020 Principles of Evolution Mentor: Vanessa Rüegg
2014 – 2017 Research Experience for Community College Students (RECCS) Mentor: Patrick Marsden, Caihong VanderBurgh, Scott-Wesley Bean, Eryn Grant

Teaching activities

2025	R Workshop for Microbiology	LMU Munich
2020	Principles of Evolution	University of Zurich
2016-2018	Molecular Methods Micro. Ecology	University of Colorado Boulder

Recent meetings and presentations

2024 Poster presentation, "Horizontal transfer of a key translation protein leaves genomic traces of conflict in its wake", **International Society for Microbial Ecology (ISME)**, Capetown, SA

2023 Oral presentation, "Trade-offs between translational speed and polyproline-induced ribosomal stalling in bacteria", **Annual Conference of the Association for General and Applied Microbiology (VAAM)**, Göttingen, DE

2022 Poster presentation, "Ribosomal stall motifs proliferate in slow-growing bacteria and are associated with increasing cellular complexity", **International Society for Microbial Ecology (ISME)**, Lausanne, CH

2021 Oral presentation, "Bacterial trade-offs between translational efficiency and proline-induced ribosomal stalling", **Basel Computational Biology Conference**, Basel, CH

Select recent publications

[See Google Scholar profile for full publication list]

Brewer TE, Kielkowski P, Meier-Rosar F, Schlundt A, Lassak J (2026) Horizontal transfer of post-translational modifiers brings evolutionary opportunity and challenges to a conserved translation factor. ***BMC Biology*** 24(51).

Lassak J, Stritzel J, Schlundt A, **Brewer TE** (2026) Constant Trouble with Prolines — Navigating a Global Translation Dilemma. ***Nucleic Acids Research*** 54(3), gkaf1420.

Brewer TE, Wagner A (2024) Horizontal gene transfer of a key translation factor and its role in polyproline proteome evolution. ***Molecular Biology and Evolution*** 41 (9), msae180.

Brewer TE, Wagner A (2022) Translation stalling proline motifs are enriched in slow-growing, thermophilic, and multicellular bacteria. ***ISMEJ*** 16(4), 1065-1073.

Brewer TE, Albertsen M, Edwards A, Kirkegaard RH, Rocha EPC, Fierer N (2020) Unlinked rRNA genes are widespread among bacteria and archaea. ***ISMEJ*** 14(2), 597-608.

Brewer TE, Handley KM, Carini P, Gilbert JA, Fierer N (2016) Genome reduction in an abundant and ubiquitous soil bacterium '*Candidatus* Udaeobacter copiosus'. ***Nature Microbiology*** 2(2), 16198