

JERNEJ TURNŠEK

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EDUCATION

Harvard University Jan. 2020
Ph.D. in Biological and Biomedical Sciences, Advisors: Andrew E. Allen, Pamela A. Silver
Dissertation: *Towards Subcellular Proteomic Maps in Model Marine Diatoms*

University of Ljubljana June 2012
M.Sc. in Biotechnology, Advisor: Roman Jerala
Thesis: *Synthetic biology approach towards improvement of carotenoid biosynthetic pathway using zinc fingers*

FUNDING

The Gordon and Betty Moore Foundation Grant GBMF4958 Aug. 2015–July 2018
\$401,010 | Awarded | Co-authored with another Ph.D. student

Open Philanthropy Project Challenge: Bioinspiration and Unusual Biology Oct. 2018
\$113,000 | Top 10% among 375 applicants | Unfunded | Lead author

PUBLICATIONS

Turnšek J, Brunson JK, Deerinck TJ, Oborník M, Horák A, Bielinski VA, Allen AE. 2019.
Phytotransferrin endocytosis mediates a direct cell surface-to-chloroplast iron trafficking axis in
marine diatoms. *bioRxiv* (under review at *eLife*). doi: <https://doi.org/10.1101/806539>

Faktorová D, (...), Turnšek J, (...), Lukeš J. 2019. Genetic tool development in marine protists:
Emerging model organisms for experimental cell biology. *bioRxiv* (*Nature Methods*, accepted).
doi: <https://doi.org/10.1101/718239>

Turnšek J. 2018. Revisited *Thalassiosira pseudonana* (Tp) conjugation protocol enables fusion protein
delivery to Tp frustule. *protocols.io*. doi: [dx.doi.org/10.17504/protocols.io.nbzdap6](https://doi.org/10.17504/protocols.io.nbzdap6)

Conrado RJ, Wu GC, Boock JT, Xu H, Chen SY, Lebar T, Turnšek J, Tomšič N, Avbelj M, Gaber R,
Koprivnjak T, Mori J, Glavnik V, Vovk I, Benčina M, Hodnik V, Anderluh G, Dueber JE, Jerala R,
DeLisa MP. 2012. DNA-guided assembly of biosynthetic pathways promotes improved catalytic
efficiency. *Nucleic Acids Res* **40**:1879–1889. doi: <https://doi.org/10.1093/nar/gkr888>

PRESENTATIONS

TALKS (*Invited)

Methods for studying phase separation in biology, Dresden, Germany	Feb. 2019
ASCB EMBO 2018 meeting, San Diego, CA	Dec. 2018
Scripps Institution of Oceanography, La Jolla, CA	Nov. 2017
Wyss Institute for Biologically Inspired Engineering, Boston, MA	Mar. 2016
4 th ISS: International Summer School, Piran, Slovenia*	Aug. 2011
6 th CeBiTec Symposium: Genome-based Microbiology, Bielefeld, Germany*	July 2011
1 st Bio:Fiction, Science, Art and Film Festival, Vienna, Austria*	May 2011
iGEM 2010 Jamboree, Cambridge, MA	Nov. 2010

POSTERS

Phase Transitions in Polymeric and Protein Systems , Dresden, Germany	Feb. 2019
ASCB EMBO 2018 meeting , San Diego, CA	Dec. 2018
ASM Microbe 2018 , Atlanta, GA	June 2018
A New Age of Discovery for Aquatic Microeukaryotes , Heidelberg, Germany	Jan. 2016
The Eleventh Annual Broad Institute Retreat , Boston, MA	Dec. 2015
Wyss Institute 7th Annual Retreat , Boston, MA	Nov. 2015
Molecular Life of Diatoms 2015 , Seattle, WA	July 2015
2014 MRS Fall Meeting and Exhibit , Boston, MA	Dec. 2014

TEACHING AND MENTORING

Research Mentor , J. Craig Venter Institute, La Jolla, CA	Apr. 2017–Sept. 2018
Mentored a UCSD undergraduate – Pardis Gholami. Introduced her to molecular cloning techniques, genetic engineering of diatoms, and fluorescence microscopy.	
Biochemistry Bootcamp Mentor , Wellesley College, Wellesley, MA	Jan. 2015
Taught and supervised two students – Emily Whitehead and Tatsiana Mello – for two weeks. They expressed kinesin in bacteria, purified it, assayed its activity, and presented their findings.	
Mathematics, Physics, and English Tutor	2006–2008
Conducted High School level Mathematics, Physics, and English in-home tutoring in Slovenia.	

SERVICE AND OUTREACH

SERVICE

Invited Pre-Proposal Reviewer , Symbiosis in Aquatic Systems Initiative by the Gordon and Betty Moore Foundation, Palo Alto, CA	Aug.–Sept. 2019
Ambassador , protocols.io, Berkeley, CA	Nov. 2017–present

OUTREACH

Ocean Lights: bioluminescent bloom info booth , La Jolla, CA	May 2018
TriForOceans: saving coral reefs through triathlon , Gilford, NH View	Aug. 2016

POPULAR SCIENCE WRITING

Turnšek J. Going with the Flow: New Evidence for Liquid Water on Mars. View	Oct. 2015
Turnšek J. Diatoms: Nature's nanotechnologists. View	May 2014
Turnšek J. 2011. Slovenski uspeh na tekmovanju iz biomolekularnega dizajna BIOMOD 2011. <i>Proteus</i> . 75:347–352. (Kavčič Award)	Aug. 2013
Jerala R, Gaber R, Mori J, Turnšek J. 2012. Synthetic Biology: from Nanoscale to the Molecular Assembly Line. <i>Quark, Research and Development in Slovenia</i> . Summer 2012:20–23.	July 2012

CREATIVE WRITING

Turnšek J. Describing my Ph.D. in 15 seconds with video poetronica. View	Apr. 2018
Turnšek J. 2018. Marine Microbes: Triathlete's Best Friends. <i>Triathlon Club of San Diego newsletter</i> . Jan./Feb. 2018:1 & 6. View	Feb. 2018
Turnšek J. Tahonts. View	Oct. 2017
Turnšek J. DNA Sciku. View	Mar. 2014
Dudley Review contributor.	2014–2016

PROFESSIONAL EXPERIENCE AND DEVELOPMENT

Postdoctoral Fellow J. Craig Venter Institute, Microbial and Environmental Genomics, La Jolla, CA <i>Advisor: Andrew E. Allen</i>	Jan 2020–present
Research Fellow J. Craig Venter Institute, Microbial and Environmental Genomics, La Jolla, CA <i>Advisor: Andrew E. Allen</i>	Sept. 2016–Dec. 2019
Graduate Research Fellow Department of Systems Biology, Harvard Medical School, Boston, MA <i>Advisor: Pamela A. Silver</i>	May 2014–Nov. 2019
Visiting Graduate Student Scripps Institution of Oceanography, UC San Diego, La Jolla, CA Center for Research in Biological Systems, UC San Diego, La Jolla, CA <i>Advisor: Andrew E. Allen</i>	Sept. 2016–May 2019
Organism Engineer Ginkgo Bioworks, Inc., Boston, MA <i>Advisor: Curt Fischer</i>	Oct. 2012–July 2013
Expert Associate National Institute of Chemistry, Ljubljana, Slovenia <i>Advisor: Roman Jerala</i>	June 2010–July 2012

SHORT COURSES AND WORKSHOPS

EMBO Practical Course: Methods for studying phase separation in biology Max Planck Institute of Molecular Cell Biology and Genetics, Dresden, Germany	Feb. 2019
ASCB and Keck Graduate Institute Biotech Mini-Course Biocom, San Diego, CA	Dec. 2018
Microbial Sciences Initiative Microscopy Short Course Harvard University, Cambridge, MA	Jan. 2016
Material Research Society Science Writing Workshop Hynes Convention Center, Boston, MA	Nov. 2015
Discover Management Program IEDC-Bled School of Management, Bled, Slovenia	July 2011

SKILLS

WET LAB

Molecular cloning • Recombineering • Bacterial, yeast, diatom culture and genetic engineering • Fluorescence microscopy • Transmission electron microscopy (TEM) • RNA isolation • Pull-down assays • Proximity labeling • Yeast two-hybrid • Protein purification • SDS-PAGE • Western blot

DRY LAB

Geneious • Chimera • Basic knowledge of Unix, R, and Python.

LANGUAGES

English • Slovenian • Bosnian-Croatian-Montenegrin-Serbian (Limited working proficiency) • German (Elementary proficiency) • Spanish (Elementary proficiency)

HONORS AND AWARDS

Kavčič Award for Popular Science Writing , Ljubljana, Slovenia	Apr. 2013
University of Ljubljana Prešeren Award for M.Sc. Thesis , Ljubljana, Slovenia	Nov. 2012
Krka Prize for M.Sc. Thesis , Novo mesto, Slovenia	Oct. 2012
University of Ljubljana Rector's "Best Innovation Award" , Ljubljana, Slovenia	Dec. 2011
Gold Medal, BIOMOD 2011 , Boston, MA	Nov. 2011
Grand Prize, iGEM 2010 , Cambridge, MA	Nov. 2010
Zois Stipend , Ljubljana, Slovenia	2002–2011

HOBBIES AND INTERESTS

ENDURANCE SPORTS

USA Triathlon Olympic-Distance Age Group National Championships qualifier. 2018, 2019
Two-time Half-Ironman and marathon finisher. 2013–present

BASKETBALL

Two-time University of Ljubljana champion. 2008, 2009
Played semi-professionally for three Slovenian teams in college. 2007–2010

INTERESTS

Space exploration • Mathematics • Exercise physiology • Sports technology industry • Traveling • Coffee culture • Electronic music • Vinyl record collecting

ACADEMIC REFERENCES

Andrew E. Allen	aallen@jcvl.org 858-200-1826
Professor, Microbial and Environmental Genomics, J. Craig Venter Institute	
Associate Professor, Scripps Institution of Oceanography, University of California San Diego	
Christopher L. Dupont	cdupont@jcvl.org 858-200-1886
Associate Professor, Microbial and Environmental Genomics, J. Craig Venter Institute	
Sinem Beyhan	sbeyhan@jcvl.org 858-750-4029
Assistant Professor, Infectious Disease, J. Craig Venter Institute	