Reyhane Ghorbani Nia

Green Card Holder

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EDUCATION

University of California, Riverside — **GPA: 3.96 / 4**
MS in Chemical and Environmental Engineering — *Jan 2023 - Sep 2024*

University of Tehran — **GPA: 3.6 / 4**
BSc in Chemical Engineering — *Aug 2018 - Aug 2022*

RESEARCH INTEREST

- CRISPR-Cas
- CRISPRi/a
- Computational Biology
- Metabolic Engineering
- Synthetic Biology
- Drug Delivery

PUBLICATIONS

1. *Kingdom-Wide CRISPR Guide Design with ALLEGRO*
   Amirsadra Mohseni*, **Reyhane Ghorbani Nia***, Aida Tafrishi, Xinzhan Liu, Jason Stajich, Stefano Lonardi, Ian Wheeldon, *Nucleic Acids Research*, 2024 [Manuscript to be submitted] (*: Equal contribution)

2. *Genome-Wide Functional Screening in Yarrowia lipolytica Under Cerulenin Condition*
   Sangcheon Lee, Adithya Ramesh, Varun Trivedi, Nicholas D. Robertson, **Reyhane Ghorbani Nia** and Ian Wheeldon, *Metabolic Engineering*, 2024 [Manuscript in preparation]

3. *Supercritical Methanol and Ethanol Solubility Estimation by Using Molecular Dynamics Simulation*
   Hojatollah Moradi, Dr. Hedayat Azizpour, Dr. Parissa Khadiv-Parsi, **Reyhane Ghorbani Nia**
   Chemical Engineering and Technology, 2023 [Paper]

4. *Prediction of Water-Methanol Mixture Properties by Molecular Dynamics Simulation*
   Hojatollah Moradi, Hedayat Azizpour, Kamran Keynejad, **Reyhane Ghorbani Nia**, Amin Esmaeili
   Chemical Engineering and Technology, 2023 [Paper]

RESEARCH EXPERIENCE

1. **Research Assistant**
   Wheeldon's Lab — Jan 2023 - Present
   University of California, Riverside, CA

Mentors: **Prof. Ian Wheeldon** and **Prof. Stefano Lonardi**

Development and validation of a computational pipeline for CRISPR-Cas9 knock-out screening across diverse fungal species. Contribution to the design of an innovative algorithm for generating compact, high-activity Cas9-gRNA libraries, enhancing genome editing efficiency and precision.

2. **Research Assistant**

   Wheeldon's Lab   Jan 2023 - Sep 2023

   University of California, Riverside, CA

   Mentor: **Prof. Ian Wheeldon**

   Genome-wide CRISPR-Cas9 screening in *Yarrowia lipolytica* to identify gene targets that improve resilience of growth-related phenotypes under stress conditions.

3. **Research Assistant**

   Catalysis & Nanostructured Materials Research Lab   Sep 2021 - Sep 2022

   University of Tehran, Tehran, Iran

   Mentor: **Prof. Abbas Ali Khodadadi**

   Synthesis and characterization of an innovative drug delivery system based on conjugated liposomes.

WORK EXPERIENCE

1. **Internship**

   Iranian National Algae Culture Collection   Summer 2021

   University of Tehran, Tehran, Iran

   Mentor : **Prof. Omid Tavakoli**

   Design and validation of a pH-sensitive biosensor utilizing microalgae cultures for applications in environmental and food industries, while gaining extensive hands-on experience in biosensor fabrication and performance testing.

TEACHING EXPERIENCE

- Teaching Assistant, General Chemistry Lab, Fall 2024

- Teaching Assistant, Transport Phenomena, Winter 2024

- Teaching Assistant, Biochemical Engineering Laboratory, Fall 2023

- Teaching Assistant, Chemical Engineering Kinetics, Spring 2023

- Teaching Assistant, Physical Chemistry, Spring 2021 - Fall 2022

- Teaching Assistant, Differential Equations, Fall 2019

CONFERENCE PRESENTATION

1. ALLEGRO: Efficient Design of Cas9-gRNA Libraries of Minimal Size Targeting Thousands of Genomes, 7th International Conference on CRISPR Technologies, **Fall 2024**

AWARDS AND HONORS

2024	Master of Science in Chemical and Environmental Engineering, University of California, Riverside
2024	AIChE Travel Award (7th International Conference on CRISPR Technologies)
2024	Best Poster Presentation Award (UCR Symposium Poster Presentation)
2024	Best Teaching Assistant Award (University of California, Riverside)
2024	Online-Course Certificate, Python for Genomic Data Science (Johns Hopkins University)
2023	Dean's Distinguished Fellowship Award (University of California, Riverside)

PROGRAMMING, SOFTWARE & SKILLS

- Programming Languages: Python, MATLAB, C++

- Simulation and Design Tools: BLAST, CHOPCHOP, GuideScan, CRISPRscan, HYSYS, BIOVIA Material Studio 2017, SuperPro Designer

- Laboratory Equipment: UV-Vis, FTIR, DLS, HPLC, Flow Cytometer, Fluorescent Microscopy

- Proficient in laboratory techniques including PCR, Nucleic acid amplification and purification, Gel electrophoresis, DNA sequencing, Protein purification, Cas9-sgRNA library design and preparation, ELISA, SDS-PAGE, Cell culture and Data analysis

REFERENCES

1. Prof. Ian Wheeldon
Professor of Chemical and Environmental Engineering
University of California, Riverside
Email: wheeldon@ucr.edu

2. Prof. Stefano Lonardi
Professor of Computer Science and Engineering
University of California, Riverside
Email: stelo@cs.ucr.edu

3. Prof. Jiamin Zhang
Assistant Professor of Chemical and Environmental Engineering
University of California, Riverside
Email: jiaminz@engr.ucr.edu