Lianyong Wang, Ph.D.

Assistant Professor, Department of Biology and Institute for Plant-Human Interface
Northeastern University, Boston, MA 02120
lian.wang@northeastern.edu (856) 397-9664

EDUCATION AND TRAINING

Ph.D.	Applied Molecular Microbiology	Kyoto University	Japan	2017
B.S.	Biotechnology	Jinan University	China	2007

RESEARCH EXPERIENCE

2025-present. Assistant Professor of Biology and Institute for Plant Human Interface (IPHI), Northeastern University, Boston, USA

2020-2024 Project leader, Postdoc, Department of Molecular Biology, Princeton University, USA.
Research advisor: Dr. Martin Jonikas.
Toward the first comprehensive map of the chloroplast interactome

2017-2020 Project leader, Postdoc, Department of Molecular Biology, Princeton University, USA.
Research advisor: Dr. Martin Jonikas.
Determining the protein organization of the chloroplast in the green alga Chlamydomonas reinhardtii

2012-2017 Graduate student: Ph.D., Department of Biostudies, Kyoto University, JAPAN.
Research advisor: Dr. Hideya Fukuzawa.
A chloroplast calcium-binding protein CAS regulates the CO_2-concentrating mechanism in the green alga Chlamydomonas reinhardtii

PUBLICATIONS

Zhu L, Zhang Z, Rawat S, **Wang L**, Cao P, Zhao L (2024) Plant chassis for synthetic biology and its application in biomanufacturing. ***Frontiers in Plant Science*** https://doi.org/10.3389/fpls.2024.1460378

Vilarrasa-Blasi J, Vellosillo T, Jinkerson R, Fauser F, Xiang T, Minkoff B, **Wang L**, Kniazev K, Guzman M, Osaki J, Sussman M, Jonikas MC, Dinneny J (2024) Identification of green lineage osmotic stress pathways. ***Nature Communications*** *15, 5988*.

Hennacy J, Atkinson N, Kayser-Browne A, Ergun S, Franklin E, **Wang L**, Kafri M, McCormick A, Jonikas MC (2024) MITH1 and SAGA1 mediate pyrenoid membrane tubule biogenesis. ***Nature Plants*** *10, 2038-2051*.

Wang L, Patena W, Baalen K, Xie Y, Singer E, Gavrilenko S, Warren-Williams M, Han L, Harrigan H, Hartz L, Chen V, Ton V, Kyin S, Shwe H, Cahn M, Wilson A, Hu J, Schnell D, McWhite C, Jonikas MC (2023) A Chloroplast Protein Atlas Reveals Punctate Structures and Spatial Organization of Biosynthetic Pathways. ***Cell*** *186, 3499–3518.* ***Highlighted on the cover of Cell. Selected for the Science Highlights of the Department Of Energy.***

Kafri M, Patena W, Martin L, **Wang L**, Gomer G, Sirkejyan A, Goh A, Wilson A, Gavrilenko S, Breker M, Roichman A, McWhite C, Rabinowitz J, Cross F, Wuhr M, Jonikas MC (2023) Systematic identification and characterization of novel genes in the regulation and biogenesis of photosynthetic machinery. ***Cell*** *186, 5638–5655.*

Toth D, Kuntam S, Ferenczi A, Vidal-Meireles A, Kovacs L, **Wang L**, Sarkadi Z, Migh E, Neupert J, Bock R, Jonikas MC, Molnar A, Toth S (2023) The chloroplastic phosphate transporter CrPHT4-7 supports phosphate homeostasis and photosynthesis in Chlamydomonas reinhardtii. ***Plant Physiology***, *kiad607*. https://doi.org/10.1093/plphys/kiad607.

Meyer M, Itakura A, Patena W, **Wang L**, He S, Emrich-Mills T, Lau C, Yates Y, Mackinder L, Jonikas MC (2020) Assembly of the algal CO_2-fixing organelle, the pyrenoid is guided by a Rubisco-binding motif. ***Science Advance.*** *https://doi.org/10.1126/sciadv.abd2408.*

Wang L and Jonikas MC (2020) The pyrenoid. ***Current Biology*** doi:*https://doi.org/10.1016/j.cub.2020.02.051.*

Itakura A, Chan K, Alkinson N, Pallesen L, **Wang L**, Reeves G, Patena W, Caspari O, Roth R, Goodenough U, McCormick A, Giffiths H, Jonikas MC (2019) A Rubisco-binding protein is required for normal pyrenoid number, tubule content, and starch sheath shape in *Chlamydomonas reinhardtii*. ***Proc Natl Acad Sci USA*** doi:10.1073/pnas.1904587116.

Wang L, Yamano T, Takane S, Niikawa Y, Toyokawa C, Ozawa S, Tokutsu R, Takahashi Y, Minagawa J, Kanesaki Y, Yoshikawa H, Fukuzawa H (2016) Chloroplast-mediated regulation of CO_2-concentrating mechanism by Ca^{2+}-binding protein CAS in the green alga *Chlamydomonas reinhardtii.* ***Proc Natl Acad Sci USA*** 113 (44):12586–12591.

Wang L, Yamano T, Kajikawa M, Hirono M, Fukuzawa H (2014) Isolation and characterization of novel high-CO_2-requiring mutants of *Chlamydomonas reinhardtii.* ***Photosynth Research*** 121(2–3):175–184.

PREPRINTS AND UNDER REVIEW

He S, Lemma LM, Martinez-Calvo A, He G, Hennacy JH, **Wang L**, Ergun SL, Wang C, Bunday L, Kayser-Browne A, Wang Q, Brangwynne CP, Wingreen NS, Jonikas MC (2024) Kinase KEY1 controls pyrenoid condensate size throughout the cell cycle by disrupting phase separation interactions. (***Under review by Nature Cell Biology***)

Franklin E, **Wang L**, Cruz ER, Duggal K, Ergun SL, Garde A, Jonikas MC (2024) Proteomic analysis of the pyrenoid traversing membranes of *Chlamydomonas reinhardtii* reveals novel components. (***Under review by New Phytologist***) bioRxivhttps://doi.org/10.1101/2024.10.28.620638

MANUSCRIPT IN PREPARATION

Wang L*, Skanchy SK, Singer ER, Hartz LD, Warren-Williams M, Kyin S, Shwe H, Weronika Patena, Wu H, Jonikas MC* (2025) A chloroplast interactome reveals the organization of protein complexes in biosynthetic pathways. **(*In preparation for submission*)**

HONORS

2012-2016 Japanese Government (MONBUKAGAKUSHO: MEXT) Fellowship Award ($59,200)

PROFESSIONAL SERVICE

2017-present Reviewer for *Plant Physiology*, *Journal of Experimental Botany, Algal Research*, *Green Carbon*, *PLOS One*, and *Marine Biotechnology*.

PRESENTATIONS

Oral presentations:

2025 The 42nd Annual Eastern Regional Photosynthesis Conference, Woods Hole, U.S.A.: 'A Chloroplast Interactome Reveals the Organization of Protein Complexes in Photosynthesis'

2025 The Annual Japanese Seminar of Chlamydomonas, Kyoto, Japan: 'A Chloroplast Protein Localization Atlas and Interaction Network Unveiling the Spatial Arrangement of Biosynthetic Pathways'

2024 The 41st Annual Eastern Regional Photosynthesis Conference, Woods Hole, U.S.A.: 'A Chloroplast Protein Atlas Reveals Novel Structures and Spatial Organization of Biosynthetic Pathways'

2023 The 20th International Conference on the Cell and Molecular Biology of Chlamydomonas, Princeton, U.S.A.: 'A Chloroplast Protein Atlas Reveals Novel Structures and Spatial Organization of Biosynthetic Pathways'

2022 The Genomic Sciences Program PI Meeting held by the U.S. Department of Energy, Washington, D.C. 'Toward an atlas of chloroplast protein localizations and protein-protein interactions'

2022 18th International Congress on Photosynthesis Research, Otepoti Dunedin, New Zealand: 'A Chloroplast Protein Atlas Reveals Novel Structures and Spatial Organization of Biosynthetic Pathways'

2020 The Genomic Sciences Program PI Meeting held by the U.S. Department of Energy, Washington, D.C. 'Toward an atlas of chloroplast protein localizations and protein-protein interactions'

2016 The 17th International Conference on the Cell and Molecular Biology of Chlamydomonas, Kyoto, Japan: 'Thylakoid calcium-binding protein CAS and calcium regulate the expression of ABC-type plasma membrane bicarbonate transporter in *Chlamydomonas reinhardtii*.'

2016 The 57th Annual Meeting of the Japanese Society of Plant Physiologists. Iwate, Japan: 'Chloroplast calcium-binding protein, CAS, regulate CO_2-concentrating mechanism in a green alga, *Chlamydomonas reinhardtii*.'

2015 The 13th International Student Seminar, Kyoto, Japan: 'Calcium-sensing receptor homolog, *Cr*CAS, is required to regulate carbon-concentrating mechanism in a green alga, *Chlamydomonas reinhardtii*.'

Poster presentations:

2022 Gordon Research Conference in Mitochondria and Chloroplasts, Mount Snow. 'A Chloroplast Protein Atlas Reveals Novel Structures and Spatial Organization of Biosynthetic Pathways'

2021 The Genomic Sciences Program Meeting held by the U.S. Department of Energy, Washington, D.C. 'Transforming our understanding of chloroplast-associated genes through comprehensive characterization of protein localizations and protein-protein interactions'

2018 The 18th International Conference on the Cell and Molecular Biology of Chlamydomonas, Washington, D.C.: 'Toward an atlas of chloroplast protein localizations and protein-protein interactions'

2014 The 12th International Student Seminar, Kyoto, Japan: 'Isolation and characterization of novel high-CO_2 requiring mutants of *Chlamydomonas reinhardtii'*

2013 The 8th International Symposium on Inorganic Carbon Utilization by Aquatic Photosynthetic Organisms, New Orleans, USA: 'Isolation and characterization of novel high-CO_2 requiring mutants of *Chlamydomonas reinhardtii* by gene tagging.'