CURRICULUM VITAE OF YANTAO LI

Contact Information

The Institute of Marine and Environmental Technology
The University System of Maryland
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Education Background

2002-2007 Ph. D. (Microbial Biotechnology), The University of Hong Kong (HKU), Hong Kong

1998-2002 B. S. **(**Plant Biology), Nanjing University, P.R. China

Research and Professional Experience

2018-present Associate Professor, The Institute of Marine and Environmental Technology (IMET), The University System of Maryland

2012-2018 Assistant Professor, The Institute of Marine and Environmental Technology (IMET), The University System of Maryland

2009-2012 Assistant Research Professor, Department of Applied Sciences and Mathematics at Arizona State University (ASU)

2008-2009 Post-doc Researcher, Department of Applied Biological Sciences at ASU

2007-2008 Post-doc Researcher, School of Biological Sciences at HKU

2002-2007 Teaching and Research Assistant, Dept. of Botany at HKU (2002-2004) and Dept. of Plant Biology at ASU (2004-2006)

Major Research Interests

Understand abiotic and biotic interactions of microalgae with the environment, and the molecular mechanisms regulating lipid biosynthesis during those interactions; employing rational engineering strategies to manipulate algae for production of biofuels and high-value products.

Academic Editorial Service

2018-now Associate Editor, *Journal of Phycology* (official journal of the Phycological Society of America).

2021-now Editorial board, *Frontiers in Marine Science* (Marine Molecular Biology and Ecology section)

Publications

A. Journal articles (*indicates student or postdoc trainees from the Li lab)

Zhang Y, Ye Y, Ding W, Mao X, **Li Y**, Gerken H and Liu J (2020) Astaxanthin Is Ketolated from Zeaxanthin Independent of Fatty Acid Synthesis in *Chromochloris zofingiensis*. **Plant physiology**, 183, 883-897

Gong, Y., Kang, N., Kim, Y., Wang, Z., Wei, L., Xin, Y., Shen, C., Wang, Q., You, W., Lim, J., Jeong, S., Park, Y., Oh, H., Pan, K., Poliner, E., Yang, G., Li-Beisson, Y., **Li, Y.**, Hu, Q., Poetsch, A., Farre, E., Chang, Y., Jeong, W., Jeong, B., & Xu, J. 2020. The NanDeSyn Database for *Nannochloropsis* systems and synthetic biology. **Plant Journal** 104, 1736-1745

Wang Z, *Lee Y, Scherr D, Senger R, **Li Y**, He Z (2020) Mitigating nutrient accumulation with microalgal growth towards enhanced nutrient removal and biomass production in an osmotic photobioreactor. **Water Research**, 182, 116038

*Singh, S.K., Major, S.R., Cai, H., Chen, F., Hill, R.T. and **Li, Y.** (2018) Draft Genome Sequences of *Cloacibacterium normanense* IMET F, a Microalgal Growth-Promoting Bacterium, and *Aeromonas jandaei* IMET J, a Microalgal Growth-Inhibiting Bacterium. **Genome Announcements**, 6:e00503-18.

[1]Xin, Y., [1]Lu, Y., [1]*Lee, Y.-Y., Wei, L., Jia, J., Wang, Q., Wang, D., Bai, F., Hu, H., Hu, Q., [2]*Liu, J., **[2]Li, Y.** and [2]Xu, J. (2017) Producing designer oils in industrial microalgae by rational modulation of co-evolving type-2 diacylglycerol acyltransferases. **Molecular Plant**, 10, 1523-1539. ([1]co-first authors; [2]co-corresponding authors)

Wei HH, Shi Y, Ma XN, Pan Y, Hu HH, **Li YT**, Luo M, Gerken H, Liu J (2017) A type I diacylglycerol acyltransferase modulates triacylglycerol biosynthesis and fatty acid composition in the oleaginous microalga *Nannochloropsis oceanica*. **Biotechnology for Biofuels**, 10: 174

*Wang Y, *Lee Y-Y, Santaus TM, *Newcomb CE, *Liu J, Geddes CD, Zhang C, Hu Q, **Li Y** (2017) *In situ* enzymatic conversion of *Nannochloropsis oceanica* IMET1 biomass into fatty acid methyl esters. **BioEnergy Research**. 10:438-448

*Liu J, *Lee YY, Mao X, and **Li YT** (2017) A simple and reproducible non-radiolabeled *in vitro* assay for recombinant acyltransferases involved in triacylglycerol biosynthesis. **J. Appl. Phycol.** 29:323-333

*Lenka SK, Carbonaro N, Park R, Miller SK, Thorpe I, **Li YT**. (2016) Current advances in molecular, biochemical, and computational modeling analysis of microalgal triacylglycerol biosynthesis. **Biotechnology Advance**. 34: 1046-1063.

*Liu J, Han D, Yoon K, Hu Q, **Li YT** (2016) Characterization of type 2 diacylglycerol acyltransferases in *Chlamydomonas reinhardtii* reveals their distinct substrate specificities and functions in triacylglycerol biosynthesis. **Plant Journal** 86, 3-19. (Cover story and featured article; ISI Web of Science Highly cited article)

Jia J, Han DX, Gerken H, **Li YT**, Sommerfeld M, Hu Q, Xu J (2015) Molecular mechanisms for photosynthetic carbon partitioning into storage neutral lipids in *Nannochloropsis oceanica* under nitrogen-depletion conditions. **Algal Research** 7, 66-77.

*Wang Y, *Liu J, Gerken H, Zhang CW, Hu Q, **Li YT** (2014) Highly-efficient enzymatic conversion of crude algal oils into biodiesel. **Bioresour. Technol.** 172, 143-149.

Li J, Han DX, Wang D, Ning K, Jia J, Wei L, Jing X, Huang S, Chen J, **Li YT**, Hu Q, Xu J (2014) Choreography of transcriptomes and lipidomes in *Nannochloropsis* reveals the mechanisms of oleaginousness in microalgae. **Plant Cell** 26: 1645-1665. (ISI Web of Science Highly cited article)

*Liu J, Gerken H, **Li Y** (2014) Single-tube colony PCR for DNA amplification and transformant screening of oleaginous microalgae. **J. Appl. Phycol.** 26: 1719-1726

Han DX[1], **Li YT**[1], Hu Q (2013) Astaxanthin in microalgae: pathways, functions and biotechnological implications. **Algae** 28: 131-147 ([1]Equal contribution)

Yoon K, Han D, **Li Y**, Sommerfeld M, Hu Q (2012) Phospholipid:diacylglycerol acyltransferase is a multifunctional enzyme involved in membrane lipid turnover and degradation while synthesizing triacylglycerol in the unicellular green microalga *Chlamydomonas reinhardtii*. **Plant Cell** 24: 3708-3724 (Highly cited article)

Li Y, Han D, Sommerfeld M, Hu Q (2011) Photosynthetic carbon partitioning and lipid production in the oleaginous microalga *Pseudochlorococcum* sp. (Chlorophyceae) under nitrogen-limited conditions. **Bioresour. Technol.** 102: 123-129

Packer A, **Li YT**, Andersen T, Hu QA, Kuang Y, Sommerfeld M (2011) Growth and neutral lipid synthesis in green microalgae: A mathematical model. **Bioresour. Technol.** 102: 111-117

Li Y, Han D, Hu G, Dauvillee D, Sommerfeld M, Ball S, Hu Q (2010) *Chlamydomonas* starchless mutant defective in ADP-glucose pyrophosphorylase hyper-accumulates triacylglycerol. **Metabolic Engineering** 12: 387-391 (Highly cited article)

Li Y, Han D, Hu G, Sommerfeld M, Hu Q (2010) Inhibition of starch synthesis results in overproduction of lipids in *Chlamydomonas reinhardtii*. **Biotechnol. Bioeng.** 107: 258-268 (Highly accessed article)

Li Y, Sommerfeld M, Chen F, Hu Q (2010) Effect of photon flux densities on regulation of carotenogenesis and cell viability of *Haematococcus pluvialis* (Chlorophyceae). **J. Appl. Phycol.** 22: 253-263

Li Y, Huang J, Sandmann G, Chen F (2009) High-light and sodium chloride stress differentially regulate the biosynthesis of astaxanthin in *Chlorella zofingiensis* (Chlorophyceae). **J. Phycol.** 45: 635-641

Hu Z, **Li Y**, Sommerfeld M, Hu Q (2008) Enhanced protection against oxidative stress in an astaxanthin-overproduction *Haematococcus* mutant (Chlorophyceae). **Eur. J. Phycol.** 43: 365-376

Huang JC, Liu J, **Li YT**, Chen F (2008) Isolation and characterization of the phytoene desaturase gene as a potential selective marker for genetic engineering of the astaxanthin-producing green alga *Chlorella zofingiensis* (Chlorophyta). **J. Phycol.** 44: 684-690

Li Y, Huang J, Sandmann G, Chen F (2008) Glucose sensing and the mitochondrial alternative pathway are involved in the regulation of astaxanthin biosynthesis in the dark-grown *Chlorella zofingiensis* (Chlorophyceae). **Planta** 228: 735-743

Li Y, Sommerfeld M, Chen F, Hu Q (2008) Consumption of oxygen by astaxanthin biosynthesis: A protective mechanism against oxidative stress in *Haematococcus pluvialis* (Chlorophyceae). **J Plant Physiol** 165:1783-97 (Highly accessed article)

Sun N, Wang Y, **Li YT**, Huang JC, Chen F (2008) Sugar-based growth, astaxanthin accumulation and carotenogenic transcription of heterotrophic *Chlorella zofingiensis* (Chlorophyta). **Process Biochem.** 43: 1288-1292

B. Book Chapter

Li Y, Han D, Yoon K, Zhu S, Sommerfeld M and Hu Q. Molecular and Cellular Mechanisms for Lipid Synthesis and Accumulation in Microalgae: Biotechnological Implications. (2013) In ***Handbook of Microalgal Culture, 2nd Edition***; Amos Richmond and Qiang Hu, editors. In press, Chapter 28, pp. 545-565

Han D, **Li Y**, and Hu Q. Biology and Commercial Aspects of *Haematococcus pluvialis*. (2013) In ***Handbook of Microalgal Culture, 2nd Edition***; Amos Richmond and Qiang Hu, editors. Chapter 20, pp. 388-405

Lee Y, Chen W, Shen H, Han D, **Li Y**, Jones H, Timlin J, and Hu Q (2013) Basic Culturing and Analytical Measurement Techniques. In ***Handbook of Microalgal Culture, 2nd Edition***; Amos Richmond and Qiang Hu, editors. Chapter 3, pp. 37-68