

Hwan Su Yoon

Professor

Sungkyunkwan University
 Department of Biological Sciences
 2066 Seobu-ro, Jangan-gu,
 Suwon 16419, Korea, Tel: +82-31-290-5915
 E-mail: hsyoon2011@skku.edu, hwansu@gmail.com,
http://115.145.139.78/bbs/board.php?bo_table=F1&wr_id=24



Research Interests: Yoon's research interests are on the eukaryotic biodiversity, phylogeny, and genome evolution with publications of 130 peer-reviewed papers and book chapters. He has been focused on the genome evolution of red algae and red algal plastid descendants (e.g., the cryptophytes, haptophytes, stramenopiles, dinoflagellates), as well as photosynthetic *Paulinella* as a model organism for the primary endosymbiosis.

Education:

1994 – 1999 Ph.D. Biology, Chungnam National University, Korea.
 1992 – 1994 M.S. Biology, Chungnam National University, Korea.
 1988 – 1992 B.S. Biology, Chungnam National University, Korea.

Professional Positions and Academic Experiences:

2011 – Present Assistant, Associate, Professor, Sungkyunkwan University
 2007 – 2011 Principle Investigator (Senior Research Scientist): Bigelow Laboratory for Ocean Sciences
 2004 – 2007 Senior Scientist: University of Iowa
 2000 – 2004 Post Doctoral Fellow: University of Iowa
 2012 – 2014 Phycologia, Associate Editor
 2012 – 2013 Vice President of the International Society of Protistologists
 2017 - Present President of the International Congress of Protistology

Selected Publications (out of 130 papers)

1. Chung Hyun Cho, Seung In Park, Tzu-Yen Huang, Yongsung Lee, Claudia Ciniglia, Hari Chandana Yadavalli, Seong Wook Yang, Debashish Bhattacharya, **Hwan Su Yoon***. 2023. Genome-wide signatures of adaptation to extreme environments in red algae. *Nature Communications* 14:10.
2. Duckhyun Lhee, Debashish Bhattacharya, **Hwan Su Yoon***. 2021. Independent evolution of the thioredoxin system in photosynthetic *Paulinella* species. *Current Biology* 31: R311-R329.
3. Louis Graf, Younhee Shin, Ji Hyun Yang, Ji Won Choi, Il Ki Hwang, Wendy Nelson, Debashish Bhattacharya, Frédérique Viard and **Hwan Su Yoon***. 2021. A genome-wide investigation of the effect of farming and human-mediated introduction on the ubiquitous seaweed *Undaria pinnatifida*. *Nature Ecology and Evolution* 5: 360-368.
4. Duckhyun Lhee, JunMo Lee, Khaoula Ettahi, Chung Hyun Cho, Ji-San Ha, Ya-Fan Chan, Udi Zelzion, Timothy G Stephens, Dana C Price, Arwa Gabr, Eva C M Nowack, Debashish Bhattacharya*, **Hwan Su Yoon***. 2021. Amoeba genome reveals dominant host contribution to plastid endosymbiosis. *Molecular Biology and Evolution* 38: 344-357.
5. JunMo Lee, Dongseok Kim, Debashish Bhattacharya, **Hwan Su Yoon***. 2019. Expansion of phycobilisome linker gene families in mesophilic red algae. *Nature Communications* 10:4823.
6. JunMo Lee, Eun Chan Yang, Louis Graf, Ji Hyun Yang, Huan Qiu, Udi Zel Zion, Cheong Xin Chan, Timothy G. Stephens, Andreas P. M. Weber, Ga Hun Boo, Sung Min Boo, Kyeong Mi Kim, Younhee Shin, Myunghee Jung, Seung Jae Lee, Hyung-Soon Yim, Jung-Hyun Lee*, Debashish Bhattacharya*, and **Hwan Su Yoon***. 2018. Analysis of the draft genome of the red seaweed *Gracilariopsis chorda* provides insights into genome size evolution in Rhodophyta. *Molecular Biology*

and *Evolution* 35(8): 1869-1886.

7. JunMo Lee, Chung Hyun Cho, Seung In Park, Ji Won Choi, Hyun Suk Song, John A. West, Debashish Bhattacharya, and **Hwan Su Yoon***. 2016. Parallel evolution of highly conserved plastid genome architecture in red seaweeds and seed plants. *BMC Biology* 14: 75.
8. Eun Chan Yang, Sung Min Boo, Debashish Bhattacharya, Gary Saunders, Andrew H. Knoll, Suzanne Fredericq, Louis Graf, and **Hwan Su Yoon***. 2016. Divergence time estimates and evolution of major lineages in the florideophyte red algae. *Scientific Reports* 6: 21361. doi: 10.1038/srep21361.
9. Eun Chan Yang, Kyeong Mi Kim, Su Yeon Kim, JunMo Lee, Ga Hun Boo, Jung-Hyun Lee, Wendy A. Nelson, Gangman Yi, William Schmidt, Suzanne L. Fredericq, Sung Min Boo, Debashish Bhattacharya, and **Hwan Su Yoon**. 2015. Highly conserved mtDNA among multicellular red algae of the Florideophyceae. *Genome Biology and Evolution* 7(8): 2394-2406.
10. Huan Qiu, Dana C. Price, Andreas P.M. Weber, Valérie Reeb, Eun Chan Yang, Jun Mo Lee, Su Yeon Kim, **Hwan Su Yoon***, and Debashish Bhattacharya*. 2013. Adaptation through horizontal gene transfer in the cryptoendolithic red alga *Galdieria phlegrea*. *Current Biology* 23: R865-R866.
11. Debashish Bhattacharya, Dana C. Price, Cheong Xin Chan, Huan Qiu, Nicholas Rose, Steven Ball, Andreas P. M. Weber, Maria Cecilia Arias, Bernard Henrissat, Pedro M. Coutinho, Anagha Krishnan, Simone Zauner, Shannon Morath, Frederique Hilliou, Andrea Egizi, Marie-Mathilde Perrineau, **Hwan Su Yoon**. 2013. Genome of the red alga *Porphyridium purpureum*. *Nature Communications* 4:1941 doi: 10.1038/ncomms2931.
12. Huan Qiu, Eun Chan Yang, Debashish Bhattacharya, **Hwan Su Yoon***. 2012. Ancient gene paralogy may mislead inference of plastid phylogeny. *Molecular Biology and Evolution* 29(11):3333-3343.
13. Dana C. Price, Cheong Xin Chan, **Hwan Su Yoon**, et al. 2012. *Cyanophora paradoxa* genome elucidates origin of photosynthesis in algae and plants. *Science*. 335: 843-847.
14. **Hwan Su Yoon**, Dana Price, Michael Sieracki, Ramunas Stepanauskas, William H. Wilson, Eun Chan Yang, Siobain Duffy, Debashish Bhattacharya. 2011. Single cell genomes reveal the dynamic world of uncultured marine protists. *Science* 332: 714-717.
15. Cheong Xin Chan, Eun Chan Yang, Titas Banerjee, **Hwan Su Yoon***, Patrick T. Martone, Jose M. Estevez, Debashish Bhattacharya*. 2011. Signal of Plantae monophyly and gene sharing found in rich repertoire of red algal genes. *Current Biology* 21: 328-33.
16. Adrian Reyes-Prieto*, **Hwan Su Yoon***, Ahmed Moustafa, Eun Chan Yang, Robert A. Andersen, Sung Min Boo, Takuro Nakayama, Ken-ichiro Ishida, and Debashish Bhattacharya. 2010. Differential gene retention in plastid of recent origin. *Molecular Biology and Evolution* 27:1530 – 1537.
17. Sung Min Boo, Han Soon Kim, Woongghi Shin, Ga Hun Boo, Sung Mi Cho, Bok Yeon Jo, Jee-Hwan Kim, Jin Hee Kim, Eun Chan Yang, Peter A. Siver, Alexander P. Wolfe, Debashish Bhattacharya, Robert A. Andersen, **Hwan Su Yoon***. 2010. Complex phylogeographic patterns in the freshwater alga *Synura* provide new insights into ubiquity vs. endemism in microbial eukaryotes. *Molecular Ecology* 19:4328 – 4338.
18. Jeremiah D. Hackett*, **Hwan Su Yoon***, Shenglan Li, Adrian Reyes-Prieto, Susanne E. Rümmele, and Debashish Bhattacharya. 2007. Phylogenomic analysis supports the monophyly of cryptophytes and haptophytes and the association of “Rhizaria” with chromalveolates. *Molecular Biology and Evolution* 24:1702-1713.
19. **Hwan Su Yoon**, Adrian Reyes-Prieto, Michael Melkonian, and Debashish Bhattacharya. 2006. Minimal plastid genome evolution in the *Paulinella* endosymbiont. *Current Biology* 16:R670-R672.
20. **Hwan Su Yoon**, Jeremiah D. Hackett, Claudia Ciniglia, Gabrielle Pinto, Debashish Bhattacharya. 2004. A molecular timeline for the origin of photosynthetic eukaryotes. *Molecular Biology and Evolution* 21: 809-818.
21. **Hwan Su Yoon**, Jeremiah Hackett, Gabriele Pinto, and Debashish Bhattacharya. 2002. The single, ancient origin of Chromist plastids. *Proceedings of the National Academy of Sciences of the United States of America* 99: 15507-15512.

22. **Hwan Su Yoon**, Jeremiah D. Hackett, and Debashish Bhattacharya. 2002. A single origin of the peridinin-, and fucoxanthin-containing plastids in dinoflagellates through tertiary endosymbiosis. *Proceedings of the National Academy of Sciences of the United States of America* 99: 11724-11729.