# Publications

# L. Garczarek

Publications In International Journals

***Published Articles***

74: 2023 Alonso-Sáez L, Palacio AS, Cabello AM, Robaina-Estévez S, González JM, Garczarek L, López-Urrutia A5. Transcriptional mechanisms of thermal acclimation in *Prochlorococcus*. **mBio** 14(3)**.** [https://doi.org/10.1128/mbio.03425-22](mailto:https://doi.org/10.1128/mbio.03425-22).

73 : 2023 Ying Ong DR, Gutiérrez-Rodríguez A, Garczarek L, Marie D, and Lopes dos Santos A. Nested PCR approach for *petB* gene metabarcoding of marine *Synechococcus.* **Microbiology Spectrum** 11(2).<https://doi.org/10.1128/spectrum.04086-22>.

72: 2023 Doré F, Guyet U, Leconte J, Farrant GK, Ratin M, Ostrowski M, Ferrieux M, Lecorguillé G, Corre E, Labadie K, Aury JM, Wincker P, Eveillard D, Scanlan DJ, Partensky F and Garczarek L. Differential global distribution of marine picocyanobacteria gene clusters reveals distinct niche-related adaptive strategies. **ISME J** 17:720–732[https://doi.org/10.1038/s41396-023-01386-0](https://www.nature.com/articles/s41396-023-01386-0).

71: 2022 Doré H., Breton S., Pittera J., Hoebeke M., Corre M., Ratin M., Scanlan D.J., Partensky F., Six C. and Garczarek L. (2022). Global distribution of marine Synechococcus populations in coastal areas from Ocean Sampling Day metagenomes. bioRxiv preprint doi: <https://doi.org/10.1101/2022.08.17.504260>; **mSystems** <https://doi.org/10.1128/msystems.00656-22>.

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68: 2022 Haney A. M., Sanfilippo J.E., Garczarek L., Partensky P., and Kehoe D.M. (2022). Multiple photolyases protect the marine cyanobacterium *Synechococcus* from ultraviolet radiation. **MBio** 13(4): e01511-22. <https://doi.org/10.1128/mbio.01511-22>

67: 2022 Grébert T., Garczarek L., Daubin V., Humily F., Marie D., Ratin M., Devailly A., Farrant G. K., Mary I., Mella-Flores D., Tanguy G., Labadie K., Wincker P., Kehoe D.M. and Partensky F. (2022). Diversity and evolution of pigment types and the phycobilisome rod gene region of marine *Synechococcus* cyanobacteria. Genome Biology and Evolution 111: evac035, <https://doi.org/10.1093/gbe/evac035>.

66:2021 Grébert T., Nguyen A.A., Pokhrel S., Joseph K.L., Ratin M., Dufour L., Chen B., Haney A.M., Trinidad J., Karty J.A., Trinidad J.C., Garczarek L., Schluchter W.M., Kehoe D.M. & Partensky F. (2021). Molecular basis of an alternative dual-enzyme system for light color acclimation of marine *Synechococcus* cyanobacteria. **Proc Natl Acad Sci USA**. 2021 118 (9). [https://doi.org/10.1073/pnas.2019715118 63](https://doi.org/10.1073/pnas.2019715118%2063).

65:2021 Garczarek L, Guyet U, Doré H, Farrant GK, Hoebeke M, Brillet-Guéguen L, Bisch A, Ferrieux M., Siltanen J., Corre E, Le Corguillé G, Caron C, Ratin M, Pitt FD, Ostrowski M, Conan M, Siegel A, Labadie K, Aury JM, Wincker P, Scanlan DJ and Partensky F. (2021). Cyanorak v2.1: a scalable information system dedicated to the visualization and expert curation of marine and brackish picocyanobacteria genomes. **NAR Database** 49, D1: D667–D676. <https://doi.org/10.1093/nar/gkaa958>.

64: 2021 Carrigee LA, Frick JP, Karty JA, Garczarek L, Partensky F, and Schluchter WM. (2021). MpeV is the Lyase isomerase for the doubly-linked phycourobilin on the β-subunit of phycoerythrin I & II in marine *Synechococcus*. **Journal of Biological Chemistry**. <https://doi.org/10.1074/jbc.RA120.015289>

63: 2020 Doré H, Farrant GK, Guyet U, Haguait J, Humily F, Ratin M, Pitt F, Ostrowski M, Six C, Brillet-Guéguen L, Hoebeke M, Bisch A, Lecorguillé G, Corre E, Labadie K, Aury JM, Wincker P, Dong HC, Jae HN, Eveillard D, Scanlan DJ, Partensky F and Garczarek L. (2020). Evolutionary mechanisms of long-term genome diversification associated with niche partitioning in marine picocyanobacteria. **Frontiers in Microbiology** 11: 567431. <https://doi.org/10.3389/fmicb.2020.567431>.

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59: 2019 Breton S, Jouhet J, Guyet U, Gros V, Pittera J, Demory D, Partensky F, Doré H, Ratin M, Maréchal E, Nguyen NA, Garczarek L & Six C. (2020). Unveiling membrane thermoregulation strategies in marine picocyanobacteria. **New Phytologist** 225: 2396–2410, <https://doi.org/10.1111/nph.16239>.

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56 : 2018 Partensky F., Six C, Ratin M., Garczarek L., Vaulot D., Probert I., Calteau A, Gourvil P., Marie D., Grébert T., Bouchier C., Le Panse S., Gachenot M., Rodríguez F. and Garrido J.L. A novel species of the marine cyanobacterium Acaryochloris with a unique pigment content and lifestyle. **Sci Rep**. 2018 8:9142. <https://doi.org/10.1038/s41598-018-27542-7>.

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54: 2018 Grébert T., Doré H., Partensky F., Farrant G.K., Boss E., Picheral M., Acinas S., Kehoee D.J. and Garczarek L. Light color acclimation: a key process in the global ocean distribution of *Synechococcus* cyanobacteria. **Proc Natl Acad Sci USA** 115(9): E2010-E2019. <https://doi.org/10.1073/pnas.1717069115>.

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52: 2018 Pittera J., Jouhet J., Breton S., Garczarek L., Partensky F., Maréchal E., Nguyen N.A, Doré H., Ratin M. Pitt F.D., Scanlan D.J. and Six C. Thermoacclimation and genome adaptation of the membrane lipidome in marine *Synechococcus*. **Environ Microbiol**. <https://doi.org/10.1111/1462-2920.13985>.

51: 2017 Mahmoud RM., Sanfilippo J.E, Nguyen A.A., Strnat J.A., Partensky F., Garczarek L., El-Kassem N.A. Kehoea D.M. and Schluchter .M. Adaptation to blue light in marine *Synechococcus* requires MpeU, an enzyme with similarity to phycoerythrobilin lyase isomerases. **Frontiers in Microbiology** (section Microbial Physiology and Metabolism) 8:243. <https://doi.org/10.3389/fmicb.2017.00243>.

50: 2017 Xia X., Partensky F., Garczarek L., Suzuki K., Guo C., Cheung S.Y., Liu H. Phylogeography and pigment type diversity of *Synechococcus* cyanobacteria in surface waters of the northwestern Pacific Ocean. **Applied Environmental Microbiology,** 19: 142–158,<https://doi.org/10.1111/1462-2920.13541>.

49: 2016 Paulsen M.L., Bratbak G., Doré H., Garczarek L., Seuthe L., Müller O., Sandaa R.H., Larsen A. Synechococcus in the Atlantic gateway to the Arctic Ocean. **Frontiers in Marine Science** <https://doi.org/10.3389/fmars.2016.00191>.

48: 2016 Farrant GK, Doré H, Cornejo-Castillo FM, Partensky F, Ratin M, Ostrowski M, Pitt FD, Wincker P, Scanlan DJ, Iudicone D, Acinas SG, Garczarek L. Delineating ecologically significant taxonomic units from global patterns of marine picocyanobacteria. **Proc Natl Acad Sci USA** 113(24):E3365-74. <https://doi.org/10.1073/pnas.1524865113>

47: 2016 Sanfilippo JE, Nguyen AA, Karty JA, Shukla A, Schluchter WM, Garczarek L, Partensky F, Kehoe DM. A self-regulating genomic island encoding tandem regulators confers chromatic acclimation to marine Synechococcus. **Proc Natl Acad Sci USA** 113(21):6077-82.

46: 2015 Villar E., Farrant G.K., Follows M., Garczarek L., et al., Environmental characteristics of Agulhas rings affect interocean plankton transport. **Science** 348: 6237 p1261447-1.

45: 2015 Farrant, GK, Hoebeke, M., Partensky, F., Andres, G. and Garczarek, L. WiseScaffolder: an algorithm for the semi-automatic scaffolding of Next Generation Sequencing data. **BMC Bioinformatics** 16:281**.**

44: 2014 Humily F., Farrant, G.K., Marie D., Partensky F., Mazard S., Perennou M., Labadie K., Aury J.M., Wincker P., Nicolas Segui A., Scanlan D.J. and Garczarek L. Development of a targeted metagenomic approach to study a genomic region involved in light harvesting in marine *Synechococcus.* **FEMS Microbiol. Ecol.,** 88 231–249.

43: 2014 Pittera J., Humily F, Ratin M., Thorel M. . Garczarek L., & Six C. Connecting thermal physiology and latitudinal niche partitioning in marine *Synechococcus*. **ISME J** 8(6):1221-36.

42: 2013 Humily F. Partensky F., Six C., Farrant, G.K., Ratin M., Marie D., and Garczarek L. A gene island with two possible configurations is involved in chromatic acclimation in marine *Synechococcus.* **PLOS One**, vol 8, issue 12, e84459.

41: 2012 Bretaudeau, A. Coste, F. Humily, F., Garczarek, L., LeCorguillé, G., Six, C., Ratin, M., Collin, O., Schluchter, W. and Partensky F. CyanoLyase: a database of phycobilin lyase sequences, motifs and functions. **Nucleic Acid Research Database** 1: 41(D1):D396-401. https://doi.org/10.1093/nar/gks1091.

40: 2012 Shukla, A., Biswas, A., Blot N., Partensky, F., Karty J.A., Hammad, L.A., Garczarek, L., Gutu, A., Schluchter, W.M., Kehoe, D.M. A blue-light regulated bilin lyase-isomerase controls blue-green chromatic acclimation in marine *Synechococcus* cyanobacteria. **Proc Natl Acad Sci USA** 109(49):20136-41. https://doi.org/10.1073/pnas.1211777109.

39: 2012 Mella-Flores D., Six C., Ratin M., Partensky F., Boutte C., Le Corguillé G., Marie D., Blot N., Gourvil P., Kolowrat C., Garczarek L. *Prochlorococcus* and *Synechococcus* have evolved different adaptive mechanisms to cope with light and UV stress. **Frontiers in Aquatic Microbiology** 3:285.

38 : 2011 Karsenti E., De Vargas, C., Gonzalez-Acinas, S., Sullivan, M., Benzoni, F., Claverie, J-M., Follows, M., Jaillon, O., Wincker, P., Gorsky, G., Grimsley, N., Hingamp, P., Iudicone, D., Kandels-Lewis, S., Krzic, U., Not, F., Ogata, H., Pesant, S., U., Reynaud, E., Sardet, C., Sieracki, M., Speich, S., Velayoudon, D., Weissenbach, J., and the Tara Oceans Consortium, A holistic approach to marine eco-systems biology, **PLOS Biology** 9:e1001177.

37: 2011 Mella-Flores D., Mazard S., Humily S., Partensky F., Mahé F., Bariat L., Courties C., Marie D., Ras J., Mauriac R., Jeanthon C., Bendif E.M., Ostrowski M., Scanlan D.J., Garczarek L. Is the distribution of *Prochlorococcus* and *Synechococcus* ecotypes in the Mediterranean Sea affected by global warming? ***Biogeosciences*** 8, 2785–2804.

36: 2011 Partensky F. and Garczarek L. Arms race in a drop of sea water. **Nature** 474:582-583. (commentaire invité d'article dans la section "News and Views »)

35: 2011 Jeanthon, C. Boeuf, D. Dahan, O. Le Gall, F., Garczarek, L., Bendif, E.L. & Lehours, A.C. Diversity of cultivated and metabolically active aerobic anoxygenic phototrophic bacteria along an oligotrophic gradient in the Mediterranean Sea. ***Biogeosciences*** 8: 1955–1970.

34: 2011 Blot, N., D. Mella-Flores, C. Six, G. Lecorguille, C. Boutte, A. Peyrat, A. Monnier, M. Ratin, P. Gourvil, D. A. Campbell and L. Garczarek. Light history influences the response of the marine cyanobacterium *Synechococcus* sp. WH7803 to oxidative stress. ***Plant Physiology*** 156: 1934-1954.

33: 2010 Kolowrat, C., Partensky, F., Mella-Flores, D., Le Corguillé, G., Boutte, C., Blot, N., Ratin, M., Ferréol, M., Lecomte, X., Gourvil, P., Lennon, J.F., Kehoe, D. and Garczarek, L. Ultraviolet stress delays chromosome replication in light/dark synchronized cells of the marine cyanobacterium *Prochlorococcus marinus* PCC9511. ***BMC Microbiology*** 10:204.

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25: 2008 Le Gall, F., Rigaut Jalabert, F., Marie, D., Garczarek, L., Viprey, M., Gobet, A. And Vaulot, D. Picoplankton diversity in the South-East Pacific Ocean from cultures. ***Biogeosciences*** 5: 203–214.

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21: 2007 Garczarek, L., Dufresne, A., Rousvoal, S., West, N. J., Mazard, S., Marie, D., Claustre, H., Raimbault, P., Post, A. F., Scanlan, D. J. & Partensky, F. High vertical and low horizontal microdiversity of *Prochlorococcus* genotypes in the Mediterranean Sea in summer, ***FEMS Microbiol. Ecology***  60: 189-206.

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18: 2005       Bruyant F., Babin M., Genty B., Prasil O., Garczarek L., Holtzendorff J., Behrenfeld M., Bricaud A., Claustre H., Garczarek L., Dousova H. et Partensky F. Diel variations in the photosynthetic parameters of *Prochlorococcus* strain PCC 9511: combined effects of photoacclimation and cell cycle. **Limnology and Oceanography** 50: 850-863.

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***Chapters***

9: 2022 Partensky F., Hess W.R. & Garczarek L. (2022). Chapter 3. Marine cyanobacteria. In: **The marine microbiome**. Stal L.J. and Cretoiu M.S. (eds.). Springer International Publishing Switzerland. 2d edition. pp. 103-157. <https://doi.org/10.1007/978-3-030-90383-1_3>.

8 : 2021 Lopez Dos Santos\_A., Not F., Garczarek L., Ribeiro C., Guitierez A., Vaulot D. (2021). Use of metabarcoding in phytoplankton ecology in **Advances in Phytoplankton Ecology: applications of emerging technologies**, edit by Lesley Clementson, Ruth Eriksen and Anusuya Willis (CSIRO), <https://www.elsevier.com/books/advances-in-phytoplankton-ecology/clementson/978-0-12-822861-6>, Paperback ISBN: 9780128228616, eBook ISBN: 9780128230299.

7 : 2019 Sanfilippo JE, Garczarek L, Partensky F, and Kehoe DM, Chromatic Acclimation in Cyanobacteria: A Diverse and Widespread Process for Optimizing Photosynthesis. **Annual Review of Microbiology 73: 407-433**.

6 : 2019 Garczarek L. & Partensky F. « 40. Les apports de la méta-omique en écologie marine ». In D. Faure, D. Joly, S. Salamitou, **101 secrets de l’ADN**, Paris : CNRS Éditions, ISBN: 9782271123237, pp.146-148.

5 : 2017 Partensky, F. et Garczarek, L., La couleur de l’eau dans L’océan à découvert - **Écologie, environnement, sciences de la Terre**, CNRS édition.

4 : 2016 Hess, W.R., Garczarek, L., Pfreundt, U., Partensky, F. Phototrophic microorganisms: the basis of the marine food web. In **The marine microbiome**, Chapter 3, L.J. Stal and M.S. Cretoiu (eds.), Springer International Publishing, Switzerland 2016

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1: 2003       Partensky, F. et Garczarek, L. The photosynthetic apparatus of Chlorophyll b- and d-containing Oxychlorobacteria. In **Photosynthesis in Algae**. Larkum, A.W.D., Douglas S.E & Raven J.A. (Eds.). Advances in Photosynthesis Series. Vol. 14. Kluwer Academic Publ., The Netherlands. pp. 29-62.

***Databases***

2020 Antoine D, Babin M, Belviso S, Begovic M, Bianchi M, Birdwhistell S, Blanchot J, Bricaud A, Bruyant F, Carlotti F, Claustre H, Conan P, Copin C, Dolan J, Garczarek L, et al. (2020). BIOGEOCHEMICAL dataset collected during the PROSOPE cruise. SEANOE. <https://doi.org/10.17882/71723>.

Communications In International Congress

101: 2024 Boulart, C., Faure, E., Garczarek, L., Le Moal, P., Magadur, E., Berthelier, C., Gac., J.P., Partensky F., Bigeard E., Ferrieux M., Ratin M., Le Gall F., Romac S., Marie, D., Baudoux A-C., Bonnet, S., Guieu, C. Marine picocyanobacteria, an important player in the distribution of dissolved methane in the Western Tropical South Pacific Ocean ? OB016. Phytoplankton Ecology at Large Scales. Ocean Sciences Meeting 2024, 18-23 February 2024, New Orleans, USA.

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99:2022\* Garczarek L, Guyet U.,Doré H., Farrant G.K., Hoebeke M., Brillet-Guéguen L., Bisch A., Ferrieux M., Siltanen J., Corre E., Le Corguillé G., Ratin M., Pitt F.D, Ostrowski M., Conan M., Siegel A., Labadie K., Aury J.-M., Wincker P., Scanlan D.J. & Partensky F. Cyanorak v2.1: a scalable information system dedicated to the visualization and expert curation of genomes from the Cyanobacteria Cluster 5 radiation. ProSynFest Cordoue, Espagne. 16-19 mars 2022 (workshop).

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F., Blot N., Garczarek L, Hammad L.A., Strnat J., Gutu A., Kehoe D.M. Mechanism and Regulation of Blue-Green Chromatic Acclimation in Marine Synechococcus. 15th International Symposium on Phototrophic Prokaryotes (ISPP), August 2-6, 2015, Tübingen.

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53:2014\* Garczarek L., Humily F., Farrant G.K., Doré H., Six C., Shukla A., Ratin M., Marie D., Kehoe D.M. and Partensky F., Light adaptation in marine cyanobacteria. 9th European Workshop on the Molecular Biology of Cyanobacteria, 7-11 Sept 2014, Texel Island, The Netherlands (présentation orale invitée LG)

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the TARA Consortium and Laurence Garczarek. Comparative genomics of marine Synechococcus and use as references for metagenomic analyses of the TARA Oceans data set TEASER BGE, 27-28 May 2014, Lyon, France (poster)

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Caron C., Hoebeke M. An information management system for annotating cyanobacterial orthogroups. JOBIM 2012, Rennes, 3-6 juillet 2012 (Poster)

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38: 2011 Mella-Flores D., Mazard S., Humily F., Partensky F., Mahé F., and Garczarek L. Use of picocyanobacteria as biomarkers of the effects of global warming: a case study in the Mediterranean Sea. Colloque Microorganisms facing their environment, Museum National d'Histoire Naturelle, Paris, 27-28 Oct (Présentation orale FH).

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36: 2011 Humily F., Marie D., Habib C., Six C., Ratin M., Le Corguillé, G., Caron, C., Partensky F. and Garczarek L. Use of comparative genomics and metagenomics approaches to study pigment diversity in natural populations of marine Synechococcus cyanobacteria. Workshop Aquagenet, 5 Oct, la Rochelle, (Présentation orale FH).

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31: 2010     Mella-Flores D, Six C, Kolowrat C, Garczarek L & F Partensky. Response of two marine picocyanobacteria to light and oxidative stress. Journées Européennes de Bactériologie, 14-16 Octobre 2009, Université de Bretagne-Sud, Lorient (poster).

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29: 2009 Partensky F., Dufresne A., Ostrowski M., Scanlan D.J. and Garczarek L. (2009) Prochlorococcus and Synechococcus: Divergent evolution schemes from a common ancestral genome. XIIIth International Symposium on Phototrophic Prokaryotes. 9-14 août 2009. Montréal, Canada (présentation orale FP)

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Outreach

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2021 Fil twitter <https://twitter.com/T_Greb/status/1365011603981295620>. (118 861 vues, 12600 interactions).

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2018     **Cartographie mondiale des « caméléons » du plancton** : Article dans [CNRS Hebdo](http://www.cnrs.fr/CNRS-Hebdo/bretagne-paysdeloire/lettre.php?numero=495#actu12711) (Édition du 15/02/201), La [gazette du laboratoire](https://www.gazettelabo.fr/breves/breves.php?id=7210) (<https://www.gazettelabo.fr/breves/breves.php?id=7210>), [En direct des laboratoires](http://www.cnrs.fr/inee/communication/breves/b340.html) (<http://www.cnrs.fr/inee/communication/breves/b340.html>).

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2017 Article dans « L’Ocean à découvrir », CNRS Edition : **La couleur de l’eau**.

2016 Article dans En direct des Labos (CNRS, INEE) : **Phytoplancton marin : une microdiversité sous influence.**

2016 Article dans « El Mundo » : **Las cianobacterias, el nuevo centinela del cambio climático**  http://www.elmundo.es/ciencia/2016/06/01/574e9bbb22601d8f248b464f.html.

2016 Article publié sur le site du CSIC (Spanish national research council) : **Un nuevo mapa global de cianobacterias revela diferencias en la distribución de su biodiversidad.**

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2013 Articles dans **Sciences-Ouest** N° 306, p6: " Des bactéries caméléons: des chercheurs de Roscoff ont découvert le secret du changement de couleur de bactéries du phytoplancton, Février 2013.

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2012 Actualité sur le **site Web de TARA-Oceans**: Bactéries, girus et virus : Des microbes infiniment petits et innombrables. Janvier 2012.

2011 Actualité dans la revue scientifique de vulgarisation "**Espèces**" (Vol. 1): "Muter pour tromper les virus". Septembre 2011.

2011 Communiqué de presse (avec illustration) sur le **site web de l'UPMC**: "Course à l'armement dans une goutte d'eau". Septembre 2011.

2009 Article dans **Sciences Ouest**: "Le plancton révèle ses secrets" (janvier 2009).

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