

Curriculum Vitae for Chris Bowler, to 2019

Born February 23 1965 in Matlock, Derbyshire, UK
Male, married, two children

Current position and contact information:

Directeur de Recherche (classe exceptionnelle) at CNRS and Head of Plant and Algal Genomics Laboratory at the Institut de Biologie de l'Ecole normale supérieure (IBENS), Paris.
Ecole normale supérieure, 46 rue d'Ulm, 75005 Paris, France. Tel : +33 1 44323525 ; Fax : +33 1 44323935 ; e-mail : cbowler@biologie.ens.fr
URL for web site: <http://www.ibens.ens.fr/spip.php?rubrique36>
ORCID: 0000-0003-3835-6187

Education and qualifications:

1987 – 1990 PhD thesis at the Laboratorium Genetika (Profs. M. Van Montagu and Dirk Inzé), Universiteit Gent, Gent (Belgium). Title of thesis: A study of the role of superoxide dismutase in plants
1983 – 1986 University of Warwick, Coventry (UK) Degree: B.Sc. (Hons) Class 2 Division 1 in Microbiology and Microbial Technology

Career overview:

2016-2017 Grass Fellow at the Radcliffe Institute for Advanced Study, Harvard University, USA
2003 – date Directeur de Recherche, Classe Exceptionnelle (Director of Research) at CNRS and Head of Plant and Algal Genomics Lab at the Institut de Biologie de l'Ecole normale supérieure (IBENS), Paris, France
1998 – 2003 "Primo Ricercatore" (Assoc. Prof.) at the Stazione Zoologica 'Anton Dohrn,' Naples (Italy)
1994 – 1998 Marie Curie Fellow at the Stazione Zoologica 'Anton Dohrn,' Naples (Italy)
1991 – 1993 Postdoctoral Research with Prof. N.-H. Chua, Rockefeller University, New York (USA)
1986-1987 Research Technician with Dr. J. M. Lord, University of Warwick, Coventry (UK)

Honours:

Elected to French Academy of Agriculture in 2018
Recipient of the Grand Prix Scientifique from the Louis D Foundation (Institut de France) in 2015
Recipient of the CNRS Silver Medal in 2010
EMBO member since 1995

Publications and patents:

Based on data from the ISI Web of Knowledge, Bowler has published 213 articles in peer-reviewed journals. The majority of these have appeared over the past 10 years. His work has been cited more than 23,000 times (excluding self-cites; as of September 2019), at an average of 79 times per article, and his *h*-index is currently 70. Eight articles have been cited more than 500 times (max 2,188 cites); 50 articles have been cited more than 100 times; 88 have been cited more than 50 times.
Bowler has filed 8 patents, one of which has been granted.

Top 20 most significant publications:

Bowler lab members are underlined; Number of cites as of 1st September 2019 based on ISI Web of Knowledge.

1. Bowler, C., Van Montagu, M. and Inzé, D. Superoxide dismutase and stress tolerance. *Annu. Rev. Plant Physiol. Plant Mol. Biol.* 43, 83-116 (1992). 2188 cites

2. Mustilli, A. C., Fenzi, F., Ciliento, R., Alfano, F. and **Bowler, C.** Phenotype of the tomato *high pigment-2* mutant is caused by a mutation in the tomato homolog of *DEETIOLATED1*. **Plant Cell**, 11, 145-158 (1999). 204 cites. Corresponding author
3. Falciatore, A., Ribera D'Alcalà, M., Croot, P. and **Bowler, C.** Perception of environmental signals by a marine diatom. **Science** 288, 2363-2366 (2000). 106 cites. Corresponding author
4. Benvenuto, G., Formiggini, F., Laflamme, P., Malakhov, M. and **Bowler, C.** The photomorphogenesis regulator DET1 binds the amino-terminal tail of histone H2B in a nucleosome context. **Curr. Biol.** 12:1529-1534 (2002). 107 cites. Corresponding author
5. Armbrust, E. V., Berges, J. B., **Bowler, C.**, Green, B. R., Martinez, D., Putnam, N. H., Zhou, S., Allen, A. E., Apt, K. E., Bechner, M., Brzezinski, M. A., Chahal, B. K., Chiovitti, A., Davis, A. K., Demarest, M. S., Detter, J. C., Glavina, T., Goodstein, D., Hadi, M. Z., Hellsten, U., Hildebrand, M., Jenkins, B. D., Jurka, J., Kapitonov, V. V., Kröger, N., Lau, V. V. Y., Lane, T. W., Larimer, F. W., Lippmeier, J. C., Lucas, S., Medina, M., Montsant, A., Obornik, M., Schnitzler-Parker, M., Palenik, B., Pazour, G. J., Richardson, P. M., Rynearson, T. A., Saito, M. A., Schwartz, D. C., Thamatrakoln, K., Valentin, K., Vardi, A., Wilkerson, F. P. and Rokhsar, D. S. The genome of the diatom *Thalassiosira pseudonana*: Ecology, evolution, and metabolism. **Science** 304: 79-86 (2004). 1273 cites. Senior author
6. Davuluri, G. R., Van Tuinen, A., Fraser, P. D., Manfredonia, A., Newman, R., Burgess, D., Brummell, D. A., King, S. R., Palys, J., Uhlig, J., Bramley, P. M., Pennings, H. and **Bowler, C.** Fruit-specific RNAi-mediated suppression of DET1 enhances carotenoid and flavonoid content in tomatoes. **Nature Biotechnol.** 23: 890-895 (2005). 302 cites. Corresponding author
7. Vardi, A., Formiggini, F., Casotti, R., De Martino, A., Ribalet, F., Miralto, A. and **Bowler, C.** A stress surveillance system based on calcium and nitric oxide in marine diatoms. **PLoS Biol.** 4: e60 (2006). 179 cites. Corresponding author
8. Allen, A. E., LaRoche, J., Maheswari, U., Lommer, M., Schauer, N., Lopez, P. J., Finazzi, G., Fernie, A. R. and **Bowler, C.** Whole-cell response of the pennate diatom *Phaeodactylum tricornutum* to iron starvation. **Proc. Natl. Acad. Sci. USA** 105: 10438-10443 (2008). 232 cites. Corresponding author
9. **Bowler, C.**, Allen, A. E., Badger, J. H., Grimwood, J., Jabbari, K., Kuo, A., Maheswari, U., Martens, C., Maumus, F., O'tillar, R. P., Rayko, E., Salamov, A., Vandepoele, K., Beszteri, B., Gruber, A., Heijde, M., Katinka, M., Mock, T., Valentin, K., V rret, F., Berges, J. A., Brownlee, C., Cadoret, J. P., Chiovitti, A., Choi, C. J., Coesel, S., De Martino, A., Detter, J. C., Durkin, C., Falciatore, A., Fournet, J., Haruta, M., Huysman, M., Jenkins, B. D., Jiroutova, K., Jorgensen, R. E., Joubert, Y., Kaplan, A., Kroeger, N., Kroth, P., La Roche, J., Lindquist, E., Lommer, M., Martin-J z quel, V., Lopez, P. J., Lucas, S., Mangogna, M., McGinnis, K., Medlin, L. K., Montsant, A., Oudot-Le Secq, M. P., Napoli, C., Obornik, M., Petit, J., Porcel, B. M., Poulsen N., Robison, M., Rychlewski, L., Rynearson, T. A., Schmutz, J., Parker, M. S., Shapiro, H., Siaut, M., Stanley, M., Sussman, M. R., Taylor, A., Vardi, A., von Dassow, P., Vyverman, W., Willis, A., Wyrwicz, L. S., Rokhsar, D. S., Weissenbach, J., Armbrust, E. V., Green, B. R., Van de Peer, Y., Grigoriev, I.V. The *Phaeodactylum* genome reveals the evolutionary history of diatom genomes. **Nature**, 456: 239-244 (2008). 931 cites. Corresponding author
10. Allen, A. E., Dupont, C. L., Obornik, M., Hor k, A., Nunes-Nesi, A., McCrow, J. P., Zheng, H., Johnson, D. A., Hu, H., Fernie, A. R. and **Bowler, C.** Evolution and metabolic significance of the urea cycle in photosynthetic diatoms. **Nature** 473: 203-207 (2011). 209 cites. Co-corresponding author
11. Veluchamy, A., Lin, X., Maumus, F., Rivarola, M., Bhavsar, J., Creasy, T., O'Brien, K., Sengamalay, N. A., Tallon, L. J., Smith, A. D., Rayko, E., Ahmed, I., Le Crom, S., Farrant, G. K.,

Sgro, J.-Y., Olson, S. A., Splinter Bondurant, S., Allen, A. E., Rabinowicz, P. D., Sussman, M. R., **Bowler, C.** and Tirichine, L. Insights into the role of DNA methylation in diatoms by genome-wide profiling in *Phaeodactylum tricornutum*. **Nature Comm.** 4: 2091 (2013). 30 cites. Corresponding author

12. Morrissey, J., Sutak, R., Paz-Yepes, J., Tanaka, A., Moustafa, A., Veluchamy, A., Thomas, Y., Botebol, H., Bouget, F.-Y., McQuaid, J. B., Tirichine, L., Allen, A. E., Lesuisse, E. and **Bowler, C.** A novel protein, ubiquitous in marine phytoplankton, concentrates iron at the cell surface and facilitates ferric ion uptake. **Curr. Biol.** 25: 364-371 (2015). 28 cites. Co-corresponding author

13. Bourbousse, C., Mestiri, I., Zabulon, G., Bourge, M., Formiggini, F., Koini, M. A., Brown, S. C., Franz, P., **Bowler, C.** and Barneche, F. Light signaling controls nuclear architecture reorganization during seedling establishment. **Proc. Natl. Acad. Sci. USA.** 112: E2836-44 (2015). 32 cites. Co-corresponding author

14. Lima-Mendez, G., Faust, K., Henry, N., Decelle, J., Colin, S., Carcillo, F., Chaffron, S., Ignacio-Espinosa, J. C., Roux, S., Vincent, F., Bittner, L., Darzi, Y., Wang, J., Audic, S., Berline, L., Bontempi, G., Cabello, A. M., Coppola, L., Cornejo-Castillo, F. M., d'Ovidio, F., De Meester, L., Ferrera, I., Garet-Delmas, M. J., Guidi, L., Lara, E., Pesant, S., Royo-Llonch, M., Salazar, G., Sánchez, P., Sebastian, M., Souffreau, C., Dimier, C., Picheral, M., Searson, S., Kandels-Lewis, S., *Tara* Oceans coordinators, Gorsky, G., Not, F., Ogata, H., Speich, S., Stemmann, L., Weissenbach, J., Wincker, P., Acinas, S. G., Sunagawa, S., Bork, P., Sullivan, M. B., Karsenti, E., **Bowler, C.**, de Vargas, C. and Raes, J. Determinants of community structure in the global plankton interactome. **Science** 348: 1262073 (2015). 215 cites. Co-corresponding author

15. Bailleul, B., Berne, N., Murik, O., Petroustos, D., Prihoda, J., Tanaka, A., Villanova, V., Bligny, R., Flori, S., Falconet, D., Krieger-Liszkay, A., Santabarbara, S., Rappaport, F., Joliot, P., Tirichine, L., Falkowski, P. G., Cardol, P., **Bowler, C.** and Finazzi, G. Energetic coupling between plastids and mitochondria drives CO₂ assimilation in diatoms. **Nature** 524: 366-369 (2015). 98 cites. Co-corresponding author

16. Malviya, S., Scalco, E., Audic, S., Vincent, F., Veluchamy, A., Poulain, J., Wincker, P., Iudicone, D., de Vargas, C., Bittner, L., Zingone, A. and **Bowler, C.** Insights into global diatom distribution and diversity in the world's ocean. **Proc. Natl. Acad. Sci. USA** 113: E1516-25 (2016). 101 cites. Corresponding author

17. Guidi, L.* , Chaffron, S.* , Bittner, L.*, Eveillard, D.* , Larhlimi, A., Roux, S., Darzi, Y., Audic, S., Berline, L., Brum, J. R., Coelho, L. P., Espinoza, J. C. I., Malviya, S., Sunagawa, S., Dimier, C., Kandels-Lewis, S., Picheral, M., Poulain, J., Searson, S., *Tara* Oceans Consortium Coordinators, Stemmann, L., Not, F., Hingamp, P., Speich, S., Follows, M., Karp-Boss, L., Boss, E., Ogata, H., Pesant, S., Weissenbach, J., Wincker, P., Acinas, S. G., Bork, P., de Vargas, C., Iudicone, D., Sullivan, M. B., Raes, R., Karsenti, E., **Bowler, C.** and Gorsky, G. Plankton networks driving carbon export in the oligotrophic ocean. **Nature** 532: 465-470 (2016). 148 cites. Co-corresponding author; * joint first authors

18. Dorrell, R. G., Gile, G., McCallum, G., Méheust, R., Bapteste, E. P., Klinger, C. M., Brillet-Guéguen, L., Freeman, K. D., Richter, D. J. and **Bowler, C.** Chimeric origins of ochrophytes and haptophytes revealed through an ancient plastid proteome. **eLife** 6: e23717 (2017). 26 cites. Co-corresponding author

19. Nassrallah, A.* , Rougée, M.*, Bourbousse, C., Drevensek, S., Fonseca, S., Iniesto, E., Ait-Mohammed, O., Deton-Cabanillas, A.-F., Zabulon, G., Ahmed, I., Stroebel, D., Masson, M., Lombard, B., Eeckhout, D., Loew, D., Genovesio, A., Breyton, C., de Jaeger, G., **Bowler, C.**, Rubio, V. and Barneche, F. DET1-mediated degradation of a SAGA-like, deubiquitination module controls H2Bub homeostasis. **eLife** 7: e37892 (2018). 4 cites. Co-corresponding author; * joint first authors

20. Ibarbalz, F. M., Henry, N., Brandao, M. C., Martini, S., Busseni, G., Byrne, H., Coelho, L. P., Endo, H., Gasol, J. M., Gregory, A. C., Mahe, F., Rignonato, J., Royo-Llonch, M., Salazar, G., Sanz-Saez, I., Scalco, E., Soviadan, D., Zayed, A. A., Zingone, A., Labadie, K., Ferland, J., Marec, C., Kandels, S., Picheral, M., Dimier, C., Poulain, J., Pisarev, S., Carmichael, M., Pesant, S., *Tara* Oceans Coordinators, Babin, M., Boss, E., Iudicone, D., Jaillon, O., Acinas, S. G., Ogata, H., Pelletier, E., Stemmann, L., Sullivan, M. B., Sunagawa, S., Bopp, L., de Vargas, C., Karp- Boss, L., Wincker, P., Lombard, F., **Bowler, C.** and Zinger, L. Global trends of marine plankton diversity across kingdoms of life. *Cell* In press (2019). Co-corresponding author

Organisation of international conferences:

May 2018 Exploratory Seminar on ‘Ancient DNA from the seafloor to predict the fate of plankton in a future ocean – Challenges and opportunities in paleogenomics’ at the Radcliffe Institute of Advanced Study at Harvard University, USA

January 2016 EMBO/EMBL Symposium entitled A New Age of Discovery for Aquatic Microeukaryotes, Heidelberg, Germany

May 2015 Jacques Monod Conference on Marine Eco-Systems Biology, Roscoff, France

June 2015 PSL-Pew Trust Scientific Forum ‘What Future for our Ocean?’ Paris, France

June 2013 EMBO Workshop entitled The Molecular Life of Diatoms, Paris, France

June 2010 ANR ‘atelier de reflexion’ on Fisheries Management and Ecosystem Modelling in a Changing Ocean, Mayotte

October 2007 International workshop entitled Implications and Opportunities of the Marine Genomics Revolution, Bermuda

October 2006 International Marine Genomics Conference, Sorrento, Italy

April 2006 International Plant Photobiology Meeting, Paris, France

Conference invitations and institute seminars:

Bowler has been invited to more than 250 international conferences covering plant and marine sciences, including Gordon Research Conferences, EMBO Symposia and Workshops, as well as major international conferences related to science policy. He has been invited to deliver more than 250 seminars at research institutions worldwide.

Selected Keynote/Plenary talks at recent high level science and science policy conferences:

2019 High level workshop on Marine Genetic Resources in Areas Beyond National Jurisdiction, European Commission, Brussels (Belgium)

2018 Gordon Research Conference on Global Ocean Change Biology, Waterville Valley (USA)

2017 - Gordon Research Conference on Applied and Environmental Microbiology, Mount Holyoke (USA)

- 33rd International Prize for Biology (Commemorative Symposium ‘Marine Biology opens a Frontier for the Future’), Tsukuba (Japan)

2016 - From Sea to Changing Sea, Science Symposium at the Radcliffe Institute for Advanced Study at Harvard University (USA)

- 17th International Congress on Photosynthesis Research, Maastricht (Holland)

2015 - 9th World Ocean Forum, Busan (S Korea)

- Lima-Paris Action Agenda (LPAA) Focus on Water and Oceans Resilience, Le Bourget (France) (UN Blue Zone at the COP21)

2014 - Gordon Research Conference on Marine Microbes, Boston (USA)

- 2nd International Ocean Commission Conference ‘One Planet One Ocean’ Barcelona (Spain)

2013 - 10th International Phycological Congress, Orlando (USA)

- EUR-Oceans Hot Topics Conference: A Changing Ocean, Gran Canaria (Spain)

2012 10th International Congress on Plant Molecular Biology, Jeju Island (South Korea)

- 2011 EMBO Workshop on Comparative Genomics of Lower Eukaryotic Microorganisms, Costa Brava (Spain)
- 2010 35th FEBS Congress 'Molecules to Life' Gothenburg (Sweden)
- 2009 - American Society of Plant Biology 2009, Hawaii (USA)
 - 5th World Conference on the Future of Science 'The DNA Revolution' Venice (Italy)

Competitive research grants:

Bowler has obtained competitive funding for research in his laboratory throughout his career, including from HFSP and EU, and from national funding agencies in Italy and France. His tomato research was additionally funded by the private sector (Semini, later acquired by Monsanto) from 2000-2003. In 2012 and 2019 he was awarded ERC Advanced Awards from LS2 (Genetics, 'Omics', Bioinformatics and Systems Biology) and LS8 (Ecology, Evolution and Environmental Biology) panels, respectively. Current operating costs of his laboratory are around 750,000 Euros per year.

Commissions of trust:

- 2019 President of the Scientific Board of Tara Ocean Foundation (<https://oceans.taraexpeditions.org/en/m/about-tara/>)
- Since 2018 Deputy Director of CNRS Research Federation for the study of Global Ocean Systems Ecology and Evolution
- 2018 Member of Advisory Committee for Aquatic Symbiosis at the Gordon and Betty Moore Foundation
- Since 2016 Member of Scientific Committee of Fondation de la Mer (<http://www.fondationdelamer.org/>)
- Since 2015 Member of Scientific Committee of Tara Expeditions Foundation
- Since 2014 Member of Scientific Committee of Ocean and Climate Platform (<http://www.ocean-climate.org/?lang=en>)
- Since 2013 Member of Scientific Committee of IFREMER, the French state organization for research in oceanography
- Since 2013 Member of Advisory Panel for European Bioinformatics Institute (Hinxton, UK) Metagenomics Portal
- Since 2012 Member of Scientific Board of Observatoire Océanologique de Villefranche-sur-Mer, France
- Since 2008 One of the scientific coordinators of *Tara Oceans* project (<https://www.embl.de/tara-oceans/start/>)
- 2015-2016 Executive Professor at Tokyo University of Agriculture and Technology, Japan
- 2013-2015 Visiting Professorship for Senior International Scientists, Chinese Academy of Sciences, China
- 2012-2015 President of CNRS panel for the selection of Jacques Monod Conferences
- 2012-2014 Member of writing team for Chapter 6 (Ocean Systems) of Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (published in 2014)
- 2010-2015 Head of Ecology and Evolutionary Biology Section at IBENS
- 2008-2010 President of CSD7 evaluation panel for French National Research Agency (ANR) 'Blanc' et 'Jeunes Chercheurs' programmes (Sciences Agronomiques et Ecologiques)
- 2003-2007 Scientific Steering Committee member of EU-funded Network of Excellence in Marine Genomics
- 2001-2004 Member of International Scientific Advisory Board of Marine Biotechnology Institute (Tokyo, Japan)

Editorial Board Member of **Science** (since 2013), **EMBO Journal** (since 2000), **Marine Genomics** (since 2009), and **Protist** (since 2017). Was previously Board Member for **EMBO reports** (2002-2010), **J. Phycology** (2002-2014), **Marine Biotechnology** (2000-2012), **Marine Ecology** (2009-2012), **Plant Cell** (2005-2014), **Plant Journal** (2000-2004), and **Scientific Data** (2014-2018).

Science communication:

Bowler has appeared on numerous TV and radio programmes throughout the world, including on the BBC. His research has been popularized in hundreds of newspaper articles in more than 50 countries.