

Curriculum Vitae

Name: Tore Brembu
Born: April 27. 1973
Address: Stadsing. Dahls Gate 54
7068 Trondheim
Norway

Current position: Research scientist at Department of Biotechnology and Food Science, NTNU

Education and degrees

1999-2004 Ph.D. studies, Department of Biology, NTNU. Title of thesis: "Genetic, molecular and functional studies of RAC GTPases and the WAVE-like regulatory protein complex in *Arabidopsis thaliana*"
1995-1997 Cand.scient. (equals M.Sc.) cell biology, Department of Botany, NTNU. Title of thesis: "Characterisation and expression studies of the Rac gene family and a STE20-like kinase in *Arabidopsis thaliana*"
1992-1995 Cand.mag. (equals B.Sc.) biology, Department of Botany, NTNU

Academic positions

2004-2007 Post doc, Department of Biology, NTNU, with extended visit to USA
2007-2017 Research scientist, Department of Biology, NTNU
2018- Research scientist, Department of Biotechnology and Food Science, NTNU

Fellowships

2005-2006 Visiting scholar at Department of Botany & Plant Sciences, University of California, Riverside (NFR grant)

Teaching experience

MNKBI101/BI1001 Cell and molecular biology: leading parts of laboratory course, 1999-2001; lectures 2011 and 2016.
MNKBI210 Cell biology: supervising student projects, 1999-2002.
MNKBI211 Genetics: Leading colloquia 1996 and 1997; laboratory course assistant 1997; leading laboratory course 1999-2001; lectures 2000, 2002 and 2003; responsible for course, 2003.
MNKBI215 Molecular biology: laboratory course: leading course, 2002 and 2003.
BI2014/BI2015 Molecular Biology: lectures, 2004, 2008-2020; project supervision, 2022
BI3016 Molecular cell biology: lecture, 2011-2013.
TBT4146 Molecular genetics: lectures, 2020-2021. Course coordinator 2021.
TBT4170 Biotechnology: lectures, 2022.
BT3102 Function and operation of recirculating aquaculture systems (RAS): coordinator, 2022

Co-supervisor of nine PhD students from 2005 to present.

Christopher Gravningen Sørmo: Biology, 2005-2011
Bin Liu: Biology, 2008-2012
Ane Kjersti Vic: Biology, 2007-2013
Marianne Nymark: Biology, 2008-2013
Kristin Collier Valle: Biology, 2007-2014
Javad Najafi: Biology, 2009-2015
Leila Alipanah: Biology, 2010-2015
Marthe Hafskjold, Biotechnology 2018-

Annika Messemer, Biotechnology, 2018-

Co-supervisor of 20 MSc students from 2000 to present.

Administration:

Safety deputy at parts of the Department of Biology, NTNU, 2009-2017

Boards and committees:

Head of the master student's association at Department of Botany, 1996-1997.

Member of the arrangement committee for the 45th Biochemical contact meeting, Røros, Norway, January 2009.

Member of the arrangement committee for the 55th Biochemical contact meeting, Røros, Norway, January 2019.

Member of the election committee for the Norwegian Biochemical Society, Mid-Norwegian chapter, 2010-2012.

Cashier, the Norwegian Biochemical Society, Mid-Norwegian chapter, 2013-2019.

Leader, the Norwegian Biochemical Society, Mid-Norwegian chapter, 2018-2019.

Referee for international journals 2005 - present:

Review Editor, Frontiers in Plant Science, Marine and Freshwater Plants specialty section, 2019-.

BMC Materials, Biotechnology for Biofuels, Communications Biology, European Journal of Phycology, Functional Plant Biology, Journal of Experimental Botany, Journal of Phycology, Molecular Plant, New Phytologist, Philosophical Transactions B, Phycologia, Planta, Plant Biology, Plant Journal, Plant Physiology, Proceedings of the National Academy of Sciences of the USA, Scientific Reports, Trends in Plant Science.

Publications

ORCID identifier: 0000-0001-5622-8037

1. Volpe C., Nymark M., Brembu T. (2023). Genetic regulation of diatom photosynthesis: Understanding and exploiting genetic diversity. In: Diatom Photosynthesis: From High Value Molecules to Primary Production. Eds: Goessling J., Serôdio J., Lavaud J. Wiley, in press.
2. Najafi, J., Gjennestad, R. S., Kissen, R., Brembu T., Bartosova, Z., Winge, P., Bones, A. M. (2022). PAMP-Induced secreted Peptide-Like 6 (PIPL6) functions as an amplifier of plant immune response through RLK7 and WRKY33 module. *bioRxiv* doi: <https://doi.org/10.1101/2022.11.30.518506>
3. Morgan R, Andreassen A. H., Åsheim E. R., Finnøen M. H., Dresler G., Brembu T., Loh A., Miest J. J., Jutfelt F. (2022). Reduced physiological plasticity in a fish adapted to stable conditions. *Proceedings of the National Academy of Sciences of the USA*, doi: 10.1073/pnas.2201919119
4. Osuna-Cruz C. M., Bilcke G., Vancaester E., De Decker S., Poulsen N., Bulankova P., ... Brembu T. ..., Vandepoele K. (2020). The *Seminavis robusta* genome provides insights into the evolutionary adaptations of benthic diatoms. *Nature Communications* **11**(1):3320.
5. Najafi J., Vie A.K., Brembu T., Winge P., Viste, R., Somssich, I.E., Bones A.M. (2020). PAMP-INDUCED SECRETED PEPTIDE 3 (PIP3) modulates immunity in *Arabidopsis thaliana*, *Journal of Experimental Botany* **71**(3):850-864.
6. Sharma A.K., Mühlroth A., Alipanah L., Jouhet J., Maréchal E., Kissen R. Brembu T., Bones A.M., Winge P. (2020). The MYB-like transcription factor Phosphorus Starvation Response (PtPSR) controls conditional P acquisition and remodeling in marine microalgae, *New Phytologist* **225**(6):2380-2395.

7. Alipanah L., Rohloff J., Winge P., Brembu T., Bones A.M. (2018). Molecular adaptations to phosphate deprivation and a comparison with nitrogen deprivation responses in the diatom *Phaeodactylum tricornutum*. *PLoS ONE* **13**(2):e0193335.
8. Brembu T., Chauton M.S., Winge P., Bones A.M., Vadstein O. (2017). Hallmarks of the dynamic responses to silicon in *Thalassiosira pseudonana* - Identification, characterization and classification of signature genes and their corresponding motifs. *Scientific Reports* **7**:4865.
9. Brembu T., Mühlroth, A. Alipanah L., Bones, A.M. (2017). The effects of phosphorus limitation on carbon metabolism in diatoms. *Philosophical Transactions of the Royal Society B Biological Sciences* **372**(1728):20160406. Invited review.
10. Vie A.K., Najafi J., Winge P., Cattani E., Wrzaczek M., Kangasjärvi J., Miller G., Brembu T., Bones A.M. (2017). The IDA-LIKE peptides IDL6 and IDL7 are negative modulators of stress responses in *Arabidopsis thaliana*. *Journal of Experimental Botany* **68**(13):3557-3571.
11. Moëys S., Frenkel J., Lembke C., Gillard J.T., Devos V., Van den Berge K., Bouillon B., Huysman M.J., De Decker S., Scharf J., Bones A.M., Brembu T., Winge P., Sabbe K., Vuylsteke M., Clement L., De Veylder L., Pohnert G., Vyverman W. (2016). A sex-inducing pheromone triggers cell cycle arrest and mate attraction in the diatom *Seminavis robusta*. *Scientific Reports* **6**:19252.
12. Alipanah L., Rohloff J., Winge P., Bones A.M., Brembu T. (2015). Whole cell response to nitrogen depletion in the diatom *Phaeodactylum tricornutum*. *Journal of Experimental Botany* **66**(20):6281-6296.
13. Vie A.K., Najafi J., Liu B., Winge P., Butenko M.A., Hornslien K.S., Aalen R.B., Bones A.M., Brembu T. (2015). The IDA/IDA-LIKE and PIP/PIP-LIKE gene families in *Arabidopsis*: phylogenetic relationship, expression patterns and transcriptional effect of the PIPL3 peptide. *Journal of Experimental Botany* **66**(17):5351-5365.
14. Valle K.C., Nymark M., Brembu T., Hancke K., Winge P., Andresen K., Johnsen G., Bones A.M. (2014). System responses to equal doses of photosynthetically usable radiation of blue, green, and red light in the marine diatom *Phaeodactylum tricornutum*. *PLOS ONE* **9**(12):e114211.
15. Brembu T., Winge P., Klunderud A.T., Nederbragt A.J., Jakobsen K.S., Bones A.M. (2014). The chloroplast genome of the diatom *Seminavis robusta*: new features introduced through multiple mechanisms of horizontal gene transfer. *Marine Genomics* **16**:17-27.
16. Liu B., Butenko M.A., Shi C., Bolivar J.L., Stenvik G.E., Vie A.K., Leslie M., Winge P., Brembu T., Bones A.M., Patterson S., Liljegren S., Aalen R.B. (2013). *NEVERSHED* and *INFLORESCENCE DEFICIENT IN ABSCISSION* are differentially required for cell expansion and cell separation during floral organ abscission in *Arabidopsis thaliana*. *Journal of Experimental Botany* **64**(17):5345-5357.
17. Nymark M., Valle K.C., Hancke K., Winge P., Andresen K., Johnsen G., Bones A.M., Brembu T. (2013). Molecular and photosynthetic responses to prolonged darkness and subsequent acclimation to re-illumination in the diatom *Phaeodactylum tricornutum*, *PLOS ONE* **8**(3):e18530.
18. *Chauton M.S., *Winge P., *Brembu T., Vadstein O., Bones A.M. (2013). Gene regulation of carbon fixation, storage and utilization in the diatom *Phaeodactylum tricornutum* acclimated to light/dark cycles (*Joint first authorship). *Plant Physiology* **161**(2):1034-1048.
19. Brembu T., Jørstad M., Valle K.C., Bones A.M. (2011). Genome-wide profiling of responses to cadmium in the diatom *Phaeodactylum tricornutum*. *Environmental Science and Technology* **45**(18):7640-7647.
20. Sørmo C.G., Brembu T., Winge P., Bones A.M. (2011). *Arabidopsis thaliana* MIRO1 and MIRO2 GTPases are unequally redundant in pollen tube growth and fusion of polar nuclei during female gametogenesis. *PLoS ONE* **6**(4):e18530.
21. Nymark M., Valle K.C., Brembu T., Hancke K., Winge P., Andresen K., Johnsen G., Bones A.M. (2009). An integrated analysis of molecular acclimation to high light in the marine diatom *Phaeodactylum tricornutum*. *PLoS ONE*, **4**(11):e7743.

22. Butenko M.A., Vie A.K., Brembu T., Aalen R.B., Bones A.M. (2009). Plant peptides in signalling: looking for new partners. *Trends in Plant Science* **14**(5):255-263. Review.
23. Sørmo C.G., Leiros I., Brembu T., Winge P., Os V., Bones A.M. (2006). The crystal structure of *Arabidopsis thaliana* RAC7/ROP9: the first RAS superfamily GTPase from the plant kingdom. *Phytochemistry* **67**(21):2332-2340.
24. Brembu T., Winge P., Bones A.M., Yang Z. (2006). A RHOse by any other name: a comparative analysis of animal and plant Rho GTPases. *Cell Research* **16**(5):435-445. Review.
25. Brembu T., Winge P., Bones A.M. (2005). The small GTPase AtRAC2 is specifically expressed during late stages of xylem differentiation in *Arabidopsis*. *Journal of Experimental Botany* **56**(419):2465-2476.
26. Brembu T., Winge P., Bones A.M. (2005). Catching the WAVes of plant actin regulation. *Journal of Plant Growth Regulation* **24**(2):55-66. Review. Cover feature.
27. Brembu T., Winge P., Seem M., Bones A.M. (2004). NAPP and PIRP encode subunits of a putative wave regulatory protein complex involved in plant cell morphogenesis. *Plant Cell* **16**(9):2335-2349. Cover feature.
28. Winge P., Brembu T., Kristensen R., Bones A.M. (2000). Genetic structure and evolution of RAC-GTPases in *Arabidopsis thaliana*. *Genetics* **156**(4):1959-1971.
29. Winge P., Brembu T., Bones A.M. (1997). Cloning and characterization of rac-like cDNAs from *Arabidopsis thaliana*. *Plant Molecular Biology* **35**(4):483-495.

Posters and oral presentations 2011- present

1. Tore Brembu, Amit Kumar Sharma, Alice Mühlroth, Ralph Kissen, Eric Maréchal Juliette Jouhet, Leila Alipanah, Atle M Bones, Per Winge. A transcription factor (PtPSR) controlling P acquisition in *Phaeodactylum tricornutum*. Oral presentation, 5th International Conference "The Molecular Life of Diatoms", Norwich, July 2019.
2. Tore Brembu, Annika Messemer, Marthe Hafskjold, Per Winge, Olav Vadstein. Analysis of short-term transcriptome responses to silicon addition in *Thalassiosira pseudonana*. Poster presentation, 5th International Conference "The Molecular Life of Diatoms", Norwich, July 2019.
1. Brembu T., Chauton M.S., Winge P., Bones A.M., Vadstein O. Dynamic responses to silicon in *Thalassiosira pseudonana* - Identification, characterisation and classification of signature genes and their corresponding motifs. Poster, 4th International Conference "The Molecular Life of Diatoms", Kobe, July 2017.
2. Brembu T. Alipanah L., Rohloff J., Winge P., Najafi J., Bones A.M. An integrated analysis of nitrogen and phosphorus limitation responses in *Phaeodactylum tricornutum*. Oral presentation, NBS Trøndelags Oppdalsmøte, Oppdal, Norway, March 2017.
3. Brembu T., Chauton M. S., Winge P., Vadstein, O., Bones A. M. Looking through the glass: Gene expression and regulation of Si metabolism in the diatom *Thalassiosira pseudonana* under Si shift-up and shift-down conditions. Oral presentation, 54th Biochemical contact meeting, Storefjell, January 2017.
4. Brembu T., Vie A.K., Winge P., Cattani E., Wrzaczek M., Kangasjärvi J., Aachmann F.L., Miller G., Bones A.M. The IDA-LIKE peptides IDL6 and IDL7 are negative modulators of stress responses in *Arabidopsis thaliana*. Poster and oral presentation, 3rd European Workshop on Peptide Signalling and Activity in Plants, Gent, September 2015.
5. Brembu T. Alipanah L., Rohloff J., Winge P., Najafi J., Bones A.M. An integrated analysis of nitrogen and phosphorus deprivation responses in *Phaeodactylum tricornutum*. Poster, 3rd International Conference "The molecular life of diatoms", Seattle, July 2015.
6. Brembu T. Gene regulation of carbon fixation, storage and utilization in the diatom *Phaeodactylum tricornutum* acclimated to light/dark cycles. Oral presentation, 50th Biochemical contact meeting, Røros, January 2014.

7. Brembu T., Chauton M. S., Winge P., Vadstein, O., Bones A. M. Gene regulation of carbon fixation, storage, and utilisation in *Phaeodactylum tricornutum* acclimated to light/dark cycles. Poster, 2nd International Conference "The molecular life of diatoms", Paris, June 2013.
8. Brembu T. An integrative analysis of light responses in *Phaeodactylum tricornutum*. Oral presentation, 22nd International Diatom Symposium, Gent, Belgium, August 2012.