List of Publications / Eva-Mari Aro

1. Publications in peer reviewed international journals:

2025

1. Böde K, Trotta A, Dlouhý O, Javornik U, Paakkarinen V, Fujii H, Domonkos I, Zsiros O, Plavec J, Špunda V, Aro EM, Garab G. 2025. Lipid Phase Behaviour of the Curvature Region of Thylakoid Membranes of Spinacia oleracea. Physiol Plant. 177: e70289

2. Giustini C, Dal Bo D, Storti M, Van Vlierberghe M, Baurain D, Cardol P, Zhang Y, Fernie AR, Fitzpatrick D, Aro EM, Allorent G, Albanese P, Tolleter D, Curien G, Finazzi G. 2025. A Mitochondrially Related Plastidial Transporter Regulates Photosynthesis in the Diatom Phaeodactylum tricornutum. Physiol Plant. 177: e70640

3. Kerfeld CA, Aro EM. 2025. Introduction to the Special Issue in Honor of Eva-Mari Aro. Physiol Plant. 177: e70322

4. Kılıç M, Gollan PJ, Aro EM, Rintamäki E. 2025. Jasmonic acid signaling and glutathione coordinate plant recovery from high light stress. Plant Physiol. 197: kiaf143

5. Lempiäinen T, Muth-Pawlak D, Vainonen JP, Rintamäki E, Tikkanen M, Aro EM. 2025. Moderate Temperature Reduction Changes the High-Light Acclimation Strategy of Lettuce Plants. Physiol Plant. 177: e70298

6. Tikkanen M, Aro EM. 2025. Interacting short-term regulatory mechanisms enable the conversion of light energy to chemical energy in photosynthesis. J Exp Bot. 22: eraf451 Online ahead of print

7. Trotta A, Gunell S, Bajwa AA, Paakkarinen V, Fujii H, Aro EM. 2025. Defining the heterogeneous composition of Arabidopsis thylakoid membrane. Plant J. 121: e17259

2024

8. Grebe S, Porcar-Castell A, Riikonen A, Paakkarinen V, Aro EM. 2024. Accounting for photosystem I photoinhibition sheds new light on seasonal acclimation strategies of boreal conifers. J Exp Bot. 75: 3973-3992

9. Khosravi M, Allakhverdiev SI, Eaton-Rye JJ, Hołyńska M, Aro EM, Shen JR, Najafpour MM. 2024. Fundamental properties, characterization techniques, and applications for photo(electro) catalysis: from nanosized manganese oxides to manganese coordination compounds. Coordination Chemistry Reviews, in press

10. Muth-Pawlak D, Kakko L, Kallio P, Aro EM. 2024. Interplay between photosynthetic electron flux and organic carbon sinks in sucrose-excreting Synechocystis sp. PCC 6803 revealed by omics approaches. Microb Cell Fact. 23: 188

11. Tiwari A, Mamedov F, Fitzpatrick D, Gunell S, Tikkanen M, Aro EM. 2024. Differential FeS cluster photodamage plays a critical role in regulating excess electron flow through photosystem I. Nature Plants, 10: 1592-1603

2023

12. Gollan PJ, Grebe S, Roling L, Grimm B, Spetea C, Aro EM. 2023. Photosynthetic and transcriptome responses to fluctuating light in Arabidopsis thylakoid ion transport triple mutant. Plant Direct. 7: e534

13. Gunell S, Lempiäinen T, Rintamäki E, Aro EM, Tikkanen M. 2023. Enhanced function of non-photoinhibited photosystem II complexes upon PSII photoinhibition. Biochim Biophys Acta Bioenerg. 1864: 148978

14. Kılıç M, Käpylä V, Gollan PJ, Aro EM, Rintamäki E. 2023. PSI photoinhibition and changing CO2 levels initiate retrograde signals to modify nuclear gene expression. Antioxidants (Basel). 12: 1902

15. Santana Sanchez A, Nikkanen L, Werner E, Toth G, Ermakova M, Kosourov S, Walter J, He M, Aro EM, Allahverdiyeva Y. 2023. Flv3A facilitates O2 photoreduction and affects H2 photoproduction independently of Flv1A in diazotrophic Anabaena filaments. New Phytol. 237: 126-139

2022

16. Arshad R, Saccon F, Bag P, Biswas A, Calvaruso C, Bhatti A, Grebe S, Mascoli M, Mahbub M, Muzzopappa F, Polyzois A, Schiphorst C, Sorrentino S, Streckaité S, van Amerongen H, Aro EM, Bassi R, Boekema E, Croce R, Dekker J, van Grondelle R, Jansson S, Kirilovsky D, Kouril R, Michel S, Mullineaux C, Panzarová K, Robert B, Ruban A, van Stokkum I, Wientjes E and Büchel C. 2022. A kaleidoscope of photosynthetic antenna proteins and their emerging roles. Plant Physiol. 189: 1204-1219.

17. Dukic E, Gollan PJ, Grebe S, Paakkarinen V, Herdean A, Aro EM, Spetea C. 2022. The Arabidopsis Thylakoid Chloride Channel ClCe Regulates ATP Availability for Light-harvesting Complex II Protein Phosphorylation. Front. Plant Sci. 13: 1-14

18. Fitzpatrick D, Aro EM, Tiwari A. 2022. True oxygen reduction capacity during photosynthetic electron transfer in thylakoids and intact leaves. Plant Physiol. 189: 112-128

19. Gerotto C, Trotta A, Bajwa AA, Morosinotto T, Aro EM. 2022. Role of serine/threonine protein kinase STN7 in the formation of two distinct photosystem I supercomplexes in Physcomitrium patens. Plant physiol. 190: 698-713

20. Kılıç M, Gollan PJ, Lepistö A, Isojärvi J, Sakurai I, Aro EM, Mulo P. 2022. Gene expression and organization of thylakoid protein complexes in the PSII-less mutant of Synechocystis sp. PCC 6803. Plant Direct 6: e409

21. Lempiäinen T, Rintamäki E, Aro EM, Tikkanen M. 2022. Plants acclimate to Photosystem I photoinhibition by readjusting the photosynthetic machinery. Plant Cell Environ. 45: 2954-2971

22. Muth-Pawlak D, Kreula S, Gollan PJ, Huokko T, Allahverdiyeva Y and Aro EM. 2022. Patterning of the autotrophic, mixotrophic and heterotrophic proteomes of oxygen evolving cyanobacterium Synechocystis sp. PCC 6803. Frontiers in Microbiology. 13: 891895

23. Tiwari A, Aro EM. 2022. Paradoxes in judging the inhibition of photosynthetic electron transfer chain using P700 oxidation and dark re-reduction analyses. Biochim Biophys Acta Bioenerg. 1863: 148581

2021

24. Allahverdiyeva Y, Aro EM, van Bavel B, Escudero C, Funk C, Heinonen J, Herfindal L, Lindblad P, Mäkinen S, Penttilä M, Sivonen K, Skogen Chauton M, Skomedal H and Skjermo J. 2021. NordAqua, a Nordic Center of Excellence to develop an algae-based photosynthetic production platform. Physiol Plant. 173: 507-513

25. Gollan PJ, Trotta A, Bajwa AA, Mancini I, Aro EM. 2021. Characterization of the free and membrane-associated fractions of the thylakoid lumen proteome in Arabidopsis thaliana. International Journal of Molecular Sciences 22: 8126

26. Lima-Melo Y, Kılıç M, Aro EM, Gollan PJ. 2021. Photosystem I Inhibition, Protection and Signalling: Knowns and Unknowns. Front. Plant Sci. 12: 791124

27. Mustila H, Muth-Pawlak D, Aro EM, Allahverdiyeva Y. 2021. Global proteomic response of unicellular cyanobacterium Synechocystis sp. PCC 6803 to fluctuating light upon CO2 step-down. Physiol Plant. 173: 305-320

28. Nagy C, Thiel K, Mulaku E, Mustila H, Tamagnini P, Aro EM, Pacheco CC, Kallio P. 2021. Comparison of alternative integration sites in the chromosome and the native plasmids of the cyanobacterium Synechocystis sp. PCC 6803 in respect to expression efficiency and copy number. Microb Cell Fact. 20: 130

29. Tikkanen M, Nurmi M, Kangasjärvi S, Aro EM. 2021. Corrigendum to "Core protein phosphorylation facilitates the repair of photodamaged photosystem II at high light" [Biochim Biophys Acta. 1777(2008):1432-1437]. Biochim Biophys Acta Bioenerg. 862: 148381

30. Vuorio E, Thiel K, Fitzpatrick D, Huokko T, Kämäräinen J, Dandapani H, Aro EM, Kallio P. 2021. Hydrocarbon desaturation in cyanobacterial thylakoid membranes is linked with acclimation to suboptimal growth temperatures. Frontiers in Microbiology, 12: 781864

2020

31. Barbato R, Tadini L, Cannata R, Peracchio C, Jeran N, Alboresi A, Morosinotto T, Bajwa AA, Paakkarinen V, Suorsa M, Aro EM, Pesaresi P. 2020. Higher order photoprotection mutants reveal the importance of ΔpH-dependent photosynthesis-control in preventing light induced damage to both photosystem II and photosystem I. Scientific Reports 10: 6770

32. Calvaruso C, Rokka A, Aro EM, Büchel C. 2020. Specific Lhc proteins are bound to PSI or PSII supercomplexes in the diatom Thalassiosira pseudonana. Plant Physiology 183: 67-79

33. Che Y, Kusama S, Matsui S, Suorsa M, Nakano M, Aro EM, Ifuku K. 2020. Arabidopsis PsbP-like protein 1 facilitates the assembly of the photosystem II supercomplexes and optimizes plant fitness under fluctuating light. Plant Cell Physiol. 61: 1168-1180

34. Durian G, Jeschke V, Rahikainen M, Vuorinen K, Gollan PJ, Brosché M, Salojärvi J, Glawischnig E, Winter Z, Li S, Noctor G, Aro EM, Kangasjärvi J, Overmyer K, Burow M, Kangasjärvi S. 2020. PROTEIN PHOSPHATASE 2A-B′γ controls botrytis cinerea resistance and developmental leaf senescence. Plant Physiology 182: 1161-1181

35. Fitzpatrick D, Aro EM, Tiwari A. 2020. A commonly used photosynthetic inhibitor fails to block electron flow to photosystem I in intact systems. Frontiers in Plant Science-Plant Physiology 11: 382

36. Gollan PJ, Aro EM. 2020. Photosynthetic signalling during high light stress and recovery; targets and dynamics. Philosophical Transactions of the Royal Society B 375: 20190406

37. Gollan PJ, Muth-Pawlak D, Aro EM. 2020. Rapid transcriptional reprogramming triggered by alteration of the carbon/nitrogen balance has an impact on energy metabolism in Nostoc sp. PCC 7120. Life 10, 0297

38. Grabsztunowicz M, Rokka A, Farooq I, Aro EM, Mulo P. 2020. Gel-based proteomic map of Arabidopsis thaliana root plastids and mitochondria. BMC Plant Biol. 20: 413

39. Grebe S, Trotta A, Bajwa AA, Mancini I, Bag P, Jansson S, Tikkanen M, Aro EM. 2020. Specific thylakoid protein phosphorylations are prerequisites for overwintering of Norway spruce (Picea abies) photosynthesis. Proceedings of the National Academy of Sciences 117: 17499-17509

40. Grieco M, Roustan V, Dermendjiev G, Rantala S, Jain A, Leonardelli M, Neumann K, Berger V, Engelmeier D, Bachmann G, Ebersberger I, Aro EM, Weckwerth W, Teige M. 2020. Adjustment of photosynthetic activity to drought and fluctuating light in wheat. Plant, Cell & Environment 43: 1484-1500

41. Nilsson AK, Pěnčík A, Johansson ON, Bånkestand D, Fristedt R, Suorsa M, Trotta A, Novák O, Mamedov F, Aro EM, Lundin B. 2020. PSB33 protein sustains Photosystem II in plant chloroplasts under UVA light. J. Experimental Botany 71: 7210-7223

42. Rantala M, Rantala S, Aro EM. 2020. Composition, phosphorylation and dynamic organization of photosynthetic protein complexes in plant thylakoid membrane. Photochemical & Photobiological Sciences 19: 604-619

43. Rantala S, Järvi S, Aro EM. 2020. Photosystem II: Assembly and turnover of the reaction center D1 protein in plant chloroplasts. Encyclopedia of Biological Chemistry, 3rd Edition

44. Rantala S, Lempiäinen T, Gerotto C, Tiwari A, Aro EM, Tikkanen M. 2020. PGR5 and NDH-1 systems do not function as protective electron acceptors but mitigate the consequences of PSI inhibition. Biochimica et Biophysica Acta – Bioenergetics 1861: 148154

45. Shapiguzov A, Nikkanen L, Fitzpatrick D, Vainonen J, Gossens R, Alseekh S, Aarabi F, Tiwari A, Blokhina O, Panzarová K, Benedikty Z, Tyystjärvi E, Fernie A, Trtílek M, Aro EM, Rintamäki E, Kangasjärvi J. 2020. Dissecting the interaction of photosynthetic electron transfer with mitochondrial signalling and hypoxic response in the Arabidopsis rcd1 mutant. Philosophical Transactions of the Royal Society B 375: 20190413

46. Tadini L, Peracchio C, Trotta A, Colombo M, Mancini I, Jeran N, Costa A, Faoro F, Marsoni M, Vannini C, Aro EM, Pesaresi P. 2019. GUN1 influences the accumulation of NEP-dependent transcripts and chloroplast protein import in Arabidopsis cotyledons upon perturbation of chloroplast protein homeostasis. The Plant Journal 101: 1198-1220

47. Walter J, Leganés F, Aro EM, Gollan P. 2020. The small Ca2+-binding protein CSE links Ca2+ signalling with nitrogen metabolism and filament integrity in Anabaena sp. PCC 7120. BMC Microbiol. 20: 57

2019

48. Angeleri M, Muth-Pawlak D, Wilde A, Aro EM, Battchikova N. 2019. Global proteome response of Synechocystis 6803 to extreme copper environments applied to control the activity of the inducible petJ promoter. Journal of Applied Microbiology 126: 826-841

49. Carbonell V, Vuorio E, Aro EM, Kallio P. 2019. Enhanced stable production of ethylene in photosynthetic cyanobacterium Synechococcus elongatus PCC 7942. World J Microbiol. Biotechnol 35: 77

50. Gerotto C, Trotta A, Bajawa AA, Mancini I, Morosinotto T, Aro EM. 2019. Thylakoid protein phosphorylation dynamics in a moss mutant lacking SERINE/THREONINE PROTEIN KINASE STN8. Plant Physiology 180: 1582-1597

51. Grebe S, Trotta A, Bajwa AA, Suorsa M, Gollan PJ, Jansson S, Tikkanen M and Aro EM. 2019. The unique photosynthetic apparatus of Pinaceae – Analysis of photosynthetic complexes in Norway spruce (Picea abies). Journal of Experimental Botany 70: 3211-o3225

52. Huokko T, Muth-Pawlak D, Aro EM. 2019. Thylakoid Localized Type 2 NAD(P)H Dehydrogenase NdbA Optimizes Light-Activated Heterotrophic Growth of Synechocystis sp. PCC 6803. Plant Cell Physiol. 60: 1386-1399

53. Lima-Melo Y, Gollan P, Tikkanen M, Silveira J, Aro EM. 2019. Consequences of photosystem I damage and repair on photosynthesis and carbon assimilation in Arabidopsis thaliana. The Plant Journal 97: 1061-1072

54. Lima-Melo Y, Alencar V, Lobo A, Suosa R, Tikkanen M, Aro EM, Silveira J, Gollan P. 2019. Photoinhibition of photosystem I provides oxidative protection during imbalanced photosynthetic electron transport in Arabidopsis thaliana. Frontiers in Plant Science 10: 916

55. Rungrat T, Almonte AA, Cheng R, Gollan P,Stuart T, Aro EM, Borevitz J, Pogson B, Wilson P. 2019. A genome-wide association study of non-photochemical quenching in response to local seasonal climates in Arabidopsis Thaliana. Plant Direct 1-13

56. Santana-Sanchez A, Solymosi D, Mustila H, Bersanini L, Aro EM, Allahverdiyeva Y. 2019. Flavodiiron proteins 1-to-4 function in versatile combinations in O2 photoreduction in cyanobacteria. eLife. 2019; 8: e45766

57. Shapiguzov A, Vainonen JP, Hunter K, Tossavainen H, Tiwari A, Järvi S, Hellman M, Aarabi F, Alseekh S, Wybouw B, Van Der Kelen K, Nikkanen L, Krasensky-Wrzaczek J, Sipari N, Keinänen M, Tyystjärvi E, Rintamäki E, De Rybel B, Salojärvi J, van Breusegem F, Fernie AR, Brosché M, Permi P, Aro EM, Wrzaczek M, Kangasjarvi J. 2019. Arabidopsis RCD1 coordinates chloroplast and mitochondrial functions through interaction with ANAC transcription factors. Elife 8. pii: e43284.

58. Storti M, Alboresi A, Gerotto C, Aro EM, Finazzi G, Morosinotto T. 2019. Role of cyclic and pseudo-cyclic electron transport in response to dynamic light changes in Physcomitrella patens. Plant, Cell & Environment 42: 1590-1602

59. Thiel K, Patrikainen P, Nagy C, Fitzpatrick D, Pope N, Aro EM, Kallio P. 2019. Redirecting photosynthetic electron flux in the cyanobacterium Synechocystis sp. PCC 6803 by the deletion of flavodiiron protein Flv3. Microbial Cell Factories 18: 189

60. Trotta A, Bajwa AA, Mancini I, Paakkarinen V, Pribil M, Aro EM. 2019. The role of phosphorylation dynamics of CURT1B in plant thylakoid membranes. Plant Physiol. 181: 1615-1613

61. Walter J, Selim KA, Leganés F, Fernández-Piñas F, Vothknecht UC, Forchhammer K, Aro EM, Gollan P. 2019. A novel Ca2+-binding protein influences photosynthetic electron transport in Anabaena sp. PCC 7120. BBA – Bioenergetics 1860: 519-532

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63. Battchikova N, Muth-Pawlak D, Aro EM. 2018. Proteomics of cyanobacteria: current horizons. Current Opinion in Biotechnology 54: 65-71

64. Ferroni L, Cucuzza S, Angeleri M, Aro EM, Pagliano C, Giovanardi M, Baldisserotto C, Pancaldi S. 2018. In the lycophyte Selaginella martensii is the “extra-qT” related to energy spillover? Insights into photoprotection in ancestral vascular plants. Environmental and Experimental Botany 154: 110-122

65. Jokel M, Johnson X, Peltier G, Aro EM, Allahverdiyeva Y. 2018. Hunting the main player enabling Chlamydomonas reinhardtii growth under fluctuating light. The Plant Journal 94: 822-835

66. Järvi S, Rantala M, Aro EM. 2018. Chapter 11: Oxygenic photosynthesis — Light reactions within the frame of thylakoid architecture and evolution. Photosynthesis and Bioenergetics. ISBN: 978-981-3230-29-3

67. Kosourov S, Jokel M, Aro EM, Allahverdiyeva Y. 2018. New approach for sustained and efficient H2 photoproduction by Chlamydomonas reinhardtii. Energy and Environmental Science 11: 1431-1436

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69. Li L, Aro EM, Millar H. 2018. Mechanisms of photodamage and protein turnover in photoinhibition. Trends in Plant Science 23: 667-676

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71. Pinnola A, Alboresi A, Nosek L, Semchonok D, Rameez A, Trotta A, Barozzi F, Kouril R, Dall'Osto L, Aro EM, Boekema EJ, Bassi R. 2018. A LHCB9-dependent photosystem I megacomplex induced under low light in Physcomitrella patens. Nature plants 4:99910-919

72. Rantala M, Paakkarinen V, Aro EM. 2018. Separation of Thylakoid Protein Complexes with Two-dimensional Native-PAGE. Bio-protocol 8: e2899

73. Rantala M., Paakkarinen V, Aro EM. 2018. Analysis of Thylakoid Membrane Protein Complexes by Blue Native Gel Electrophoresis. J. Vis. Exp. (139) e58369

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76. Yodsang P, Raksajit W, Aro EM, Mäenpää P, Incharoensakdi A. 2018. Factors affecting photobiological hydrogen production in five filamentous cyanobacteria from Thailand. Photosynthetica 56: 334-341

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77. Bersanini L, Allahverdiyeva Y, Battchikova N, Heinz S, Lespinasse M, Ruohisto E, Mustila H, Nickelsen J, Vass I, Aro EM. 2017. Dissecting the photoprotective mechanism encoded by the flv4-2 operon: a distinct contribution of Sll0218 in photosystem II stabilization. Plant Cell Environ. 40: 378-389

78. Fristedt R, Trotta A, Suorsa M, Nilsson AK, Croce R, Aro EM, Lundin B. 2017. PSB33 sustains photosystem II D1 protein under fluctuating light conditions. J Exp Bot. 68: 4281-4293

79. Georg J, Kostova G, Vuorijoki L, Schön V, Kadowaki T, Huokko T, Baumgartner D, Müller M, Klähn S, Allahverdiyeva Y, Hihara Y, Futschik ME, Aro EM, Hess WR. 2017. Acclimation of oxygenic photosynthesis to iron starvation is controlled by the sRNA IsaR1. Curr Biol. 27: 1425-1439

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3. Peer-reviewed proceedings articles over 100 since 1980 (not listed)

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