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List of Publications

A. Peer-reviewed scientific articles

1. Nikkanen L, Vakal S., Hubáček M, Santana-Sánchez A, Konert G, Wang Y, Boehm M, Gutekunst C, Salminen T, **Allahverdiyeva Y***. 2025. Flavodiiron proteins associate pH-dependently with the thylakoid membrane for ferredoxin-1-powered O2 photoreduction. New Phytologist DOI: 10.1111/nph.70114
2. Kosourov S*, Tammelin T, **Allahverdiyeva, Y*.** 2025. Engineered biocatalytic architecture for enhanced light utilisation in algal H2 production. Energy & Environmental Science. DOI: 10.1039/D4EE03075C
3. He M, Santana-Sánchez A, Tóth G, Ermakova M, Collard D, Kosourov S, Allahverdiyeva Y. 2025 Deletion of Flv3A facilitates long-term H_2 photoproduction in diazotrophic *Anabaena* sp. PCC 7120. Physiologia Plantarum DOI: 10.1111/ppl.70087
4. Grimm H, Erlsbacher P, Medipally H, Malihan-Yap L, Sovic L, Zöhrer J, Kosourov S, **Allahverdiyeva Y**, Paul C, Kourist R. 2025. Towards high atom economy in whole-cell redox biocatalysis: up-scaling light-driven cyanobacterial ene-reductions in a flat panel photobioreactor. Green Chemistry. DOI: 10.1039/D4GC05686H
5. Chovancek E, Poque S, Bayram E, Borhan E, Jokel M, Rantanen I-M, Haznedaroglu BZ, Himanen K, Sirin S, **Allahverdiyeva Y***. 2025. Stepwise processing of *Chlorella sorokiniana* confers plant biostimulant that reduces mineral fertilizer requirements. Bioresource Technology 418: 131923. DOI: 10.1016/j.biortech.2024.131923
6. Eckardt N, **Allahverdiyeva Y.** et al. 2024. Lighting the way: Compelling open questions in photosynthesis research. The Plant Cell. DOI: 10.1093/plcell/koae203
7. Hubáček M, Wey L, Kourist R, Malihan-Yap L, Nikkanen L, **Allahverdiyeva Y***. 2024. Strong heterologous electron sink outcompetes alternative electron transport pathways in photosynthesis. The Plant Journal 5: 2500-2513. DOI: 10.1111/tpj.16935
8. Sovic L, Malihan-Yap L, Tóth G, Alphand V, **Allahverdiyeva Y**, Kourist R. 2024.Sucrose as an electron source for cofactor regeneration in recombinant Escherichia coli expressing invertase and a Baeyer Villiger Monooxygenase . Microbial Cell Factories 23: 227. DOI:10.1186/s12934-024-02474-2
9. Ortega-Martinez P, Nikkanen L, Wey L, Florencio FJ, **Allahverdiyeva Y***, Diaz-Troya S*. 2024. Glycogen synthesis prevents metabolic imbalance and disruption of photosynthetic electron transport from photosystem II during transition to photomixotrophy in *Synechocystis* sp. PCC 6803. New Phytologist 243: 162-179. DOI:10.1111/nph.19793
10. Tóth GS, Siitonen V, Backman O, Siivola T, Xu W, Kosourov S, Siitonen V, Xu C, **Allahverdiyeva Y***. 2024. Employing photocurable biopolymers to engineer photosynthetic 3D-printed living materials for production of chemicals. Green Chemistry 26: 4032-4042. DOI: 10.1039/D3GC04264B
11. Marchetto F, Santaeufemia S, Lebiedzińska-Arciszewska M, Śliwińska M, Pich M, Kurek E, Naziębło A, Strawski M, Solymosi D, Szklarczyk M, Bulska E, Szymański J, Wierzbicka M, **Allahverdiyeva Y**, Więckowski M, Kargul J. 2024. Dynamic adaptation of the extremophilic red microalga *Cyanidioschyzon merolae* to high nickel stress. Plant Physiology and Biochemistry 207: 108365. DOI: 10.1016/j.plaphy.2024.108365
12. Lund S, Wey L, Peltonen J, Bobacka J, Latonen RM*, **Allahverdiyeva Y*.** 2024. Graphene and graphene–cellulose nanocrystal composite films for sustainable anodes in biophotovoltaic devices. Sustainable Energy Fuels 8: 210. DOI: 10.1039/D3SE01185B
13. Wey L, Yewale R, Hautala E, Hannonen J, Katavisto K, Kvarnström C**, Allahverdiyeva Y***, Damlin P*. 2024. Optoelectronic enhancement of photocurrent by cyanobacteria on sustainable

AP-VPP-fabricated PEDOT electrodes. Electrochimica Acta 475: 143597. DOI:j.electacta.2023.143597

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15. Jokel M, Salazar J, Chovancek, E., Sirin, S., **Allahverdiyeva Y***. 2023. Screening of several microalgae revealed biopesticide properties of *Chlorella sorokiniana* against the strawberry pathogen *Phytophthora cactorum*. Journal of Applied Phycology 35: 2675–26871-13. DOI: 10.1007/s10811-023-03015-x
16. Siitonen V, Probst A, Toth G, Kourist R, Schroda M, Kosourov S, **Allahverdiyeva Y***. 2023. Engineered green alga *Chlamydomonas reinhardtii* as a whole-cell photosynthetic biocatalyst for stepwise photoproduction of H_2 and ε-caprolactone. Green Chemistry 25: 5945-5955. DOI**:** 10.1039/d3gc01400b
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19. Vajravel S, **Allahverdiyeva Y**, Kosourov S. 2023. Balancing algal photosynthesis, O_2 consumption, and H_2 recycling for sustained H_2 photoproduction in pulse-illuminated algal cultures. Sustainable Energy Fuels 7: 1818-1828. DOI: 10.1039/d2se01545e
20. Barone GD, Hubáček M, Malihan-Yap L, Grimm HC, Nikkanen L, Pacheco CC, Tamagnini P, **Allahverdiyeva Y**, Kourist R. 2023. Towards the rate limit of heterologous biotechnological reactions in recombinant cyanobacteria. Biotechnology for Biofuels and Bioproducts 16: 4. DOI: 10.1186/s13068-022-02237-4
21. Salazar J, Santana-Sánchez A, Näkkilä J, Sirin S, **Allahverdiyeva Y***. 2023. Complete N and P removal from hydroponic greenhouse wastewater by *Tetradesmus obliquus*: A strategy for algal bioremediation and cultivation in Nordic countries. Algal Research 70: 102988. DOI: 10.1016/j.algal.2023.102988
22. Santana-Sánchez A, Nikkanen L, Werner E, Tóth 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 Phytologists 237:126-139. DOI: 10.1111/nph.18506
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26. Erdem E, Malihan-Yap L, Assil-Companioni L, Grimm H, Davide Barone G, Serveau-Avesque C, Amouric A, Duquesne K, de Berardinis V, **Allahverdiyeva Y**, Alphand V, Kourist R. 2022. Photobiocatalytic oxyfunctionalization with high reaction rate using a Baeyer–Villiger monooxygenase from *Burkholderia xenovorans* in metabolically engineered cyanobacteria. ACS Catalysis 12:66-72. DOI: 10.1021/acscatal.1c04555

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46. 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. 8:e45766. DOI: 10.7554/eLife.45766
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