

2025

SHU M., HARFOUCHE A. L., TRTILEK M., PANZAROVA K., ALASIA O. F., LAGERGREN J. H., LABBÉ A., ENGLE N. L., CLARK M. M., CHEN J., TUSKAN G. A., TSCHAPLINSKIT J. (2025).

Leveraging hyperspectral phenotyping for accurate, non-destructive prediction of metabolite profiles in poplar under drought stress, Environmental and Experimental Botany, Volume 237.

[HTTPS://DOI.ORG/10.1016/J.ENVEXPBOT.2025.106218](https://doi.org/10.1016/j.envexpbot.2025.106218)

BALKOVA D., MALA K., HEJATKO J., PANZAROVA K., ABDELHAKIM L., PLESKACOVA B. AND SAMALOVA M. (2025).

Differential expression and localization of expansins in Arabidopsis shoots: implications for cell wall dynamics and drought tolerance. Front. Plant Sci. 16:1546819.

[HTTPS://DOI.ORG/10.3389/FPLS.2025.1546819](https://doi.org/10.3389/fpls.2025.1546819)

ZAGORSCAK M., ABDELHAKIM L., RODRIGUEZ-GRANADOS NY., SIROKA J., GHATAKA A., BLEKER C., BLEJEC A., ZRIMEC J., NOVAK O., PENCINKA A., BAEBLER S., PEREZ BORROTO L., SCHUY C., ZUPANICA A., AFJEHI-SADAT L., WURZINGER B., WECKWERTH W., POMPE NOVAK M., KNIGHT MR., STRNAD M., BACHEM C., CHATURVEDI P., SONNEWALD S., SASIDHARAN R., PANZAROVA K., GRUDEN K., TEIGE M. (2025).

Integration of multi-omics data and deep phenotyping provides insights into responses to single and combined abiotic stress in potato. Plant Physiol. 197(4)

[HTTPS://DOI.ORG/10.1093/PLPHYS/KIAF126](https://doi.org/10.1093/plphys/kiaf126)

TIETZE H., ABDELHAKIM L., PLESKACOVA B., KURTZ-SOHN A., FRIDMAN E., NIKOLOSKI Z., PANZAROVA K. (2025).

Prediction of harvest-related traits in barley using high-throughput phenotyping data and machine learning. bioRxiv 2025.05.29.656856;

[HTTPS://DOI.ORG/10.1101/2025.05.29.656856](https://doi.org/10.1101/2025.05.29.656856)

2024

TIWARI L.D., BDOLACH E., PRUSTY M.R., BODENHEIMER S., BEERYA., FAIGENBOIM-DORON A. ETAL. (2024).

Cytonuclear interactions modulate the plasticity of photosynthetic rhythmicity and growth in wild barley. Physiologia Plantarum, 176(1), e14192.

Available from: [HTTPS://DOI.ORG/10.1111/PPL.14192](https://doi.org/10.1111/PPL.14192)

RUDOLF J., TOMOVICOVA L., PANZAROVA K., FAJKUS J., HEJÁTKO J., SKALAK J.

Epigenetics and plant hormone dynamics - a functional and methodological perspective, Journal of Experimental Botany, (2024). erae054.

[HTTPS://DOI.ORG/10.1093/JXB/ERAEO54](https://doi.org/10.1093/JXB/ERAEO54)

ULLAH S., PANZAROVA K., TRTILEK M., LEXA M., MACALA V., NEUMANN K., ALTMANN T., HEJATKO J., PERNISOVA M., GLADILIN E.

High-Throughput Spike Detection in Greenhouse Cultivated Grain Crops with Attention Mechanisms-Based Deep Learning Models. Plant Phenomics. 2024 Mar 11;6:0155. PMID: 38476818; PMCID: PMC10927539. DOI: 10.34133/PLANTPHENOMICS.0155



BALAKHONOV A V, PUSHKAROVA N, SKALAK J, DOBISOVA T, BENEDIKTYOVA Z, PANZAROVA K, TRTILEK M, HEJATKO J.

Non-invasive Assay for Chlorophyll Biosynthesis Kinetics Determination during Early Stages of Arabidopsis De-etiolation. *J Vis Exp.* 2024 Jan 12;(203). DOI: 10.3791/66087

ABDELHAKIM L, PLESKACOVA B, RODRIGUEZ-GRANADOS NY, SASIDHARAN R, PEREZ-BORROTO LS, SONNEWALD S, GRUDEN K, VOTHKNECHT UC, TEIGE M, PANZAROVA K. *High Throughput Image-Based Phenotyping for Determining Morphological and Physiological Responses to Single and Combined Stresses in Potato.* *Vis Exp.* 2024 Jun 7;(208). PMID: 38912820. DOI: 10.3791/66255

EBRAHIMI NAGHANI S, SMERINGAI J, PLESKACOVA B ET AL.

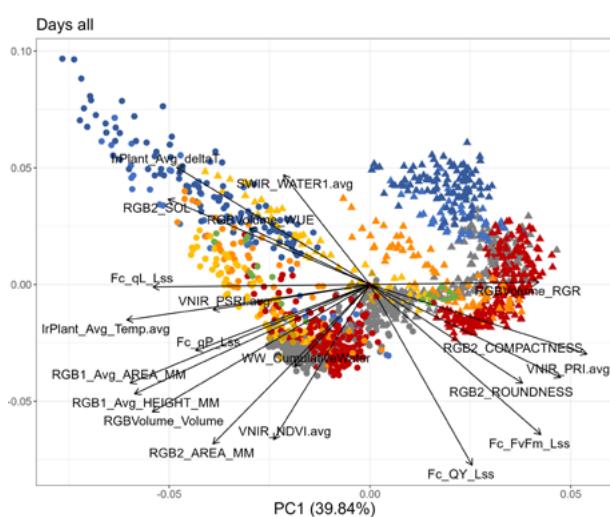
Integrative phenotyping analyses reveal the relevance of the phyB-PIF4 pathway in Arabidopsis thaliana reproductive organs at high ambient temperature. *BMC Plant Biol* 24, 721 (2024).

[HTTPS://DOI.ORG/10.1186/S12870-024-05394-W](https://doi.org/10.1186/S12870-024-05394-W)

2023

FINDUROVA H, VESELA B, PANZAROVA K, PYTELA J, TRTILEK M, KLEM K. (2023).

Phenotyping drought tolerance and yield performance of barley using a combination of imaging methods. *Environmental and Experimental Botany*, Volume 209. [HTTPS://DOI.ORG/10.1016/J.NEXPBOT.2023.105314](https://doi.org/10.1016/J.NEXPBOT.2023.105314)



BALAKHONOV A V, DOBISOVA T, BENEDIKTYOVA Z, PANZAROVA K, PYTELA J, KOCH R, SPYROGLOU I, KOVACOVA I, ARNAUD D, SKALAK J, TRTILEK M, HEJATKO J. (2023).

iReenCAM: Automated Imaging System for Kinetic Analysis of Photosynthetic Pigment Biosynthesis at High Spatiotemporal Resolution during Early Deetiolation. *Front. Plant Sci., Sec. Plant Breeding,* Volume 14 - 2023 |

[HTTPS://DOI.ORG/10.3389/FPLS.2023.1093292](https://doi.org/10.3389/FPLS.2023.1093292)

JEDLICKOVA V, STEFKOVA M, SEDLACEK M, PANZAROVA K, ROBERT HS. *Hairy Root Transformation and Regeneration in Arabidopsis thaliana and Brassica napus.* *J Vis Exp.* 2023 Dec 22;(202). DOI: 10.3791/66223

2022

SORRENTINO M, PANZAROVA K, SPYROGLOU I, SPICHAL L, BUFFAGNI V, GANUGI P, ROUPHAEL Y, COLLA G, LUCINI L AND DE DIEGO N. (2022).

Integration of Phenomics and Metabolomics Datasets Reveals Different Mode of Action of Biostimulants Based on Protein Hydrolysates in Lactuca sativa L. and Solanum lycopersicum L. Under Salinity. *Front. Plant Sci.* 12:808711.

[HTTPS://DOI.ORG/10.3389/FPLS.2021.808711](https://doi.org/10.3389/FPLS.2021.808711)



2021

ABDELHAKIM L., ROSENQVIST E., WOLLENWEBER B., SPYROGLOU I., OTTOSEN C., PANZAROVA K.
Investigating Combined Drought- and Heat Stress Effects in Wheat under Controlled Conditions by Dynamic Image-Based Phenotyping. Agronomy 2021, 11, 364.

[HTTPS://DOI.ORG/10.3390/AGRONOMY11020364](https://doi.org/10.3390/agronomy11020364)

AWLIA M., ALSHAREEF N., SABER N., KORTE A., OKEY H., PANZAROVA K., TRTILEK M., NEGRAO S., TESTER M. AND JULKOWSKA M. (2021).
Genetic mapping of the early responses to salt stress in Arabidopsis thaliana. Plant J., 107: 544-563.

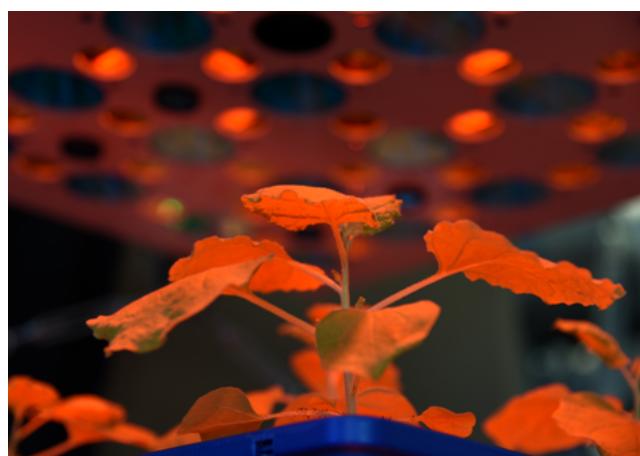
[HTTPS://DOI.ORG/10.1111/TPJ.15310](https://doi.org/10.1111/tpj.15310)

SORRENTINO M., DE DIEGO N., UGENA L., SPICHAL L., LUCINI L., MIRAS-MORENO B., ZHANG L., ROUPHAEL Y., COLLA G. AND PANZAROVA K. (2021)
Seed Priming With Protein Hydrolysates Improves Arabidopsis Growth and Stress Tolerance to Abiotic Stresses. Front. Plant Sci. 12:626301.

[HTTPS://DOI.ORG/10.3389/FPLS.2021.626301](https://doi.org/10.3389/fpls.2021.626301)

ULLAH S., HENKE M., NARISETTI N., PANZAROVA K., TRTILEK M., HEJATKO J., GLADILIN E.
Towards Automated Analysis of Grain Spikes in Greenhouse Images Using Neural Network Approaches: A Comparative Investigation of Six Methods. Sensors 2021, 21, 7441.

[HTTPS://DOI.ORG/10.3390/S21227441](https://doi.org/10.3390/S21227441)



2020

SHAPIGUZOVA, NIKKANEN L., FITZPATRICK D., VAINONEN J. P., GOSSENS R., ALSEEKH S., AARABI F., TIWARI A., BLOKHINA O., PANZAROVA K., BENEDIKYTOVA Z., YYYSTJARVI E., FERNIE A. R., TRTILEK M., ARO E-M., RINTAMAKI E. & KANGASJARVI 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. Biological Sciences. 375, 1801, 10 p., 20190413.

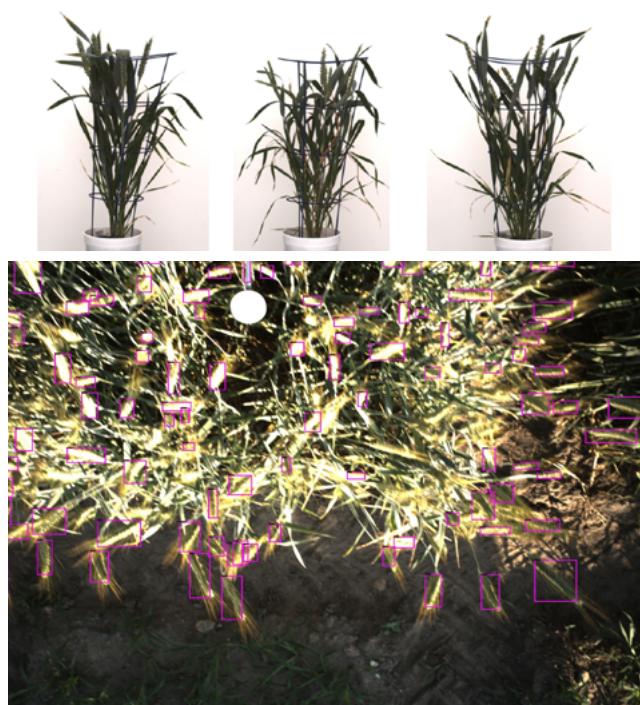
[HTTPS://DOI.ORG/10.1098/RSTB.2019.0413](https://doi.org/10.1098/rstb.2019.0413)

SORRENTINO M., COLLA G., ROUPHAEL Y., PANZAROVA K. AND TRTILEK M. (2020).
Lettuce reaction to drought stress: automated high-throughput phenotyping of plant growth and photosynthetic performance. Acta Hortic. 1268, 133-142.

[HTTPS://DOI.ORG/10.17660/ACTAHORTIC.2020.1268.17](https://doi.org/10.17660/ACTAHORTIC.2020.1268.17)

Flütsch S, Nigro A, Conci F, Fajkus J, Thalmann M, Trtílek M, Panzarová K, Santelia D. Glucose uptake to guard cells via STP transporters provides carbon sources for stomatal opening and plant growth. *EMBO Rep.* 2020 Aug 5; 21(8):e49719. Epub 2020 Jul 6. PMID: 32627357; PMCID: PMC7403697.

[HTTPS://DOI.ORG/10.15252/EMBR.201949719](https://doi.org/10.15252/EMBR.201949719)



2019

PAUL K, SORRENTINO M., LUCINI L., ROUPHAEL Y.F., CARDARELLI M., BONINI P., BEGONA M., REYNAUD H.E., CANAGUIER R., TRTILEK M., PANZAROVA K., COLLA G. (2019).

A Combined Phenotypic and Metabolomic Approach for Elucidating the Biostimulant Action of a Plant-derived Protein Hydrolysate on Tomato Grown under Limited Water Availability. Frontiers in Plant Science.

[HTTPS://DOI.ORG/10.3389/FPLS.2019.00493](https://doi.org/10.3389/fpls.2019.00493)

PAUL K, SORRENTINO M., LUCINI L., ROUPHAEL Y., CARDARELLI M., BONINI P., REYNAUD H., CANAGUIER R., TRTILEK M., PANZAROVA K. AND COLLA G. (2019). *Understanding the Biostimulant Action of Vegetal-Derived Protein Hydrolysates by High-Throughput Plant Phenotyping and Metabolomics: A Case Study on Tomato. Front. Plant Sci. 10:47.*

[HTTPS://DOI.ORG/10.3389/FPLS.2019.00047](https://doi.org/10.3389/fpls.2019.00047)

2018

ROUPHAEL Y, SPICHAL L., PANZAROVA K., CASA R. AND COLLA G. (2018).

High-Throughput Plant Phenotyping for Developing Novel Biostimulants: From Lab to Field or From Field to Lab. Front. Plant Sci. :1197.

[HTTPS://DOI.ORG/10.3389/FPLS.2018.01197](https://doi.org/10.3389/fpls.2018.01197)

ILIK P, SPUNDOVA M, SICNER M, MELKOVICOVA H, KUCEROVA Z, KRCHNAK P, FURST T, VECEROVA K, PANZAROVA K, BENEDIKYOVA Z, TRTILEK M. *Estimating heat tolerance of plants by ion leakage: a new method based on gradual heating. New Phytol. 2018 May;218(3):1278-1287. Epub 2018 Mar 24. PMID: 29573424.*

[HTTPS://DOI.ORG/10.1111/NPH.15097](https://doi.org/10.1111/NPH.15097)

2016

AWLIA M, NIGRO A, FAJKUS J, SCHMOECKEL SM, NEGRAO S, SANTELIA D, TRTILEK M, TESTER M, JULKOWSKA MM. AND PANZAROVA K. (2016) *High-Throughput Non-destructive Phenotyping of Traits that Contribute to Salinity Tolerance in Arabidopsis thaliana. Front. Plant Sci. 7:1414.*

[HTTPS://DOI.ORG/10.3389/FPLS.2016.01414](https://doi.org/10.3389/fpls.2016.01414)

