

Kristiina Himanen
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Organismal and Evolutionary Biology Research Programme
Viikki Plant Science Centre (ViPS)
Plant Phenomics
Plant Production Sciences
Doctoral Programme in Integrative Life Science



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Employment

Research Coordinator

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University of Helsinki

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1 Jan 2018 → present

Viikki Plant Science Centre (ViPS)

University of Helsinki

1 Jan 2014 → present

Plant Phenomics

University of Helsinki

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24 Oct 2011 → present

Plant Production Sciences

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1 Aug 2011 → present

Supervisor for doctoral programme

Doctoral Programme in Integrative Life Science

University of Helsinki

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1 Jan 2021 → present

Supervisor for doctoral programme

Doctoral Programme in Plant Sciences

University of Helsinki

Helsinki, Finland

1 Jan 2014 → present

Research output

The effect of ectomycorrhizal fungal exposure on nursery-raised *Pinus sylvestris* seedlings: plant transpiration under short-term drought, root morphology and plant biomass

de Quesada Alzamora, G. E., Xu, J., Salmon, Y., Lintunen, A., Poque, S., Himanen, K. & Heinonsalo, J., 3 Apr 2024, In: *Tree Physiology*. 44, 4, 13 p., tpa029.

The Combination of Low-Cost, Red–Green–Blue (RGB) Image Analysis and Machine Learning to Screen for Barley Plant Resistance to Net Blotch

Leiva, F., Dhakal, R., Himanen, K., Ortiz, R. & Chawade, A., Apr 2024, In: *Plants*. 13, 7, 12 p., 1039.

Ecological speciation in sympatric palms: 5. Evidence for pleiotropic speciation genes using gene knockout and high-throughput phenotyping

Coathup, M., Mouhu, K., Himanen, K., Turnbull, C. G. N. & Savolainen, V., 2024, In: *Evolutionary Journal of the Linnean Society*. 3, 1, 14 p.

Stepwise processing of *Chlorella sorokiniana* confers plant biostimulant that reduces mineral fertilizer requirements.

Himanen, K., Chovanček, E., Poque, S. & Allahverdiyeva, Y., 2024, In: *Bioresource Technology*.

Image-based time series analysis to establish differential disease progression for two *Fusarium* head blight pathogens in oat spikelets with variable resistance

Pavicic, M., Mouhu, K., Hautsalo, J., Jacobson, D., Jalli, M. & Himanen, K., 14 Mar 2023, In: *Frontiers in plant science*. 14, 13 p.

Effects of poty-potyvirus synergism on growth, photosynthesis and metabolite status of *Nicotiana benthamiana*

Pollari, M., Sipari, N., Poque, S., Himanen, K. & Mäkinen, K., Jan 2023, In: *Viruses (Basel)*. 15, 1, 24 p.

Tree architecture: A strigolactone-deficient mutant reveals a connection between branching order and auxin gradient along the tree stem

Su, C., Kokosza, A., Xie, X., Pěňčík, A., Zhang, Y., Raunonen, P., Shi, X., Muranen, S., Topcu, M. K., Immanen, J., Hagqvist, R., Safronov, O., Alonso-Serra, J., Eswaran, G., Venegas, M. P., Ljung, K., Ward, S., Mähönen, A. P., Himanen, K. & Salojärvi, J. & 6 others, Fernie, A. R., Novák, O., Leyser, O., Palubicki, W., Helariutta, Y. & Nieminen, K., 2023, In: *Proceedings of the National Academy of Sciences of the United States of America*. 120, 48, e2308587120.

Regulation of PaRBOH1-mediated ROS production in Norway spruce by Ca²⁺ binding and phosphorylation

Nickolov, K., Gauthier, A., Hashimoto, K., Laitinen, T., Väisänen, E., Paasela, T., Soliymani, R., Kurusu, T., Himanen, K., Blokhina, O., Fagerstedt, K., Jokipii-Lukkari, S., Tuominen, H., Haggman, H., Wingsle, G., Teeri, T. H., Kuchitsu, K. & Kärkönen, A., 13 Oct 2022, In: *Frontiers in plant science*. 13, 19 p., 978586.

Functional phenomics for improved climate resilience in Nordic agriculture

Himanen, K., Roitsch, T. G., Chawade, A., Jaakola, L., Nehe, A. & Alexandersson, E., 3 Sept 2022, In: *Journal of Experimental Botany*. 73, 15, p. 5111-5127 17 p.

Image-based methods to score fungal pathogen symptom progression and severity in excised *Arabidopsis* leaves

Pavicic, M., Overmyer, K., Rehman, A. U., Jones, P., Jacobson, D. & Himanen, K., Jan 2021, In: *Plants (Basel)*. 10, 1, 14 p., 158.

Two chloroplast thioredoxin systems differentially modulate photosynthesis in *Arabidopsis* depending on light intensity and leaf age

Guinea Diaz, M., Nikkanen, L., Himanen, K., Toivola, J. & Rintamäki, E., Nov 2020, In: *Plant Journal*. 104, 3, 1365-313X.

Korkean läpivirtauksen kasvien kuvantamislaitteisto National Plant Phenotyping Infrastructure (NaPPI)

Himanen, K., 8 Jan 2020.

Roles of endogenous glycinebetaine in plant abiotic stress responses

Mäkelä, P., Jokinen, K. & Himanen, K., 5 Dec 2019, *Osmoprotectant-mediated abiotic stress tolerance: Recent advances and future perspectives*. Hossain, M. A., Kumar, V., Burritt, D., Fujita, M. & Mäkelä, P. (eds.). 1 ed. Springer, p. 153-173

High throughput in vitro seed germination screen identified new ABA responsive RING-type ubiquitin E3 ligases in Arabidopsis thaliana

Pavicic, M., Wang, F., Mouhu, K. & Himanen, K., Dec 2019, In: Plant Cell, Tissue and Organ Culture. 139, 3, p. 563-575 13 p.

Histone 2B monoubiquitination complex integrates transcript elongation with RNA processing at circadian clock and flowering regulators

Woloszynska, M., Le Gall, S., Neyt, P., Boccardi, T. M., Grasser, M., Laengst, G., Aesaert, S., Coussens, G., Dhondt, S., Van De Slijke, E., Bruno, L., Fung-Uceda, J., Mas, P., Van Montagu, M., Inze, D., Himanen, K., De Jaeger, G., Grasser, K. D. & Van Lijsebettens, M., 16 Apr 2019, In: Proceedings of the National Academy of Sciences of the United States of America. 116, 16, p. 8060-8069 10 p.

Harnessing the versatile Ubiquitin signals to combat plant pathogens

Himanen, K., 2019.

A transnational and holistic breeding approach is needed for sustainable wheat production in the Baltic Sea region

Chawade, A., Armoniene, R., Berg, G., Brazauskas, G., Frostgard, G., Geleta, M., Gorash, A., Henriksson, T., Himanen, K., Ingver, A., Johansson, E., Jorgensen, L. N., Koppel, M., Koppel, R., Makela, P., Ortiz, R., Podyma, W., Roitsch, T., Ronis, A. & Svensson, J. T. & 2 others, Vallenback, P. & Weih, M., Dec 2018, In: Physiologia Plantarum. 164, 4, p. 442-451 10 p.

Nordic research infrastructures for plant phenotyping

Alexandersson, E., Keinanen, M., Chawade, A. & Himanen, K., 2018, In: Agricultural and Food Science. 27, 1, p. 7-16 10 p.

Genome sequencing and population genomic analyses provide insights into the adaptive landscape of silver birch

Salojärvi, J., Smolander, O.-P., Nieminen, K., Rajaraman, S., Safronov, O., Safdari, P., Lamminmäki, A., Immanen, J., Lan, T., Tanskanen, J., Rastas, P., Amiryousefi, A., Jayaprakash, B., Kammonen, J. I., Hagqvist, R., Eswaran, G., Ahonen, V. H., Serra, J. A., Asiegbu, F. O. & Barajas-Lopez, J. D. D. & 65 others, Blande, D., Blokhina, O., Blomster, T., Broholm, S., Brosche, M., Cui, F., Dardick, C., Ehonen, S. E., Elomaa, P., Escamez, S., Fagerstedt, K. V., Fujii, H., Gauthier, A., Gollan, P. J., Halimaa, P., Heino, P. I., Himanen, K., Hollender, C., Kangasjarvi, S., Kauppinen, L., Kelleher, C. T., Kontunen-Soppela, S., Koskinen, J. P., Kovalchuk, A., Karenlampi, S. O., Kärkönen, A. K., Lim, K.-J., Leppälä, J., Macpherson, L., Mikola, J., Mouhu, K., Mähönen, A. P., Niinemets, U., Oksanen, E., Overmyer, K., Palva, E. T., Pazouki, L., Pennanen, V., Puhakainen, T., Poczai, P., Possen, B. J. H. M., Punkkinen, M., Rahikainen, M. M., Rousi, M., Ruonala, R., van der Schoot, C., Shapiguzov, A., Sierla, M., Sipilä, T. P., Sutela, S., Teeri, T. H., Tervahauta, A. I., Vaattovaara, A., Vahala, J., Vetchinnikova, L., Welling, A., Wrzaczek, M., Xu, E., Paulin, L. G., Schulman, A. H., Lascoux, M., Albert, V. A., Auvinen, P., Helariutta, Y. & Kangasjarvi, J., 8 May 2017, In: Nature Genetics. 49, 6, p. 904-912 12 p.

Genomic and phenomic screens for flower related RING type ubiquitin E3 ligases in Arabidopsis

Pavicic, M., Mouhu, K., Wang, F., Bilicka, M. M., Chovanček, E. & Himanen, K. I. H., 28 Mar 2017, In: Frontiers in plant science. 8, 17 p., 416.

Haastattelututkimus molekyylibiotieteellisiltä aloilta valmistuneiden tohtoreiden kokemuksista koulutuksen ja työelämän vastaavuuksista.

Himanen, K. I. H., 2016, *Teaching in Life Sciences: Current practices and development*. Vol. 2. p. 33-51 19 p. (Teaching in Life Sciences: Current practices and development; vol. 2).

Didaktinen essee biotekniikan yliopisto-opetuksesta

Himanen, K. I. H., 22 Dec 2015, *Esseitä tieteenalakohtaisesta opetuksesta lukuvuosilta 2013-2015*. Lahtinen, A.-M. & Lindfors, B. (eds.). Helsinki: Helsingin yliopisto, Yliopistopedagogiikan tutkimus- ja kehittämissyksikkö, p. 2-8 7 p.

Functional Analysis of the Arabidopsis TETRASPANIN Gene Family in Plant Growth and Development

Wang, F., Muto, A., Van de Velde, J., Neyt, P., Himanen, K., Vandepoele, K. & Van Lijsebettens, M., 2015, In: Plant Physiology.

Haastattelututkimus molekyylibiotieteellisiltä aloilta valmistuneiden tohtoreiden kokemuksista koulutuksen ja työelämän vastaavuuksista.

Himanen, K., 2015, In: Teaching in life sciences : current practices and development : reports from University pedagogy courses at Viikki Campus . 2, p. 33-51 19 p.

Kasvibiotekniikka täyttää tänä vuonna 30 vuotta (mutta ei juhli)

Himanen, K. & Pietiäinen, M. I., 9 Jan 2014, *maataloustieteen päivät*.

Histone H2B monoubiquitination is required to reach maximal transcript levels of circadian clock genes in Arabidopsis

Himanen, K., Woloszynska, M., Boccardi, T. M., Groeve, S. D., Nelissen, H., Bruno, L., Vuylsteke, M. & Lijsebettens, M. V., 2012, In: Plant Journal. 72, 2, p. 249-260 12 p.

Is HUB1 a hub for plant fitness?

Himanen, K., Boccardi, T. M., De Rycke, R., Odeny, O. P. & Van Lijsebettens, M., 2012, In: Plant Signalling & Behavior. 7, 12, p. 1537-1540 4 p.

Ectopic expression of PtaRHE1, encoding a poplar RING-H2 protein with E3 ligase activity, alters plant development and induces defence related response in tobacco

Bopopi, J. M., Vandeputte, O. M., Himanen, K., Mol, A., Vaessen, Q., El Jaziri, M. & Baucher, M., 2010, In: Journal of Experimental Botany. 61, p. 297-310

Plants having modified growth characteristics and a method for making the same

Himanen K., Boccardi TM., Reuzeau C., Van Lijsebettens, 2010, Patent No. wo/2010/012760

The transcript elongation factor FACT affects Arabidopsis vegetative and reproductive development and functionally interacts with HUB1/2.

Lolas, I. B., Himanen, K., Grønlund, J. T., Lynggaard, C., Houben, A., Melzer, M., Van Lijsebettens, M. & Grasser, K. D., 2010, In: Plant Journal. 61, 4, p. 686-697 12 p.

Overexpression of the Arabidopsis Anaphase Promoting Complex subunit CDC27a increases growth rate and organ size

Rojas, C. A., Eloy, N. B., de Freitas Lima, M., Rodrigues, R. L., Franco, L. O., Himanen, K., Beemster, G. T. S., Hemerly, A. S. & Ferreira, P. C. G., 2009, In: Plant Molecular Biology. 71

Genetic and epigenetic control of leaf size and shape

Himanen, K., Dino Adem, G. & Van Lijsebettens, M., 2007, In: International journal of plant developmental biology.

Impact of core histone modifications on transcriptional regulation and plant growth

Nelissen, H., Boccardi, T. M., Himanen, K. & Van Lijsebettens, M., 2007, In: Critical Reviews in Plant Sciences. 26, p. 243-263

Novel Plant-specific cyclin-dependent kinase inhibitors induced by biotic and abiotic stresses

Peres, A., Churchman, M. L., Hariharan, S., Himanen, K., Verkest, A., Vandepoele, K., Magyar, Z., Hatzfeld, Y., Van Der Schueren, E., Beemster, G. T. S., Frankard, V., Larkin, J. C., Inze, D. & De Veylder, L., 2007, In: Journal of Biological Chemistry. 282, 35, p. 25588-96 10 p.

The Arabidopsis thaliana homolog of yeast BRE1 has a function in cell cycle regulation during early leaf and root growth.

Fleury, D., Himanen, K., Cnops, G., Nelissen, H., Boccardi, T. M., Maere, S., Beemster, G. T. S., Neyt, P., Anami, S., Robles, P., Micol, J. L., Inze, D. & Van Lijsebettens, M., 2007, In: Plant Cell.

Auxin regulation of cell cycle and its role during lateral root initiation.

Vanneste S., Maes L., De Smet I., Himanen K., Naudts M., Inzé D., Beeckman T. , 2005, In: Physiologia Plantarum.

Transcript profiling of early lateral root initiation.

Himanen K., Vuylsteke M., Vanneste S., Vercruyssen S., Boucheron E., Alard P., Chriqui D., Van Montagu M., Inzé D., Beeckman T., 2004, In: Proceedings of the National Academy of Sciences of the United States of America. 6

The Arabidopsis locus RCB mediates upstream regulation of mitotic gene expression.

Himanen K., Reuzeau C., Beeckman T., Melzer S., Gorben L. and Inzé D. , 2003, In: Plant Physiology. 133, p. 1862-1872

Auxin-mediated cell cycle regulation during early lateral root development

Himanen K., Boucheron E., Vanneste S., De Almeida Engler J., Inzé D. and Beeckman T, 2002, In: Plant Cell. 14, p. 2339-51

Expression of cell cycle regulatory genes and morphological alterations in response to salt stress in Arabidopsis thaliana

Burssens S., Himanen K., Van De Cotte B., Beeckman T., Van Montagu M., Inzé D. & Verbruggen N. , 2000, In: Planta.

Projects

FusNaPPI: Automated imaging for Oat breeding for Fusarium resistance

Himanen, K. (Participant) & Pavicic, M. (Participant)

BalticWheat: Baltic Wheat Network Swedish Institute

Himanen, K. (Participant), Chawade, A. (Project manager), Brazauskas, G. (Participant) & Koppel, M. (Participant)
01/10/2017 → ...

Constitutive Photomorphogenesis1 target protein characterization

Himanen, K. (Project manager)

01/08/2011 → ...

EMPHASIS: EMPHASIS

Himanen, K. (Other) & Keinänen, M. (Other)

01/03/2017 → ...

EMPHASIS: ESFRI

Himanen, K. (Other)

01/11/2017 → ...

EPPN2020: European Plant Phenotyping Network2020

Himanen, K. (Participant)

01/05/2017 → ...

Functional characterization of AIP2 ubiquitin E3 ligase in plant pathogen interactions

Pavicic, M. (Project manager) & Himanen, K. (Principal Investigator)

01/10/2013 → 30/09/2017

Genokaura - genomic selection for Fusarium head blight resistant oat cultivars/ genomivalinnalla puhahomeen kestäviä kauralajikkeita

Himanen, K. (Participant), Mouhu, K. (Project manager), Hautsalo, J. (Participant) & Jalli, M. (Project manager)

Grain Legume WG

Himanen, K. (Project manager)

Nordgen Nordiskt Genresurscenter

01/09/2024 → 31/12/2024

Identification and functional characterization of Flower specific Ubiquitin Proteasome System.

Himanen, K. (Project manager)

01/09/2011 → 31/08/2016

Della: Image-based phenotyping of dwarfing Bzh spring turnip rape

Niemelä, T. (Project manager), Pavicic, M. (Participant) & Himanen, K. (Project manager)

IPPN: International Plant Phenotyping Network

Himanen, K. (Participant)

01/03/2016 → ...

Kuvantamistekn. ratkaisuja kasvihuonetuo

Himanen, K. (Project manager) & Poque, S. (Participant)

Luonnonvarakeskus Sisäiset palvelut

01/01/2023 → 31/03/2026

NaPPI: NaPPI-Kansallinen Kasvi Fenotyyppaus Infrastruktuuri NaPPI - National Plant Phenotyping Infrastructure

Palva, E. T. (Participant), Asiegbu, F. (Participant), Elomaa, P. (Participant), Fagerstedt, K. (Project manager), Helariutta, Y. (Participant), Himanen, K. (Principal Investigator), Hytönen, T. (Participant), Kangasjärvi, J. (Participant), Mäkelä, P. (Participant), Schulman, A. (Participant), Sims-Huopaniemi, K. (Participant), Stoddard, F. (Participant), Teeri, T. (Participant), Valkonen, J. (Participant), Oksanen, E. (Participant), Keinänen, M. (Participant), Dumont, J. (Participant), Hauta-Kasari, M. (Participant), Hiltunen, J. (Participant), Karjalainen, P. (Participant), Aro, E.-M. (Participant) & Häggman, H. (Participant)

Unknown funder

01/12/2013 → ...

New omics biomarkers for disease resistant and drought tolerant potatoes

Himanen, K. (Participant), Mouhu, K. (Project manager) & Alexandersson, E. (Project manager)

NJK Resilient northern crops network

Himanen, K. (Participant)

01/06/2020 → 31/12/2022

NordPlant: NordForsk University Hub

Himanen, K. (Project manager), Alexandersson, E. (Project manager), Chawade, A. (Participant), Jaakola, L. (Participant) & Christensen, S. (Participant)

01/02/2018 → 31/01/2024

Nordforsk/ Upscaling crop performance

Himanen, K. (Project manager), AL-Ogaidi, S. S. S. (Participant), Din, G. N. U. (Participant) & Poque, S. (Participant)

NordForsk

01/01/2023 → 31/12/2026

NordPlant – A Climate and Plant Phenomics Hub for Sustainable Agriculture and Forest Production in Future Nordic Climates

Alexandersson, E. (Project manager), Himanen, K. (Participant), Roitsch, T. G. (Participant) & Jaakola, L. (Participant)

ViPS: Viikki Plant Science Centre

Elomaa, P. (Project manager), Aphalo, P. (Principal Investigator), Asiegbu, F. (Principal Investigator), Bäck, J. (Principal Investigator), Berninger, F. (Principal Investigator), Brosche, M. (Principal Investigator), Fagerstedt, K. (Principal Investigator), Hänninen, H. (Principal Investigator), Heinonsalo, J. (Principal Investigator), Helariutta, Y. (Principal Investigator), Himanen, K. (Principal Investigator), Hölttä, T. (Principal Investigator), Hytönen, T. (Principal Investigator), Hyvönen, J. (Principal Investigator), Kangasjärvi, J. (Principal Investigator), Kärkönen, A. (Principal Investigator), Korpelainen, H. (Principal Investigator), Laine, A.-L. (Principal Investigator), Mähönen, A. P. (Principal Investigator), Mäkelä, A. (Principal Investigator), Mäkinen, K. (Principal Investigator), Ojala, A. (Principal Investigator), Overmyer, K. (Principal Investigator), Palonen, P. (Principal Investigator), Palva, E. T. (Principal Investigator), Pihlatie, M. (Principal Investigator), Pirhonen, M. (Principal Investigator), Porcar-Castell, A. (Principal Investigator), Pumpanen, J. (Principal Investigator), Rikkinen, J. (Principal Investigator), Robson, T. M. (Principal Investigator), Salojärvi, J. (Principal Investigator), Schulman, A. (Principal Investigator), Stoddard, F. (Principal Investigator), Teeri, T. (Principal Investigator), Valkonen, J. (Principal Investigator), Vesala, T. (Principal Investigator), Wrzaczek, M. (Principal Investigator) & Sims-Huopaniemi, K. (Other)

01/01/2015 → ...

