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Google Scholar: 05/31/2024:
h-index: 39, i10-index: 60, total citations: 5142

ACADEMIC PREPARATION

2011 H.D.R. Habilitation to Direct Research work, University de Bourgogne - France
2005 Ph.D. in plant molecular physiology, University of Montpellier - France (July 1st, 2005)
2002 Master's degree Research in Plant Molecular Biology, the French national institute of higher education in agricultural sciences - Montpellier – France
2001 License in Natural Sciences, University of Sfax (Tunisia)

PRESENT AND PAST POSITIONS

2020-> Assistant Professor, Michigan State University (MSU), Department of Plant, Soil, and Microbial Sciences (PSM), East Lansing, MI, USA
2020-> Assistant Professor, Plant Resilience Institute (PRI), East Lansing, MI, USA
2016-2018 Visiting Faculty at Carnegie Institution for Science. Stanford, California, USA
2016-2017 Adjunct Professor at Chiang Mai University, Agriculture faculty, Thailand
2012-2020 Research Director at French National Institute for Agricultural Research (INRA) France
2010-2012 Senior Scientist at BASF Plant Science Company –CropDesign Gand, Belgique

FELLOWSHIPS/AWARDS

2025 MSU- CANR Mid-Career Research Award. The College of Agriculture & Natural Resources - Michigan State University, USA
2016-2018 Marie Skłodowska-Curie and AgreenSkills Plus Fellowship.
2015-2018 Researcher for Future by "Région Languedoc-Roussillion", Montpellier, France.
2005-2010 Postdoctoral fellowship from "Canton de Vaud", Lausanne, Switzerland.
2002-2005 Tunisian Ministry of Education (MENRT competitive fellowship for Ph.D. thesis).
2001-2002 Tunisian Ministry of Education (Excellence fellowship, M.S.)

PROFESSIONAL

Editorial activities:

Editorial boards:
2022-present *The Plant Journal* (3 -4 manuscripts/ month)
2020-present *Critical Review in Biotechnology* (2 -3 manuscripts/year)
2020-present *International Journal of Molecular Science* (3 manuscripts/ year)
2018-present *Frontiers in Plant Science* (1 manuscript/year)

Guest Editor:

2024 Special issue. The Plant Journal “Plant response to combinatorial stresses”.

2023 Special issue. International Journal of Molecular Science "Regulation on Nutrient Sensing, Signaling and Transport in Plants".

2021 Special issue. Frontiers in Plant Science. Mechanisms of Abiotic Stress Responses and Tolerance in Plants: Physiological, Biochemical and Molecular Interventions, Volume II

2015 Special issue. International Journal of Molecular Science "Regulation on Nutrient Sensing, Signaling and Transport in Plants"

2015 Special issue. BioMed Research International. Plants Coping Abiotic and Biotic Stresses: A Tale of Diligent Management

2014 Special issue. Frontiers in Plant Science. Mechanisms of abiotic stress responses and tolerance in plants: physiological, biochemical and molecular interventions

Ad hoc Reviewer:

Nature Plants, Nature Communications, Nature Food, The EMBO Journal, Science advances, The Plant Cell, New Phytologist, Pant Physiology, The Plant Journal, Journal of Experimental Botany, Journal of integrative Biology, Plant and Cell Physiology, Plant and Cell Environment, Plant Cell Reports, Critical Reviews in Biotechnology, International Journal of Molecular Science, Frontiers in Plant Science, Trends in Plant Science.

Grant Reviewer:

2024 Ad-hoc reviewer: The Swiss National Science Foundation (Switzerland)

2024 Ad-hoc reviewer- French National Research Agency (ANR)

2024 Ad-hoc reviewer- The Romanian Ministry of Research

2023 Ad-hoc reviewer- European Research Council (ERC)

2023 Academia Sinica Investigator/Research Fellows, Taiwan

2020-2021 Ad-hoc reviewer- Research Foundation Flanders (FWO)- Belgium

2021 Ad-hoc reviewer- Supporting TAlents in ReSearch (STARS) Grants- Italy

2018-2019 Ad-hoc reviewer- National Science Center Poland (NCN). Poland

2017 Ad-hoc reviewer: The National Research Foundation (NRF) (South Africa)

2016 Ad-hoc reviewer: The COST research proposal (Switzerland)

2014 Ad-hoc reviewer- Program: Physiological and Structural Systems Cluster. NSF.

2014 Ad-hoc reviewer- The ERA-NET Coordinating Action in Plant Sciences (ERA-CAPS)

Review Panelist:

2024 Panel member for Division of Molecular and Cellular Biosciences (BIO/MCB), The National Science Foundation (NSF, USA)

2023 Panel member for Graduate Research Fellowships Program (GRFP), The National Science Foundation (NSF, USA)

2022 Panel member for Graduate Research Fellowships Program (GRFP), The National Science Foundation (NSF, USA)

Symposium and workshops organization:

2024	Co-organizing a concurrent session on "Advancing plant nutrition in the age of systems and synthetic genetics" in *The Society for Experimental Biology's Annual Conference. Prague, Czech Republic.*
2023	Committee member of the 7th International Conference on "Plant Abiotic Stress Tolerance" (VISCEA) September 8-9, 2023 in Vienna, Austria.
2023	Co-organizing a concurrent session on "Advances in Plant Nutrition Under Changing Environment". The 33rd International Conference on Arabidopsis Research (ICAR2023). June 05-09, 2023 in Chiba, Japan.
2022	Co-organizing a concurrent session on "Inclusive nutrition for a sustainable agriculture". The Society for Experimental Biology's (SEB) Annual Conference. July 05-08, 2022 at Montpellier, France.
2022	Co-organizing a concurrent session on "Advanced Plant Mineral Nutrition and Phytoremediation". The International Conference on Arabidopsis Research (ICAR) 2022. June 20-24, 2022 at Belfast, Northern Ireland.
2022	International symposium on Plant Mineral Nutrition. Michigan state University, USA
2014	Local organizing committee of the International Symposium on Phosphorus in Soils and Plants. August 26-29 2014 in Corum-Montpellier, France.
2002	Local organizing committee of the 5th Workshop on Sulfur Transport and Assimilation in Plants. 11-April 11-14 2002 in SupAgro-Montpellier, France.

PhD Examining Committee Member:

2023	« Thesis Director » Therbay-Vale R. INRAe Montpellier, France
2019	« Expert » Yi C. Department of Animal, Plant, and Soil Sciences, Australian Research Council Centre of Excellence in Plant Energy Biology, La Trobe University, Australia
2018	« Thesis Director » Kisko M. SupAgro-Montpellier, France
2017	« Thesis Director » Belgaroui N. SupAgro-Montpellier, France
2016	« Thesis Director » Bouain N. SupAgro-Montpellier, France
2015	« Expert » Ayadi A. CNRS- Aix Marseille University, France.
2012	« Expert » Arnaud C. CNRS- Aix Marseille University, France.

PhD committees:

2023-present	Committee Member, Mr. Diego Granados-Villanueva (BMB program) MSU, USA Major advisor: Dr. Lebeis S.
2022-present	Committee Member, Mrs. Le Moss (MPS program). MSU, USA Major advisor: Dr. Lebeis S.
2021	Committee Member, Mrs. Lipham, Mckena (Horticulture program), MSU, USA Major advisor: Dr. VanBuren R.
2016-2019	Committee Member, Mr. Safi A. (Plant Physiology program). SupAgro-Montpellier, France. Major advisor: Dr. Krouk G.

TEACHING

Regular teaching

2024-2025 Advanced Plant Nutrition (CSS 485) –PSM, MSU (USA)
Spring 2023, 40 hours
2023-2024 Advanced Plant Nutrition (CSS 485) –PSM, MSU (USA)
Spring 2023, 40 hours
2022-2023 Advanced Plant Nutrition (CSS 485) –PSM, MSU (USA)
Spring 2023, 40 hours
2021- 2022 Physiology of Plant Nutrition (CSS 491) – PSM, MSU, (USA)
Spring 2023, 40 hours
2005-2009 Plant genetics, University of Lausanne, (Switzerland)
2003-2005 Plant Biology, 25h/year, SupAgro-Montpellier (France)

Guest lectures

2025 The regulation of plant nutrition, MSU, Department of Plant Biology "Env Plant Phys 86"
2022 The regulation of plant nutrition, MSU, Department of Plant Biology "PLB 801"
2016-2017 Nutrient transport in plants, Chiang Mai University, Agriculture faculty, Chiang Mai (Thailand)

SUPERVISION/TRAINING

4 undergraduate Students

2023. K. Doyeon MSU-South Korea WEST program
2023. K. Chaerim MSU- South Korea WEST program
2014 Perié. C. SupAgro Montpellier- France
2012-2013 Bouraine S. University of Montpellier- France

PhD Student rotation

2023-2024 Megan De-Loose. Michigan State University

5 PhD Students

2024- present AFM Haque. Michigan State University
2015-2018 Kisko M. SupAgro Montpellier- France
2013-2016 Bouain N. SupAgro Montpellier- France
2013-2016 Belgaroui N. SupAgro Montpellier- France
2013- 2016 Chaiwong N. Uni. Chiang Mai – Thailand

12 Postdocs

2024-present Dr. Bouain N. Michigan State University
2024-present Dr. Jinny I. Michigan State University
2023-present Dr. Choi I. Michigan State University
2021-present Dr. Cho H. Michigan State University
2021-2023 Dr. Cassin-Ross G. (research associate and Lab manager). Michigan State University
2022-2023 Dr. Shundu J. Michigan State University
2020-2021. Dr. Lay K. Michigan State University

2019-2020 Dr. Cho H. Montpellier- France
2014-2016 Dr. Pal S. Montpellier- France
2015-2016 Dr. Saenchai C. Montpellier- France
2016-2017 Dr. Mongon J. Montpellier- France
2015-2016 Dr. Secco D. Montpellier- France

PUBLICATIONS (*: correspondent author, underline : directly supervised students and postdocs)

2025

1- Cho H, Choi I, Bouain N, Nawaz A, Zheng L, Shahzad Z, Brandizzi F, Rhee S.Y*, **Rouached H***. Phosphorus Availability Modulates Flowering Time Through Subcellular Reprogramming of bGLU25 and GRP7 in Flowering Plants. **bioRxiv.** 2025. Jan-https://doi.org/10.1101/2025.01.02.631137
2- Lu S, Xu X, Wu Y, Ye J, Wu L, Sun S, Cho H, **Rouached H***, and Luqing Zheng L*. The OsPHT2;1 function in Chloroplast Phosphorus Homeostasis and Photosynthetic Efficiency under Low Phosphorus Stress in Rice. **Physiologia Plantarum**. 2025. Jan-Feb;177(1):e70082. doi: 10.1111/ppl.70082.
3- Ruffel S, Rosario JD, Lacombe B, Rouached H, Gutiérrez RA, Coruzzi GM, Krouk G, Nitrate sensing and signaling in plants: comparative insights and nutritional interactions. **Annual Reviews in Plant Biology**. 2025.

2024

4- DeLoose M, Cho H, Bouain N, Choi I, Prom-U-Thai C, Shahzad Z, Zheng L, **Rouached H***. 2024. PDR9 allelic variation and MYB63 modulate nutrient-dependent coumarin homeostasis in Arabidopsis. **The Plant Journal**. Mar;117(6):1716-1727. doi: 10.1111/tpj.16678
5- Lee S, Showalter J, Zhang L, Cassin-Ross G, **Rouached H**, Busch W. Nutrient levels control root growth responses to high ambient temperature in plants. **Nature Communications**. 15, 4689 (2024). https://doi.org/10.1038/s41467-024-49180-6
6- Salse J, Romain Barnard R, Claire Veneault-Fourrey C, **Rouached H***. 2024. Strategies To Breed Crops For Future Environments. **Trends in Plant Science**. Mar;29(3):303-318. doi: 10.1016/j.tplants.2023.08.007.
7- Ahmad S, Khan HM, Nawaz A, Samad MA, Cho H, Sarfraz H, Aziz Y, **Rouached H***, Shahzad Z*. 2024. Genome-wide association studies and transcriptomics reveal mechanisms explaining the diversity of wheat root responses to nutrient availability. **Journal of Experimental Botany**. Mar 29:erae141. doi: 10.1093/jxb/erae141.
8- Awasthi P, Jamsheer KM, Kumar M, Mishra S, Tiwari A, Jindal S, Saksena HB, Singh D, Vadassery J, Rouached H, Meyer C, Laxmi A. A TORC1-PHR1 signaling axis regulates phosphorus starvation and immunity signaling network in Arabidopsis. **BioRxiv.** Nov, https://doi.org/10.1101/2024.11.18.624151
9- Hu S, Du B, Mu G, Jiang Z, Li H, Song Y, Zhang B, Xia J, **Rouached H**, Zheng L. 2024. The transcription factor OsbZIP48 is essential for regulating rice responses to zinc deficiency. **Plant Cell and Enviroment**. May;47(5):1526-1542. doi: 10.1111/pce.14825. Epub 2024 Jan 22.

10- Rhee S.Y, Anstett DN, Cahoon E.B, Covarrubias-Robles A.A, Danquah E, Dudareva N, Ezura H, Gilbert KJ, Gutiérrez R.A, Heck M, Lowry D.B, Mittler R, Muday G, Mukankusi C, Nelson A.D. L. , Restrepo S, Rouached H, Seki M, Walker B, Way D, Weber A.P.M. . Resilient plants, sustainable future. **Trends in Plant Science**. Nov 28:S1360-1385(24)00302-9.
11- Zandalinas SI, Casal J, **Rouached H**, Mittler R. 2024. Stress combination: from genes to ecosystems. **The Plant Journal**. Mar;117(6):1639-1641. doi: 10.1111/tpj.16681.
12- Tuiwong P, Cho HK, **Rouached H***, Prom-U-Thai C*. 2024. Synergistic Effects of Nitrogen and Zinc Foliar Applications on Yield and Nutrient Accumulation in Rice at Various Growth Stages. **Plants.** Nov 22;13(23):3274. doi: 10.3390/plants13233274.

2023

13- Cho H, Michael Banf M, Shahzad Z, Van Leene J, Bossi F, Ruffel S, Bouain N, Krouk G, De Jaeger G, Lacombe B, Brandizzi F, Rhee S, **Rouached H***. 2023. ARSK1 activates TORC1 signaling to adjust growth to phosphate availability in Arabidopsis. **Current Biology.** May 8;33(9):1778-1786.e5.
14- DeLoose M, Clúa J, Cho H, Zheng L, Masmoudi K, Desnos T, Krouk G, Nussaume L, Poirier Y, **Rouached H***. 2023. Recent advances in unraveling the mystery of combined nutrient stress in plants. **The Plant Journal**. Mar;117(6):1764-1780. doi: 10.1111/tpj.16511. Epub 2023 Nov 3.
15- Hirt H, Al-Babili S, Almeida-Trapp M, Martin A, Aranda M, Bartels D, Bennett M, Blilou I, Boer D, Boulouis A, Bowler C, Brunel-Muguet S, Chardon F, Colcombet J, Colot V, Daszkowska-Golec A, Dinneny JR, Field B, Froehlich K, Gardener CH, Gojon A, Gomès E, Gomez-Alvarez EM, Gutierrez C, Havaux M, Hayes S, Heard E, Hodges M, Alghamdi AK, Laplaze L, Lauersen KJ, Leonhardt N, Johnson X, Jones J, Kollist H, Kopriva S, Krapp A, Masson ML, McCabe MF, Merendino L, Molina A, Moreno Ramirez JL, Mueller-Roeber B, Nicolas M, Nir I, Orduna IO, Pardo JM, Reichheld JP, Rodriguez PL, **Rouached H**, Saad MM, Schlögelhofer P, Singh KA, De Smet I, Stanschewski C, Stra A, Tester M, Walsh C, Weber APM, Weigel D, Wigge P, Wrzaczek M, Wulff BBH, Young IM. 2023. PlantACT! - how to tackle the climate crisis. **Trends in Plant Science**. May;28(5):537-543. doi: 10.1016/j.tplants.2023.01.005.

2022

16- Bouain N, Cho H, Sandhu J, Tuiwong P, Promuthai C, Zheng L, Shahzad Z, **Rouached H***. 2022. Plant growth stimulation by high CO2 depends on phosphorus homeostasis in chloroplasts. **Current Biology**. Oct 24;32(20):4493-4500.e4. doi: 10.1016/j.cub.2022.08.032. Epub 2022 Sep 7.
17- Sandhu J, **Rouached H***. 2022. Phosphate transport in plants: all roads lead to PHO1. **Nature Plants**. Sep;8(9):986-987. doi: 10.1038/s41477-022-01242-7.
18- Shahzad Z, **Rouached H***. 2022. Protecting plant nutrition from the effects of climate change. **Current Biology**. Jul 11;32(13):R725-R727. doi: 10.1016/j.cub.2022.05.056.

19- Wang W, Ye J, Xu H, Liu X, Fu Y, Zhang H, **Rouached H**, Whelan J, Shen Z, Zheng L. 2022. OsbHLH061 links TOPLESS/TOPLESS-RELATED Repressor Proteins with POSITIVE REGULATOR OF IRON HOMEOSTASIS 1 to Maintain Iron Homeostasis in Rice. **New Phytologist**. Jun;234(5):1753-1769. doi: 10.1111/nph.18096. Epub 2022 Apr 2.
20- Lay-Pruitt KS, Wang W, Prom-U-Thai C, Pandey A, Luqing Z, **Rouached H***. 2022. A tale of two players: the role of phosphate in iron and zinc homeostatic interactions. **Planta**. Jun 29;256(2):23. doi: 10.1007/s00425-022-03922-2.
21- Gojon A, Nussaume L, Luu DT, Murchie E, Baekelandt A, Saltenis V.L.R Cohan J.P, Inzé D , Ferguson JN, Guiderdonni E, Krapp A, Lankhorst RK, Maurel C, **Rouached H**, Parry M.A.J, Pribil M, Scharff LB, and Nacry P*. 2022. Approaches and determinants to sustainably improve crop production. **Food and Energy Security**. 26 January https://doi.org/10.1002/fes3.369
22- Khampuang K, Dell B, Chaiwong N, Lordkaew S, **Rouached H**, Prom-u-thai C. 2022. Grain Zinc and Yield Responses of Two Rice Varieties to Zinc Biofortification and Water Management. **Sustainability**. 14(14), 8838; https://doi.org/10.3390/su14148838
23- Abdul Aziz MM, Brini F, Hatem **Rouached H**, Masmoudi K. 2022. Genetically engineered crops for sustainably enhanced food production systems. **Frontiers in Plant Science**. Nov 8;13:1027828. doi: 10.3389/fpls.2022.1027828. eCollection 2022.
24- Cho H, Sandhu J, Bouain N, Prom-u-thai C, **Rouached H***. 2022. Towards a Discovery of a zinc-dependent phosphate transport road in plants. **Plants**. Nov 12;11(22):3066. doi: 10.3390/plants11223066.
25- Sabeem M, Abdul Aziz, MM. Kutty S, Brini F, **Rouached H**, Masmoudi K. 2022. Enhancing growth and salinity stress tolerance of date palm using Piriformospora indica. **Frontiers in Plant Science**. Nov 25;13:1037273. doi: 10.3389/fpls.2022.1037273. eCollection 2022.
26- Jaksomsak P, Konseang S, Dell B, **Rouached H**, Prom-u-thai C. 2022. Grain Anthocyanin Concentration Varies Among Purple Rice Varieties and Growing Condition in Aerated and Flooded soil. **Molecules**. Nov 30;27(23):8355. doi: 10.3390/molecules27238355.

2021

27- Nam HI, Shahzad Z, Dorone Y, Clowez S, Zhao K, Bouain N, Lay-Pruitt KS, Cho H, Rhee SY*, **Rouached H***. 2021. Interdependent Iron and Phosphorus Availability Controls Photosynthesis Through Retrograde Signaling. **Nature Communications**. *Faculty Opinions* (select for highlighting in faculty opinions) Dec 10;12(1):7211. doi: 10.1038/s41467-021-27548-2.
28- Therby Vale R, Lacombe B, Rhee SY, Nussaume L, **Rouached H***. Mineral nutrient signaling controls photosynthesis: focus on iron deficiency-induced chlorosis. 2021. **Trends in Plant Science**. May;27(5):502-509. doi: 10.1016/j.tplants.2021.11.005.
29- Kaur G, Shukla V, Meena V, Kumar A, Tyagi D, Singh J, Kandoth PK, Mantri S, **Rouached H**, Pandey AK. 2021. Physiological and molecular responses to combinatorial iron and phosphate deficiencies in hexaploid wheat seedlings. **Genomics**. Nov;113(6):3935-3950. doi: 10.1016/j.ygeno.2021.09.019.
30- Shukla A, Kaur M; Kanwar S, Kaur G, Sharma S, Ganguli S, Kumari V, Mazumder K, Pandey P, **Rouached H**, Rishi V, Bhandari R, Pandey AK. 2021. Wheat inositol

pyrophosphate kinase TaVIH2-3B modulates cell-wall composition and drought tolerance in Arabidopsis. **BMC Biology**. Dec 11;19(1):261. doi: 10.1186/s12915-021-01198-8.

31- Safi A, Medici A, Szponarski W, Martin F, Clement-Vidal A, Marshall-Colon A, Ruffel S, Gaymard F, **Rouached H**, Leclercq J, Coruzzi G, Lacombe B, and Krouk G. 2021. GARP transcription factors repress Arabidopsis nitrogen starvation response via ROS-dependent and -independent pathways. **Journal of Experimental Botany**. May 4;72(10):3881-3901. doi: 10.1093/jxb/erab114.

2020

32- Robe K, Izquierdo E, Vignols F, **Rouached H**, Dubos C*. 2020. The coumarins: secondary metabolites playing a primary role in plants. **Trends in Plant Science**. Mar;26(3):248-259. doi: 10.1016/j.tplants.2020.10.008. Epub 2020 Nov 25.

33- Hanikenne M*, Esteves S.M, Fanara S, **Rouached H**. 2020. Coordinated homeostasis of essential mineral nutrients: a focus on iron. **Journal of Experimental Botany**. Mar 17;72(6):2136-2153. doi: 10.1093/jxb/eraa483.

34- Cho H, Bouain N, Zheng L, **Rouached H***. 2020. Plant Resilience to Phosphate Limitation: Current Knowledge and Future Challenges. **Critical Reviews in Biotechnology**. Feb;41(1):63-71. doi: 10.1080/07388551.2020.1825321. Epub 2020 Oct 7.

35- Chaiwong N, Bouain N, Prom-U-Thai C, **Rouached H***. 2020.Interplay between Silicon and Iron Signalling Pathways to Regulate Silicon Transporter Lsi1 Expression in Rice. **Frontiers in Plant Science**. 2020. Jul 22;11:1065. doi: 10.3389/fpls.2020.01065. eCollection

36- Briat JF, Gojon A, Plassard C, **Rouached H**, Lemaire G*. 2020. Reappraisal of the central role of soil nutrient availability in nutrient management in light of recent advances in plant nutrition at crop and molecular levels. **European Journal of Agronomy**. Volume 116, May 2020, 126069. doi.org/10.1016/j.eja.2020.126069.

2019

37- Bouain N, Korte A, Satbhai SB, Nam HI, Rhee SY*, Busch W*, **Rouached H***. 2019. Systems approaches provide new insights into Arabidopsis thaliana root growth under mineral nutrient limitation. **PLOS Genetics**. Nov 6;15(11):e1008392. doi: 10.1371/journal.pgen.1008392. eCollection 2019 Nov.

38- Medici A, Szponarski W, Dangeville P, Safi A, Dissanayake IM, Saenchai C, Emanuel A, Rubio V, Lacombe B, Ruffel S, Tanurdzic M, **Rouached H**, Krouk G. 2019. Identification of molecular integrators shows that nitrogen actively controls the phosphate starvation response in plants. **The Plant Cell**. May;31(5):1171-1184. doi: 10.1105/tpc.18.00656. Epub 2019

39- Bouain N, Krouk G, Lacome B, **Rouached H***. 2019. Getting to the root of plant mineral nutrition: combinatorial nutrient stresses reveal emergent properties. **Trends in Plant Science** . Jun;24(6):542-552. doi: 10.1016/j.tplants.2019.03.008. Epub 2019 Apr 18.

40- Kaur G, Shukla V, Kumar A, Kaur M, Goel P, Singh P, hukla A, Kaur J, Singh J, Mantri S, **Rouached H**, Pandey AK*. 2019. Genome-wide expression analysis identifies core

components during iron starvation in hexaploid wheat. **Journal of Experimental Botany**. Nov 18;70(21):6141-6161. doi: 10.1093/jxb/erz358.

2018

41- **Rouached H***. 2018. Red light means on for phosphorus. **Nature Plants**. Dec;4(12):983-984. doi: 10.1038/s41477-018-0300-0.

42- Bouain N, Satbhai S.B, Korte A, Saenchai C, Desbrosses G, Berthomieu P, Busch W*, **Rouached H***. 2018. Natural allelic variation of the AZI1 gene controls root growth under zinc-limiting condition. **PLOS Genetics.** Apr 2;14(4):e1007304. doi: 10.1371/journal.pgen.1007304. eCollection 2018 Apr.

43- Kisko M, Bouain N, Safi A, Medici A, Akkers RC, Secco D, Fouret G, Krouk G, Aarts MGM, Busch W, **Rouached H***. 2018.LPCAT controls phosphate homeostasis in a zinc-dependent manner. **eLIFE.** Research Highlights in Nature Plants Feb 17;7:e32077. doi: 10.7554/eLife.32077.

44- Chaiwong N, Prom-u–thai C*, Bouain N, Lacombe B, **Rouached H***. 2018. Evidence of cross-Talks between silicon, phosphate and iron homeostasis and their effects on growth of lowland and upland rice varieties. **International Journal of Molecular Sciences**. Mar 18;19(3):899. doi: 10.3390/ijms19030899.

45- Kisko M, Shukla V, Kaur M, Bouain N, Chaiwong N, Lacombe B, Pandey AK, **Rouached H***. 2018. Phosphorus transport in Arabidopsis and wheat: emerging strategies to improve P pool in seeds. **Agriculture.** 8(2):27 DOI:10.3390/agriculture8020027.

46- Belgaroui N, Lacombe B, **Rouached H***, Hanin M*. 2018. Phytase overexpression in Arabidopsis improves plant growth under osmotic stress and in combination with phosphate deficiency. **Scientific Reports.** 10.1038/s41598-018-19493-w

2017

47- Pal S, Kisko M, Dubos C, Lacombe B, Berthomieu P, Krouk G*, **Rouached H***. 2017. TransDetect identifies a new regulatory module controlling phosphate accumulation in Arabidopsis. **Plant Physiology.** Oct;175(2):916-926. doi: 10.1104/pp.17.00568. Epub 2017 Aug 21.

48- **Rouached H*** and Rhee Seung Y*. 2017. System-level understanding of plant mineral nutrition in the big data era. **Current Opinion in System Biology.** V.4, August 2017, Pages 71-77

49- Secco D, Whelan J, **Rouached H**, Lister R. 2017. Nutrient stress-induced chromatin changes in plants. **Current Opinion in Plant Biology.** Volume 39, October 2017, Pages 1-7

50- Mongon J, Jantasorn A, Oupkaew P, Prom-u-Thai C, **Rouached H***. 2017. The Time of Flooding Occurrence is Critical for Yield Production in Rice and Vary in a Genotype-Dependent Manner. **OnLine Journal of Biological Sciences.** Volume 17 No. 2, 2017, 58-65. https://doi.org/10.3844/ojbsci.2017.58.65

51- Mongon J, Chaiwong N, Bouain N, Prom-u-thai C, Secco D, **Rouached H***. 2017. Phosphorus and iron deficiencies influences rice shoot growth in an oxygen dependent manner: insight from upland and lowland rice. **International Journal of Molecular Sciences.** hal-01595474 , version 1. 10.3390/ijms18030607

52- Secco D, Bouain N, Rouached A, Promuthai C, Hanin M, Pandey AK, **Rouached H***. 2017. Phosphate, phytate and phytases in plants: from fundamental knowledge gained in Arabidopsis to potential biotechnological applications in wheat. **Critical Reviews in Biotechnology.** Nov;37(7):898-910. doi: 10.1080/07388551.2016.1268089. Epub 2017 Jan 12.

2016

53- Heuer S*, Gaxiola R, Schilling R, Herrera-Estrella L, López-Arredondo D,Wissuwa M, Delhaize E, **Rouached H**. 2016. Improving phosphorus use efficiency -a complex trait with emerging opportunities. **The Plant Journal.** Jun;90(5):868-885. doi: 10.1111/tpj.13423. Epub 2017

54- **Rouached H*.** Phosphorus in Agriculture: Need for Efficient Use and Re-Use. 2016. **Journal of Crop Research and Fertilizers.** 10.17303/jcrf.2016.103

55- Saenchai C, Prom-u-thai C, Lordkaew S, **Rouached H**, and Rerkasem B. 2016. Distribution of iron and zinc in plant and grain of different rice genotypes grown under aerobic and wetland conditions. **Journal of Cereal Science.** Volume 71, September 2016, Pages 108-115

56- Prom-u-thai C, Jamrus S, Jaksomsak P, **Rouached H**, and Rerkasem B. 2016.Iron, Zinc and Total Antioxidant Capacity in Different Layers of Rice Grain among Different Varieties. **International Journal of Advances in Biology.** V. 18, Issue 6, Pages 1131 - 1136

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74- **Rouached H**, Secco D, Arpat B, Poirier Y*. 2011. The transcription factor PHR1 plays a key role in regulation of sulfate inter-organ flux upon phosphate starvation in Arabidopsis. **BMC Plant Biology**. Jan 24;11:19. doi: 10.1186/1471-2229-11-19.

2005-2010

75- **Rouached H**, Arpat A.B, Poirier Y. 2010. Regulation of phosphate starvation response in plants: signaling players and crosstalks. **Molecular Plant.** Mar;3(2):288-99. doi: 10.1093/mp/ssp120. Epub 2010 Feb 8.

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77- **Rouached H***. Efficient procedure for site-directed mutagenesis mediated by PCR insertion of a novel restriction site. 2010. **Plant Signal & Behavior.** Dec;5(12):1547-8. doi: 10.4161/psb.5.12.13994. Epub 2010 Dec 1.

78- **Rouached H***, Secco D, Arpat A.B. 2009. Getting the most of sulfate from soil: Regulation of sulfate uptake transporters in Arabidopsis. **Journal of Plant Physiology.** Jun 1;166(9):893-902. doi: 10.1016/j.jplph.2009.02.016. Epub 2009 Apr 17.

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transporters,SULTR1.1 and SULTR1.2, in Arabidopsis. **Plant Physiology**. Jun;147(2):897-911. doi: 10.1104/pp.108.118612. Epub 2008 Apr 9.

80- El Kassis E, Cathala N, **Rouached H**, Fourcroy P, Berthomieu P, Terry N, Davidian JC. 2007. Characterization of a selenate-resistant *Arabidopsis thaliana* mutant: root growth as a potential target for selenate toxicity. **Plant Physiology.** Mar;143(3):1231-41. doi: 10.1104/pp.106.091462. Epub 2007 Jan 5.

81- Stefanovic A, Ribot C, **Rouached H**, Wang Y, Chong J, Belbahri L, Delessert S, Poirier Y. 2007. Members of the PHO1 gene family show limited functional redundancy in phosphate transfer to the shoot and are regulated by phosphate deficiency via distinct pathways. **Plant Journal.** un;50(6):982-94. doi: 10.1111/j.1365-313X.2007.03108.x. Epub 2007 Apr 25.

82- **Rouached H**, Berthomieu P, El Kassis E, Cathala N, Catherinot V, Labesse G, Davidian JC and Fourcroy P. 2005. Structural and functional analysis of the C-terminal STAS domain of the *Arabidopsis thaliana* sulfate transporter SULTR 1.2. **Journal of Biological Chemistry**. Apr 22;280(16):15976-83. doi: 10.1074/jbc.M501635200. Epub 2005 Feb 16.

OTHER PUBLICATIONS: Book, Book chapters, and preprint

2023.

- Rouached H, Santosh B. Satbhai: Co-Editor of book on: **Plant Phosphorus Nutrition**
- CRC press- Taylor and Francis group. Publication expected in September 2023. https://www.routledge.com/Plant-Phosphorus-Nutrition/Rouached Satbhai/p/book/9781032516523
- Lee S, Showalter J, Zhang L, Cassin-Ross G, **Rouached H**, Busch W. 2023. Nutrient levels control root growth responses to high ambient temperature in plants. BioRxiv. https://doi.org/10.1101/2023.08.04.552051
- Hu S, Du B, Mu G, Jiang Z, Li H, Song Y, Zhang B, Xia J, **Rouached H**, Zheng L. 2023. The transcription factor OsbZIP48 governs rice responses to zinc deficiency. BioRxiv, 2023.05. 18.541251

2020. - Gazaldeep K, Shukla V, Meena V, Kumar A, Singh J, Kandoth P, Mantri S, **Rouached H**, Pandey AK. 202.Underpinning wheat physiological and molecular responses to co-occurring iron and phosphate deficiency stress. BioRxiv. https://doi.org/10.1101/2020.05.26.117101

2017. - Bouain N, Satbhai S.B, Saenchai C, Desbrosses G, Berthomieu P, Busch W*, **Rouached H***. 2017. Zinc availability modulates plant growth and immune responses via AZI1. BioRxiv. https://doi.org/10.1101/166645

2013. - Rouached H*. and Poirier Y. 2013. Uncoupling Phosphate Deficiency from its Effects on Growth and Gene Expression in Plants. XVII. International Plant Nutrition Colloquium • pp 74-75 Istanbul / Turkey.

2005. - Fourcroy P, **Rouached H**, Berthomieu P, El Kassis E, Cathala N, Catherinot V, Labesse G,

Davidian J. 2005. Involvement of the STAS domain in the regulation of the *Arabidopsis thaliana* sulfate transporter SULTR1.2. Sulfur transport and assimilation in plants in post-genomic area. Backhuys publishers, Leiden, The Netherlands.

Talks & organization of concurrent sessions

Invited speaker

2025

Midwest ASPB Conference 2025. University of Nebraska-Lincoln, USA
"Systems Genetics of Plant Nutrient Sensing and Adaptation for Growth Regulation"
Meeting of the French Society of Photosynthesis. Paris, France
13th International Sulfur Workshop. Heidelberg, Germany
"Sulfur nutrition and its interaction with other nutrients"

2024

International Symposium on Soil and Environmental Health (ISSEH). Nanjing. China
"Using System Genetics to Decode How Plants Navigate Environmental Signals**"**
The 34th International Conference on Arabidopsis Research (ICAR 2024) in San Diego, California, United States.
"Recent advances in unraveling the mystery of combined nutrient stress in plants."
Plant Energy Signaling Meeting. Umeå, Sweden.
"ARSK1 activates TORC1 signaling to adjust growth to phosphate availability in Arabidopsis"
The Society for Experimental Biology's Annual Conference. Prague, Czech Republic.
"System genetics to decipher how plants make sense of multiple environmental cues"

2023

The 13th Cold Spring Harbor Laboratory meeting. Plant Genomes, Systems Biology & Engineering. New York, USA
"System genetics to decipher how plants make sense of multiple environmental cues"
American Society of Plant Biologists. Savannah GA, United States.
"Plant growth stimulation by elevated CO_2 depends on phosphorus homeostasis in chloroplasts"
The Society for Experimental Biology's Annual Conference. Edinburgh, United Kingdom.
"Interdependent iron and phosphorus availability controls photosynthesis through retrograde signaling"
The 33rd International Conference on Arabidopsis Research. Chiba, Japan
"Protecting plant nutrition from the effects of climate change"
The 19th International Workshop on Plant Membrane Biology. Taipei, Taiwan
"Interdependent iron and phosphorus availability controls photosynthesis through retrograde signaling"
International Conference Food Nutritional Security. Mohali, India
"Protecting plant nutrition from the effects of climate change"

2022

The 20th International Symposium on Iron Nutrition and Interactions in Plants. Reims, France
"Chloroplast retrograde signaling to adapt photosynthesis to iron availability"
The Society for Experimental Biology's Annual Conference. Montpellier, France
"Interdependent iron and phosphorus availability controls photosynthesis through retrograde signaling"
The European Iron Club 2022. Oxford, United Kingdom
"Chloroplast retrograde signaling to adapt photosynthesis to iron availability"
Plant and Animal Genome XXIX Conference. San Diego, United States
"Discovery of a New Pathway That Connects Iron Deficiency and Photosynthesis through Systems Biology Approaches"
The International Conference on Arabidopsis Research. Belfast, Northern Ireland
"Discovery of a new pathway that connects iron deficiency and photosynthesis through systems biology approaches"

2021

Federation of European Societies of Plant Biology and European Plant Science Organisation (FESPB-EPSO) Plant Biology Europe Conference. Turin, Italy
"Getting to the root of plant mineral nutrition: system genetics to study how plants make sense of various nutrient signals"
European Union. CropBoosterP "Preparatory action to Boost Global Crop Yield for Food & Nutrition Security and fueling a Bioeconomy". Versailles, France
"Resilience: How to improve plant resilience to stress: lessons from nutrient homeostatic interactions"

2018

The First international plant systems biology meeting. Roscoff (Brittany), France.
"Systems biology to help solve the mystery of mineral nutrient signaling crosstalks"
The International Plant Molecular Biology. Montpellier, France.
"Interactions Between Plant Mineral Nutrients — Zinc And Phosphate, A Dynamic Duo"

2015

International Conference on Plant Growth, Nutrition & Environment Interactions. Vienna, Austria
"Regulation of ion homeostasis in plants: Current approaches and future challenges"

2012

Journées de l'Association Tunisienne de Biotechnologie. Mehdia, Tunisia
"Regulation of phosphate starvation responses in plants: The emergence of a new signaling player"

Contributed Presentations:

2025

The 35th International Conference on Arabidopsis Research (ICAR 2025) in Ghent, Belgium.
"ARSK1 activates TORC1 signaling to adjust growth to phosphate availability in Arabidopsis."

2022

The 19th International Plant Nutrition Colloquium (IPNC) 2022. State of Paraná, Brazil.
"Uncovering The Molecular Basis Of Photosynthesis Regulation By Nutrient Signals"
The 7th Symposium on Phosphorus in Soils and Plants (PSP7) Montevideo – Uruguay.
Subcellular Phosphorus Distribution Controls Plant Growth Under High CO2.

2013

The Society for Experimental Biology's (SEB) Annual Conference. Valencia, Spain
Can we maintain plant growth capacity while decreasing nutrient accumulation? Case of phosphorus.
The 17th International Plant Nutrition Colloquium (IPNC). Istanbul, Turkey
Uncoupling phosphate deficiency from its effects on growth and gene expression in plants.

Academic seminars:

2025. University of Massachusetts Amherst, Massachusetts, United States.
2024. Boyce Thompson Institute. Ithaca, NY, USA.
2024. **Keynote**: Soil Health — Human Health Symposium. Lincoln University of Missouri, Jefferson City, MO, United States.
2024. University of Chiang Mai, Chiang Mai, Thailand.
2024. Fujian Agriculture and Forestry University, China
2024. Nanjing Agricultural University, Nanjing, Jiangsu, China
2023. IARRP, the Chinese Academy of Agricultural Sciences, Beijing, China
2023. Nanjing Agricultural University, Nanjing, Jiangsu, China
2022. Department of Plant Biology. Carnegie Institution for Science. Stanford, CA, USA.
2022. Nanjing Agricultural University, Nanjing, Jiangsu, China.
2022. Brussels Institute for Advanced Studies (BrIAS), Brussels, Belgium.
2019. College of Life Sciences Nanjing Agricultural University, Nanjing, China.
2019. Institute of Soil Science, Chinese Academy of Sciences, Nanjing, China.
2019. College of Biological Sciences China Agricultural University, Beijing, China.
2018. Department of Crop and Soil Sciences. Washington State University. USA.
2016. Department of Plant Biology and Genome Center. UC- Davis, USA.
2016. Gregor Mendel Institute, Vienna, Austria.
2016. Department of Plant Biology. Carnegie Institution for Sciences. Stanford, USA.
2015. University of Chiang Mai, Chiang Mai, Thailand.
2012. Plant Biology Institute. Paris-Sud- Orsay University, France
2011. Molecular Plant Biology Institute – Strasbourg University, France.

Patent/ U.S.Provisional Application

2023

Patents Filed: U.S. Provisional Application No.63/362,155 (PCT/US2023/065159)
Filing Date: March 30, 2022 Plants With Improved Phosphorus Use Efficiency
Inventors: Rouached ,et al.

2021

Patents Filed: U.S.Provisional Application No.63/143,366
Filing Date: January 29,2021 Modulation of Iron-and Phosphate Dependent Chlorophyll Accumulations
Inventors: Rouached ,et al. Ref:5135 KTRef:107321-1219474-000100US

Grants

Title: *Dissection of the mechanisms integrating phosphate nutrition and plant growth involving the kinase ARSK1*
Funding Organization: Division of Molecular & Cellular Biosciences, National Science Foundation
Dates of Project: 2024-2027
Award Amount: $ 907,847
PI: Hatem Rouached, Co-PI: Federica Brandizzi

Title: *Uncovering of the mechanisms integrating phosphate nutrition and rice growth involving the kinase OsRSK1*
Funding Organization: The Michigan Translational Research and Commercialization (MTRAC – full grant)
Dates of Project: 2024-2025
Award Amount: $ 125,000
PI: Hatem Rouached

Title: Global Centers: International Research Center for Enhancing Plant Resilience, National Science Foundation
Dates of Project: 2025-2030
Award Amount: $ 5,000.00
PI: Seung Rhee
Senior personnel: Hatem Rouached
Title: *Development of crops with improved phosphorus use efficiency.*
Funding Organization: International Centre for Genetic Engineering and Biotechnology (SRG1149). ICGEB: Intergovernmental organization in Italy, India and South Africa and forms an interactive network with almost 70 Member States.
Dates of Project: 2022-2025
Award Amount: $ 74,073
PI: Zaigham Shahzad, Co-PI: Hatem Rouached

Title: Characterization of Peptides for the control of plant nutrition
Funding Organization: French National Research Agency (equivalent to USA NSF)
Dates of Project: 2024-2027
Award Amount: $ 771,922
PI: Gabriel Krouk – Collaborator: Hatem Rouached

Title: *Improving nitrogen and phosphorus use efficiency in dry bean through the investigation of their homeostatic interactions*
Funding Organization: Project GREEEN (Generating Research and Extension to meet Economic and Environmental Needs)
Dates of Project: 2022-2023
Award Amount: $ 20,000
PI: Hatem Rouached

Title: *Evaluating a role for soybean root microbiome in nutrient uptake*
Funding Organization: Project GREEEN (Generating Research and Extension to meet Economic and Environmental Needs)
Dates of Project: 2022-2023
Award Amount: $ 40,000
PI: Sarah Lebeis, Co-PI Hatem Rouached (award Amount: $ 20,000)

Title: Development of crops with improved phosphorus use efficiency.
Funding Organization: The Michigan Translational Research and Commercialization (MTRAC – starter grant)
Dates of Project: 2022-2023
Award Amount: $ 40,000
PI: Hatem Rouached

Title: *Transcriptome analysis of plant response to phosphrus defciciency*
Funding Organization: The Plant Resilience Institute
Dates of Project: 2022
Award Amount: $ $27,750
PI: Hatem Rouached

Title: *Autophagy at the crossroads of nutritional and biotic stress responses*
Funding Organization: The Plant Resilience Institute
Dates of Project: 2021-2023
Award Amount: $ 80,000
PI: Hatem Rouached

Title: The molecular basis of Nitrogen foliar nutrition in A. thaliana
Funding Organization: French National Research Agency (equivalent to USA NSF)
Dates of Project: 2021-2024
Award Amount: $ 319,860
PI: Anna Medici – Collaborator: Hatem Rouached

Title: *System Level Understanding of Zinc and Phosphate Signalling Crosstalk*
Funding Organization: French National Research Agency
Dates of Project: 2019-2023
Award Amount: $537,357
PI: Helene Javot, Hatem Rouached Co-PI (award Amount:$ 183,383)

Title: *Systems biology approaches to identify regulatory networks that integrate the response of plants to multiple nutritional stresses: a case study in phosphorus, zinc, and iron*
Funding Organization: AgreenSkills: the European Commission.

Dates of Project: 2016-2018
Award Amount: $76,770
PI: Hatem Rouached

Title: *Association genetics, a new approach for selecting durum wheat varieties that are efficient in phosphorus fertilization for sustainable production.*
Funding Organization: Europe/Languedoc-Roussillon. Lengadòc-Rosselhon (Occitan). Region of France. « Researcher of the future ».
Award Amount: $106,620
Dates of Project: 2015-2018
PI: Hatem Rouached

Title: *Study of the physiological, molecular, and genetic mechanisms of the interconnection between phosphate and zinc homeostasis in Arabidopsis thaliana: towards an integrative model.*
Funding Organization: France's National Research Institute for Agriculture, Food and Environment (Plant Biology and Breeding Department)
Award Amount: $31,990
Dates of Project: 2013-2015
PI: Hatem Rouached