Publication list (only peer-reviewed articles)

Original articles

1) Dunemann L., **von Wirén N.**, Schulz R. and Marschner H. (1991) Speciation analysis of nickel in soil solutions and availability to oat plants. ***Plant Soil*** 133: 263-269.

2) **von Wirén N.**, Morel J.L., Guckert A., Römheld V. and Marschner H. (1993) Influence of microorganisms on iron acquisition in maize. ***Soil Biol. Biochem.*** 25: 371-376.

3) **von Wirén N.**, Römheld V. and Marschner H. (1993) Evaluation of strategy I mechanisms in iron efficient and inefficient maize cultivars. ***Plant Soil*** 155/156: 445-448.

4) **von Wirén N.**, Mori S., Marschner H. and Römheld V. (1994) Iron inefficiency in maize mutant ys1 (*Zea mays* L. cv. yellow-stripe) is caused by a defect in uptake of iron-phytosiderophores. ***Plant Physiol.*** 106: 71-76.

5) **von Wirén N.**, Marschner H. and Römheld V. (1995) Uptake kinetics of iron-phytosiderophores in two maize genotypes differing in iron efficiency. ***Physiol. Plant.*** 93: 611-616.

6) **von Wirén N.**, Römheld V., Shioiri T. and Marschner H. (1995) Competition between microorganisms and roots of barley and sorghum for Fe accumulated in the root apoplasm. ***New Phytol.*** 130: 511-521.

7) **von Wirén N.**, Marschner H. and Römheld V. (1996) Roots of iron-efficient maize (Zea mays L.) absorb phytosiderophore-chelated zinc. ***Plant Physiol.*** 111: 1119-1125.

8) **von Wirén N.**, Peltier J.-B., Rouquié D., Rossignol M. and Briat J.-F. (1997) Four root plasmalemma polypeptides under-represented in the maize mutant ys1 accumulate in an iron-efficient genotype in response to iron deficiency. ***Plant Physiol. Biochem.*** 35: 945-950.

9) **von Wirén N.**, Bergfeld A., Ninnemann O. and Frommer W.B. (1997) OsAMT1-1: A high-affinity ammonium transporter from rice (*Oryza sativa* cv. Nipponbare) ***Plant Mol. Biol.*** 35: 681.

10) **von Wirén N.**, Gibrat R. and Briat J.-F. (1998) In-vitro characterization of iron-phytosiderophore interaction with maize root plasma membranes: evidences for slow association kinetics. ***Biochim. Biophys. Acta*** 1371: 143-155.

11) **von Wirén N.**, Klair S., Bansal S., Briat J.-F., Khodr H., Shioiri T., Leigh R. and Hider R.C. (1999) Nicotianamine chelates both Fe(III) and Fe(II): Implication for metal transport in plants. ***Plant Physiol.***119: 1107-1114.

12) Gazzarrini S., Lejay L., Gojon A., Ninnemann O., Frommer W.B. and **von Wirén N.** (1999) Three functional transporters for constitutive, diurnally regulated and starvation-induced uptake of ammonium into *Arabidopsis* roots. ***Plant Cell*** 11: 937-947.

13) Ono F., Frommer W.B. and **von Wirén N.** (2000) Coordinated diurnal regulation of low- and high-affinity nitrate transporters in tomato. ***Plant Biol.*** 2: 17-23.

14) **von Wirén N.**, Lauter F.-R, Ninnemann O., Gillisen B., Walch-Liu P., Engels C., Jost W. and Frommer W.B. (2000) Differential regulation of three functional ammonium transporter genes by nitrogen in root hairs and by light in leaves of tomato. ***Plant J.*** 21: 167-176.

15) **von Wirén N.**, Khodr H. and Hider R.C. (2000) Hydroxylated phytosiderophore species from rye and barley possess an enhanced chelating efficiency and affinity for iron(III). ***Plant Physiol.***124: 1149-1157.

16) Ludewig U., **von Wirén N.**, and Frommer W.B. (2002) Uniport of ammonium of the root hair plasma membrane ammonium transporter LeAMT1;1. ***J. Biol. Chem.*** 277: 13548-13555.

17) Schaaf G., Catoni E., Fitz M., Schwacke R., Schneider A. **von Wirén N.**, and Frommer W.B. (2002) A putative role for the vacuolar calcium/mangenese proton antiporter AtCAX2 in heavy metal detoxification. ***Plant Biol.*** 4: 612-618.

18) Suenaga A., Moriya K., Sonoda Y., Ikeda A., **von Wirén N**., Hayakawa T., Yamaguchi J., and Yamaya T (2003) Constitutive expression of a novel-type ammonium transporter OsAMT2 in rice plants. ***Plant Cell Physiol.*** 44, 206-211.

19) Sonoda Y., Ikeda A., Saiki S, **von Wirén N.,** Yamaya T. and Yamaguchi J. (2003) Distinct expression and function of three ammonium transporter genes (OsAMT1;1-1;3) in rice. ***Plant Cell Physiol.***44: 726-734.

20) Liu L.-H., Ludewig U., Frommer W.B. and **von Wirén N**. (2003) AtDUR3 encodes a new type of H^+/ urea symporter in *Arabidopsis thaliana*. ***Plant Cell*** 15: 790-800.

21) Lejay L.V., Gansel X, Cerezo M., Tillard P., Müller C., Krapp A., **von Wirén N.**, Vedele F., and Gojon A. (2003) Regulation of root ion transporters by photosynthesis: functional importance and relation with hexokinase. ***Plant Cell*** 15: 2218-2232.

22) Liu L.-H., Ludewig U., Gassert B., Frommer W.B. and **von Wirén N**. (2003) Urea transport by nitrogen-regulated tonoplast intrinsic TIP proteins in Arabidopsis. ***Plant Physiol.*** 133: 1220-1228.

23) Ludewig U., Wilken S., Wu B., Jost W., Obrdlik P., El Bakkoury M., Marini A.-M., Andre B., Hamacher T., Boles E., **von Wirén N.** and Frommer W.B. (2003) Homo- and hetero-oligomerization of AMT1 NH_4^+-uniporters. ***J. Biol. Chem.*** 278: 45603-45610.

24) Schaaf G., Ludewig U., Erenoglu B., Mori S., Kitahara T. and **von Wirén N.** (2004) ZmYS1 functions as a proton-coupled symporter for phytosiderophore- and nicotianamine-chelated metals. ***J. Biol. Chem.***, 279: 9091-9096.

25) Samek O., Margetic V., **von Wirén N**., Michels A., Hergenröder R. (2004) Femtosecond laser analytical mass spectrometry applied to plant samples. ***Appl. Physics A*** 79: 957-960.

26) Schaaf G., Erenoglu B. and **von Wirén N.** (2004) Physiological and biochemical characterization of metal-phytosiderophore transport in graminaceous species. ***Soil Sci. Plant Nutr.*** 50: 955-964.

27) Schaaf G., Schikora A., Häberle J., Vert G., Briat J.-F., Curie C. and **von Wirén N.** (2005) A putative function of the Arabidopsis Fe-phytosiderophore transporter homolog AtYSL2 in Fe and Zn nutrition. ***Plant Cell Physiol.*** 46: 762-774.

28) Rahayu Y.S., Walch-Liu P., Neumann G., Römheld V., **von Wirén N.** and Bangerth F. (2005) Root-derived cytokinins as long-distance signals for nitrate-induced stimulation of leaf growth. ***J. Exp. Bot.*** 56: 1143-1152.

29) Loqué D., Ludewig U., Yuan L. and **von Wirén N.** (2005) Tonoplast intrinsic proteins AtTIP2;1 and AtTIP2;3 facilitate NH_3 transport into the vacuole. ***Plant Physiol.*** 137: 671-680.

30) Takano J., Miwa K., Yuan L., **von Wirén N.** and Fujiwara T. (2005) Endocytosis and degradation of BOR1, a boron transporter of *Arabidopsis thaliana*, regulated by boron availability. ***Proc. Natl. Acad. Sci. USA*** 102: 12276-12281.

31) Nozawa A., Takano J., Kobayashi M., **von Wirén N.** and Fujiwara T. (2006) Roles of BOR1, DUR3 and FPS1 in boron transport and tolerance in *Saccharomyces cerevisiae*. ***FEMS Micobiol. Lett.*** 262: 216-222.

32) Takano J., Wada M, Ludewig U., Schaaf G., **von Wirén N.** and Fujiwara T. (2006) The *Arabidopsis* major intrinsic protein NIP5;1 is essential for efficient boron uptake and plant development under boron limitation**.** ***Plant Cell*** 18: 1498-1509.

33) Weber G., **von Wirén N.** and Hayen H. (2006) Analysis of iron(II)/iron(III) phytosiderophore complexes by nano-electrospray ionization Fourier transform ion cyclotron resonance mass spectrometry. ***Rapid Commun. Mass Spectrom.*** 20: 973-980.

34) Schaaf G., Honsbein A., Meda A.R., Kirchner S., Wipf D. and **von Wirén N.** (2006) *AtIREG2* encodes a tonoplast transport protein involved in Fe-dependent Ni detoxification in *Arabidopsis thaliana* roots. ***J. Biol. Chem.*** 281, 25532-25540.

35) Xuan Y., Scheuermann E.B., Meda A.R., Hayen H. **von Wirén N.** and Weber G. (2006) Separation and identification of phytosiderophores and their metal complexes in plants by zwitterionic hydrophilic interaction liquid chromatography coupled to electrospray ionization mass spectrometry. ***J. Chromatogr. A*** 1136, 73-81.

36) Loqué D., Yuan L., Kojima S., Gojon A., Wirth J., Gazzarrini S., Ishiyama K., Takahashi H. and **von Wirén N.** (2006) Additive contribution of AtAMT1;1 and AtAMT1;3 to high-affinity ammonium uptake across the plasma membrane of nitrogen-deficient Arabidopsis roots. ***Plant J.*** 48, 522-534.

37) Yuan L., Loqué D., Ye F., Frommer W.B. and **von Wirén N.** (2007) Nitrogen-dependent posttranscriptional regulation of the ammonium transporter AtAMT1;1. ***Plant Physiol.*** 143: 732-744.

38) Loqué D., Lalonde S., Looger L.L., **von Wirén N.** and Frommer W.B. (2007) A cytosolic trans-activation domain essential for ammonium uptake. ***Nature*** 446, 195-198.

39) Meda A.R., Scheuermann E.B., Prechsl U., Erenoglu B., Schaaf G., Hayen H., Weber G. and **von Wirén N.** (2007) Phytosiderophores are ineffective to prevent maize plants from cadmium uptake but increase cadmium tolerance by efficient iron acquisition. ***Plant Physiol.*** 143, 1761-1773.

40) Duy D., Wanner G., Meda A.R., **von Wirén N.**, Soll J., Philippar K. (2007) PIC1, an ancient permease in Arabidopsis chloroplasts, mediates iron transport. ***Plant Cell*** 19, 986-1006.

41) Kojima S., Bohner A., Gassert B., Yuan L. and von Wirén N. (2007) AtDUR3 represents the major transporter for high-affinity urea transport across the plasma membrane of nitrogen-deficient Arabidopsis roots. ***Plant J.*** 52, 30-40.

42) Erenoglu B., Patra H., Khodr H., Römheld V and **von Wirén N.** (2007) Uptake and apoplasmic retention of EDTA- and phytosiderophore-chelated chromium(III) in maize. ***J. Plant Nutr. Soil Sci.*** 170, 788-795.

43) Yuan L., Loqué D., Kojima S., Rauch S., Ishiyama K., Takahashi H. and von Wirén N. (2007) The organization of high-affinity ammonium uptake in Arabidopsis roots depends on the spatial arrangement and biochemical properties of AMT1-type transporters. ***Plant Cell*** 19, 2636-2652.

44) Xuan Y., Scheuermann E.B., Meda A.R., Jacob P., **von Wirén N.**, Weber G. (2007) Capillary electrophoresis of phytosiderophores and related metal-species in plants. ***Electrophoresis*** 28, 3507-3519.

45) Robinson N., Fletcher A., Whan A., Critchley C., **von Wirén N.**, Lakshmanan P., Schmidt S. (2007) Sugarcane genotypes differ in internal nitrogen use efficiency. ***Funct. Plant Biol.*** 34, 1122-1129.

46) Weber G., **von Wirén N.,** Hayen H. (2008) Investigation of ascorbate-mediated iron release from ferric phytosiderophores in the presence of nicotianamine. ***Biometals*** 21, 503-513.

47) Weber G., **von Wirén N.,** Hayen H. (2008) Hydrophilic interaction chromatography of small metal species in plants using sulfobetaine and phosphoryl-choline-type zwitterionic stationary phases. ***J. Sep. Sci.*** 31, 1615-1622.

48) Inselsbacher E., Ripka K, Klaubauf S., Fedoseyenko D., Hackl E., Gorfer M., Hood-Novotny R., **von Wirén N**., Sessitsch A., Zechmeister-Boltenstern S., Wanek W., and Strauss J. (2008) A cost-effective high-throughput microcosm system for studying nitrogen dynamics at the plant-microbe-soil interface. ***Plant Soil*** 317: 1-15.

49) Yuan L., Graff L., Loqué D., Kojima S., Tsuchiya Y.N., Takahashi H. and **von Wirén N.** (2009) AtAMT1;4, a pollen-specific high-affinity ammonium transporter of the plasma membrane in Arabidopsis. ***Plant Cell Physiol.*** 50: 13-25.

50) Lanquar V., Loqué D., Hörmann F., Yuan L., Lalonde S., **von Wirén N.** and Frommer W.B. (2009) Feedback inhibition of ammonium uptake by a phosphor-dependent allosteric mechanism. ***Plant Cell*** 21: 3610-3622.

51) Lima J.E., Kojima S., Takahashi H. and **von Wirén N.** (2010) Ammonium triggers lateral root branching in Arabidopsis in an AMMONIUM TRANSPORTER1;3-dependent manner. ***Plant Cell*** 22: 3621-3633.

52) Graff L., Obrdlik P., Yuan L., Loqué D., Frommer W.B., and **von Wirén N.** (2011) N-terminal cysteines affect oligomer stability of the allosterically regulated ammonium transporter LeAMT1;1. ***J. Exp. Bot.*** 62: 1361-1373.

53) Köster J., Hayen H., **von Wirén N.** and Weber G. (2011) Isoelectric focusing of small non-covalent metal species from plants. ***Electrophoresis*** 32: 772-781.

54) Carvalhais L.C., Dennis P.G., Fedoseyenko D., Hajirezaei M.R., Borriss R. and **von Wirén N.** (2011) Root exudation of sugars, amino and organic acids by maize as affected by nitrogen, phosphorus, potassium and iron deficiency. ***J. Plant Nutr. Soil Sci.*** 174: 3-11.

55) de Bona F.D. Fedoseyenko D., **von Wirén N.** and Monteiro F.A. (2011) Nitrogen utilization by sulfur-deficient barley plants depends on the nitrogen form. ***Environ. Exp. Bot.*** 74: 237-244.

56) Köster J., Shi R., **von Wirén N.** and Weber G. (2011) Evaluation of different column types for the hydrophilic interaction chromatographic of iron-citrate and copper-histidine species from plants. ***J. Chromatogr. A*** 1218: 4934-4943.

57) Giehl R.F.H., Lima J.E., and **von Wirén N.** (2012) Local iron supply triggers lateral root elongation in Arabidopsis by altering the AUX1-mediated auxin distribution. ***Plant Cell*** 24: 33-49.

58) Shi R., Weber G., Köster J., Hajirezaei M.R., Zou C., Zhang F. and **von Wirén N.** (2012) Senescence-induced iron mobilization in source leaves of barley plants. ***New Phytol.*** 195: 372-383.

59) Fan B., Costa-Carvalhais L., Becker A., Fedoseyenko D., **von Wirén N.** and Borriss R. (2012) Transcriptomic profiling of *Bacillus amyloliquefaciens* FZB42 in response to maize root exudates. ***BMC Microbiol.*** 12: 116.

60) Giehl R.F.H., Lima J.E., and **von Wirén N.** (2012) Regulatory components involved in altering lateral root development in response to localized iron: Evidence for natural genetic variation. ***Plant Signal Behav.*** 7: 1-3.

61) Turan M, Gulluce M., **von Wirén N.** and Sahin F. (2012) Yield promotion and phosphorus solubilization by plant growth-promoting rhizobacteria in spring wheat production in semi-arid areas. ***J. Plant Nutr. Soil Sci.*** 175: 818-826.

62) Kim Y.-M., Heinzel N., Giese J.-O., Koeber J., Melzer M. , Rutten T., **von Wirén N.**, Sonnewald U. and Hajirezaei M. (2013) A dual role of tobacco hexokinase 1 in primary metabolism and sugar sensing. ***Plant Cell Environ.*** 36, 1311-1327.

63) Yuan L., Gu R., Loqué D., Frommer W.B. and **von Wirén N.** (2013) Allosteric regulation of transport activity by hetero-trimerization of ammonium transporter complexes in-vivo. ***Plant Cell*** 25, 974-984.

64) Gu R., Duan F., An X., Zhang F., **von Wirén N.** and Yuan L. (2013) Characterization of AMT-mediated high-affinity ammonium uptake in roots of maize (*Zea mays* L.). ***Plant Cell Physiol.*** 54, 1515-1524

65) Carvalhais L.C., Dennis P.G., Fan B., Fedoseyenko D., Kierul K., Becker A., **von Wirén N.** and Borriss R. (2013) Linking plant nutritional status to plant-microbe interactions. ***PLoS One*** 8: e68555; doi: 10.1371/journalpone.0068555.

66) Eggert K. and **von Wirén N.** (2013) Dynamics and partitioning of the ionome in seeds and germinating seedlings of winter oilseed rape. ***Metallomics*** 5, 1316-1325

67) Barunawati N., Giehl R.F.H., Bauer B. and **von Wirén N.** (2013) The influence of inorganic nitrogen fertilizer forms on micronutrient retranslocation and accumulation in grains of winter wheat. ***Front. Plant Nutr.*** 4, 320.

68) Wang Q., Zhao Y., Luo W., Li R., He Q., Fang X., De Michele R., Ast C., **von Wirén N.** and Lin J. (2013) Single particle analysis reveals shutoff control of the Arabidopsis ammonium transporter AMT1;3 by clustering and internalization. ***Proc. Natl. Acad. Sci.*** 110, 13204-13209

69) Lahrmann U., Ding Y., Banhara A., Rath M., Hajirezaei M., Döhlemann S., **von Wirén N.,** Parniske M. and Zuccaro A. (2013) Host-related metabolic cues affect colonization strategies in a root endophyte. ***Proc. Natl. Acad. Sci.*** 110, 13965-13970

70) Gruber B., Giehl R., Friedel S. and **von Wirén N.** (2013) Plasticity of the Arabidopsis root system under nutrient deficiencies. ***Plant Physiol.*** 163, 161-179

71) Höller S., Hajirezaei M., **von Wirén N.** and Frei M. (2014) Ascorbate metabolism in rice genotypes differing in zinc efficiency. ***Planta*** 239, 367-379.

72) Schmid N.B., Giehl R.F., Döll S., Mock H.P., Strehmel N., Scheel D., Kong X., Hider R.C. and **von Wirén N.** (2014) Feruloyl-CoA 6'hydroxylase1-dependent coumarins mediate iron acquisition from alkaline substrates in Arabidopsis. ***Plant Physiol.*** 164, 160-172.

73) Benke A., Urbany C., Marsian J., Shi R., **von Wirén N.** and Stich B. (2014) The genetic basis of natural variation for iron homeostasis in the maize IBM population. ***BMC Plant Biol.*** 14, 12.

74) Araya T., Miyamoto M., Wibowo J., Suzuki A., Kojima S., Tsuchiya Y.N., Sawa S., Fukuda H., **von Wirén N.** and Takahashi H. (2014) CLE-CLAVATA1 peptide-receptor signaling module regulates the expansion of plant root systems in a nitrogen-dependent manner. ***Proc. Natl. Acad. Sci. USA*** 111, 2029-2034.

75) Ye F., Albarouki E., Lingam S., Deising H.B and **von Wirén N.** (2014) An adequate Fe nutritional status of maize suppresses infection and biotrophic growth of *Colletotrichum graminicola*. ***Physiol. Plant.*** 151, 280-292.

76) Albarouki E., Schafferer L., Ye F., **von Wirén N.,** Haas H. and Deising H.B (2014) Biotrophy-specific down-regulation of siderophore biosynthesis in *Colletotrichum graminicola* is required for modulation of immune responses of maize. ***Mol. Microbiol.*** 92, 338-355.

77) Ahkami A., Scholz U., Steuernagel B., Strickert M., Haensch K.T., Drüge U., Reinhardt D., Nouri E., **von Wirén N.**, Franken P., Hajirezaei M. (2014) Comprehensive transcriptome analysis unravels the existence of crucial genes regulating primary metabolism during adventitious root formation in *Petunia hybrida*. ***PLoS One*** 9, e100997.

78) Bohner A, Kojima S, Hajirezaei M, Melzer M, **von Wirén N.** (2015) Urea retranslocation from senescing Arabidopsis leaves is promoted by DUR3-mediated urea retrieval from leaf apoplast. ***Plant J.*** 81, 377-387.

79) Höller S., Ueda Y., Wu L., Wang Y., Hajirezaei M., Ghaffari M.R., **von Wirén N.** and Frei M. (2014) Ascorbate biosynthesis and its involvement in stress tolerance and plant development in rice (*Oryza sativa* L.). ***Plant Mol. Biol.*** 88, 545-560.

80) Yu P., Eggert K., **von Wirén N.**, Li C., Hochholdinger F. (2015) Cell type-specific gene expression analysis by RNA sequencing reveal local high-nitrate triggered lateral root initiation in shoot-borne roots of maize by modulating auxin-related cell cycle regulation. ***Plant Physiol.*** 169, 690-704.

81) Araya T., Kubo T., **von Wirén N.,** Takahashi H. (2016) Statistical modelling of nitrogen-dependent modulation of root system architecture in *Arabidopsis thaliana*. ***J. Integr. Plant Biol.*** 58, 254-265.

82) Araya T., Bohner A., **von Wirén N.** (2015) Extraction of apoplastic wash fluids and leaf petiole exudates from leaves of *Arabidopsis thaliana.* ***Bioprotocol*** 5:e1691

83) Drechsler N., Zheng Y., Bohner A., Nobmann B., **von Wirén N.,** Kunze R., Rausch C. (2015) Nitrate-dependent control of shoot K homeostasis by NPF7.3/NRT1.5 and SKOR in Arabidopsis. ***Plant Physiol.*** 169, 2832-2847.

84) Zierer W., Hajirezaei M., Eggert K., Sauer N., **von Wirén N.,** Pommerennig B. (2016) Phloem-specific methionine recycling fuel polyamine biosynthesis in a sulfur-dependent manner and promotes flower and seed development. ***Plant Physiol.*** 170, 790-806.

85) Eroglu S., Meier B., **von Wirén N.,** Peiter E. (2016) The vacuolar manganese transporter MTP8 determines tolerance to Fe deficiency-induced chlorosis in Arabidopsis. ***Plant Physiol.*** 170, 1030-1045.

86) Eggert K., **von Wirén N.** (2015) The role of boron nutrition in seed vigour of oilseed rape (*Brassica napus* L.). ***Plant Soil*** 402, 63-76.

87) Hosseini S.A., Hajirezaei M.R., Seiler C., Sreenivasulu N., **von Wirén N.** (2016) A potential role of flag leaf potassium in conferring tolerance to drought-induced leaf senescence in barley. ***Front. Plant Sci.*** 7, 206.

88) Xuan Y.H., Duan F.Y., Je B.I., Kim C.M., Li T.Y., Liu J.M., Park S.J., Cho J.H., Kim T.H., **von Wirén N.,** Han C.D. (2017) Related to ABI1/VP1-Like 1 (RAVL1) regulated brassinosteroid-mediated activation of AMT1;2 in rice (*Oryza sativa*). ***J. Exp. Bot.*** 68, 727-737.

89) Eroglu S., Giehl R.F.H., Meier B., Takahashi M., Terada Y., Ignatief K., Andresen E., Küpper H., Peiter E., **von Wirén N.** (2017) Metal Tolerance Protein 8 mediates manganese homeostasis and iron re-allocation during seed development and germination. ***Plant Physiol.*** 174, 1633-1647.

90) Leskova A., Giehl R.F.H., Hartmann A., Fargasova A., **von Wirén N.** (2017) Heavy metals induce iron-deficiency responses at different hierarchic and regulatory levels. ***Plant Physiol.*** 174, 1648-1668.

91) Surdonja K., Eggert K., Hajirezaei MR., Harshavardhan T., Seiler C., **von Wirén N.**, Sreenivasulu N., Kuhlmann M. (2017) DNA methylation of the CKX2.1 promotor by terminal drought stress in barley. ***Epigenomes*** 1: 9.

92) Hilo A., Shahinnia F., Druege U., Franken P., Melzer M., Rutten T., **von Wirén N**., Hajirezaei M.R. (2017) A specific role of iron in promoting meristematic cell division during adventitious root formation. ***J. Exp. Bot.*** 68: 4233-4247

93) Eggert K., **von Wirén N.** (2017) Response of the plant hormone network to boron deficiency. ***New Phytol.*** 216: 868-881.

94) Giehl R.F.H., Laginha A.M., Duan F., Rentsch D., Yuan L., **von Wirén N.** (2017) A critical role of AMT2;1 in root-to-shoot translocation of ammonium in Arabidopsis. ***Mol. Plant*** 10: 1449-1460.

95) Alomari D.Z., Eggert K., **von Wirén N.**, Pillen K., Röder M.S.(2017) Genome-wide association study of calcium accumulation in grains of European wheat cultivars. ***Front. Plant Sci.*** 8: 1797.

96) Soleimani B., Sammler R., Backhaus A., Beschow H., Schumann E., Mock H.-P., **von Wirén N.**, Seiffert U., Pillen K. (2017) Genetic regulation of growth and nutrient content under phosphorus deficiency in the wild barley introgression library S42IL. ***Plant Breed.*** 136: 892-907.

97) Fataftah N., Mohr C., Hajirezaei M.R., **von Wirén N.**, Humbeck K (2018) Changes in nitrogen availability lead to a reprogramming of pyruvate metabolism. ***BMC Plant Biol.*** 18: 77.

98) Rajniak J., Giehl R.F.H., Chang E., Murgia I., **von Wirén N.**, Sattely E.S. (2018) Biosynthesis and secretion of redox-active metabolites in response to iron deficiency in plants. ***Nat. Chem. Biol.*** 14: 442-450.

99) Bhosale R., Giri J., Pandey B.K., Giehl R.F.H., Hartmann A., Traini R., Truskina J., Leftley N., Hanlon M., Swarup K., Rashed A., Voß U, Alonso J, Stepanova A, Yun J, Ljung K, Brown KM, Lynch JP, Dolan L, Vernoux T, Bishopp A, Wells D, **von Wirén N.**, Bennett MJ, Swarup R. (2018) A mechanistic framework for auxin dependent Arabidopsis root hair elongation to low external phosphate. ***Nat. Commun.*** 9: 1409.

100) Shi R., Melzer M., Zheng S., Benke A., Stich B., **von Wirén N.** (2018) Iron retention in root hemicelluloses causes genotypic variability in the tolerance to iron deficiency-induced chlorosis in maize. ***Front. Plant Sci.*** 9: 557.

101) Ramireddy E., Hosseini S.A., Eggert K, Gillandt S., Gnad H., **von Wirén N.**, Schmülling T. (2018) Root engineering in barley: increasing cytokinin degradation produces a larger root system, mineral enrichment in the shoot and improved drought tolerance. ***Plant Physiol.*** 177: 1078–1095.

102) Wang H., Chen W., Eggert K., Charnikhova T., Bouwmeester H., Schweizer P., Hajirezaei M.R., Seiler C., Sreenivasulu N., **von Wirén N.**, Kuhlmann M. (2018) Abscisic acid influences tillering by modulation of strigolactones in barley. ***J. Exp. Bot.*** 69: 3883-3898.

103) Alomari D.Z., Eggert K., **von Wirén N.**, Alqudah A.M., Polley A., Plieske J., Ganal M.W., Pillen K., Röder M.S. (2018) Identifying candidate genes for enhancing grain Zn concentration in wheat. ***Front. Plant Sci***. 9: 1313.

104) Ariz I., Boeckstaens M., Gouveia C., Martins A.P., Sanz-Luque E., Fernández E., Soveral G., **von Wirén N.**, Marini A.M., Aparicio-Tejo P.M., Cruz C. (2018) Nitrogen isotope signature evidences ammonium deprotonation as a common transport mechanism for the AMT-Mep-Rh superfamily. ***Sci. Adv.*** 4: eaar3599.

105) Duan F., Giehl R.F.H., Geldner N., Salt D.E., **von Wirén N.** (2018) Root zone-specific localization of AMTs determines ammonium transport pathways and nitrogen allocation to shoots. ***PLOS Biol.*** 16: e2006024.

106) Alomari D.Z., Eggert K., **von Wirén N.**, Polley A., Plieske J., Ganal M.W., Liu F., Pillen K., Röder M.S. (2018) Whole-genome association mapping and genomic prediction for iron concentration in wheat grains. ***Int. J. Mol. Sci.*** 20: 76.

107) Jia Z., Liu Y., Gruber B.D., Neumann K., Kilian B., Graner A., **von Wirén N.** (2019) Genetic dissection of root system architectural traits in spring barley. ***Front. Plant Sci.*** 10: 400.

108) Nozoye, T., **von Wirén N.**, Sato Y., Higashiyama T., Nakanishi H. & Nishizawa N.K. (2019): Characterization of the nicotianamine exporter ENA1 in rice. ***Front. Plant Sci.*** 10: 502.

109) Abdel-Ghani A.H., Sharma R., Wabila C., Dhanagond S., Owais S.J., Duwayri M.A., Al-Dalain S.A., Klukas C., Chen D., Lübberstedt T., von Wirén N., A. Graner A., Kilian B., Neumann K. (2019): Genome-wide association mapping in a diverse spring barley collection reveals the presence of QTL hotspots and candidate genes for root and shoot architecture traits at seedling stage. ***BMC Plant Biol.*** 19: 216.

110) Gonzales-Hernandez A.I., Fernandez-Crespo E., Scalshi L., Hajirezaei M.R., **von Wirén N**., Garcia-Agustin P., Camanes G. (2019) Ammonium mediated changes in carbon and nitrogen metabolisms induce resistance against *Pseudomonas syringae* in tomato plants. ***J. Plant Physiol.*** 239: 28-37.

111) Herzig P., Backhaus A., Seiffert U., **von Wirén N.**, Pillen K., Maurer A. (2019) Genetic dissection of grain elements predicted by hyperspectral imaging associated with yield-related traits in a wild barley NAM population. ***Plant Sci.*** 285: 151-164.

112) Jia, Z., Giehl, R.F.H., Meyer R.C., Altmann, T. and **von Wirén N.** (2019) Natural variation of BSK3 tunes brassinosteroid signaling to regulate root foraging under low nitrogen. ***Nat. Commun.*** 10: 2378.

113) Heuermann D., Gentsch N., Boy J., Schweneker D., Feuerstein U., Gross J., Bauer B., Guggenberger G., **von Wirén N.** (2019) Interspecific competition among catch crops modifies vertical root biomass distribution and nitrate scavenging in soils. ***Sci. Rep.*** 9: 11531.

114) Laha D., Parvin N., Hofer A., Giehl R.F.H., Fernandez-Rebollo N., **von Wirén N.**, Saiardi A., Jessen H.J., Schaaf G. (2019) Arabidopsis ITPK1 and ITPK2 have an evolutionarily conserved phytic acid kinase activity. ***ACS Chem. Biol.*** 14: 2127-2133.

115) Liu Z., Marella C.B.N., Hartmann A., Hajirezaei M.R., **von Wirén N.** (2019) An age-dependent sequence of physiological processes defines developmental root senescence. ***Plant Physiol.*** 181: 993-1007.

116) Liu Z., Giehl R.F.H., Hartmann A., Hajirezaei M.R., Carpentier S., **von Wirén N.** (2020) Seminal and nodal roots of barley differ in anatomy, proteome and nitrate uptake capacity. ***Plant Cell Physiol***. 61: 1297-1308.

117) Jia Z., Giehl R.F.H., **von Wirén N.** (2020) The root foraging response under low nitrogen depends on DWARF1-mediated brassinosteroid biosynthesis. ***Plant Physiol.*** 83: 998-1010.

118) Stich B., Benke A., Schmidt M., Urbany C., Shi R., **von Wirén N.** (2020) The maize shoot ionome: its interaction partners, predictive power, and genetic determinants. ***Plant Cell Environ.*** 43: 2095-2111.

119) Tula S., Shahinnia F., Melzer M., Rutten T., Gómez R., Lodeyro A.F., **von Wirén N.**, Carrillo N., Hajirezaei M.R. (2020) Providing an additional electron sink by the introduction of cyanobacterial flavodiirons enhances growth of *A. thaliana* under various light intensities. ***Front. Plant Sci.*** 11: 902.

120) Kuhlmann M., Meyer R.C., Jia Z., Klose D., Krieg L.-M., **von Wirén N.**, Altmann T. (2020) Epigenetic variation at a genomic locus affecting biomass accumulation under low nitrogen in *Arabidopsis thaliana*. ***Agronomy*** 10: 63.

121) Gentsch N., Boy J., Batalla J.D.K., Heuermann D., **von Wirén N.**, Schweneker D., Feuerstein U., Groß J., Bauer B., Reinhold-Hurek B., Hurek T., Céspedes F.C. & Guggenberger G. (2020) Catch crop diversity increases rhizosphere carbon input and soil microbial biomass. ***Biol. Fertil. Soils***, https://doi.org/10.1007/s00374-020-01475-8.

122) Meier M., Liu Y., Lay K.S., Takahashi H., **von Wirén N.** (2020) Auxin-mediated root branching is determined by the form of available nitrogen. ***Nat. Plants*** 6; 1136-1145.

123) Funck D., Baumgarten L., Stift M., **von Wirén N.**, Schönemann L. (2020) Differential contribution of P5CS isoforms to stress tolerance in Arabidopsis. ***Front. Plant Sci.*** 11: 565134

124) Bauer B., **von Wirén N.** (2020) Modulating tiller formation in cereal crops by the signalling function of fertilizer nitrogen forms. ***Sci. Rep.*** 10: 20504.

125) Jia Z., Bienert M.D., **von Wirén N.**, Bienert G.P. (2021). Genome-wide association mapping identifies HvNIP2;2/HvLsi6 accounting for efficient boron transport in barley. ***Physiol. Plant.*** 171: 809-822.

126) Heuermann D., Hahn H., **von Wirén N.** (2021) Seed yield and nitrogen efficiency in oilseed rape after ammonium nitrate or urea fertilization. ***Front. Plant Sci.*** 11: 608785.

127) Alomari D.Z., Alqudah A.M., Pillen K., **von Wirén N.,** Röder M.S. (2021). Toward identification of a putative candidate gene for nutrient mineral accumulation in wheat grains for human nutrition purposes. ***J. Exp. Bot.*** 72: 6305-6318.

128) Hu B., Mithöfer A., Reichelt M., Eggert K., Peters F.S., Ma M., Schumacher J., Kreuzwieser J., **von Wirén N.** & Rennenberg H. (2021) Systemic reprogramming of phytohormone profiles and metabolic traits by virulent Diplodia infection in its pine (*Pinus sylvestris* L.) host. ***Plant Cell Environ.*** 44: 2744-2764.

129) Liu Z., Giehl R.F.H., Bienert M.D., **von Wirén N.,** Bienert G.P. (2021) Light-triggered reactions do not bias boron deficiency-induced root inhibition of Arabidopsis seedlings grown in petri dishes. ***Mol. Plant*** 14: 1211-1214.

130) Mora-Ramirez I., Weichert H., **von Wirén N.,** Frohberg C., de Bodt S., Schmidt R.-C. & Weber H. (2021) The *da1* mutation in wheat increases grain size under ambient and elevated CO_2 but not grain yield due to trade-off between grain size and grain number. ***Plant-Environ. Interact.*** 2: 61-73.

131) Torti S., Schlesier R., Thümmler A., Bartels D., Römer P., Koch B., Werner S., Panwar V., Kanyuka K., **von Wirén N.,** Jones J.D.G., Hause G., Giritch A., Gleba Y. (2021) Transient reprogramming of crop plants for agronomic performance. ***Nat. Plants*** 7: 159-171.

132) Yu P., He X., Baer M., Beirinckx S., Tian T., Moya Y.A.T., Zhang X., Deichmann M., Frey F.P., Bresgen V., Li C., Razavi B.S., Schaaf G., **von Wirén N.**, Su Z., Bucher M., Tsuda K., Goormachtig S., Chen X., Hochholdinger F. (2021) Plant flavones enrich rhizosphere Oxalobacteraceae to improve maize performance under nitrogen deprivation. ***Nat. Plants*** 7: 481-499.

133) Jia Z., Giehl R.F.H., **von Wirén N.** (2021) Local auxin biosynthesis acts downstream of brassinosteroids to trigger root foraging for nitrogen. ***Nat. Commun.*** 12: 5437.

134) Wang H, Seiler C, Sreenivasulu N, **von Wirén N**, Kuhlmann M. (2021) INTERMEDIUM-C mediates the shade-induced bud growth arrest in barley. ***J. Exp. Bot.*** 73, 1963-1977.

135) Liu Y., Maniero R.A., Giehl R.F.H., Melzer M., Steensma P., Krouk G., Fitzpatrick T.B., **von Wirén N.** (2022) PDX1.1-dependent biosynthesis of vitamin B6 protects roots from ammonium-induced oxidative stress. ***Mol. Plant*** 15, 820-839.

136) Gentsch N., Heuermann D., Boy J., Schierding S., **von Wirén N.**, Schweneker D., Feuerstein U., Guggenberger G. (2022) Soil nitrogen and water management by winter-killed catch crops. ***SOIL*** 8, 269–281.

137) Beier S., Marella N.C., Yvin J.-C., Hosseini S.A., **von Wirén N.** (2022) Silicon mitigates potassium deficiency by enhanced remobilization and modulated potassium transporter regulation. ***Environ Exp. Bot.*** 198, 104849.

138) Heuermann D., Gentsch N., Guggenberger G., Reinhold-Hurek B., Schweneker D., Feuerstein U., Heuermann M.-C., Groß J., Kümmerer R., Bauer B., **von Wirén N.** (2022) Catch crop mixtures have higher potential for nutrient carry-over than pure stands under changing environments. ***Europ. J. Agron***. 136, 126504.

139) Pommerrening B., Faber M., Hajirezaei M.R., **von Wirén N.**, Bienert G.P. (2022) Cytokinins as boron deficiency signals to sustain shoot development in boron-efficient oilseed rape, ***Physiol. Plant*** 174, e13776.

140) Milyaev A., Kofler J., Tandron-Moya Y.A., Lempe J., Stefanelli D., Hanke M.-V., Flachowsky H., **von Wirén N.**, Wünsche J.-N. (2022) Profiling of phytohormones

in apple fruit and buds regarding their role as potential regulators of flower bud formation. ***Tree Physiol.*** 42, 2319–2335.

141) Tsednee M., Tanaka M., Giehl R.F.H., **von Wirén N.**, Fujiwara T. (2022) Involvement of NGATHA-Like 1 transcription factor in boron transport under low and high boron conditions. ***Plant Cell Physiol.*** 63, 1242–1252.

142) Laha N.P., Giehl R.F.H., Riemer E., Qiu D., Pullagurla N.J., Schneider R., Dhir Y.W., Yadav R., Mihiret Y.E., Gaugler P., Gaugler V., Mao H., Zheng N., **von Wirén N.**, Saiardi A., Bhattacharjee S., Jessen H.J., Laha D., Schaaf G. (2022) INOSITOL (1,3,4) TRIPHOSPHATE 5/6 KINASE1-dependent inositol polyphosphates regulate auxin responses in Arabidopsis, ***Plant Physiol.*** 190, 2722–2738.

143) Wegner U., Matthes F., **von Wirén N.**, Hajirezaei M., Bode R., Kunze G., Rauter M. (2023) A transaminase with β-activity from Variovorax boronicumulans for the production of enantiopure β-amino acids. ***Heliyon*** e12729.

144) Hu B., Liu Z., Haensch R., Mithöfer A., Peters F.S., Vornam B., Messerer M., Mayer K., **von Wirén N.**, Rennenberg H. (2023) *Diplodia sapinea* infection reprograms foliar traits of its pine (*Pinus sylvestris* L.) host to death. ***Tree Physiol.*** 43, 611-629.

145) Heuermann D., Döll S., Schweneker D., Feuerstein U., Gentsch N., **von Wirén N.** (2023) Distinct metabolite classes in root exudates are indicative for field- or hydroponically-grown cover crops. ***Front. Plant Sci.*** 14,1122285.

146) Huang Y., Kamal R., Shanmugaraj N., Rutten T., Thirulogachandar V., Zhao S., Hoffie I., Hensel G., Rajaraman J., Moya Y.A.T., Hajirezaei M.R., Himmelbach A., Poursarebani N., Lundqvist U., Kumlehn J., Stein N., **von Wirén N.**, Mascher M., Melzer M., Schnurbusch T. (2023) A molecular framework for grain number determination in barley. ***Sci. Adv.*** 9, eadd0324.

147) Shanmugaraj N., Rajaraman J., Kale S., Kamal R., Huang Y., Thirulogachandar V., Garibay-Hernandez A., Budhagatapalli N., Tandron-Moya Y.A., Hajirezaei M.R., Rutten T., Hensel G., Melzer M., Kumlehn J., **von Wirén N.**, Mock H.-P., Schnurbusch T. (2023) Multilayered regulation of developmentally programmed pre-anthesis tip degeneration of the barley inflorescence. ***Plant Cell*** 35, 3973-4001.

148) Wegner U., Matthes F., **von Wirén N.,** Lemke I., Bode R., Vorbrodt H.-M., Rauter M., Kunze G. (2023) Enhancing a *Sphaerobacter thermophilus* ω-transaminase for kinetic resolution of β- and γ-amino acids. ***AMB Express*** 13, 117.

149) Giehl R.F.H., Flis P., Fuchs J., Gao Y., Salt D.E., **von Wirén N**. (2023) Cell type-specific mapping of ion distribution in *Arabidopsis thaliana* roots. ***Nat. Commun.*** 14, 3351.

150) Jia Z., Giehl R.F.H., Hartmann A., Estevez J.M., Bennett M.J., **von Wirén N.** (2023) A spatially concerted epidermal auxin signaling framework steers the root hair

foraging response under low nitrogen. ***Curr. Biol.*** 33, 3926-3941.

151) Cid G.A., Francioli D., Kolb S., Tandron Moya Y.A., **von Wirén N.**, Hajirezaei M.R. (2024) Elucidating the systemic response of wheat plants under waterlogging based on transcriptomic and metabolic approaches. ***J. Exp. Bot.*** 75, 1510-1529

152) Groß J., Kümmerer R., Heuermann D., Gentsch N., Schweneker D., Feuerstein U., Guggenberger G., **von Wirén N.**, Bauer B. (2024) Improving dual cover crop mixtures to increase shoot biomass production and weed suppression potential. ***Front. Agron.*** 13, 117

153) Milyaev A., Klaiber I., Tandron-Moya Y.A., Lempet J., Pfannstiel J., Luedeling E., **von Wirén N.**, Flachowsky H. (2024) Exploring the role of tryptophan in biennial bearing: A mobile molecule that is exported from growing apples but does not suppress flowering. ***Eur. J. Hortic. Sci.*** 89, 10

154) Paffrath V., Tandron Moya Y.A., Weber G., **von Wirén N.**, Giehl R.F.H. (2024) A major role of coumarin-dependent ferric iron reduction in strategy I-type iron acquisition. ***Plant Cell*** 36, 642-664

155) Maniero R.A., Picco C., Hartmann A., Engelberger F., Gradogna A., Scholz-Starke J., Melzer M., Künze G., Carpaneto A., **von Wirén N.**, Giehl R.F.H. (2024) Ferric reduction by a CYBDOM protein counteracts increased iron availability in root meristems induced by phosphorus deficiency. ***Nat. Commun.*** 15, 422

156) He X., Wang D., Jiang Y., Li M., Delgado-Baquerizo M., McLaughlin C., Marcon C., Guo L., Baer M., Moya Y.A.T., **von Wirén N.**, Deichmann M., Schaaf G., Piepho H.P., Yang Z., Yang J., Yim B., Smalla K., Goormachtig S., de Vries F.T., Hüging H., Baer M., Sawers R.J.H., Reif J.C., Hochholdinger F., Chen X., Yu P. (2024) Heritable microbiome variation is correlated with source environment in locally adapted maize varieties. ***Nat. Plants*** 10, 598-617

157) Yu P., Li C, Li M., He X., Wang D., Li H., Marcon C., Li Y., Perez-Limón S., Chen X., Delgado-Baquerizo M., Koller R., Metzner R., van Dusschoten D., Pflugfelder D., Borisjuk L., Plutenko I., Mahon A., Resende M.F.R. Jr., Salvi S., Akale A., Abdalla M., Ahmed M.A., Bauer F.M., Schnepf A., Lobet G., Heymans A., Suresh K., Schreiber L., McLaughlin C.M., Li C., Mayer M., Schön C.C., Bernau V., **von Wirén N.**, Sawers R.J.H., Wang T., Hochholdinger F. (2024) Seedling root system adaptation to water availability during maize domestication and global expansion. ***Nat. Genet.*** 56, 1245-1256

158) Frank S., Saeid Nia M., Schäfer A., Desel C., Mulisch M., Voigt U., Nowara D., Tandron Moya Y.A., **von Wirén N.**, Bilger W., Hensel G., Krupinska K. (2024) Over-accumulation of chloroplast-nucleus located WHIRLY1 in barley leads to a decrease in growth and an enhanced stress resistance. ***Plant J.*** 119, 1210-1225

159) Jiang G., Koppolu R., Rutten T., Hensel G., Lundqvist U., Tandron Moya Y.A., Huang Y., Rajaraman J., Poursarebani N., **von Wirén N.**, Kumlehn J., Mascher M., Schnurbusch T. (2024) Non-cell-autonomous signaling associated with barley ALOG1 specifies spikelet meristem determinacy. ***Curr. Biol.*** 34, 2344-2358.e5

160) Bienert MD, Junker A, Melzer M, Altmann T, **von Wirén N**, Bienert GP (2025) Boron deficiency responses in maize (Zea mays L.) roots. ***J. Plant Nutr. Soil Sci.*** https://doi.org/10.1002/jpln.202300173

161) Morales Orellana RJ, Rath T, Druege U, Tandrón Moya YA, **von Wirén N**, Winkelmann T (2025) Laser-wound stimulated adventitious root formation of *Rosa canina* cuttings involves a complex response at plant hormonal and metabolic level. ***Front. Plant Sci.*** https://doi.org/10.3389/fpls.2024.1515990

Review articles

1) Briat J.F., Fobis-Loisy I., Grignon N., Lobréaux S., Pascal N., Savino G., Thoiron S., **von Wirén N.**, van Wuytswinkel O. (1995) Cellular and molecular aspects of iron metabolism in plants. ***Biol. Cell*** 84: 69-81.

2) **von Wirén N.**, Gazzarrini S., Frommer W.B. (1997) Regulation of mineral nitrogen uptake in plants. ***Plant Soil*** 196: 191-199.

3) **von Wirén N.,** Grusak M.A. (2000) Summary of the IX. International Symposium on iron nutrition and interactions in plants.
J. Plant Nutr. 23: 2083-2102.

4) **von Wirén N.**, André B., Harling H., Gojon A., Patriarca E., Merrick M., Miller A., Reiss B., Frommer W.B. (2000) Improving fertilizer use efficiency in agroecosystems and nutrient efficiency in plants - an essential step towards modern agriculture.
In: **"Phytosphere'99" - Highlights in European Plant Biotechnology**, Gert de Vries & Karin Metzlaff, eds. Elsevier Science B.V., pp. 225-233.

5) **von Wirén N.**, S. Gazzarrini, A. Gojon, W.B. Frommer (2000) The molecular physiology of ammonium uptake and retrieval.
Curr. Opin. Plant Biol. 3: 254-261.

6) **von Wirén N.**, A. Gojon, S. Chaillou, D. Raper (2001) Mechansims and regulation of ammonium uptake in higher plants.
In: **Plant Nitrogen** (PJ Lea & J-F Morot-Gaudry, eds.), Springer-Verlag Berlin Heidelberg, INRA Editions, pp. 61-77.

7) Ludewig U., **von Wirén N.**, D. Rentsch, W.B. Frommer (2001) The molecular physiology of ammonium uptake and retrieval.
Genome Biol. 2: reviews 1010.1-1010.5.

8) Frommer W.B. , **von Wirén N**. (2002) Ping-pong with boron.
Nature *(News & Views)* 410: 282-283.

9) **von Wirén N** and Merrick M. (2004) Regulation and Function of Ammonium Carriers in Plants, Yeast and Bacteria. ***Trends Curr. Genet.*** 9: 95-120.

10) Loqué, D., **von Wirén N.** (2004) Regulatory levels for the transport of ammonium in plant roots. ***J. Exp. Bot.*** 55: 1293-1305.

11) Hider R.C., Yoshimura E., Khodr H. and **von Wirén N.** (2004) Competition or complementation: the iron-chelating abilities of nicotianamine and phytosiderophores. ***New Phytol.*** 164: 204-208.

12) **von Wirén N.** (2004) Progress in research on iron nutrition and interactions in plants. ***Soil Sci. Plant Nutr.*** 50: 989-995.

13) Kojima S., Bohner A., **von Wirén N.** (2006) Molecular mechanisms of urea transport in plants. ***J. Membr. Biol.***, 212: 83-91.

14) Giehl R.F., Meda A.R., **von Wirén N.** (2009) Moving up and down and everywhere: signalling of micronutrients in plants. ***Curr. Opin. Plant Biol.*** 12: 320-327.

15) von Blankenburg F., **von Wirén N.**, Gülke M., Weiss D., Bullen T. (2009) Fractionation of metal stable isotopes by higher plants. ***Elements*** 5: 375-380.

16) **von Wirén N.** (2011) Grand challenges in plant nutrition. ***Front. Plant Sci.*** 2:4. doi: 10.3389/fpls.2011.00004.

17) Friedel S., Usadel B., **von Wirén N.,** Sreenivasulu N. (2012) Reverse engineering: a key component of systems biology to unravel global abiotic stress cross-talk. ***Front. Plant Sci.*** 3:294. doi: 10.3389/fpls.2012.00294.

18) Gruber B., **von Wirén N.** (2013) Improvement of mineral nutrition: a source and sink of candidate genes. In: Biotechnology in agriculture and forestry, Biotechnological approaches to barley improvement. J. Kumlehn and N. Stein (Eds.), Springer Berlin Heidelberg.

19) Giehl R.F.H., Gruber B.D., **von Wirén N.** (2014) It's time to make changes: modulation of root system architecture by nutrient signals. ***J. Exp. Bot.*** 65, 769-778.

20) Araya T., **von Wirén N.,** Takahashi H. (2014) CLE peptides regulate lateral root development in response to nitrogen nutritional status of plants. ***Plant Signal Behav.*** 23: 9.

21) Giehl R.F.H., **von Wirén N.** (2014) Root nutrient foraging. ***Plant Physiol.*** 166: 509-517.

22) Giehl R.F.H., **von Wirén N.** (2015) Nitrate signalling: Functions of a nitrate transceptor. ***Nat. Plants*** 1: 15021.

23) Jagadish KS, Kavi Kishor PB, Bahuguna RN, **von Wirén N.**, Sreenivasulu N. (2015) Staying alive or going to die during terminal senescence – an enigma surrounding yield stability. ***Front. Plant Sci.*** doi: 10.3389/fpls.2015.01070.

24) Araya T., **von Wirén N.,** Takahashi H. (2016) CLE peptide signaling and nitrogen interactions in plant root development. ***Plant Mol. Biol.*** 91, 607-615.

25) **von Wirén N.,** Bennett M. (2016) Crosstalk between gibberellin signaling and iron uptake in plants: an Achilles' heel for modern cereal vareties? ***Dev. Cell*** 37, 110-111.

26) Liu Y., **von Wirén N.** (2017) Ammonium as a signal for physiological and morphological responses in plants. ***J. Exp. Bot.*** 68: 2581-2592.

27) Schjoerring J.K., Ma J.F., **von Wirén N.** (2018) Plant nutrition for global green growth. ***Physiol. Plant.*** 163: 268.

28) Giehl R.F.H., **von Wirén N.** (2018) Hydropatterning – how roots test the waters. ***Science*** 362: 1358-1359.

29) Wimmer M.A, Abreu I., Bell R.W., Bienert M.D., Brown P.H., Dell B., Fujiwara T., Goldbach H.E., Lehto T., Mock H.-P., **von Wirén N**., Bassil E., Bienert G.P. (2019) Boron: an essential element for vascular plants. ***New Phytol.*** 226:1232-1237.

30) Jia Z., **von Wirén N.** (2020) Signaling pathways underlying nitrogen-dependent changes in root system architecture: from model to crop species; ***J. Exp. Bot.*** 71: 4393-4404.

31) Balk J., **von Wirén N.**, Thomine S. (2021) The iron will of the research community: advances in iron nutrition and interactions in lockdown times. ***J. Exp. Bot.*** 72: 2011-2013.

32) Liu Y, **von Wirén N.** (2021) Integration of nutrient and water availabilities via auxin into the root developmental program. ***Curr. Opin. Plant Biol.*** 65: 102117.

33) Jia Z, Giehl RFH, **von Wirén N.** (2022) Nutrient-hormone relations: Driving root plasticity in plants. ***Mol. Plant*** 15: 86-103.

34) Tsay Y.-F., Blatt M., Gilliham M., Maurel C., **von Wirén N.** (2022) Integrating membrane transport, signaling, and physiology. *Editorial*. ***Plant Physiol.*** 188: 921–923.

35) Tunc C.E., **von Wirén N.** (2025) Hidden aging: the secret role of root senescence. ***Trends Plant Sci.*** in press.