DANIEL P. SCHACHTMAN

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EDUCATION

Ph.D., Plant Physiology and Genetics, The Australian National University
M.Sc., Plant Physiology, University of California, Davis
B.Sc., Agricultural Economics, University of California, Davis

PROFESSIONAL AND RESEARCH EXPERIENCE

Jul 2014–present	**Director,** Center for Biotechnology, University of Nebraska–Lincoln, Lincoln, Nebraska.
Feb 2014–present	**Professor**, Department of Agronomy and Horticulture and Center for Plant Science Innovation, University of Nebraska–Lincoln.
2012–present	**Blue Sky Lead**, Monsanto Company, St. Louis, Missouri.
2008–2012	**Corn Nitrogen Lead**, Monsanto Company.
2002–2014	**Adjunct Professor**, Department of Biology, Washington University. **Adjunct Professor**, Department of Agronomy, University of Missouri.
2007–2011	**Member**, Donald Danforth Plant Science Center, St. Louis, Missouri.
2001–2007	**Associate Member**, Donald Danforth Plant Science Center.
2000–2001	**Senior Research Scientist**, CSIRO Division of Plant Industry, Horticulture Unit, Adelaide, Australia.
1999–2000	**Research Scientist**, CSIRO Division of Plant Industry, Horticulture Unit, Adelaide.
1998–1999	**Senior Lecturer**, Department of Botany, University of Adelaide, Adelaide, Australia.
1994–1997	**Lecturer**, Department of Botany, University of Adelaide.
1992–1994	**Postdoctoral Research Fellow** (Plant Biology NSF, U.S.A.), Department of Biology, University of California, San Diego. Supervisor: Dr. Julian I. Schroeder.

AFFILIATIONS

Member of the American Society of Plant Physiology
Member of the American Association for the Advancement of Science

AWARDS/HONORS/FELLOWSHIPS

2016-2019	Fellow, Daugherty Water for Food Global Institute
2017	Fellow, American Society of Plant Biology
2015	Fellow, American Association for the Advancement of Science
2013	Monsanto Fellow
1999	Peter Goldacre Medal, Australian Society of Plant Physiologists
1992- 1994	National Science Foundation (USA) Postdoctoral Fellowship, Plant Biology
1989- 1992	Australian National University Ph.D. Scholarship
1988-1989	Rotary International Scholar

GRANTS

National Science Foundation

EPSCOR. *Center for Root and Rhizobiome Innovation (CRRI)*. Cahoon and Alfano, co-PIs; **Schachtman, Investigator**. $20 million ($450,000 to Schachtman). 2016–2021.

Plant Genome. *Identifying Nutrient Sensing and Response Networks in Maize Roots Grown Under Nitrogen, Phosphorus and Potassium Deficiency*. **Schachtman, PI**; Hicks and Bonneau, co-PIs. $ 2.8 million (would have been awarded if I remained at Danforth Center). 2008–2012.

Environmental Genomics. *A Genomic and Physiology Approach to Understanding the Impact of Fungal Colonization on Root Metabolism and Nutrient Acquisition*. **Schachtman, PI**; Barbazuk and Jackson, co-PIs. $996,000. 2007–2010.

Research Experience for Undergraduates. *Research Experiences in Plant Science at the Danforth Center.* Running, PI; **Schachtman, co-PI**. $340,000. 2006–2009.

Research Experience for Undergraduates. *Research Experiences in Plant Science Supplemental Grants in Plant Science at the Danforth Center.* Running, PI; **Schachtman, co-PI**. $35,000, $36,000, $19,000. 2005, 2006, 2007.

Major Instrumentation Program Equipment Grant. *Acquisition of LC-MS for Plant Metabolic Profiling.* Wang, PI; **Schachtman, co-PI**. $500,900. 2005–2008.

IOS - Integrated Biology. *The Role of Amino Acid Transporters in Nematode Induced Giant Cells.* Taylor - PI, **co-PI Schachtman**, Nielsen. $518,000. 2004–2007.

International Collaborative Grant. *KUP Transporter Membrane Localization*. **Schachtman, PI**. $20,000. 2003–2005.

Plant Genome. *Functional Genomics of Root Growth and Root Signaling Under Drought.* Nguyen – PI, **co-PIs Schachtman**, Bohnert Davis, Gross, , Sharp, Springer. $4.5 million ($1.5 million to Schachtman). 2002–2006.

Department of Energy

Basic Energy Research. *Systems Analysis of Physiological and Molecular Mechanisms of Sorghum Nitrogen Use Efficiency, Water Use Efficiency and Interactions with the Soil Microbiome*. **Schachtman, PI;** 14 co-PIs. $14.5 million (approximately $3 million to Schachtman Lab). 2015–2020.

Joint Genome Institute. *Systems Analysis of Sorghum Soil and Root Microbiome*. **Schachtman, PI**; Dangl, Bart and Harrison, co-PIs. In kind sequencing estimated at $300,000. 2015–2020.

U.S. Department of Agriculture

NIFA. *Genomics and Phenomics to Identify Yield and Drought Tolerance Alleles for Camelina as a Biofuel Crop*. J. Dyer, PI; **Schachtman, co-PI**. $1 million ($300,000 to Schachtman and Ge). 2017–2020.

CREES. *Vitis Gene Discovery*. Polacco, Kovacs, Qui, **Schachtman, co-PI** $ 150,000. 2005–2006.

CREES. *Vitis Gene Discovery*. Polacco, Kovacs, Qui, **Schachtman, co-PI** $ 95,000. 2004–2005.

U.S. Agency for International Development

Identification and cloning of drought related genes in wheat (*T. aestivum*). **Schachtman, PI**; Saeed, co-PI. $110,000. 2007–2010.

Foundations and Industries

Lubin Foundation. *Providing Drought Tolerance to Crop Plants Through Modification of Suberin Deposition in Roots*. **Schachtman, PI**; Aharoni, co-PI. $190,000. 2007–2010.

Missouri Life Sciences Trust Fund. *Grape Polyphenols: Potential for new commercial production and enhanced plant health*. Kovacs, PI; **Schachtman, co-PI**. $890,000. 2008–2010.

Monsanto Co. *Improving Nutrient Capture, Utilization and Growth under Low Nutrient Availability in Arabidopsis and Corn*. **Schachtman, PI**. $474,000. 2007–2010.

Bill and Melinda Gates Foundation (Grand Challenge). *BioCassava Plus – Increasing the Zinc Content of Cassava Roots*. Sayer, PI; **Schachtman, co-PI.** $500,000. 2005–2009.

Monsanto Co. *Signal Transduction Pathways Controlling Plant Response to Nutrient Deficiency*. **Schachtman, PI**. $670,000. 2004–2007.

Grape and Wine Research Corp. *Managing Grape Berry K^+ Accumulation to Enhance Wine Quality*. **Schachtman, PI**; Thomas and Treeby, co-PIs. AUS$360,000. 2000–2003.

Grain Research Develop. Corp. *Molecular Genetic Improvement of Crop Micronutrient Efficiency*. **Schachtman, PI**. AUS$120,000. 1997–2000.

Australian Research Council

Defining a Role for HKT1 Sodium Coupled High-Affinity Potassium Uptake in Plants. **Schachtman, PI**. AUS$205,000. 1998–2001.

Elucidation of the Mechanisms of Solute Transport in Mycorrhizal Symbiosis using Molecular Tools. **Schachtman** and S.E. Smith, **co-PIs**. AUS$210,000. 1997–1999.

Molecular Modifications to HKT1, a High-Affinity Potassium Transporter in Higher Plants. **Schachtman, PI**. AUS$180,000. 1995–1997.

Intramural Funding

University of Nebraska Ag Research Div. *Microbial contributions to nitrogen nutrition in cereal crop N fixation and stable colonization*. **Schachtman, PI**; Bart and Reithoven, Co-PIs. $99,000. 2017–2018.

PATENTS

Transgenic Plants with Enhanced Traits Incorporation of Sequence Listing. USA provisional patent application update, January 2018. Monsanto.

Transgenic Plants with Enhanced Traits. USA provisional patent application #62086918, Dec 3, 2014. Monsanto.

High-Affinity Potassium Uptake Transporter from Higher Plants. USA patent #5608145-A, March 1997. JI Schroeder and DP Schachtman. 1997

Nucleic Acids Encoding Metal Uptake Transporters and Their Uses. USA patent application #23070-6871PG. JI Schroeder, DM Antosiewicz, DP Schachtman, S Clemens 1999

PUBLICATIONS (h-index 56 with >13,000 citations)

97. Sheflin A.M., Kirkwood J.S., Wolfe L.M., Jahn C.E., Broeckling C.D., **Schachtman D.P.**, Prenni J.E. (2019) High-throughput quantitative analysis of phytohormones in sorghum leaf and root tissue by ultra-performance liquid chromatography-mass spectrometry. *Analytical and Bioanalytical Chemistry*, in press
96. Jung, J.Y., Ahn, J.H., **Schachtman, D.P**. (2018) CC-type glutaredoxins mediate plant response and signaling under nitrate starvation in *Arabidopsis. BMC Plant Biology*, 9.
95. Li, J., Shi, Y., Veeranampalayam-Sivakumar, A., **Schachtman, D.P**. (2018) Elucidating sorghum biomass, nitrogen and chlorophyll contents with spectral and morphological traits derived from unmanned aircraft system. *Frontiers in Plant Sciences,* in press and online.
94. McPherson, M.R., Wang, P., Marsh, E.L., Mitchell, R.B., **Schachtman, D.P.** (2018) Isolation and analysis of microbial communities in soil, rhizosphere, and roots in perennial grass experiments. *J Vis Exp* (137) e57932, doi:10.3791/57932.

93. Jung, J. Y., Lee, D. W., Ryu, S. B., Hwang, I., **Schachtman, D.P.** (2017) SCYL2 genes are involved in clathrin-mediated vesicle trafficking and essential for plant growth**.** *Plant Physiology* 175, 194-209, doi:10.1104/pp.17.00824.

92. Wang, P., Marsh, E. L., Ainsworth, E. A., Leakey, A. D. B., Sheflin, A. M., **Schachtman, D.P.** (2017) Shifts in microbial communities in soil, rhizosphere and roots of two major crop systems under elevated CO2 and O3. *Scientific Reports 7,* 15019, doi:10.1038/s41598-017-14936-2.

91. Veley, K.M., Berry, J.C., Fentress, S.J., **Schachtman, D.P.**, Baxter, I., Bart, R. (2017) High-throughput profiling and analysis of plant responses over time to abiotic stress. *Plant Direct 1* (4).

90. Mucyn, T.S., **Schachtman, D.P.**, Dangl, J.L. (2016) Harvesting the root microbiome of grasses toward sustainable increase crop production, *Plant and Animal Genome Conference* (PAG XXIV). San Diego, CA, USA. P0007.

89. **Schachtman, D.P.** (2015) The role of ethylene in plant response to K^+ deficiency. *Frontiers Plant Science* 6:1153. doi.org/10.3389.

88. Gaitan-Solis, E., Taylor, N.J., Siritunga, D., Stevens, W., **Schachtman, D.P.** (2015). Overexpression of the transporters AtZIP1 and AtMTP1 in cassava changes zinc accumulation and partitioning. *Frontiers Plant Science* 6:492. doi:10.3389.

87. Meister, R, Rajani, M.S., Ruzicka, D., **Schachtman, D.P.** (2014) Challenges of modifying root traits in crops for agriculture. *Trends in Plant Science* 19:779-788.

86. Pike, S., Gao, F., Kim, M.J., Kim, S.H., **Schachtman, D.P.**, Gassmann, W. (2014) Members of the NPF3 transporter subfamily encode pathogen-inducible nitrate/nitrite transporters in grapevine and Arabidopsis. *Plant and Cell Physiology* 55:162-170.

85. Hong, J.P., Takeshi, Y., Kondou, Y., **Schachtman, D.P.**, Matsui, M., Shin, R. (2013) Identification and characterization of transcription factors regulating Arabidopsis HAK5. *Plant and Cell Physiology* 54:1478-1490.

84. Larkan, N.J., Ruzicka, D.R., Edmonds-Tibbett, T., Durkin, J.M., Jackson, L.E., Smith, F.A., **Schachtman, D.P.**, Smith, S.E, Barker, S.J. (2013) The reduced mycorrhizal colonisation (rmc) mutation of tomato disrupts five gene sequences including the CYCLOPS/IPD3 homologue. *Mycorrhiza* 7:573-584.

83. Paez-Valencia, J., Lares-Sanchezu, J., Marsh, E., Dorneles, L.T., Santos, M.P., Sanchez, D., Winteru, A., Murphy, S., Cox, J., Trzaska, M., Metler, J., Alex Kozic, A., Facanha, A.R., **Schachtman, D.P.**, Sanchez, C.A., Gaxiola, R.A. (2013) Enhanced H^+-PPase activity improves nitrogen use efficiency in romaine lettuce (*Lactuca sativa* cv. conquistador). *Plant Physiology* 161:1557-1569.

82. Marella, H., Nielsen, E., **Schachtman, D.P.,** Taylor, C. (2013) The amino acid permeases, AAP3 and AAP6, are involved in root-knot nematode parasitism of Arabidopsis. *Mol. Plant Microbe Interactions* 24:44-54.

81. Ruzicka, D.R., Chamala, S., Barrios-Masias, F.H., Martin, F., Smith, S.E., Jackson, L.E., Barbazuk, W.B., and **Schachtman, D.P.** (2012) Inside arbuscular mycorrhizal roots-molecular probes to understand the symbiosis. *The Plant Genome* 6:2.

80. **Schachtman, D.P.** (2012) Recent advances in nutrient sensing and signaling. *Molecular Plant* 5:1170-1172.

79. Kim, MJ, Ruzicka, D, Shin, R, **Schachtman, D.P.** (2012) The Arabidopsis AP2/ERF trasnscription factor RAP2.11 modulates plant response to low-potassium conditions. *Molecular Plant* 5:1042-1057.

78. Ruzicka, D. Hausmann, N.T., Masias, F.H., Jackson, L.E., **Schachtman, D.P.** (2012) Transcriptomic and metabolic responses of mycorrhizal roots to nitrogen patches under field conditions. *Plant and Soil* 350:145-162.

77. Yang, S., Wu, J., Ziegler, T., Yang, X., Zayed, A., Rajani, M.S., Zhou, D., Basra, A., **Schachtman, D.P.**, Peng, M., Armstrong, C., Caldo, R., Morrell, J., Lacy, M., Staub, J. (2011) Gene expression biomarkers provide sensitive indicators of in planta nitrogen status in maize. *Plant Physiology* 157:1841-1852.

76. Sayre, R., Beeching, J., Cahoon, E., Egesi, C., Fauquet, C., Fellman, J., Fregene, M., Gruissem, W., Mallowa, S., Manary, M., Maziya-Dixon, B., Mbanaso, A., **Schachtman, D.P.**, Siritunga, D., Taylor, N., Vanderschuren, H., Zhang, P. (2011) The BioCassava Plus Program; Biofortification of cassava for Sub-Saharan Africa. *Annual Review of Plant Biology* 62:251-272.
75. Shin, R., Jez, J., Basra, A., Zhang, B., **Schachtman, D.P.** (2011) 14-3-3 proteins fine-tune plant nutrient metabolism. *FEBS Lett* 585:143-147.
74. Goodger, J.Q.D., **Schachtman, D.P.** (2010) Re-examining the role of ABA as the primary long-distance signal produced by water-stressed roots. *Plant Signaling & Behavior* 5:1298-1301.
73. Ernst, L., Goodger, J.Q.D., Alvarez, S., Marsh, E., Berla, B., Lockhart, E., Jung, J., Li, P., Bohnert, H.J., **Schachtman, D.P.** (2010) Sulphate as a xylem-borne chemical signal precedes the expression of ABA biosynthetic genes in maize roots. *Journal of Experimental Botany* 61:3395-3405.
72. Marsh, E., Alvarez, S., Hicks, L.M., Barbazuk, W.B., Qiu, W., Kovacs, L., **Schachtman, D.P.** (2010) Changes in protein abundance during powdery mildew infection of leaf tissues of Cabernet Sauvignon grapevine (*Vitis vinifera* L.). *Proteomics* 10:2057-2064.
71. Ruzicka, D.R., Barrios-Masias, F.H., Hausmann, N.T., Jackson, L.E., **Schachtman, D.P.** (2010) Tomato root transcriptome response to a nitrogen-enriched soil patch. *BMC Plant Biology* 10:75. (Rated as 'Highly accessed' relative to age by Biomed Central).
70. Goodger, J.Q.D., **Schachtman, D.P.** (2010) Nitrogen source influences root to shoot signaling under drought. In A. Pareek, S.K. Sopory, H.J. Bohnert, H. Govindjee (eds.), *Abiotic Stress Adaptation in Plants:Physiological, Molecular and Genomic Foundation*, pp.165–173. Springer Science.
69. Kim, M.J., Ciani, S., and **Schachtman, D.P.** (2010) A peroxidase contributes to ROS production during Arabidopsis root response to potassium deficiency. *Mol Plant* 3, 420-427.
68. Kim M.J., Shin, R., **Schachtman, D.P.** (2009). A nuclear factor regulates abscisic acid responses in Arabidopsis. *Plant Physiol* 151, 1433-1445.
67. Csaba, F., Fung, R.W.M., Szabo, Z., Qiu, W., **Schachtman, D.P.**, Kovacs, L. (2009) Up-regulated transcripts in a compatible powdery mildew-grapevine interaction. *Plant Physiology and Biochemistry* 47:732-738.
66. Demidchik, V., Shang, Z., Shin, R., Thompson, E., Rubio, L., Laohavisit, A., Mortimer, J.C., Chivasa, S., Slabas, A.R., Glover, B.J., **Schachtman, D.P.**, Shabala, S.N., Davies, J.M. (2009) Plant extracellular ATP signalling by plasma membrane NAD.P.H oxidase and Ca^{2+} channels. *Plant Journal* 58:903-913.
65. Jung, J.Y., Shin, R., **Schachtman, D.P.** (2009) Ethylene mediates response and tolerance to potassium deprivation in Arabidopsis. *Plant Cell* 21:607-621. (Rated as 'Must read' by Faculty 1000 Biology).
64. **Schachtman, D.P.**, Goodger, J.Q.D. (2008) Chemical root to shoot signaling under drought. *Trends in Plant Science* 13:281-287.
63. Swarup, K., Benkova, E., Swarup, R., Casimiro, I., Péret, B., Yang, Y., Carrier, D., Nielsen, E., De Smet, I., Vaneste, S., Parry, G., James, N., Calvo, V., Ljung, K., Kramer, E.M., Graham, N., Marillonnet, S., Patel, K., Jones, J.D.G., Taylor, C.G., **Schachtman, D.P.**, May, S.T., Sandberg, G., Friml, J., Kerr, I., Beeckman, T., Laplaze, L., Bennett, M.J. (2008) The auxin influx carrier LAX3 facilitates lateral root emergence in Arabidopsis. *Nature Cell Biology* 10:946-954. (Rated as 'Recommended read' by Faculty 1000 Biology).
62. Spollen, W.G., Tao, W., Balliyodan, B., Chen, K., Hejlek, L.G., Kim, J.J., LeNoble, M.E., Zhu, J., Bohnert, H.J., Henderson, D., **Schachtman, D.P.**, Davis, G.E., Springer, G.K., Sharp, R.E., Nguyen, H.T. (2008) Spatial distribution of transcript changes in the maize primary root elongation zone at low water potential. *BMC Plant Biology* 8:32.

61. Qi, Z., Hampton, C.R., Shin, R., Barkla, B.J., White, P.J., **Schachtman, D.P.** (2008) The high affinity K^+ transporter AtHAK5 plays a physiological role in planta at very low K^+ concentrations and provides a cesium uptake pathway in Arabidopsis. *Journal of Experimental Botany* 59:595-607.
60. Alvarez, S., Marsh, E.L., Schroeder, S.G., **Schachtman, D.P.**, (2008) Metabolomic and proteomic changes in the xylem sap of maize under drought. *Plant Cell and Environment* 31:325-40.
59. Fung, R.W.M., Gonzalo, M., Fekete, C., Kovacs, L.G., He, Y., Marsh, E., McIntyre, L.M., **Schachtman, D.P.**, Qiu, W. (2008) Transcriptional profiling reveals novel insights into powdery mildew-induced defense response in grapevine. *Plant Physiology* 146:236-249.
58. Zhu, J., Alvarez, S., Marsh, E.L., LeNoble, M.E., Cho, I.J., Sivaguru, M., Chen, S., Nguyen, H.T., Wu, Y., **Schachtman, D.P.**, Sharp, R.E. (2007) Cell wall proteome in the maize primary root elongation zone. Region-specific changes in water soluble and lightly ionically-bound proteins under water deficit. *Plant Physiology* 145:1533-48.
57. Shin, R., Burch, A.Y., Huppert, K.A., Tiwari, S.B., Murphy, A.S., Guilfoyle, T.J., **Schachtman, D.P.** (2007) The Arabidopsis transcription factor MYB77 modulates auxin signal transduction. *The Plant Cell* 19:2440-2453. (Rated as 'Must read' by Faculty 1000 Biology).
56. Jez, J.M., **Schachtman, D.P.**, Berg, R.H., Taylor, C.G., Chen, S., Hicks, L.M., Jaworski, J.G., Smith, T.J., Nielsen, E., Pikaard, C.S., (2007) Developing a new interdisciplinary lab course for undergraduate and graduate students: Plant cells and proteins. *Biochemistry and Molecular Biology Education* 35:410-415.
55. Shin, R., Alvarez, S., Burch, A.Y., Jez, J.M., **Schachtman, D.P.** (2007) Phosphoproteomic identification of targets of the Arabidopsis SNF-like protein kinase SnRK2.8 reveals a connection to metabolic processes. *Proceedings National Academy Science USA* 104:6460-6465.
54. Rosewarne, G.M., Smith, F.A., **Schachtman, D.P.**, Smith, S.E. (2007) Localization of proton-ATPase genes expressed in arbuscular mycorrhizal tomato plants. *Mycorrhiza* 14:249-258.
53. **Schachtman, D.P.,** Shin, R. (2007) Nutrient sensing and signaling:NPKS. *Annual Review of Plant Biology* 58:47-69.
52. Fung, R.W.M., Qiu, W., Su, Y., **Schachtman, D.P.**, Huppert, K., Fekete, C., Kovacs, L.G. (2007) Gene expression variation in grapevine species *Vitis vinifera* L. and *Vitis aestivalis* Michx. *Genetic Resources and Crop Evolution* 54:1541-1553.
51. Hammes, U.Z., Nielsen, E., Honaas, L., Taylor, C.G., **Schachtman, D.P.** (2006) AtCAT6, a sink tissue localized amino acid transporter for essential amino acids in Arabidopsis. *Plant Journal* 48:414-426.
50. Platten, J.D., Cotsaftis, O., Berthomieu, P., Bohnert, H.J., Davenport, R., Fairbairn, D.J., Horie, T., Leigh, R.A., Lin, X.H., Luan, S., Mäser, P., Pantoja, O., Rodríguez-Navarro, A., **Schachtman, D.P.**, Julian, I., Schroeder, J.I., Sentenac, H., Uozumi, N., Véry, A.A., Zhu, J.K., Dennis, E.S., Tester, M. (2006) Nomenclature for HKT transporters, key determinants of plant salinity tolerance. *Trends in Plant Biology* 11:372-374.
49. Davies, C., Shin, R., Liu, W., Thomas, M.R., **Schachtman, D.P.** (2006) Transporters expressed during grape berry (*Vitis vinifera* L.) development are associated with an increase in berry size and berry potassium accumulation. *Journal of Experimental Botany* 57:3209-3216.
48. Yang, Y., Hammes, U.Z., Taylor, C.G., **Schachtman, D.P.**, Nielsen, E. (2006) High-affinity auxin transport by the AUX1 influx carrier protein. *Current Biology* 11:1123-1127. (Rated as 'Exceptional' by Faculty 1000 Biology).
47. Alvarez, S., Goodger, J.Q.D., Marsh, E.L., Chen, S., Asirvatham, V.S., **Schachtman, D.P.** (2006) Characterization of the maize xylem sap proteome. *Journal of Proteome Research* 5:963-972.
46. Zhu, J., Chen, S., Alvarez, S., Asirvatham, V.S., **Schachtman, D.P.**, Wu, Y., Sharp, R.E. (2006) Cell wall proteome in the maize primary root elongation zone. I. Extraction and identification of water soluble and lightly ionically-bound proteins. *Plant Physiology* 140:311-325.

45. Hammes, U.Z., **Schachtman, D.P.**, Berg, R.H., Nielsen, E., Koch, W., McIntyre, L.M., Taylor, C.G. (2005) Nematode induced changes of transporter gene expression in Arabidopsis roots. *Molecular Plant Microbe Interactions* 18:1247-1257. (Rated as 'Recommended read' by Faculty 1000 Biology).
44. Shin, R., Berg, R.H., **Schachtman, D.P.** (2005) Reactive oxygen species and root hairs in Arabidopsis root response to nitrogen, phosphorus and potassium deficiency. *Plant and Cell Physiology* 46:1350-1357.
43. Goodger, J.Q.D., Sharp, R.E., Marsh, E.L., **Schachtman, D.P.** (2005) Relationships between xylem sap constituents and leaf conductance of well-watered and water-stressed maize across three xylem sap sampling techniques. *Journal of Experimental Botany* 56:2389-2400.
42. Ramesh, S., Choimes, S., **Schachtman, D.P.** (2004) Overexpression of an Arabidopsis zinc transporter in *Hordeum vulgare* increases short-term zinc uptake after zinc deprivation and seed zinc content. *Plant Molecular Biology* 54:373-385.
41. Shin, R., **Schachtman, D.P.** (2004) Hydrogen peroxide mediates plant root cell response to nutrient deprivation. *Proceedings National Academy Science USA* 101:8827-8832. (Rated as 'Must read' by Faculty 1000 Biology).
40. Ahn, S.J., Shin, R., **Schachtman, D.P.** (2004) Expression of KT/KUP genes in Arabidopsis and the role of root hairs in K^+ uptake. *Plant Physiology* 134:1135-45.
39. Mpelasoka, B.S., **Schachtman, D.P.**, Treeby, M.T., Thomas, M.R. (2003) A review of potassium nutrition in grapevines with special emphasis on berry accumulation. *Australian Journal of Grape and Wine* 9:154-168.
38. Storey, R., Wyn Jones, R.G., **Schachtman, D.P.**, Treeby, M.T. (2003) Calcium accumulating cells in the meristematic region of grapevine root apices. *Functional Plant Biology* 30:719-727.
37. Ramesh, S., Shin, R., Eide, D.J., **Schachtman, D.P.** (2003) Differential metal selectivity and gene expression of two zinc transporters from rice. *Plant Physiology* 133:126-134.
36. **Schachtman, D.P.**, Thomas, M.R. (2003) A rapid method for generating sufficient amounts of uniform genotype-specific material from woody perennials such as grapevine for ion transport studies. *Plant Soil* 253:195-199.
35. Storey, R., **Schachtman, D.P.**, Thomas, M.R. (2003) Root structure and cellular chloride, sodium and potassium distribution in salinized grapevines. *Plant Cell and Environment* 26:789-800.
34. Munns, R., Husain, S., Rivelli, A.R., James, R., Condon, A.G., Lindsay, M., Lagudah, E., **Schachtman, D.P.**, Hare, R. (2002) Avenues for increasing salt tolerance of crops, and the role of physiologically-based selection traits. *Plant Soil* 247:93-105.
33. Amtmann, A., Fischer, M., Marsh, E.L., Stefanovic, A., Sanders, D., **Schachtman, D.P.** (2001) The wheat cDNA *LCT1* generates hypersensitivity to sodium in a salt-sensitive yeast strain. *Plant Physiology* 126:1061-1071.
32. Liu, W., Fairbairn, D.J., Reid, R.J., **Schachtman, D.P.** (2001) Characterization of two HKT1 homologues from *Eucalyptus camaldulensis* that display intrinsic osmosensing capability. *Plant Physiology* 127:283-294.
31. **Schachtman, D.P.** (2000) Molecular insights into the structure and function of plant K^+ transport mechanisms. *Biochimica et Biophysica Acta - Reviews on Biomembranes* 1465:127-139.
30. Liu, W., **Schachtman, D.P.**, Zhang, W. (2000) Partial deletion of a loop region in the high affinity K^+ transporter HKT1 changes ionic permeability leading to increased salt tolerance. *Journal of Biological Chemistry* 275:27924-37932.
29. Fairbairn, D.J., Liu, W., **Schachtman, D.P.**, Gomez-Gallego, S., Day, S., Teasdale, R.D. (2000) Characterisation of two distinct HKT1-like potassium transporters from *Eucalyptus camaldulensis. Plant Molecular Biology* 43:515-525.
28. Box, S.L., **Schachtman, D.P.** (2000) The effect of low concentrations of sodium on potassium uptake and growth of wheat. *Australian Journal of Plant Physiology* 27:175-182.

27. Antoniolli, Z.I., **Schachtman, D.P.**, Ophel-Keller, K., Smith, S.E. (2000) Variation in ribosomal DNA internal transcribed spacers sequences in *Glomus mosseae* and *Gigaspora margarita*. *Mycological Research* 104:708-715.
26. Smith S.E., Rosewarne, G., Ayling, S.M., Dickson, S., **Schachtman, D.P.**, Barker, S.J., Smith, F.A. (1999) Mycorrhizal involvement in plant mineral nutrition: A molecular and cell biology perspective. In G. Gissel-Nielsen, A. Jensen (eds.), *Plant Nutrition - Molecular Biology and Genetics*. Springer, Dordrecht.
25. **Schachtman, D.P.**, Liu, W. (1999) Molecular pieces to the puzzle of the interaction between potassium and sodium uptake in plants. *Trends in Plant Science* 4:281-287.
24. Rosewarne, G.R., Barker, S.J., Smith, S.E., Smith, F.A., **Schachtman, D.P.** (1999) A *Lycopersion esculentum* phosphate transporter (*LePT1*) implicated in P nutrition of VA mycorrhizal plants. *New Phytologist* 144:507-516.
23. Merry, L.J., Graham, R.D., **Schachtman, D.P.** (1999) *Triticum tauschii* - a potential source of genes for the improvement of zinc efficiency in bread wheat. In G. Gissel-Nielsen, A. Jensen (eds.), *Plant Nutrition - Molecular Biology and Genetics,* pp. 235-244. Springer, Dordrecht.
22. Dreyer, I., Horeau, C., Lemaillet, G., Zimmermann, S., Bush, D.R., Rodriguez-Navarro, A., **Schachtman, D.P.**, Spalding, E.P., Sentenac, H., Gaber, R.F. (1999) Identification and characterization of plant transporters using heterologous expression systems. *Journal of Experimental Botany* 50:1073-1087.
20. **Schachtman, D.P.,** Barker, S.J. (1999) Molecular approaches for increasing the micronutrient density in edible portions of food crops. *Field Crops Research* 60:81-92.
21. Smith, S.E., Rosewarne, G., Ayling, S.M., Dickson, S., **Schachtman, D.P.**, Barker, S.J., Reid, R.J., Smith, F.A. (1998) Phosphate transfer between vesicular-arbuscular (VA) mycorrhizal symbionts:insights from confocal microscopy, microphysiology and molecular studies. In J.P. Lynch, J. Derkman (eds.), *Phosphorus in Plant Biology:Regulatory Roles in Molecular, Cellular, Organismic and Ecosystem Processes*. American Society of Plant Physiology.
19. **Schachtman, D.P.**, Reid, R.J., Ayling, S. (1998) Phosphorus uptake by plants: From soil to cell. *Plant Physiology* 116:447-453.
18. Clemens, S., Antosiewicz, D.M., Ward, J.M., **Schachtman, D.P.**, Schroeder, J.I. (1998) The plant transporter LCT1 mediates the uptake of cadmium and calcium. *Proceedings National Academy Science USA* 95:12043-12048.
17. Diatloff, E., Kumar, R., **Schachtman, D.P.** (1998) Site directed mutagenesis reduces the Na^+ affinity of HKT1, a Na^+ energized high affinity K^+ transporter. *FEBS Letters* 432:31-36.
16. **Schachtman, D.P.**, Kumar, R., Schroeder, J.I., Marsh, E.L. (1997) Molecular and functional characterization of a novel low-affinity cation transporter (LCT1) in higher plants. *Proceedings National Academy Science USA* 94:11079-11084.
15. Bleby, T.M., Aucote, M., Kennett-Smith, A.K., Walker, G.R., **Schachtman, D.P.** (1997) Seasonal water use characteristics of the tall wheatgrass (*Agropyron elongatum*) in a saline environment. *Plant Cell and Environment*. 20:1361-1371.
14. Shennan, C., Grattan, S.R., May, D.M., Hillhouse, C.J., **Schachtman, D.P.**, Wander, M., Roberts, B., Tafoya, S., Burau, R.G., Zelinski, L. (1995) Long-term feasibility of irrigating processing tomato with saline drainage water in a three-year rotation with cotton. *Journal of Environmental Quality* 24:476-486.
13. Munns, R., **Schachtman, D.P.**, Condon, A.G. (1995) Significance of time scale in distinguishing genotypic differences in salt tolerance. *Australian Journal of Plant Physiology* 22:561-575.
12. **Schachtman, D.P.**, Schroeder, J.I. (1994) Structure and transport mechanism of a high-affinity potassium transporter from higher plants. *Nature* 370:655-658.
11. Munns, R., **Schachtman, D.P.** (1993) Plant responses to salinity. In D.R. Buxton (ed.), *International Crop Science I,* pp. 741-745. Crop Science Society of America, Madison, WI.

10. Lagudah, E., Appels, R., McNeil, D., **Schachtman, D.P.** (1993) Exploiting the diploid D genome for wheat improvement. In *Gene Conservation and Exploitation, 20th Stadler Genetics Symposia Series,* pp. 87-107. Colombia, Missouri.
9. Tyerman, S.D., **Schachtman, D.P.** (1992) The role of ion channels in plant nutrition and prospects for their genetic manipulation. *Plant and Soil* 146:137-144.
8. **Schachtman, D.P.**, Schroeder, J.I., Lucas, W.J., Anderson, J.A., Gaber, R.F. (1992) Expression of an inward-rectifying potassium channel by the *Arabidopsis KAT1* cDNA. *Science* 258:1654-658.
7. **Schachtman, D.P.**, Lagudah, E.S., Munns, R. (1992) The expression of salt tolerance from *Triticum tauschii* in hexaploid wheat. *Theoretical and Applied Genetics* 84:714-719.
6. **Schachtman, D.P.**, Munns, R. (1992) Sodium accumulation in *Triticum* species that differ in salt tolerance. *Australian Journal of Plant Physiology* 19:331-340.
5. **Schachtman, D.P.**, Tyerman, S.D., Terry, B.R. (1991) K^+/Na^+ selectivity of a cation channel in the plasma membrane of root cells is not different in salt-tolerant and salt-sensitive wheat species. *Plant Physiology* 97:598-605.
4. **Schachtman, D.P.**, Munns, R., Whitecross, M.I. (1991) Variation in sodium exclusion and salt tolerance in *Triticum tauschii*. *Crop Science* 31:992-997.
3. **Schachtman, D.P.**, Kelman, W. (1991) Potential of *Lotus* germplasm for the development of salt, aluminum and manganese tolerant pasture plants. *Australian Journal of Agricultural Research* 42:139-140.
2. Shennan, C., **Schachtman, D.P.**, Cramer, G. (1990) Variation in [^{75}SE] selenate uptake and partitioning among tomato cultivars and wild species. *New Phytologist* 115:523-530.
1. **Schachtman, D.P.**, Bloom, A.J., Dvorak, J. (1989) Salt-tolerant *Triticum* X *Lophopyrum* derivatives limit the accumulation of sodium and chloride ions under saline-stress. *Plant, Cell and Environment* 12:47-55.

INVITED SYMPOSIA/PLENARY TALKS AT NATIONAL AND INTERNATIONAL CONFERENCES

December 2018	*Sustainable Biofuel Systems*, Symposium on Facing Challenges in Plant Resilence, Michigan State University
August 2018	*Changes in the soil, root and rhizosphere bacterial microbiome of soybean lines that differ in tolerance to alkaline soils*. Molecular and Cellular Biology of the Soybean, Athens, GA
June 2018	*Changes in the root, soil and rhizosphere microbiome due to water deficit and root exudates in maize*. 3rd Molecular Plant International Symposium. Plant-Environment Interactions, Xian, China,
October 2017	*Root exudates are a functional trait that influences root microbiome interactions*, ASA, CSSA, and SSSA Annual Meeting, Tampa, FL
June 2017	34th Annual Symposium of the Interdisciplinary Plant Group Root Biology, Columbia, MO
April 2017	Millipore Sigma, St. Louis, MO
April 2016	2016 Daugherty Water for Food Institute Global Conference, Lincoln, NE
March 2016	2016 DOE Office of Science. Genomic Sciences Program Annual PI Meeting, Tyson, VA
June 2015	Phytobiomes 2015: Designing a New Paradigm for Crop Improvement, Washington, DC
July 2012	*Development of nitrogen use efficient corn for enhanced productivity and sustainability*. 3rd International Symposium on Genomics and Crop Genetic Improvement, Wuhan, China

May 2012	*Development of nitrogen use efficient corn for enhanced productivity and sustainability*. Integrated Plant Group Symposium. Plant Physiology in the Omics Era, Columbia, MO
December 2011	*Nutrient sensing and capture is essential for high yield.* Cold Spring Harbor Laboratory, New York, NY
August 2010	International Conference on Plant Nutrition. ICRISAT, Hyderabad India (declined)
February 2010	*How do plants sense and capture minerals?* (keynote presentation), San Diego CMA Symposium
January 2010	3rd Pan American Plant Membrane Transport Workshop, Puebla, Mexico
September 2009	Banbury Conference on Mycorrhiza, Cold Spring Harbor
August 2009	University of Florida Proteomics Symposium
June 2009	Society for Experimental Biology, Glasgow, UK
February 2008	Keystone Symposia on Hormones (short talk presenter), Keystone, CO
August 2006	8th International Congress of Plant Molecular Biology. Adelaide, Australia
June 2006	American Society of Enology and Viticulture 57th Annual Meeting, Sacramento, CA
May 2006	2nd Pan American Plant Membrane Transport Workshop, South Padre Island, TX
May 2006	23rd Annual Missouri Symposium, Plant Roots, Columbia, MO
April 2006	Keystone Symposia Plenary Session Speaker, Copper Mountain, CO
September 2005	XV International Plant Nutrition Colloquium, Beijing, China (keynote speaker)
January 2005	Abiotic Stress Workshop. Plant and Animal Genome Conference, San Diego, CA
July 2004	13th International Workshop on Plant Membrane Biology, Montpellier, France
March 2004	Society for Experimental Biology, Edinburgh, UK
January 2004	Plant and Animal Genome Conference, San Diego, CA
June 2003	1st Pan American Plant Membrane Biology Workshop, Cuernavaca, Mexico
October 2002	Agricultural Plant Stress II APSRC Symposium, Chonnam National University, Kwangju, South Korea
July 2002	Gordon Conference on the Cellular Basis of Salinity and Drought, Oxford
September 1999	Peter Goldacre Lecture. Australian Society of Plant Physiologists 39th Annual Conference
August 1998	*Transporter expression in Xenopus oocytes*. Technical Workshop. Eleventh International Workshop on Plant Membrane Biology, Cambridge, UK
August 1996	Gordon Conference on the Cellular Basis of Salinity and Drought, New Hampshire
July 1995	Tenth International Workshop on Plant Membrane Biology, Regensberg, Germany
October 1991	Fourth International Symposium: Genetic Aspects of Plant Mineral Nutrition Canberra, Australia

INVITED SEMINARS/PRESENATIONS

December 2018	*Genotype and abiotic stress shape the root microbiome of maize.* INRA/CNRS, Montpellier, France
October 2018	*Variation in root exudate composition and its role in shaping root, rhizosphere and soil microbial communities.* Huazhong Agricultural University, Wuhan, China

June 2018	*Changes in agricultural root microbiomes due to drought, pH and plant genotype and the role that root exudates play in shaping root microbial communities.* Huazhong Agricultural University, Wuhan, China
January 2018	*Exploring soil, root and rhizosphere microbiomes in Nebraska*. Agronomy and Horticulture Department, University of Nebraska–Lincoln
November 2017	*Finding and optimizing soil microbes for enhancing productivity and abiotic stress tolerance.* School of Integrated Plant Science, Cornell University (Invited seminar)
October 2017	*Changes in the root microbiome due to water deficit in corn and nitrogen deficiency in sorghum.* Agronomy Department, Iowa State University (Invited seminar)
April 2017	*Changes in the root microbiome due to water deficit in corn and nitrogen deficiency in sorghum.* University of Massachusetts, Amherst (Invited seminar)
January 2017	*Finding and optimizing soil microbes for enhancing agricultural productivity and sustainability*. Agriculture Builders of Nebraska, Inc.
December 2016	*Who's there and why? Changes in the corn root microbiome due to water deficit and hybrid age*. Colorado State University (Invited seminar)
December 2016	*Microbiomes the influence of the environment and plant roots.* Valent Biosciences
November 2015	*Finding and optimizing soil microbes for enhancing agricultural productivity and sustainability*. Growing our Future 2015, Agronomy and Horticulture Department, University of Nebraska–Lincoln
December 2014	*The plant soil microbe continuum*. Agronomy and Horticulture Advisory Board, University of Nebraska–Lincoln
November 2014	*Nutrient sensing and signaling in plant roots and future plans for the UNL Center for Biotechnology*. School of Biological Sciences, University of Nebraska–Lincoln (Invited seminar)
November 2014	*Nutrient sensing and signaling in plant roots and future plans for the UNL Center for Biotechnology.* Center for Biotechnology, University of Nebraska–Lincoln (Invited seminar)
May 2014	*The plant soil microbe continuum.* University of Nebraska Faculty Retreat
April 2014	*Microbial solutions for agriculture*. University of Nebraska (Presentation to Vice Chancellor and Mr. Jeff Raikes from the Gates Foundation)
March 2014	*Technological advances as an important driver for scientific research: The role of core facilities.* University of Nebraska–Lincoln, Center for Biotechnology (Invited seminar)
September 2013	Center for Biotechnology, University of Nebraska–Lincoln
February 2013	Biochemistry Department, University of Nevada, Reno (Invited seminar)
April 2012	*Root sensing and signaling of nutrients and drought in model systems and crops.* University of Nebraska–Lincoln
February 2012	*Increasing crop productivity under nutrient stress. Molecular mechanisms and physiological processes in non-mycorrhizal and mycorrhizal roots.* Crop and Soil Environmental Sciences, Virginia Tech, Blacksburg, VA
November 2011	Department of Plant Science and Landscape Design, University of Maryland, College Park, MD
June 2011	*Sensing and response to mineral nutrients in mycorrhizal and non-mycorrhizal roots on Petri plates and in agricultural soil*, Samuel Roberts Noble Foundation, Ardmore, OK

July 2010	*Elucidating components of the potassium sensing network in Arabidopsis roots*. RIKEN Plant Science, Japan
August 2009	*Plant biotechnology and environmental stress signaling*. Korea
October 2008	*Nutrient sensing and signaling in plants.* Academia Sinica, Taiwan
May 2008	*Prospecting for chemical signals in xylem sap that regulate leaf growth and water loss under drought in maize*, Monsanto Company, St. Louis
April 2008	*Nutrient sensing and signaling in plant roots*, Monsanto Company, St. Louis
November 2007	*Molecular adaptations to potassium deficiency.* NSF Funded Symposium US, Pakistan
October 2007	*Transcriptional control of auxin signal transduction modulates lateral root growth under mineral nutrient deficiency*. College Park, MD
April 2007	*Zinc and iron accumulation in transgenic cassava*. Grand Challenge 9 Nairobi, Kenya
March 2007	*Nutrient sensing and signaling in plants.* Huazhong Agricultural University, Wuhan, China
February 2007	*Nutrient sensing and signaling in plants.* Horticulture Department, Purdue University
February 2007	*Nutrient sensing and signaling in plants.* Biochemistry Department, University of Missouri, Columbia
October 2006	*Root to shoot communication in maize under drought conditions via the xylem*, Washington University Plant Biology Annual Retreat
October 2006	*Nutrient sensing and signaling in plants.* Truman State University
February 2006	*Plant root signaling in response to nutrient deprivation,* University of Missouri, St. Louis
December 2005	*Mineral nutrient signaling in Arabidopsis Roots.* Danforth Plant Science Center
October 2005	*Mineral nutrient signaling in Arabidopsis Roots.* University of Missouri, Columbia
September 2005	*Mineral nutrient signaling in Arabidopsis Roots.* University of Illinois, Champaign
January 2005	*Hydrogen peroxide mediates plant root cell signaling in response to nutrient deprivation.* Monsanto Company, St. Louis
November 2004	*Profiling the xylem sap of maize for changes in minerals, organic acids and proteins under drought.* Instituto de Biotecnologia - UNAM, Cuernavaca, Mexico
December 2003	*Nutrient sensing by Arabidopsis roots.* Donald Danforth Plant Science Center
October 2003	*Plant biotechnology.* St. Louis Science Center (Scientific presentation to general public)
September 2003	*Potassium sensing by Arabidopsis roots.* 2nd Midwest Rhizosphere Symposium, St. Louis
April 2003	*Plant biotechnology.* St. Louis Science Center (Scientific presentation to general public)
October 2002	*Plant root response to potassium deficiency*. Korea University, Seoul
September 2002	*Engineering zinc uptake in cereal root and whole plants.* Horticulture Department, Purdue University
February 2002	*Engineering zinc uptake in cereal root and whole plants*. Department of Biology, Washington University, St. Louis,
January 2002	*Understanding and increasing zinc uptake in cereals.* Department of Agronomy and Plant Science Unit, University of Missouri, Columbia,

November 2001	*Plant root function under saline conditions.* Donald Danforth Plant Science Center Annual Symposium, St. Louis
October 2001	*The structure and function of a plant cation transporter (HKT1) expressed in roots.* University of Illinois, Champaign
January 2001	*Manipulating plant ion transporter structure and function to reduce Na^+ and Cl^- accumulation under saline conditions*. Donald Danforth Plant Science Center, St. Louis
January 2001	Manipulating plant ion transporter structure and function to reduce Na^+ and Cl^- accumulation under saline conditions University of Missouri, Columbia, MO
May 2000	*Improving the K^+ affinity and transport under saline conditions of a K^+/Na^+ symport (HKT1)*. ENSA-M/INRA/CNRS, Montepellier, France
April 2000	*Uptake and transport of toxic ions from soils to whole plants and molecules*. Utah State University, Logan, UT
April 2000	*Reducing the uptake and transport of toxic ions from saline soils*. Iowa State University, Ames, IA
September 1999	*Plant membrane transporters "downunder" - enhancing mineral nutrition and resistance to abiotic stress.* Australian Society of Plant Physiologists 39th Annual Conference, Peter Goldacre Lecture, Gold Coast
September 1999	*Using toxic ions to define regions of HKT1 (a K^+/Na^+ transporter) that are involved in potassium and sodium transport.* Australian Society of Plant Physiologists 39th Annual Conference, Gold Coast
April 1999	*Molecular structure and function of two cation transporters HKT1 and LCT1 expressed in plant roots*. CSIRO, Plant Industry Horticulture Unit, Adelaide
October 1998	*Connections between K^+ uptake mechanisms in plants, yeast, and bacteria* Department of Horticulture, Viticulture and Oenology, University of Adelaide, Adelaide, Australia
September 1998	*Molecular mechanisms of plant mineral nutrition.* Department of Biochemistry and Molecular Biology, Australian National University, Canberra, Australia
March 1998	*The structure and function of two plant cation transporters.* Botany Department, University of Melbourne, Melbourne, Australia
February 1998	*Functional and structural studies on HKT1, a Na^+ energized high affinity K^+ transporter.* University of London, Wye College, UK
January 1998	*Functional and structural studies on HKT1, a Na^+ energized high affinity K^+ transporter.* Department of Botany, Cambridge, UK
January 1998	*Functional and structural studies on two membrane transport proteins in higher plants.* Department of Plant Physiology, University of Tubingen, Germany
August 1997	*Zinc efficiency in wheat.* GRDC Workshop on Micronutrients and Medic Decline, Waite Campus, Adelaide
March 1997	*Molecular plant mineral nutrition.* Ohio State University, Columbus, OH
February 1997	*Changing the structure and function of a potassium transporter*. Workshop on Molecular Mineral Nutrition of Plants, CSIRO, Canberra
April 1996	*A PESTy plant ion transporter.* Adelaide Ion Channels Symposium, University of Adelaide
April 1995	*A review of the molecular biology of plant and animal potassium channels.* Adelaide Ion Channels Symposium, Medical School, University of Adelaide
January 1995	*Molecular biology of potassium transport in plants.* Curtin Conference, Structure and Function of Ion Channels, Canberra

November 1994	*Forward & reverse genetic approaches to understanding sodium exclusion in plants.* Department of Genetics, The University of Adelaide
November 1994	*Molecular mechanisms of potassium uptake in higher plants.* Department of Medical Biochemistry, The Flinders University
August 1994	*Potassium uptake in higher plants*. Department of Botany, The University of Adelaide
June 1994	*High-affinity potassium uptake in higher plants*. Florigene, Melbourne

EXTRAMURAL SERVICE

Manuscript review

Australian Journal of Plant Physiology, Journal of Experimental Botany, Journal of Plant Physiology, Nature, Physiologia Plantarum, Planta, Plant and Soil, Plant Cell, Plant Cell and Environment, Plant Journal, Phytobiomes, Plant Physiology, Proceedings of Nat. Acad. Sci. USA, Protoplasma, Proteomics, Nature, Nature Biotechnology, New Phytologist, Science, TAG

Ad hoc grant reviews

Australian Research Council, U.S. Department of Agriculture NIFA, U.S. Department of Energy, National Science Foundation, UK Biotechnology and Biological Sciences Research Council, European Granting agencies and programs, UC-Berkeley, Saudi Arabia Research Council

Professional service

2016-present	Associate editor, *Phytobiome Journal* (reviewer of 7-10 papers per year)
2007-present	Editorial board member, *Molecular Plant Journal*
2018	USDA/NSF Biotic Stress grant panel
July 2017	Committee of Visitors review panel, Department of Energy
2012-2016	Lawrence Bogorad Award Committee (ASPB)
2014, 2015	Council of Agricultural Science and Technology (CAST), representing American Society for Plant Biology
2010	Organizing editor, *Molecular Plant* special issue on nutrient sensing
2004-2010	Monitoring editor, *Plant Physiology*
Spring 2008	Review panel member, NSF Physiological Systems,
2007-2008	Plant Biology Graduate Program Steering Committee, Washington University
Spring 2005	Review panel member, NSF Integrated Plant Biology
Spring 2004	Review panel member, NSF Plant Genome Program
2003-2006	Women in Plant Biology Committee, American Society Plant Biologists
2003, 2004	Member, Emerging Leadership Council (ELC), St Louis Science Center
1997-1999	Member, *Australian Journal of Plant Physiology* advisory board
1996-1999	Secretary, Australian Society of Plant Physiologists

INTRAMURAL SERVICE

Institutional Service at the University of Nebraska Lincoln

2018	Chair, search committee for Agronomy and Horticulture root biologist
2018	Chair, search committee for Institute of Agriculture and Natural Resource Phenomics Program director
2018	Member, search committee for Associate Vice Chancellor Research

2018	Presentation on high throughput crop phenotyping, Policymaker Research Summit
2017	Presentation of high throughput crop phenotyping, University of Nebraska Regents
2015	Chair, search committee for Plant Pathology faculty member in metagenomics
2014-2018	Chair, Agronomy and Horticulture seminar series
(2017-present)	Nebraska Seminar Committee
(2017-present)	Committee for Translational Biology
(2016-present)	Complex Biosystems Admissions Committee

Institutional Service at the Danforth Center

2005 - 2008	Co-PI NSF REU internship program
2004, 2005, 2006	Member, IT oversight committee
2003-2006	Member, Proteomics/mass spec oversight committee
2003, 2004	Member, Danforth seminar committee

Symposia Organization

November 2018	Organizer Nebraska Center for Biotechnology Sequencing Workshop
October 2018	Chair and organizer, Microbiomes from Different Habitats: Soil, Water and Gut. Lincoln NE
April 2018	Co-Chair, Plant Phenomics Symposium
October 2014	Chair, Center for Plant Science Innovation Retreat and Symposium
January 2014	Chair, Monsanto Fellow Symposium on The Microbiome
May 2005	Co-organizer, Plant Roots: From Genes to Form and Function, U of M, Columbia
April 2005	Organizer, Proteomics Workshop and Symposium, Donald Danforth Plant Science Center
2003	Co-organizer, Midwest Rhizosphere Symposium, Donald Danforth Plant Science Center
	Organizing committee, 2nd Pan Am Plant Membrane Biology Workshop, Padre Island, Texas
2008	Program Chair, First Danforth All-Center Scientific Retreat
2008	Co-organizer, Banbury Conference on Nutrient Sensing at Cold Spring Harbor

TEACHING EXPERIENCE

University of Nebraska–Lincoln, 2014-present

Life 491/891 Core Facilities at the University of Nebraska
Coordinate a course on the core facility technologies in the Nebraska Biotechnology Center

Donald Danforth Plant Science Center, 2006-2011

Taught courses at University of Missouri and Washington University
Included a laboratory course for graduate and advanced undergraduates, an undergraduate plant physiology course, and a plant journal club.

11-week Summer Internship Program in Biological Research
Provided students with a broad research experience. Included lab research under the supervision of an individual PI; workshops in proteomics/mass spectrometry, microscopy and

tissue culture facilities; trips to Washington University, Monsanto, and Missouri Botanical Gardens; weekly discussions on current scientific topics; and training in preparing a scientific paper and presenting a research talk.

Department of Botany, Adelaide University, 1994-1998

Level I - Biology I - Molecular Genetics Section (1995-1998)
Lecturing, discussions with tutors, exam question preparation and marking.

Level II - Botany II - Plant Physiology Section (1995-1998)
Lecturing, consultations with students, exam question preparation and marking. In 1997 I coordinated the physiology/biochemistry section of the laboratory practicals.

Level III - Plant Membrane Transport & Nutrition (similar to graduate level courses in the U.S.)
Lecturing, consultation with students, exam question preparation and marking, coordination of laboratory practical sessions, preparation of practical handbook, subject coordination. Labs varied from year to year from traditional laboratory practicals to project-based, semester-long practicals.

Level III - Ecophysiology of Terrestrial Plants (1997)
Lecturing, exam question preparation, demonstrating

Other Teaching Experience

1985-1986, Teaching Assistant, University of California, Davis
Plant Science 2 (Freshman level)
Production of Vegetable Crops (Junior level)

MENTORING

Graduate (PhD) students

2017 - present	Yen Ning Chai
2015 - 2018	Morgan McPherson
PhD in 2011	Jiyul Jung
PhD in 1999	Zaida Antoniolli
PhD in 2000	Greg Natrass
PhD in2002	Sunita Ramesh

Monsanto Staff (Now Bayer Crop Sciences)

2008 - 2014	Abha Khandelwal, PhD	Senior Scientist Bayer Crop Science
2008 - 2014	Ewan Ross, BSc	Scientist Bayer Crop Science
2008 - 2014	Huai Wang, PhD	Senior Scientist Bayer Crop Science
2008 - 2014	Aniruddha Raychaudhuri, PhD	Senior Scientist Bayer Crop Science
2008 - 2014	Amarjit Basra, PhD	Senior Scientist Bayer Crop Science
2008 - 2014	Mingsheng Peng, PhD	Scientist Bayer Crop Science
2008 - 2014	Steve Duff, PhD	Scientist Bayer Crop Science
2008 - 2014	Robert Meister, PhD	Project Lead Bayer Crop Science
2008 - 2014	Xiaoyun Wu, MSc	Scientist Bayer Crop Science
2008- 2014	Tomasz Paciorek	Scientist Bayer Crop Science

Postdoctoral Fellows

2018-present	Hao Zhang
2017-present	Jingjie Hao

2015-present	Peng Wang	
2008-2011	Daniel Ruzicka	R and D Collaboration Manager Lead, Bayer
2006-2010	Min Jung Kim	KOSEF Fellow; Patent Examiner Korean Intellectual Property Office
2005-2006	Zhi Qi	Professor, Inner Mongolia University
2005- 2008	Eliana Gaitan-Solis	Managing Research Scientist, ILTAB, Danforth Center
2004-2006	Sophie Alvarez	Director, Proteomics Metabolomics Core, University of Nebraska
2003-2005	Jason Goodger	ARC Fellow, University of Melbourne
2002-2008	Ryoung Shin	Unit Leader, RIKEN, Japan
2002-2005	Ulrich Hammes	Professor University of Regensburg, Germany
2002-2004	Sung-Ju Ahn	Professor, Chonnam Nat. University, South Korea
1998-2001	Weihong Liu	MD, Cardiologist, Adelaide
1997-1999	Garry Rosewarne	Research Scientist, CSIRO
1996-1998	Eugene Diatloff	Plant Physiologist, Agricool
1995-1996	Raman Kumar	Molecular Biologist

Summer Interns

2018	Chloe Jensen	with Professor, Phyllis Higley (St. Mary College) – (first prize in the UNL RUE poster competition)
2007	Carlos Ortiz	University of Texas, Pan America
2007	Susanna Muenez	Webster University
2006	Blair Mobley	University of Missouri, Columbia
2005	Mickila Harris	Fort Valley State University, Georgia
2004	Adriene Lucas	Fort Valley State University, Georgia
2003	Rachel Katz	Tulane University, Louisiana
2002	Laura Ernst	Washington University, Missouri
2006	Eric Lockhart	Fort Valley State University, Georgia

Undergraduate researchers

2016-present	Ibrahim Alnajem	Junior Biochemistry UNL
2018, summer 2017	Katelyn Nielsen	Freshman Biochemistry UNL
summer 2018	Cadence Hernandez	Junior Agronomy UNL
2018 - present	Brock Vetick	and as high school student in 2016 & 2017
2017, 2018	Amanda Carlson	Junior School Biological Sciences UNL
summer 2017, 2018	Elizabeth Ewert	Sophmore Engineering UNL
summer 2017	Alan Vandenberg	Farming
summer 2017	Lane Uhing	UNMC Medical School
2016-2018	Melody Nyugen	Junior Biochemistry UNL
2016-2018	Ryan Langemeier	Pursuing MSc at Auburn in weed science
2016-2017	Alex Schmidt	UNMC Medical School
summer 2016,	Zachary Cook	Agronomist at Aurora Coop

2017		
summer 2016	Leah Abebe	Enrolled in physician assistant school
summer 2016	Danielle Topel	completed master's in teaching
2016	Yen Ning Chai	graduate student at UNL
2015	Morgan McPherson	graduate student at UNL

Honours Students at University of Adelaide

5 between 1995 and 1997

Visiting Scientists

2018	Dr. Abdul Khan	Associate Professor, Nizwa University, Oman
2007-2008	Dr. Renu Pandey	Scientist, Indian Agricultural Research Institute, Delhi
2006-2007	Professor Guohau Mi	China Agricultural University, Bejing

Professional Development

2013	Leadership for High Performance	Olin Executive Certificate Program, Washington University in St. Louis