Michael Gutensohn

CURRICULUM VITAE

Division of Plant and Soil Sciences
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EDUCATION

1994-1999 **Ph.D. in Biology**, Botanical Institute, University of Cologne, Germany

1986-1993 **Diploma in Biology,** Julius-Maximilians-University, Würzburg, Germany

1990-1991 **Graduate exchange student,** State University of New York at Albany, NY

RESEARCH

since 2015 **Assistant Professor of Horticulture**
Division of Plant and Soil Sciences, West Virginia University

since 2015 **Ray Marsh and Arthur Pingree Dye Professor**
Division of Plant and Soil Sciences, West Virginia University

2008-2015 **Post-doctoral Research Associate** (Supervisor: Dr. Natalia Dudareva)
Department of Horticulture and Landscape Architecture, Purdue University

2000-2008 **Lecturer and Research Associate** (Supervisor: Dr. Ralf Bernd Klösgen)
Institute of Biology - Plant Physiology,
Martin-Luther-University Halle-Wittenberg, Germany

1999-2000 **Research Associate** (Supervisor: Dr. Ulf Ingo Flügge)
Botanical Institute, University of Cologne, Germany

1994-1999 **Research Assistant** (Supervisor: Dr. Ulf Ingo Flügge)
Botanical Institute, University of Cologne, Germany

1992-1993 **Research Assistant** (Supervisor: Dr. Ulf Ingo Flügge)
Julius-v.-Sachs-Institute for Biosciences,
Julius-Maximilians-University Würzburg, Germany

1990-1991 **Graduate Fellow** (Supervisor: Dr. Joseph Peter Mascarenhas)
State University of New York at Albany, NY

PUBLICATIONS

Publications on biosynthesis of volatile compounds and their role in plant-insect interactions

Gutensohn M. and Dudareva N. (2016) Tomato fruits – a platform for metabolic engineering of terpenes. ***Methods Enzymol.*** 576, 333-359.

Widhalm J.R., **Gutensohn M.**, Yoo H., Adebesin F., Qian Y., Guo L., Jaini R., Lynch J.H., McCoy R.M., Jacob T. Shreve J.T., Thimmapuram J., Rhodes D., Morgan J.A. and Dudareva N. (2015) Identification of a plastidial phenylalanine exporter that influences flux distribution through the phenylalanine biosynthetic network. ***Nat. Commun.*** 6:8142, doi: 10.1038/ncomms9142

Henry L.K., **Gutensohn M.**, Thomas S.T., Noel J.P. and Dudareva N. (2015) Orthologs of the archaeal isopentenyl phosphate kinase regulate terpenoid production in plants. ***Proc. Natl. Acad. Sci. USA*** 112, 10050-10055.

Gutensohn M., Nguyen T.T.H., McMahon R.D., Kaplan I., Pichersky E. and Dudareva N. (2014) Metabolic engineering of monoterpene biosynthesis in tomato fruits via introduction of the non-canonical substrate neryl diphosphate. ***Metab. Eng.*** 24, 107-116.

Gutensohn M., Orlova I., Nguyen T.T.H., Davidovich-Rikanati R., Ferruzzi M., Sitrit Y., Lewinsohn E., Pichersky E. and Dudareva N. (2013) Cytosolic monoterpene biosynthesis is supported by plastid-generated geranyl diphosphate substrate in transgenic tomato fruits. ***Plant J.*** 75, 351-363 (featured article and title page).

Heinig U.*, **Gutensohn M.***, Dudareva N. and Aharoni A. (2013) The challenges of cellular compartmentalization in plant metabolic engineering. ***Curr. Opin. Biotechnol.*** 24, 239-246.

Gutensohn M., Nagegowda D.A. and Dudareva N. (2013) Involvement of compartmentalization in monoterpene and sesquiterpene biosynthesis in plants. In: Bach T.J. and Rohmer M. (eds) Isoprenoid synthesis in plants and microorganisms: New concepts and experimental approaches, Springer, New York, pp. 155-169.

Gutensohn M.*, Klempien A.*, Kaminaga Y.*, Nagegowda D.A., Negre-Zakharov F., Huh J.-H., Luo H., Weizbauer R., Mengiste T., Tholl D. and Dudareva N. (2011) Role of aromatic aldehyde synthase in wounding/herbivory response and flower scent production in different Arabidopsis ecotypes. ***Plant J.*** 66, 591-602.

Orlova I., Nagegowda D.A., Kish C.M., **Gutensohn M.**, Maeda H., Varbanova M., Fridman E., Yamaguchi S., Hanada A., Kamiya Y., Krichevsky A., Citovsky V., Pichersky E. and Dudareva N. (2009) The small subunit of snapdragon geranyl diphosphate synthase modifies the chain length specificity of tobacco geranylgeranyl diphosphate synthase in planta. ***Plant Cell*** 21, 4002-4017.

Nagegowda D.A., **Gutensohn M.**, Wilkerson C.G. and Dudareva N. (2008) Two nearly identical terpene synthases catalyze the formation of nerolidol and linalool in snapdragon flowers. ***Plant J.*** 55, 224-239.

Publications on metabolite and protein transport in plant cellular organells

Ladig R., Sommer M.S., Hahn A., Leisegang M.S., Papasotiriou D.G., Ibrahim M., Elkehal R., Karas M., Zickermann V., **Gutensohn M.**, Brandt U., Klösgen R.B. and Schleiff E. (2011) A high-definition native polyacrylamide gel electrophoresis system for the analysis of membrane complexes. ***Plant J.*** 67, 181-194.

Banks J.A., Nishiyama T., Hasebe M., Bowman J.L., Gribskov M., dePamphilis C., Albert V.A., Aono N., Aoyama T., Ambrose B.A., Ashton N.W., Axtell M.J., Barker E., Barker M.S., Bennetzen J.L., Bonawitz N.D., Chapple C., Cheng C., Correa L.G., Dacre M., DeBarry J., Dreyer I., Elias M., Engstrom E.M., Estelle M., Feng L., Finet C., Floyd S.K., Frommer W.B., Fujita T., Gramzow L., **Gutensohn M.**, et al. (2011) The Selaginella genome identifies genetic changes associated with the evolution of vascular plants. ***Science*** 332, 960-963.

Jakob M., Kaiser S., **Gutensohn M.**, Hanner P. and Klösgen R.B. (2009) Tat subunit stoichiometry in *Arabidopsis thaliana* challenges the proposed function of TatA as the translocation pore. ***Biochim. Biophys. Acta*** 1793, 388-394.

Heeg C., Kruse C., Jost R., **Gutensohn M.**, Ruppert T., Wirtz M. and Hell R. (2008) Analysis of the *Arabidopsis* O-acetylserine(thiol)lyase gene family demonstrates compartment-specific differences in the regulation of cysteine synthesis. ***Plant Cell*** 20, 168-185.

Gutensohn M., Fan E., Frielingsdorf S., Hanner P., Hou B., Hust B. and Klösgen R.B. (2006) Toc, Tic, Tat et al.: Structure and function of protein transport machineries in chloroplasts. ***J. Plant Physiol.*** 163, 333-347.

Hust B. and **Gutensohn M.** (2006) Deletion of core components of the plastid protein import machinery causes differential arrest of embryo development in *Arabidopsis thaliana*. ***Plant Biology*** 8, 18-30.

Voigt A., Jakob M., Klösgen R.B. and **Gutensohn M.** (2005) At least two Toc34 protein import receptors with different specificities are also present in spinach chloroplasts. ***FEBS Lett.*** 579, 1343-1349.

Zhbanko M., Zinchenko V., **Gutensohn M.**, Schierhorn A. and Klösgen R.B. (2005) Knock out of leader peptidase prevents photoautotrophic growth of Synechocystis sp. PCC 6803. ***J. Bacteriol.*** 187, 3071-3078.

Klösgen R.B., Molik S., Frielingsdorf S., **Gutensohn M.**, Jakob M., Marques J. and Hou B. (2004) Protein transport across the thylakoid membrane. ***Endocytobiosis Cell Res.*** 15, 518-526.

Gutensohn M., Pahnke S., Kolukisaoglu Ü., Schulz B., Schierhorn A., Voigt A., Hust B., Rollwitz I., Stöckel J., Geimer S., Albrecht V., Flügge U.I. and Klösgen R.B. (2004) Characterization of a T-DNA insertion mutant for the protein import receptor atToc33 from chloroplasts. ***Mol. Genet. Genomics*** 272, 379-396.

Gutensohn M., Schulz B., Nicolay P. and Flügge U.I. (2000) Functional analysis of the two Arabidopsis homologues of Toc34, a component of the chloroplast protein import apparatus. ***Plant J.*** 23, 771-783.

Kammerer B., Fischer K., Hilpert B., Schubert S., **Gutensohn M.**, Weber A. and Flügge U.I. (1998) Molecular characterization of a carbon transporter in plastids from heterotrophic tissues: the glucose 6-phosphate/phosphate antiporter. ***Plant Cell*** 10, 105-117.

Fischer K., Kammerer B., **Gutensohn M.**, Arbinger B., Weber A., Häusler R.E. and Flügge U.I. (1997) A new class of plastidic phosphate translocators: A putative link between primary and secondary metabolism by the phosphoenolpyruvate/ phosphate antiporter. ***Plant Cell*** 9, 453-462.

Weber A., Menzlaff E., Arbinger B., **Gutensohn M.**, Eckerskorn C. and Flügge U.I. (1995) The 2-oxoglutarate/malate translocator of chloroplast envelope membranes: Molecular cloning of a transporter containing a 12-helix motif and expression of the functional protein in yeast cells. ***Biochemistry*** 34, 2621-2627.

TEACHING

since 2015 **Assistant Professor**
Division of Plant and Soil Sciences, West Virginia University

- PLSC 206 “Principles of Plant Science” (undergraduate lecture & lab course)

- HORT495 “Independent Study”

- research supervisor of one PhD student and two undergraduate students

PROFESSIONAL ACTIVITIES

Review Editor for *Frontiers in Plant Physiology*

Ad hoc Reviewer for *Biochim Biophys Acta, BMC Plant Biology, FEBS Letters, FEBS Journal, Functional Plant Biology, Journal Biological Chemistry, Journal Molecular Biology, Molecular and General Genetics, Molecular Plant, Plant Biology, Plant Cell, Plant Journal, Plant Physiology*

Reviewer for the chapter on “Secondary Metabolites and Plant Defense” of the “Plant Physiology” textbook by Taiz and Zeiger (sixth edition), Sinauer Associates, Inc. Publishers

Chair Gordon Research Seminar 2016, “Plant volatiles – novel functions and emerging applications”, Ventura, CA

MEMBERSHIPS PROFESSIONAL SOCIETIES

The American Society of Plant Biology (ASPB)