

CURRICULUM VITAE

MICHAEL A. SAVKA

Rochester Institute of Technology
Department of Biological Sciences
85 Lomb Memorial Dr., A350 Gosnell Bldg.
Rochester, NY 14623
585-475-5141 Office
585-475-7519 Laboratory
Email: massbi@rit.edu

PROFESSIONAL EXPERIENCE:

- 9/2003-present Associate Professor, Dept. Biological Sciences
Rochester Institute of Technology, Rochester, NY
Tenured 9/2003
- 3/2007-3/2008 Visiting Fellow with Dr. Thomas Burr, Dept. Plant Pathology,
Cornell University, New York State Agricultural Experiment Station, Geneva, NY
- 8/1999-8/2003 Assistant Professor, Dept. Biological Sciences,
Rochester Institute of Technology, Rochester, NY
- 8/1996-7/1999 Assistant Professor, University of West Florida, Dept. Biology,
Pensacola, FL
- 6/1993-7/1996 Postdoctoral Research Assistant with Dr. Andrew N. Binns.
University of Pennsylvania, Plant Science Institute, Dept. of Biology,
Philadelphia, PA
- 1/1994-5/1996 Adjunct Instructor of Microbiology (during my postdoc), Pennsylvania State
University, Delaware County campus, Dept. Biology, Media, PA
- 8/1985-6/1993 Research Technician / Graduate Research / Teaching Assistant with Dr. Stephen
K. Farrand, Dept. Plant Pathology, University of Illinois, Urbana-Champaign, IL
- 8/1983-7/1985 Speath Fellow, Dept. Forestry, University of Illinois at Urbana-Champaign, IL
- 8/1980-7/1983 Research Aide in the Laboratory of Dr. Franklin C. Cech, Division of Forestry,
West Virginia University, Morgantown, WV

EDUCATION:

- Ph.D., University of Illinois at Urbana-Champaign, Plant Pathology, 1993
Major: Biology and Molecular Genetics of Plant-Agrobacterium Interaction
- M.S., University of Illinois at Urbana-Champaign, Forestry, 1985
Major: Plant Physiology
- B.S.F., West Virginia University, Cum Laude, Forest Resource Management, 1983
Areas of Concentration: Genetics and Silviculture

ADDITIONAL TRAINING:

Michael A. Savka

Course: "Quorum sensing in plant-associated bacteria" International Centre for Genetic Engineering and Biotechnology and Central European Initiative. Ca'Tron Di Roncade, Italy; (2006).

Workshop: National Science Foundation "Maize Transformation", Madison, WI; (2003).

Course: "Molecular and Developmental Biology of Plants", Cold Spring Harbor Lab., NY; (1991).

AWARDS AND HONORS:

American Society of Microbiology, Undergraduate Research Fellowship Mentor; recipient, Ms. K. Kurniyati (2007)

American Society of Plant Biologists Mentor of Summer Undergraduate Research Fellowship (SURF); recipient, Ms. Stacy Kowsz (2007)

Sponsor and Mentor of 2005 Barry M. Goldwater Scholar, Mr. Russell A. Scott

American Society of Microbiology, Undergraduate Research Fellowship Mentor; recipient, Mr. Russell A. Scott (2005)

American Society of Plant Biologists Mentor of Summer Undergraduate Research Fellowship (SURF); recipient, Mr. Russell A. Scott (2004)

The Rochester Institute of Technology, Batting 1000 Club (2003)

American Society of Plant Biologists Travel Award to Annual Meeting (2001)

American Society of Plant Physiologists Travel Award to Annual Meeting (1997 and 1998)

University of Illinois Chapter of Sigma Xi Student Paper Competition; First Prize (1992)

Cold Spring Harbor Laboratory Course Support Grant (1991)

Graduate College and Department Travel Support Grant (1990 and 1991)

Speath Fellowship (University of Illinois at Urbana-Champaign, 1983-85)

Tidelands Timber Scholarship (West Virginia University, 1982)

Sigma Xi, National Research Society, and Golden Key National Honor Society

Gamma Sigma Delta, National Agricultural Honor Society

Xi Sigma Pi, National Forestry Honorary

Alpha Zeta, National Agricultural and Forestry Honorary

PROFESSIONAL MEMBERSHIP:

American Association for the Advancement of Science

American Society for Microbiology

International Society for Molecular Plant-Microbe Interactions

American Phytopathological Society

American Society of Plant Biologists

Council on Undergraduate Research

PROFESSIONAL SERVICE:

Manuscript Reviews: Cellular Microbiology (2003); Applied and Environmental Microbiology (2003); Plant Disease (2002, 2003); Journal of Applied Biotechnology (2003); European Journal of Plant Pathology (2004)

Graduate Student Presentation Competition Judge: Southern Section of the American Society of Plant Physiologists (1999)

GRANT REVIEWS:

American Society of Plant Biologists, Summer Undergraduate Research Fellowship program, 2006 program (2005)

Ad Hoc Review: National Science Foundation, (2008, 2007, 1999)
State of California, California Pierce's Disease Research Program (2008)
United States Department of Energy (2000);

COMPETITIVE FEDERAL FUNDING (awarded)

National Science Foundation (NSF), Undergraduate Research and Mentoring in the Biological Sciences (URM): The RIT Undergraduate Research Diversity Initiative: Increasing Participation of Deaf and AALANA Students in the Research Scholars Program. (9-08 to 8-10) \$247,230.00, (Senior Personnel).

Merck – AAAS Undergraduate Science Research Program, Merck Scholars. 11-07 to 10-10. \$60,000.00, (Senior Personnel).

United States Department of Agriculture (USDA), National Research Initiative, Competitive Grants Program (NRICGP), Pathogenicity of *Pantoea stewartii* subsp. *stewartii* on Transgenic Corn Producing Quorum Sensing Signals (grant no. 2002-35319-12577), 8-16-02 to 2-15-07, \$74,000.00 (PD).

National Science Foundation (NSF), Research Undergraduate Institution (RUI), Major Research Instrumentation (MRI). Acquisition of DNA Sequencer, Synthesizer and Spectrophotometer, 8-01 to 7-04; \$122,783.00 (Co-PI).

National Science Foundation (NSF), Instrumentation and Laboratory Improvement (ILI). Molecular Experiences in the Plant Science Program at the University of West Florida (award due 9850657); 5-98 to 4-00; \$91,502.00, (Co-PI).

INVITED SEMINARS:

"Specific autoinducer-1 quorum sensing system interference with maize extracts" Theoretical and Practical Course "Quorum Sensing in Plant-Associated Bacteria" Co-sponsored by International Centre for Genetic Engineering and Biotechnology and Central European Initiative. Ca' Tron Di Roncade, Italy, November 13-15, 2006.

Symposium: Molecular Signaling in Phyllosphere Interactions. "Quorum sensing signaling in epiphytic bacterial pathogens – the use of host-produced signals to disrupt colonization". 2006 Joint meeting of the American Phytopathological Society, the Canadian Phytopathological Society and the Mycological Society of America. Québec City, Canada, July-August, 2006.

Antagonist-based control of quorum sensing regulated virulence in the corn pathogen, *Pantoea stewartii* subsp. *stewartii*. Dept. of Plant Pathology and New York State Agriculture Experiment Station, Cornell University, Geneva, NY, November, 2005.

"Corn-Produced Bacterial Quorum-Sensing Signals: A Strategy to Engineer Host Resistance to Stewart's Wilt Disease". West Virginia University, Morgantown, WV; Department of Biology; May 2003.

"Plant-Produced Quorum Sensing Signals: To Tailor Biocontrol Bacteria in Viticulture". Plant Genetic Resources Unit of USDA-ARS, Geneva, NY; May, 2001.

"Inducible Expression of Indole-3-Acetic Acid-Lysine Synthetase in Transgenic Plants". Virginia Tech., Blacksburg, VA; Department of Plant Pathology and Physiology; March, 1999.

"Plant-Produced Nutrient Resource in the Rhizosphere Influence Competition by Rhizobacteria". Louisiana State University, Baton Rouge, LA; Department of Plant Pathology; February, 1998.

"Opines in the *Agrobacterium* - Plant Interaction Confer a Form of Mutualism". Auburn University, Auburn, AL; Department of Plant Pathology; January, 1997.

PUBLICATIONS:

Michael A. Savka

Lowe N, Gan HM, Chakravartty V, Scott R, Szegedi E, Burr T and **Savka MA**. Quorum-sensing signal production by *Agrobacterium vitis* strains and their tumor-inducing and tartrate-catabolic plasmids. (In preparation).

Le PT, Carter, D, Klemann NA, von Bodman S and **Savka MA**. Quorum-sensing mimic substances from maize to the *Pantoea stewartii* subsp. *stewartii* pathogen. (In preparation).

The identification of a pleiotrophic RelA - SpoT homolog from a *Novosphingobium* sp. 2008. Gan, HM, Buckley L, Szegedi, E, Hudson, AO and **Savka, MA**. *Journal of Bacteriology*. (submitted 10-10-08).

Li Y, Gronquist MR, Hao G, Holden MR, Eberhard A, Scott R, **Savka MA**, Szegedi E, Sule S and Burr TJ. 2006. Chromosome and plasmid-encoded *N*-acyl homoserine lactones produced by *Agrobacterium vitis* wildtype and mutants that differ in their interactions with grape and tobacco. *Physiological and Molecular Plant Pathology* 67:284-290.

Scott R, Weil J, Le PT, Williams P, Fray RG, von Bodman S and **Savka MA**. 2006. Plant-produced bacterial *N*-acyl-homoserine lactones become components of phyllosphere, rhizosphere and soil. *Molecular Plant-Microbe Interactions* 19(3):227-239.

Savka MA, Oger P, Dessaux Y, Rossbach S. 2002. Engineered bacterial competitiveness and persistence in the phytosphere. *Molecular Plant-Microbe Interactions* 15(9):866-874.

Savka MA, Shu-Yi Wang, Wilson M. 2002. How to produce and characterize transgenic plants. *American Biology Teacher* 64(4):286-299.

Savka MA, Black RC, Binns AN. 2001. Tobacco etch virus leader sequence enhances inducible indole-3-acetic acid-lysine synthetase activity in transgenic plants. *Plant Physiology and Biochemistry* 39:631-641.

Savka MA and Binns AN. 2000. Introduction of DNA into plants. Pages 159-192. *In: Gene Transfer Methods: Introduction of Genes into Living Cells and Organisms*. Norton, PA and Steel, LF (eds.) BioTechniques Books. Eaton Publishing, Natick, MA, 272 pp. (ISBN 1-881299-34-1).

Jones AM, Im, K-H, **Savka MA**, Wu M-J, Dewitt NG, Shillito R, Binns AN. 1998. Auxin-dependent cell expansion mediated by overexpressed auxin binding protein 1. *Science* 282:1114-1117.

Zhang D, Shelby R, **Savka MA**, Dessaux Y, Wilson M. 1998. Separation, detection and quantification of imine-linked opines in plant tissues by high performance liquid chromatography. *Journal of Chromatography A* 813:247-253.

Savka MA and Farrand SK. 1997. Modification of Rhizobacterial Population by Engineering Bacterium Utilization of a Novel Plant-Produced Resource. *Nature Biotechnology* 15:363-368. Also noted in: *This Month in Nature Biotechnology* 1997. Specific plant-microbe interactions *Nature Biotechnology* 15:305.

Savka MA, Black RC, Binns AN, Farrand SK. 1996. Translocation and exudation of tumor metabolites in crown galled plants. *Molecular Plant-Microbe Interactions* 9:310-313.

Wilson M, **Savka MA**, Hwang I, Farrand SK, Lindow SE. 1995. Enhanced epiphytic colonization by an engineered mannityl opine-catabolizing *Pseudomonas syringae* strain on transformed mannityl opine-producing tobacco plants. *Applied and Environmental Microbiology* 61:2151-2158.

Farrand SK, Wilson M, Lindow SE, **Savka MA**. 1994. Modulating colonization by plant-associated microbes. *In*: M. H. Ryder, P. M. Stevens, and G. D. Bowen (eds.). Improving Plant Productivity with Rhizosphere Bacteria. CSIRO, Australia. pp. 233-237.

Savka MA, Liu L, Farrand SK, Berg RH, Dawson JO. 1992. Induction of hairy roots or pseudoactinorhizae on *Alnus glutinosa*, *A. acuminata* and *Elaeagnus angustifolia* by *Agrobacterium rhizogenes*. *Acta Oecologica* 13:423-431.

Savka MA and Farrand SK. 1992. Mannityl opine accumulation and exudation by transgenic tobacco. *Plant Physiology* 98:784-789.

Berg RH, Lui L, Dawson JO, **Savka MA**, Farrand SK. 1992. Induction of pseudoactinorhizae by the plant pathogen *Agrobacterium rhizogenes*. *Plant Physiology* 98:777-779.

Savka MA, Ravillion B, Noel GR, Farrand SK. 1990. Induction of hairy roots on cultivated soybean genotypes and their use to propagate the soybean cyst nematode. *Phytopathology* 80:503-508.

Savka MA, Dawson JO, Jokela JJ, Skirvin RM. 1987. A liquid culture method for rescuing immature embryos of eastern cottonwood. *Plant Cell, Tissue and Organ Culture* 10:221-226.

Savka MA, Jokela JJ, Skirvin RM, Dawson JO. 1985. Action of 6-benzylaminopurine and indole-3-butyric acid on development of immature embryos of *Populus deltoides* Bartr. *In*: Fourth North Central Tree Improvement Assoc. Meeting., August 12-15, Daniel E. Keathley (ed.). Dept. Forestry, Michigan State Univ., East Lansing, MI, pp. 140-148.

Jokela JJ and **Savka MA**. 1985. Performance of range-wide seed sources of Northern white cedar in three central Illinois plantations over a 20 year period. *In*: Fourth North Central Tree Improvement Assoc. Meeting, August 12-15, Daniel E. Keathley (ed.). Dept. Forestry, Michigan State Univ., East Lansing, MI, pp. 107-111.

Savka MA, Skirvin RM, Jokela JJ, Dawson JO. 1985. Culture of ovules containing immature embryos of eastern cottonwood in vitro. *In*: Proc. Fifth Central Hardwood Conf., April, 15-17, J. O. Dawson and K. A. Majerus (eds.). Dept. Forestry, Univ. of Illinois at Urbana-Champaign, pp. 234-238.

ABSTRACTS:

Gan, HM. Szegedi and **Savka MA**. 2008. Mutation of *relA* disrupts quorum sensing signal production and growth characteristics in a *Sphingomonas* sp. isolated from a grape crown gall tumor. General Meeting of the American Society for Microbiology, Boston, MA. Poster H-041. Presented by Han Ming Gan.

Carter D, Iannucci S, Horstman E, Balakrishna N, and **Savka MA**. 2008. Bioengineering maize producing a bacterial quorum-sensing signal for disease resistance to *Pantoea stewartii* subsp. *stewartii*. Annual Meeting American Society of Plant Biologists, Merida, Mexico, June 26-July 1. Abstract P15025, page 159.

Kowsz SJ, and **Savka MA**. 2008. Maize genotypes modulate quorum-sensing regulated virulence in *Pantoea stewartii* subsp. *stewartii*. Annual Meeting American Society of Plant Biologists, Merida, Mexico, June 26-July 1. Abstract P15028, page 160.

Han Ming Gan and Savka MA. 2008. Genetic cloning of a quorum-sensing synthase regulator. Dean Ian Gatley College of Science Undergraduate Researchers Seminar. RIT. May 7, 2008. Seminar presented by Mr. Han Ming Gan.

Horstman E, Balakrishna N, Carter D, and **Savka MA**. Characterization of bioengineered maize producing a bacterial quorum-sensing signal. 2008. Department of Biological Science, Rochester Institute of Technology. Imagine RIT Day. Presented by Erin Horstman and Natasha Balakrishna.

Horstman E, Balakrishna N, Carter D, and **Savka MA**. Characterization of bioengineered maize producing a bacterial quorum-sensing signal. Department of Biological Science, Rochester Institute of Technology, Rochester Academy of Science, 34th Annual Paper Session, Saturday, November 10, 2007, Hosted by SUNY, Geneseo, NY. Presented by Erin Horstman.

Kurniyati K, Carter D and **Savka MA**. Construction of a bioluminescent biosensor based on *Pantoea stewartii* quorum sensing receptor protein, EsaR. Department of Biological Science, Rochester Institute of Technology, Rochester Academy of Science, 34th Annual Paper Session, Saturday, November 10, 2007, Hosted by SUNY Geneseo NY. Presented by K. Kurniyati.

Chaand M., Szegedi E, Anderson T, and **Savka MA**. Characterization of quorum sensing signals from bacteria isolated from field grapevine tumors. Department of Biological Science, Rochester Institute of Technology and Research Institute for Viticulture and Enology, Hungary, Rochester Academy of Science, 34th Annual Paper Session, Saturday, November 10, 2007, Hosted by SUNY Geneseo, NY. Presented by Mudit Channd.

Gan HM., Szegedi E., and **Savka MA**. 2007. Mutation of *relA* gene disrupts *N*-acyl-homoserine lactone production and growth characteristics in *Sphingomonas* sp. isolated from a grapevine field crown gall tumor. Department of Biological Science, Rochester Institute of Technology and Research Institute for Viticulture and Enology, Hungary. Rochester Academy of Science, 34th Annual Paper Session, Saturday, November 10, 2007, Hosted by SUNY Geneseo, NY. Presented by Han Ming Gan.

Iannucci S., Carter D. and **Savka MA**. 2007. Bioengineering maize producing quorum sensing signals to disrupt biofilm formation in *Pantoea stewartii*. Department of Biological Science, Rochester Institute of Technology, Rochester, Rochester Academy of Science, 34th Annual Paper Session, Saturday, November 10, 2007, Hosted by SUNY Geneseo, NY. Oral presentation by Shandra Iannucci.

Kowsz, S and **Savka MA**. 2007. Examination of maize genotypes for quorum sensing interference. 16th Annual Undergraduate Research Symposium, Department of Chemistry, Rochester Institute of Technology, Rochester, NY. Presented by Ms. Stacy Kowsz.

Iannucci, S., Carter, D. and **Savka MA**. 2007. Production of quorum sensing signals by bioengineered corn. 16th Annual Undergraduate Research Symposium, Department of Chemistry, Rochester Institute of Technology, Rochester, NY. Presented by Ms. Shandra Iannucci.

Kurniyati, K. Carter, D. and **Savka MA**. 2007. A bacterial biosensor based on *Pantoea stewartii* quorum sensing receptor protein, EsaR. 16th Annual Undergraduate Research Symposium, Department of Chemistry, Rochester Institute of Technology, Rochester, NY. Presented by Ms. K. Kurniyati.

Kurniyati, K, Carter, D. and **Savka MA**. 2007. Construction of a bioluminescent plasmid reporter based on *Pantoea stewartii* quorum sensing receptor protein, EsaR. 71st Annual meeting of the Northeast Section of the American Society of Plant Biologists. SUNY College of Environmental Science and Forestry, Syracuse, NY, June 1-2. Presented by Ms. K. Kurniyati.

Iannucci, S, Carter D, and **Savka MA**. 2007. Bioengineering maize producing quorum sensing signals to disrupt biofilm formation in *Pantoea stewartii* subsp. *stewartii*. 71st Annual meeting of the Northeast Section of the American Society of Plant Biologists. SUNY College of Environmental Science and Forestry, Syracuse, NY, June 1-2. Presented by Ms. S. Iannucci.

Kurniyati K, Harriman R, Carter D, and **Savka MA**. 2006. Construction of a bioluminescence bacterial reporter based on *Pantoea stewartii* receptor protein, EsaR. Rochester Academy of Sciences Paper Day, Nov. 4, 2006, St. John Fisher College, Pittsford, NY. Presented by Ms. K. Kurniyati.

Anderson T, Carter D and **Savka MA**. 2006. Identification of bacterial communication signals (N-acyl-homoserine lactones) from grapevine tumor isolates. Rochester Academy of Sciences Paper Day, Nov. 4, 2006, St. John Fisher College, Pittsford, NY. Presented by Mr. Tom Anderson.

Yong TF, Chin SS, Sze CW, Pough H and **Savka MA**. 2006. Identification of plasmids in antibiotic resistant bacteria from wild spotted turtles. . Rochester Academy of Sciences Paper Day, Nov. 4, 2006, St. John Fisher College, Pittsford, NY. Presented by Ms. Chin SS, Ms. Yong TF and Ms. Sze CW.

Anderson T, Carter D and **Savka MA**. 2006. Identification of bacterial communication signals (N-acyl-homoserine lactones) from grapevine tumor isolates. 15th Annual Undergraduate Research Symposium, Department of Chemistry, Rochester Institute of Technology, Rochester, NY. Presented by Mr. Tom Anderson.

Yong TF, Chin SS, Sze CW, Pough H and **Savka MA**. 2006. Identification of plasmids in antibiotic resistant bacteria from wild spotted turtles. 15th Annual Undergraduate Research Symposium, Department of Chemistry, Rochester Institute of Technology, Rochester, NY. Presented by Ms. TF Yong and Ms. SS Chin.

Savka MA and von Bodman S. 2006. Quorum sensing signaling in epiphytic bacterial pathogens – the use of host-produced signals to disrupt colonization. Special Session presentations: Symposium: Molecular Signaling in Phyllosphere Interactions. Joint meeting of the American Phytopathological Society, the Canadian Phytopathological Society and the Mycological Society of America. Québec City, Canada, August 1. Abstract S-150. Pg 150 abstract bk. Presented by M. A. Savka.

Scott RA, Burr TJ and **Savka MA**. 2006. Host factors and population density integrate to influence accumulation and degradation of N-acyl-homoserine lactones in *Agrobacterium vitis*. 106th General Meeting, American Society for Microbiology, May 21-25, 2006. Poster presentation by Mr. Russell A. Scott. Abstract N-144, pg. 400 abstracts bk.

Scott, RA, Burr, T, and **Savka MA**. 2005. Long-chain N-acyl-homoserine lactone signal degradation in tumorigenic and non-tumorigenic strains of *Agrobacterium vitis*. Rochester Academy of Science Fall 2005 Scientific Paper Day, Finger Lakes Community College, Nov. 5. Presented by Mr. Russell A. Scott.

Le PT, Scott RA, and **Savka MA**. 2005. Interference of the autoinducer-2 quorum sensing system by maize. Presented at the Annual Meeting of the Society of Plant Biologists, July 16-20, 2005. *Plant Physiology Abstract Supplement*, p. 165, #354.

Scott, RA, Burr T, and **Savka MA**. 2005. Cell density-dependent accumulation of quorum sensing signals in *Agrobacterium vitis* strains. Presented at the Annual Meeting of the Society of Plant Biologists, July 16-20, 2005. *Plant Physiology Abstract Supplement*, p. 166, #362.

Lowe N and **Savka MA**. 2005. 14th Communication signals produced by tumor-inducing and tartrate-catabolic plasmids of *Agrobacterium vitis*. Annual Undergraduate Research Symposium, Department of Chemistry, Rochester Institute of Technology, Rochester, NY. Presented by Mr. Nathaniel Lowe.

Scott, RA, Burr T, and **Savka MA**. 2004. Cell density-dependent synthesis of quorum sensing signals in *Agrobacterium vitis* strains. Presented at the 31st Annual Paper Session of the Rochester Academy of Science. Nov. 6, 2004. Presented by R.A. Scott.

Le, PT, Scott R, Klemann NT, von Bodman SB, and **Savka MA**. 2004. Corn produce inhibitory substances to bacterial quorum sensing communication. Presented at the 31st Annual Paper Session of the Rochester Academy of Science. Nov. 6, 2004. Presented by Phuong T. Le.

Scott, RA. and **Savka MA**. 2004 Cell density-dependent synthesis of quorum sensing signals in *Agrobacterium vitis* strains. 13th Annual Undergraduate Research Symposium, Department of Chemistry, Rochester Institute of Technology, Rochester, NY. Presented by Mr. Russell Scott. Russell was awarded the first place award for his presentation.

Le PT, Klemann NT, Scott RA, von Bodman S, and **Savka MA**. 2004. Maize produce compounds that modulate bacterial quorum sensing communication. Presented at the Annual Meeting of the Society of Plant Biologists, July 24-28, 2004. *Plant Physiology Abstract Supplement*, p. 136, #555.

Scott RA, Burr TJ and **Savka MA**. 2003. Production of *N*-acyl-Homoserine lactones by nontumorigenic and tumorigenic strains of *Agrobacterium vitis*, 24th Annual Crown Gall Conference, Cornell University, Ithaca, NY; Nov. 23-24.

Klemann N and **Savka MA**. 2003. Quorum-sensing mimic compounds in genotypes of corn. 12th Annual Undergraduate Research Symposium, Department of Chemistry, Rochester Institute of Technology, Rochester, NY. Presented by Ms. Nicole Klemann.

Scott RA, Kim J, Burr TJ and **Savka MA**. 2003. Quorum-sensing signals from non-pathogenic and pathogenic isolates of *Agrobacterium vitis*. Annual Meeting of Rochester Academy of Sciences, Rochester Institute of Technology, Rochester, NY; Nov. 15, Presented by Mr. Russell Scott.

Scott R, Kim J and **Savka MA**. 2003. Plant-produced quorum-sensing signals exude into the rhizosphere. 12th Annual Undergraduate Research Symposium, Department of Chemistry, Rochester Institute of Technology, Rochester, NY. Presented by Mr. Russell Scott.

Badura M, Mentrikoski M, Fray RG, von Bodman S and **Savka MA**. 2002. Leaf and root exudation of quorum-sensing signals produced by transgenic plants. Presented at the Annual Meeting of the Society of Plant Biologists, August 3- 7, 2002. *Plant Physiology Abstract Supplement*, p. 133, #570.

McKinnon J, Walker M, Wang S-W, Moyne A-L, **Savka MA** and Wilson M. 2002. Production and screening of transgenic mannityl opine-producing tomato. 6th Rocky Mountain Plant Biotechnology and Molecular Biology Symposium, Fort Collins, CO.

Weil J, Fray RG, von Bodman S, **Savka MA**. 2001. Multiple bacterial quorum-sensing signals produced by transgenic plants. Presented at the Annual Meeting of the Society of Plant Biologists, July 21-25, 2001. *Plant Physiology Abstract Supplement*, page 169, #830.

Weil J, Fray RG, von Bodman S, **Savka MA**. 2001. Production of multiple *N*-acyl-homoserine lactones signals by transgenic plants. Northeastern Sectional Meeting of the Society of Plant Biologists, Worcester Polytechnic Institute, Worcester, MA, May 4-5, 2001.

Kurtz JC, **Savka MA**, Brown LA, Yates DF and Devereux R. 1999. Production of Plant Growth Promoting Substances in Bacterial Isolates from the Seagrass Rhizosphere (Abstract). Presented at the 1999 Annual Meeting of the American Society for Microbiology, 30 May-3 June 1999, Chicago, IL. 1 p. (ERL,GB R658).

Jones AM, Im K, **Savka MA**, Wu M-J, Binns AN. 1998. Controlled expression of auxin-binding protein 1 causes auxin-dependent growth. *Plant Physiology Abstract Supplement* : p.127.

Wang S-Y, Moyne M-L, **Savka MA**, Klee HJ, and Wilson M. 1998. Opine-producing tomato: one component of a binary plant-microbe combination developed for control of foliar bacterial diseases. *Plant Physiology Abstract Supplement* : p.146.

Killduff PD, Wang S-Y, Wilson M, and **Savka MA**. 1998. An instructional unit on the production and characterization of transgenic plants in an undergraduate plant physiology course. *Plant Physiology Abstract Supplement* : p.164. Presented by Mr. Patrick Killduff.

Jones AM, Im K, **Savka MA**, Wu, M-J and Binns AN. 1998. Controlled overexpression of auxin-binding protein 1 causes auxin-dependent cell expansion. Presented at the Southern Section of the American Society of Plant Physiologists held at the Hotel Roanoke and Conference Center in Roanoke, VA on March 21-23.

Kilduff, P and **Savka, MA**. 1998. Production and characterization of transgenic tobacco plants in an undergraduate plant physiology course. Poster submitted in undergraduate competition and presented by Mr. Kilduff at the Southern Section of the American Society of Plant Physiologists held at the Hotel Roanoke and Conference Center in Roanoke, VA on March 21-23.

Savka MA, Zhang D, Shelby R, Dessaux Y, Wilson M. 1997. Quantification of translocated mannopine in galled plants by high performance liquid chromatography. Presented at the Eighteenth Annual Crown Gall Conference held at the campus of Cedar Crest College in Allentown, PA Oct 18-19.

Zhang D, Wang S-Y, **Savka MA**, Farrand SK, Wilson M. 1997. Binary plant-microbe combinations for biocontrol of foliar bacterial diseases. Presented at the Annual 1997 American Phytopathological Society Meeting, August 8-13, Rochester, NY. *Phytopathology* **87**(6):S108.

Savka MA, Binns AN, Black, RC. 1997. Enhanced inducible expression of indole-3-acetic acid synthetase by the inclusion of a viral leader sequence. Presented at the Southern Section of the American Society of Plant Physiologists held at Tuskegee University on March 8-10.

Wilson M, Wang S-Y, Zhang D, McSpadden B, de Bruijn FJ, Rossbach S, **Savka, MA** and Farrand SK. 1996. Binary plant-microbe combinations for improved biocontrol of foliar diseases of tomato. Presented at the Eight International Congress: Molecular Plant-Microbe Interactions, Knoxville, TN; July 14-19.

Wilson M, Wang S-Y, Zhang D, McSpadden B, de Bruijn FJ, Rossbach S, **Savka, MA** and Farrand SK. 1996. Binary plant-microbe combinations for improved biocontrol of foliar diseases of tomato. Presented at the Workshop on Transgenic Plants: Biology and Applications, Kellogg Executive Conference Center Tuskegee University, April 20-22.

Savka MA, Binns AN, Black RC. 1995. Depletion of free IAA levels in transgenic plant tissues containing a regulatable IAA-lysine synthetase gene. *Plant Physiology* **108**:78.

Savka MA, Black RC, Binns AN. 1994. Generation and characterization of transgenic plants with regulatable levels of the growth hormone, indole-3-acetic acid. Fifteenth Crown Gall Conference, Cornell University, Ithaca, NY; Nov. 19-20.

Farrand SK, Wilson M, Lindow SE, **Savka MA**. 1994. Modulating competition in the rhizosphere by resource utilization. *Molecular Ecology* **3**:619.

ABSTRACTS: (continued)

Michael A. Savka

Savka MA, Black B, Farrand SK. 1993. An extension of the opine concept in plant-bacterial interactions. Fourteenth Annual Crown Gall Conference, Haverford College / University of Pennsylvania, Nov. 20-21.

Wilson M, Hwang I, **Savka MA**, Farrand SK, Lindow SE. 1993. Enhanced coexistence between near-isogenic mannityl opine catabolizing and non-catabolizing *Pseudomonas syringae* strains on mannityl opine producing tobacco plants. *Phytopathology* **83**:1404.

Savka MA and Farrand SK. 1993. Validity of the opine concept in plant-bacterial interactions. Molecular Genetics of Plant-Microbe Interactions, East Brunswick, NJ; April 14-18.

Farrand SK and **Savka MA**. 1991. A strategy for manipulation of bacterial colonization of the rhizoplane by engineering nutritional selectivity. Gordon Research Conference, Agricultural Sciences, "The mechanism and management of resistance plants and pests". Oxnard, CA. Jan. 27-Feb. 1.

Savka MA and Farrand SK. 1990. Opine production and exudation in transgenic plants and its utilization by rhizobacteria. Eleventh Annual Midwest Crown Gall Conference. Univ. of Wisconsin, Madison, WI., October 20-21.

Savka MA and Farrand SK. 1990. A model system for evaluating the role of plant-produced nutrients on rhizoplane colonization by bacteria. 5th International Symposium on the Molecular Genetics of Plant-Microbe Interactions. Interlaken, Switzerland. September 9-14. Abstr. P9.

Savka MA and Farrand SK. 1990. Bacterial utilization of transgenic plant synthesized and secreted mannityl opines. *Phytopathology* **80**:984-985.

Ling V, **Savka MA**, Zielinski R. 1990. The characterization of transgenic tobacco expressing barley calmodulin. Ninth Annual Symposium: Current Topics in Plant Biochemistry and Physiology. Univ. of Missouri, Columbia, MO., April 4-7.

Savka MA and Farrand SK. 1990. Opine synthesis and secretion by transgenic plants under autotrophic growth conditions. *Journal of Cellular Biochemistry* (supplement) **14E**:R147.

Ling V, **Savka MA**, Zielinski R. 1989. Transformation of tobacco leaf discs with barley calmodulin expression vectors. *Plant Physiology* **89**:65.

Savka MA, Ravillion B, Farrand SK. 1988. Sensitivity of soybean genotypes to hairy root induction and the use of hairy roots cultures for propagation of the soybean cyst nematode. Ninth Annual Midwest Crown Gall Meeting., Monsanto World Headquarters Research Center, Creve Coeur, MO., Nov. 5-6.

COMPETITIVE INTRAMURAL RESEARCH GRANTS:

Rochester Institute of Technology, College of Science, Dean's Summer Research Fellowship. *Communication Signals Produced by Bacteria Isolated from Vineyard Grape Tumors*. Summer 2006, \$7,500.00.

Rochester Institute of Technology, College of Science, Dean's Summer Research Fellowship. *Cell density-dependent production of multiple N-acyl-homoserine lactones by selected strains of Agrobacterium vitis*. Summer 2005, \$3,360.00.

Rochester Institute of Technology, College of Science, Dean's Summer Research Fellowship. *Quorum-sensing mimic compounds in sweet and dent corn genotypes*. Summer 2003, \$5,454.00.

COMPETITIVE INTRAMURAL RESEARCH GRANTS:

Michael A. Savka

Rochester Institute of Technology, College of Science, Dean's Summer Research Fellowship. *Leaf Exudation of Multiple Bacterial Signaling Molecules from Transgenic Plants*. Summer 2002, \$5,977.00.

Rochester Institute of Technology, Faculty Development Grant. *Molecular Genetic Characterization of N-Acyl-Homoserine Lactone-Producing Transgenic Plants*. 8-01 to 7-02, \$1,337.00.

Rochester Institute of Technology, College of Science, Dean's Summer Research Fellowship. *Molecular Genetic Analysis of Transgenic Plants that Synthesize Multiple Bacterial Signaling Molecules*. Summer 2001, \$5,622.00.

Rochester Institute of Technology, College of Science, Dean's Project Initiation Grant. *Antagonistic Interactions between Heterologous N-Acylhomoserine Lactones Produced by Transgenic Plants*. 8-00 to 7-01, \$4,940.00.

Rochester Institute of Technology, Faculty Development Grant. *Production and Characterization of Transgenic Plants*. 8-00 to 7-01, \$2,110.00

Rochester Institute of Technology, College of Science, Dean's Summer Research Fellowship. *Production and Characterization of Transgenic Plants that Synthesize Bacterial Signaling Molecules*. Summer 2000, \$3,500.00.

Rochester Institute of Technology, College of Science, Wyeth-Lederle Vaccines Faculty Development Grant, *Research Experiences in Plant Biotechnology*. 8-99 to 7-00, \$4,300.00

The University of West Florida, Small Grants Program; Interspecific Competition by Mannopine-Utilizing Rhizobacteria in the Rhizosphere of Transgenic Mannopine-Producing Plants. 3-98 to 2-99; \$2,000.00.

The University of West Florida, Department of Biology; Depletion of the Auxin Plant Hormone in Transgenic Plants. 11-97 to 10-98; \$2,000.00.

COURSES INSTRUCTED:**Rochester Institute of Technology**

Bacterial-Host Interactions. (Junior level), Enrollment ~ 20 students / year
Taught Fall quarter 2007, 2008

Introduction to Research (sophomore level), Enrollment ~ 12 students / year.

Plants, Medicine and Technology (Junior level), Enrollment ~ 30 students / year.
Taught Spring or Fall quarter 2005, 2006, 2007, 2008.

Plant Biotechnology (senior level), Enrollment ~20 students / year.
Plant Biotechnology Laboratory (senior level), Enrollment ~20 students / year.
Taught Winter quarter 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007

Botany (sophomore level), Enrollment ~48 students / year
Botany Laboratory (sophomore level), Enrollment ~48 students / year
Taught Spring quarter 1999, 2000, 2001, 2002, 2003.

Introduction to Biology I (freshman level), Enrollment ~100 students / year.
Introduction to Biology I Laboratory (freshman level), Enrollment ~48 students / year.
Taught Fall quarter 1999, 2000, 2001, 2002, 2003, 2004.

COURSES INSTRUCTED:

Michael A. Savka

University of West Florida

General Botany (freshman level), Enrollment ~70 students / year.
General Botany Laboratory (freshman level), Enrollment ~48 students / year..
Taught Spring and Summer 1997, 1998 and 1999.

General Microbiology (junior level), Enrollment ~60 students / year.
General Microbiology Laboratory (junior level), Enrollment ~ 48 students / year.
Taught Fall 1996.

Plant Pathology (junior level), Enrollment ~16 students / year.
Taught Spring 1998.

Phytobacteriology (Plant-Bacterial Interactions) (senior level), Enrollment ~16 students / year.
Taught Spring of 1999.

Plant Physiology (senior level), Enrollment ~16 students / year.
Plant Physiology Laboratory (senior level), Enrollment ~16 students / year.
Taught Fall, 1997 and 1998.

Plant Tissue Culture and Biotechnology (Lecture and Demonstration Lab., senior level),
Enrollment ~ 14 student / year. Taught Summers of 1997, 1998 and 1999.

Pennsylvania State University, Delaware County Campus, Media, PA

Introductory Microbiology (sophomore level), Enrollment ~20 students / year.
Introductory Microbiology Laboratory (sophomore level), Enrollment ~20 student / year.

University of Illinois at Urbana-Champaign

Plant and Animal Genetics Laboratory (sophomore level), Enrollment ~32 students / year.
Plant Pathology Laboratory (junior level), Enrollment ~ 28 students / year.

DIRECTED STUDENT RESEARCH:

Michael A. Savka

Rochester Institute of Technology

(name of student, title of research project)

Post Doctoral:

Dr. Phuong Thi Le, Detection and identification of quorum sensing signal mimic substances in maize accessions. (2003-2005).

Undergraduate:

Mr. Han Ming Gan, Transposon mutagenesis of crown gall tumor isolate (2006 to end of summer 2008). Currently a Graduate Student at The University of Technology in Malaysia.

Ms Beth Shattuck, Identification of signal molecules from grapevine xylem fluids. 2006 and summer 2007).

Mr. Mudit Chaand, Isolation and characterization of signal from *Agrobacterium vitis* strains (Fall 2006 to Spring 2008 including summer 2007). Currently a Graduate Student at The University of Rochester.

Shandra Iannucci, Generation of bioengineered corn plant (Fall 2006 to Spring 2008, including summer 2007).

Mr. Nathaniel Lowe, Plasmid encoded quorum sensing signals in *Agrobacterium vitis* (summer and academic year, 2005-6).

Ms. Vandana Chakravarty, *Agrobacterium vitis* plasmid encoded quorum sensing signals (2005). Vandana is currently pursuing a Ph.D. in Microbiology at the Univ. of Illinois, Urbana-Champaign, IL.

Mr. Russell Scott, Honor Student; Cell density-dependent production of long chain *N*-acyl-homoserine lactone in selected strains of *A. vitis* (summers and academic year, 2005-6). Mr. Russell Scott was supported by a Undergraduate Research Fellowship from the American Society of Microbiology during the summer of 2005.

Mr. Sean McLean, Translocation of quorum-sensing signals in transgenic tobacco (2005).

Ms. Daneila Palacio, LacZ as a reporter for the quantification of phyllosphere *N*-acyl-homoserine lactones. (2003-2004).

Mr. Russell Scott, Identification of *N*-acyl homoserine lactones in the rhizosphere and non-rhizosphere of transgenic plants engineered to produce *N*-acyl homoserine lactones. (2003- 2004). Russell received a Summer Undergraduate Research Fellowship (SURF) from the American Society of Plant Biologists (2004) to carry-out research in my laboratory.

Ms. Nicole Klemann, Honor Student; Quorum-sensing mimic compounds in corn genotypes resistant to Stewart's wilt and leaf blight diseases. (2003).

Ms. Jaymelee Kim, Liberal Arts Honor Student; Production of quorum sensing signals in non-pathogenic strains of *Agrobacterium vitis*. (2003).

Ms. Michelle Badura, Quantification of quorum sensing signals in root exudate. (2002).

Mr. Mark Mentrikoski, Analysis of *N*-acyl-homoserine lactones in the phyllosphere. (2002-2003).

DIRECTED STUDENT RESEARCH: (continued)

Michael A. Savka

Rochester Institute of Technology

(name of student, title of research project)

Undergraduate:

Mr. Jason Weil, Molecular genetic analysis of *yenI* and *lasI* in transgenic plants, (project for two consecutive quarters, 2001). Mr. Jason Weil completed his Ph.D. in Molecular Biology at Johns Hopkins University in 2007.

Ms. Rainer Kinner, Isolation of genomic DNAs from dwarf and wild-type pitch pine (2000).

Mr. Jason Weil, TLC analysis of *N*-acylhomoserine lactones from transgenic plants (2000).

Mr. Brett Kurowski, PCR analysis of *mas0*, *mas1*, *mas2* and *npII* in transgenic plants (2000).

Ms. Allison Miller, Growth of bacteria that catabolize mannopine and agropine (2000).

Mr. Adnan Jamil, Comparison of ethidium bromide to Bio-Safe DNA staining dyes for DNA gels (2000).

Mr. Brain Damcott, Dendrology of regional woody species (2000). Current in Pharmacology School

University of West Florida

(name of student, title of research project)

Mrs. Pennie Sparks, Interspecific competition for opines in the rhizosphere (1999).

Mr. Michael White, Transgenic plants with inducible IAA -lysine synthetase activity (1998).

Mr. Terry D. Lunday, Characterization of transgenic plants that produce the mannityl opines (1998).

Mr. D. Patrick Kilduff, Instructional unit on the production of transgenic plants (1997).

Mr. Neal Young, Tissue culture of jackfruit (*Artocarpus heterophyllus* Lam.) (1997).

Mr. Craig Walker, Cytokinin synthesis by *Rhodococcus fasciens* isolated from the Gulf of Mexico (1997).

University of Pennsylvania

(name of student, title of research project)

Ms. Tracy Bohn, Characterization of Inducible IAAL and ABP1 in Transgenic Plants. (1995)

COMMITTEE WORK:

Rochester Institute of Technology

College: Outstanding Undergraduate Scholarship Committee, 2005-2006, 2007

Departmental:

Chair of the Team for Biotechnology 2004, 2005, 2006, 2007 and 2008;

Chair of Biotechnology Search Committee 2008;

Curriculum Committee, 2005;

Molecular Biologist Searches, Chair of the Committee, 2007;

Department Head Search Committee, 2005; Visiting Microbiologist Search Committee, 2004;

Plant Ecologist Search Committee, 2002-03; Research Advisory Committee, 2001-03;

Baldwin Committee, 2002-2003, 2005-2006; Seminar Committee Chair, 2000-01;

Safety Committee 2000-02; Seminar Committee, 1999-02;

Environmental Sciences Program Committee, 1999-2003

Research Scholars Committee / Undergraduate Research Committee 2005, 2006

University of West Florida

College:

West Panhandle Regional Science and Engineering Fair, 96-99; Elections Committee, 98-99; Resource Allocation Subcommittee, 98-99.

Departmental:

Graduate Admission Committee, 1996-99; Building Committee, 1997-98; Computing Committee, 1997-98;

Search Committee for Laboratory Instructor, 1998-99.

COMMUNITY SERVICE:

Served as Research mentor to Mr. Zack Bullman, Victor High School during his Senior year. Currently Zack is a freshman in College of Science at RIT.

Served as Research Mentor to Mr. John Castle, high school senior, Pittsford Sutherland High School, Pittsford, NY (2003-2005). John is working under my direction in my laboratory 4-8 hours per week. He is interested in biotechnology as related to transgenic plants. John is learning plant cell culture and plant transformation technology using *Agrobacterium* as a gene vector. John was accepted into Cornell University.

Science Fair Judge, St. Paul's Elementary and Middle School, Pensacola, FL; 98-99.

Science Fair Judge, West Panhandle Science and Engineering Fair; 97-99.