

CURRICULUM VITAE - MAX M. HÄGGBLOM

Distinguished Professor and Chair
Department of Biochemistry and Microbiology
School of Environmental and Biological Sciences
Rutgers, The State University of New Jersey
76 Lipman Drive, New Brunswick, NJ 08901-8525
Tel (848) 932-5646 FAX (732) 932-8965 E-mail: haggblom@rutgers.edu

EDUCATION:

1985, B.S., Life Sciences, University of Helsinki, Helsinki, Finland
1986, M.S., General Microbiology, University of Helsinki.
1987, Licentiate of Philosophy, General Microbiology, University of Helsinki.
1989, Ph.D., General Microbiology, University of Helsinki.

ACADEMIC APPOINTMENTS:

1985-1992, Instructor, Department of General Microbiology, University of Helsinki, Finland (on leave of absence 9/1988-12/1992).
1987-1988, Young Scientist Fellow, Department of General Microbiology, University of Helsinki.
1988-1991, Assistant Research Scientist, Department of Microbiology, New York University Medical Center, NY.
1991-1993, Research Assistant Professor, Institute of Environmental Medicine, New York University Medical Center, NY.
1993-1997, Assistant Research Professor; 1997-1998, Associate Research Professor, Biotechnology Center for Agriculture and the Environment, Rutgers University, New Brunswick NJ.
1993-2010, Member, Biotechnology Center for Agriculture and the Environment.
1998-1999, Assistant Professor; 1999-2003, Associate Professor; 2003-2011, Professor; 2011-pres., Distinguished Professor, Department of Biochemistry and Microbiology, Rutgers University.
2003-2008, Director, Undergraduate Program in Microbiology.
2008-pres., Chair, Department of Biochemistry and Microbiology.
2009-2011, Director, Graduate Program in Microbial Biology.
2009-pres., Member, Rutgers Energy Institute.
2012-2014, Member, Institute of Marine and Coastal Sciences.
2015-pres., Member, Institute of Earth, Ocean, and Atmospheric Sciences.

OTHER PROFESSIONAL APPOINTMENTS:

1991-pres., Docent (Applied Microbiology), University of Helsinki, Finland.
1993-1996, Adjunct Assistant Professor, Institute of Environmental Medicine, NYU Medical Center.
1995-2006, Member, Editorial Board, *Applied and Environmental Microbiology*.
1996-pres., Docent (Environmental Microbiology), University of Jyväskylä, Finland.
1998-2003, Member, Editorial Board, *FEMS Microbiology Ecology*.
2000-2001, Visiting Professor, Dept. of Applied Chemistry and Microbiology, University of Helsinki, Finland (sabbatical appointment).
2004-2016, Visiting Scientist, Finnish Forest Research Institute - Rovaniemi Research Station, Finland.
2010-pres., Visiting Professor, Chinese Academy of Sciences, Institute for Urban Environment, Xiamen, China.

2003-2010, Editor, *FEMS Microbiology Ecology*.

2011-pres., Chief Editor, *FEMS Microbiology Ecology*.

2015-pres., Member, Editorial Board, *Microbiology Spectrum*, American Society for Microbiology Press.

HONORS AND AWARDS:

Young Scientist's Fellowship, University of Helsinki, 1987-1988.

Rutgers University Board of Trustees Research Fellowship for Scholarly Excellence, 1999.

Cook College / New Jersey Agricultural Experiment Station Sustained Research Excellence Award, 2003.

American Society for Microbiology US-Indo Professorship, 2009.

Waksman Honorary Lectureship Award, Theobald Smith Society, American Society for Microbiology New Jersey Branch, 2010.

Visiting Professorship for Senior International Scientists of the Chinese Academy of Sciences, 2010.

Elected Fellow, American Academy of Microbiology, 2011.

Waksman Outstanding Teaching Award, Society for Industrial Microbiology and Biotechnology, 2014.

Vietnam Education Foundation U.S. Faculty Scholar, Academic year 2016-2017.

School of Environmental and Biological Sciences International Excellence Award, 2017.

MAJOR RESEARCH INTERESTS:

Environmental Microbiology and Microbial Ecology: linking ecosystem functions with microbial (bacterial) diversity; microbial bioprospecting - isolation, characterization and taxonomy of novel bacteria; microbial metabolism of toxic and environmental pollutants (biodegradation of halogenated aromatic compounds, biodegradation of petroleum hydrocarbons and gasoline additives); bacterial respiration of selenium and arsenic; microbial ecology of Arctic tundra soils. Environmental Biotechnology: development of bioremediation methods for treatment of contaminated soil, groundwater and sediment.

SELECTED PUBLICATIONS:

From a total of 145 Peer-reviewed Journal Articles, 18 Book Chapters/Books, 27 Other articles and 5 Patents.

Voordeckers J, Fennell DE, Jones K, Häggblom MM (2002) Anaerobic biotransformation of tetrabromobisphenol A, tetrachlorobisphenol A, and bisphenol A in estuarine sediments. *Environ. Sci. Technol.* **36**:696-701.

Häggblom MM, Bossert ID (Editors) (2003) *Dehalogenation: Microbial Processes and Environmental Applications*, Kluwer Academic Publishers, Boston.

Tchernov D, Gorbunov MY, de Vargas C, Yadav SN, Milligan AJ, Häggblom M, Falkowski PG (2004) Membrane lipids of symbiotic algae are diagnostic of sensitivity to thermal bleaching in corals. *Proc. Natl. Acad. Sci. USA* **101**:13531-13535.

Fennell DE, Nijenhuis I, Wilson SF, Zinder SH, Häggblom MM (2004) *Dehalococcoides ethenogenes* strain 195 reductively dechlorinates diverse chlorinated aromatic pollutants. *Environ. Sci. Technol.* **38**:2075-2081.

George KW, Häggblom MM (2008) Microbial O-methylation of the flame retardant tetrabromobisphenol-A. *Environ. Sci. Technol.* **42**:5555-5561.

Krumins V, Park J-W, Son E-K, Rodenburg LA, Kerkhof LJ, Häggblom MM, Fennell DE (2009) Sustained PCB dechlorination enhancement in Anacostia River sediment. *Water Research* **43**:4549-4558.

McCormick JM, Paiva MS, Häggblom MM, Cooper KR, White LA (2010) Embryonic exposure to tetrabromobisphenol A and its metabolites, bisphenol A and tetrabromobisphenol A dimethyl ether disrupts normal zebrafish (*Danio rerio*) development and matrix metalloproteinase expression. *Aquatic Toxicology* **100**:255-262.

- McCormick JM, Van Es T, Cooper KR, White LA, Häggblom MM (2011) Microbially mediated O-methylation of bisphenol A and the toxicity of bisphenol A, and bisphenol A monomethyl ether and dimethyl ethers in the developing zebrafish (*Danio rerio*) embryo. *Environ. Sci. Technol.* **45**:6567-6574.
- Liu T, Ahn H, Sun W, McGuinness LR, Kerkhof LJ, Häggblom MM (2016) Identification of a *Ruminococcaceae* species as the methyl tert-butyl ether (MTBE) degrading bacterium in a methanogenic consortium. *Environ. Sci. Technol.* **50**:1455–1464.
- Dam H, Häggblom MM (2017) Impact of estuarine gradients on reductive dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in river sediment enrichment cultures. *Chemosphere* **168**:1177-1185.

Sum of Citations/H-index: >6,000/43 (ISI Web of Science), >9,600/53 (Google Scholar), August 2017.
ORCID orcid.org/0000-0001-6307-7863 ResearcherID: E-7597-2010

MAJOR RESEARCH GRANTS:

Current:

- Natural Attenuation and Enhanced Biodegradation of Methyl tert-Butyl Ether in Anoxic Aquifers. NSF CBET, 09/2013-09/2017, \$330,000. PI.
- Fate and Ecotoxicity of Pharmaceuticals and Personal Care Products, Emerging Contaminants in the Hudson River Ecosystem. Hudson River Foundation 7/2015-6/2017, \$168,886. PI.
- Environmental Microbiology in a Changing World- Graduate Course at Cantho University. Vietnam Education Foundation, \$43,664, 06/2016-06/2017. PI.

Select Previous:

- Molecular and Biochemical Characterization of dehalogenating consortia in marine sediments, Office of Naval Research, N00014-99-1-0761, 5/1/99-09/30/02, \$423,311. Principal Investigator.
- Discovery of arctic microorganisms for biotechnical applications. EU Regional Development Funds, TEKES National Technology Agency of Finland, 7/1/01-8/31/04, € 840,000; 9/1/04-9/30/05, € 322,000, PI (Rovaniemi Region Development Agency; Finnish Forest Research Institute).
- In situ enhancement of anaerobic microbial dechlorination of polychlorinated dibenzo-*p*-dioxins and dibenzofurans in marine and estuarine sediments. DoD/SERDP, \$556,975, 03/01/01-08/31/05. PI.
- Microbially mediated cycling of organohalides in marine sponges. NSF, \$610,163, 03/01/05-02/31/09, Principal Investigator.
- Developing tools for monitored natural attenuation of methyl tert-butyl ether. New Jersey Department of Environmental Protection Spill Research Fund, \$100,000, 7/07-6/09. PI
- Quantifying Enhanced Microbial Dehalogenation Impacting the Fate and Transport of Organohalide Mixtures in Contaminated Sediments. DoD/SERDP, \$1,883,300, 03/06-2/11. PI.
- Impact of climate fluctuations on microbial communities responsible for carbon and nitrogen cycling in Arctic soils, Academy of Finland, Euro 422,400, 1/08-12/11. PI (Finnish Forest Research Institute).
- The ecological role of Acidobacteria in carbon cycling in Arctic tundra soil ecosystems. Academy of Finland, 01/2012-12/2015, 641,305 Euro, PI.

STUDENTS AND POST-DOCTORAL ASSOCIATES:

Ph.D. Students:

- Peter Milligan, Environmental Science, 1994-1998 (M.S. 1995, Ph.D. 1998; Anaerobic biodegradation of dicamba and related chlorosalicylates under different reducing conditions) [Univ. of Maine].
- Bongkeun Song, Environmental Science, 1996-2000 (Ph.D. 2000; Diversity of bacteria capable of degrading halobenzoates under denitrifying conditions) [Virginia Institute of Marine Science].

Riina Turpeinen, Environmental Science, University of Helsinki, Finland, 1998-2002 (Ph.D. 2002; Interactions between metals, microbes and plants - Bioremediation of arsenic and lead contaminated soils) [Consulting].

Piyapawn Somsamak, Environmental Science, 2000-2005 (Ph.D. 2005; Anaerobic biotransformation of methyl tert-butyl ether (MTBE) and related fuel oxygenates under different anoxic conditions) [Kasetsart University].

Beth Ravit, Environmental Science, 2001-2005, co-advisor (Ph.D. 2005; Macrophytes and microbes: *Spartina alterniflora* and *Phragmites australis* affect brackish sediment microbial community) [Rutgers University].

Jane Pavlik, Microbiology and Molecular Genetics, 1999-2005 (Ph.D. 2005; Multiple aspects of dehalogenation by denitrifying bacteria) [Amgen].

Priya Narasingarao, Environmental Science, 2001-2006 (Ph.D. 2006; Anaerobic bacterial respiration of selenium oxyanions) [Illumina].

Laura Youngster, Microbiology and Molecular Genetics, 2004-2009 (Ph.D. 2009; Microbial degradation of the fuel oxygenate methyl tert-butyl ether (MTBE)). [Scientific editing]

Jessica McCormick, Microbiology and Molecular Genetics, 2006-2010 (Ph.D. 2010; Microbial transformations of tetrabromobisphenol A and its metabolites, and their impact on toxicity to the developing zebrafish (*Danio rerio*) embryo) [Rutgers].

Hui Liu, Environmental Science, 2005-2010 (Ph.D. 2010; Microbial reductive dechlorination of weathered polychlorinated dibenzo-*p*-dioxins and dibenzofurans in contaminated sediments) [Genzyme].

Ines Rauschenbach, Microbiology and Molecular Genetics, 2007-2011 (Ph.D. 2011; Growth, genes, genomes - Insights into microbial respiration of arsenic and selenium) [Rutgers].

Tong Liu, Environmental Science, 2010-2015 (Ph.D. 2015; Characterization of anaerobic methyl tert-butyl ether (MTBE)-degrading communities) [Illumina].

Seo Yean Sohn, Environmental Science, 2009-2015 (Ph.D. 2015; Microbial reductive dehalogenation of persistent halogenated aromatic contaminants in sediments of the Hackensack River in New Jersey).

Isabel Horna Gray, Environmental Science, 2006-2015 (Ph.D. 2015; Sponge-associated dehalogenating microorganisms and isotope analysis of their dehalogenation of brominated phenols). [Lecturer]

Hang Dam, Microbial Biology, 2011-2016 (Ph.D. 2016; Reductive dechlorination of polychlorinated dibenzo-*p*-dioxins by *Dehalococcoides*-enriched cultures from contaminated soils and sediments). [DSMZ Leibnitz Institute]

Sanna Mäntynen (nee Kuokka), Environmental Science, University of Helsinki, 2009-pres.

Tiffany Louie, Microbial Biology, 2011-pres.

Preshita Gadkari, Microbial Biology, 2014-pres.

Jie Liu, Microbial Biology, 2014-pres.

Michelle Zeliph, Microbial Biology, 2015-pres.

Post-Doctoral and Research Associates:

Esteban Monserrate (1994-1996), Cecilia Vargas (1996-1998), Victoria Knight (1996-1999), Lori Daane (1997-1999), Miao Y. Wang (1997-1998), Loren Launen (1999-2001), Matthew Caldwell (2000-2001), Donna Fennell (1999-2001), Sung-Keun Rhee (2000-2002), Peter Kourtev (2001-2002), Young-Beom Ahn (2001-2008), Minna Männistö, Finnish Forest Research Institute, Finland (2001-2004), Sari Stark, Finnish Forest Research Institute, Finland (2001-2004), Katri Mattila, Finnish Forest Research Institute, Finland (2001-2005), Joong-Wook Park (2006-2011), Suman Rawat (2008-2014), Duong Minh Vien (2008-2009), Yuan Ren (2009-2010), Lars Ganzert, Finnish Forest Research Institute, Finland (2012-2014), Mrinalini Nikrad (2014-2015), Weimin Sun (2013-2016), Aamani Rupakula (2015-pres.)

TEACHING:

Director, Microbiology Undergraduate Program, 2004-2008.

Developed the proposal to establish Microbiology as an independent major in the School of Environmental and Biological Sciences and served as founding Director.

Director, Microbial Biology Graduate Program, 2009-2011.

Developed the proposal to establish the new Graduate Program in Microbial Biology, which is inaugurated in Fall 2010 with the first class of Ph.D. and M.S. students. Served as founding Director.

Member, Graduate Program in Microbial Biology

Member, Graduate Program in Microbiology and Molecular Genetics

Member, Graduate Program in Environmental Sciences

Member, Graduate Program in Ecology and Evolution

Courses taught:

Applied Microbiology (11:680:494; undergraduate 4 cr, full responsibility for lectures; since 1999).

Redeveloped this course with complete redesign of syllabus and lectures.

Applied and Industrial Microbiology (16:682:524; graduate 3 cr)

Microbial Technology (11:126:405; undergraduate 3 cr, 50% responsibility; offered 1997-2010)

Analytical Methods in Microbiology (11:680:486, undergraduate 4 cr lab; offered other year since 2003).

Developed this new lab course and served as Co-PI on New Jersey Commission on Higher Education grant that provided funding for HPLC and GC-MS equipment used for teaching.

Seminar in Microbiology (11:680:495, 1 cr, full responsibility, taught 2005-2010).

Microbiology and Culture of Cheese and Wine (undergraduate 3 cr, Rutgers Study Abroad, Cluny France,

Course Director; developed and taught every Summer since 2010).

Microbial Life (formerly General Microbiology) (16:682:501; graduate 3 cr, 1/3 responsibility; since 2001).

Microbial Physiology (11:682:503; graduate 3 cr, 50% responsibility; taught 2011 and 2012).

Biodegradation and Bioremediation (16:375:529, graduate 3 cr, 25% responsibility; taught every other Fall since 2010).

PROFESSIONAL ACTIVITIES:

Editor in Chief, *FEMS Microbiology Ecology*, 2011-pres.

Editor, *FEMS Microbiology Ecology*, 2003-2011.

Editor for special thematic issues: Microbial Life in Cold Ecosystems (2005), Microorganisms in Cold Environments (2007), Subsurface Microbiology (2012), Polar & Alpine Microbiology (2012, 2014, 2017).

Associate Editor, Editorial Board, *Microbiology Spectrum*, ASM Press, 2015-pres.

Editorial Board, *Applied and Environmental Microbiology*, 1995-2006.

Editorial Board, *FEMS Microbiology Ecology*, 1998-2003.

Chair, 34th Mid-Atlantic Industrial & Hazardous Waste Conference, Sept. 20-21, 2002, New Brunswick.

Chair, International Conference on Arctic Microbiology, March 21-25, 2004, Rovaniemi, Finland.

Convener and organizer of ASM Symposium on Unusual Appetites: From Enzymes to Environmental Applications, ASM General Meeting, 2009.

Vice Chair and Chair, Gordon Research Conference on Applied and Environmental Microbiology, 2009, 2011.

Chair Elect, Chair, and Advisor, Division Q (Applied and Environmental Microbiology), American Society for Microbiology, 7/2006-6/2007, 7/2007-6/2008, 7/2008-6/2009.

Theobald Smith Society, Local Councilor, 2006-2009; President Elect 2011-2012, President 2012-2013.

Member: American Society for Microbiology, American Chemical Society, Society for Industrial Microbiology, International Society for Microbial Ecology, Theobald Smith Society (ASM New Jersey Chapter).