

## ***CURRICULUM VITAE***

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### **EDUCATION:**

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

### **ACADEMIC APPOINTMENTS:**

1985-1986, Instructor, Department of General Microbiology, University of Helsinki.  
1987-1988, Young Scientist Fellow, University of Helsinki.  
1988-1991, Assistant Research Scientist, Department of Microbiology, New York University Medical Center.  
1991-pres., Docent (Applied Microbiology), University of Helsinki, Helsinki, Finland.  
1991-1993, Research Assistant Professor, Institute of Environmental Medicine, New York University Medical Center.  
1993-1996 Adjunct Assistant Professor, Institute of Environmental Medicine, New York University Medical Center.  
1996-pres., Docent (Environmental Microbiology), University of Jyväskylä, Jyväskylä, Finland.  
1993-1997, Assistant Research Professor; 1997-1998 Associate Research Professor, Biotechnology Center for Agriculture and the Environment, Rutgers University.  
1998-1999, Assistant Professor; 1999-2003, Associate Professor; 2003-pres, Professor, Dept. of Biochemistry and Microbiology, Rutgers University.  
2000-2001, Visiting Professor, Dept. of Applied Chemistry and Microbiology, University of Helsinki, Finland (sabbatical appointment).  
2004-2008, Director, Microbiology Undergraduate Program.  
2008-present, Chair, Department of Biochemistry and Microbiology.

### **HONORS AND AWARDS:**

Rutgers University Board of Trustees Research Fellowship for Scholarly Excellence, 1999.  
Cook College / New Jersey Agricultural Experiment Station Sustained Research Excellence Award, 2003.

### **MAJOR RESEARCH INTERESTS:**

Environmental microbiology: aerobic and anaerobic microbial metabolism of toxic and environmental pollutants, specifically halogenated aromatic compounds; mechanisms of aryl-dehalogenation; isolation, characterization and taxonomy of novel bacteria; arctic microbiology. Environmental biotechnology: development of bioremediation methods for treatment of contaminated soil, groundwater and sediment.

### **PROFESSIONAL ACTIVITIES:**

Editor, *FEMS Microbiology Ecology*, 2003-pres.  
Editorial Board, *Applied and Environmental Microbiology*, 1995-2007.

Editorial Board, *FEMS Microbiology Ecology*, 1998-pres.  
Member of International Advisory Board, International Seminar on Biosorption and Bioremediation, Prague, 1995; 2nd International Seminar on Biosorption and Bioremediation, Prague, 1998.  
Invited speaker, Gordon Research Conference-Applied and Environmental Microbiology, 1999.  
Invited speaker, Conference on Anaerobic Dehalogenation, Berlin, Germany, April, 2000.  
Convener and organizer of ASM Symposium on Microbial Dehalogenation, ASM General Meeting, Orlando, 2001.  
Session Chair. Symposium on Bioremediation of Contaminated Soil and Groundwater: Traditional Methods and Possibilities for Gene-Technology. Helsinki, Finland, August 27-29, 1998.  
Chair, 34<sup>th</sup> Mid-Atlantic Industrial & Hazardous Waste Conference, 2002, New Brunswick.  
Chair, International Conference on Arctic Microbiology, 2004, Rovaniemi, Finland.  
Canadian Natural Science and Engineering Research Council site-visit review committee NSERC's Research Network application on metals in the holistic environment, 2004.  
Review panel, Office of Environmental and Biological Research (OBER), U.S. Department of Energy program area of Subsurface Microbial Ecology and Community Dynamics in the Environmental Science Research Division, August, 2006.  
Member of International Advisory Board, 2<sup>nd</sup> and 3<sup>rd</sup> International Conference on Alpine and Polar Microbiology; Innsbruck, Austria 2006, Banff, Canada 2008.  
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.  
Chair, Symposium on Toxins, Toxic Chemicals and their Microbial Transformations in Honor of Prof. Mirja Salkinoja-Salonen, University of Helsinki, Finland, May 22, 2008.  
Member of Advisory Board, International Workshop on Urban Wetland Ecology and Restoration, Xiamen, China Dec 12-15, 2008.  
Vice Chair and Chair, Gordon Research Conference on Applied and Environmental Microbiology 2009, 2011.  
Member, International Scientific Committee, 14<sup>th</sup> International Biotechnology Symposium and Exhibition, Biotechnology for the Sustainability of Human Society Sept. 2010, Rimini, Italy.

#### **GRADUATE STUDENTS AND POST-DOCTORAL/RESEARCH ASSOCIATES:**

**Graduate Students:** Peter Milligan (Ph.D. 1998), Sonia Vela (M.S. 1997;co-advisor), Bongkeun Song (Ph.D. 2000), Riina Turpeinen (University of Helsinki, Finland, Ph.D. 2002), Jayeeta Dutta (M.S. 2000), Piyapawn Somsamak (Ph.D. 2005), Beth Ravit (Ph.D. 2005, co-advisor), E. Jane Pavlik (Ph.D. 2006), Michael Fleming (M.S. 2006, co-advisor), Priya Narasingarao (Ph.D. 2006), Leslie Wickam (M.S. 2005), Laura Youngster (2004-), Hui Liu (2005-), Isabel Horna Gray (2006-), Jessica McCormick (2006-, co advisor), Ines Rauschenbach (2007-), Nora Lopez (2007-, co-advisor); Sanna Kuokka (University of Helsinki, Finland; 2009-, co-advisor).

**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 (2001-2004), Sari Stark (2001-2004), Katri Mattila (2001-2005), Jong-Wook Park (2006-), Duong Minh Vien (2008-2009).

## TEACHING:

Microbial Technology (ug, 3 cr), Applied Microbiology (ug, 4 cr), Analytical Methods in Microbiology (ug, 4 cr), Seminar in Microbiology (ug, 1 cr), Microbial Life (grad, 3 cr). Biodegradation and Bioremediation (University of Jyväskylä, Finland).

## PUBLICATIONS:

### *Peer-reviewed Journal Articles*

- Ahn Y-B, Kerkhof LJ, Häggblom MM (2009) *Desulfoluna spongiiphila* sp. nov., a dehalogenating bacterium in the *Desulfobacteraceae* from the marine sponge *Aplysina aerophoba*. *Int. J. System. Evol. Microbiol.*, in press.
- Männistö MK, Tirola M, Häggblom MM (2009) Effect of freeze-thaw cycles on bacterial communities of Arctic tundra soil. *Microbial Ecology*, in press.
- Ahn Y-B, Chae J-C, Zylstra GJ, Häggblom MM (2009) Phenol degradation via phenylphosphate and carboxylation to 4-hydroxybenzoate by a new by strain of the sulfate-reducing bacterium *Desulfobacterium anilini*. *Appl. Environ. Microbiol.*, in press.
- Youngster LKG, Somsamak P, Häggblom MM (2008) Effects of co-substrates and inhibitors on the anaerobic O-demethylation of methyl *tert*-butyl ether (MTBE). *Appl. Microbiol. Biotechnol.* **80**:1113-1120.
- George KW, Häggblom MM (2008) Microbial O-methylation of the flame retardant tetrabromobisphenol-A. *Environ. Sci. Technol.* **42**:5555–5561.
- Haubert D, Häggblom MM, Scheu S, Ruess L (2008) Effects of temperature and life stages on the fatty acid composition of Collembola. *European Journal of Soil Biology* **44**:213-219.
- Ahn Y-B, Liu F, Fennell DE, Häggblom MM (2008) Biostimulation and bioaugmentation to enhance dechlorination of polychlorinated-*p*-dioxins in contaminated sediments. *FEMS Microbiology Ecology* **66**:271-281.
- Launen LA, Dutta J, Turpeinen R, Eastep ME, Dorn R, Buggs VH, Leonard JW, Häggblom MM (2008) Characterization of the indigenous PAH-degrading bacteria of the *Spartina alterniflora*-dominated salt marshes in the New York / New Jersey harbor. *Biodegradation* **19**:347-363.
- Ravit B, Ehrenfeld JG, Häggblom MM, Bartels M (2007) The effects of drainage and nitrogen enrichment on *Phragmites australis*, *Spartina alterniflora*, and their root-associated microbial communities. *Wetlands* **27**:915–927.
- Narasingarao P, Häggblom MM (2007) *Pelobacter seleniigenes* sp. nov., a selenate-respiring bacterium. *Int. J. Syst. Evol. Microbiol.* **57**:1937-1942
- Ahn Y-B, Häggblom MM, Kerkhof LJ (2007) Comparison of anaerobic microbial communities amended with halogenated compounds to enhance dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin in estuarine sediments. *FEMS Microbiol Ecol.* **61**:362-371.
- Ruess L, Schütz K, Migge S, Häggblom MM, Kandeler E, Scheu S (2007) Lipid composition of Collembola and their food resources in deciduous forest stands - implications for feeding strategies. *Soil Biology and Biochemistry* **39**:1990-2000.
- Narasingarao P, Häggblom MM (2007) Identification of anaerobic selenate-respiring bacteria from aquatic sediments. *Appl. Environ. Microbiol.* **73**:3519-3527.
- Zaitsev GM, Uotila JS, Häggblom MM (2007) Biodegradation of methyl *tert*-butyl ether by cold-adapted mixed and pure bacterial cultures. *Appl. Microbiol. Biotechnol.* **74**:1092-1102.
- Männistö MK, Tirola M, Häggblom MM (2007) Microbial communities in Arctic fjelds of

- Finnish Lapland are stable but highly pH dependent. *FEMS Microbiology Ecology* **59**:452-465.
- Haubert D, Häggblom MM, Langel R, Scheu S, Ruess L (2006) Trophic shift of stable isotopes and fatty acids in Collembola on bacterial diets. *Soil Biol. Biochem.* **38**:2004-2007.
- Ravit B, Ehrenfeld JG, Häggblom MM (2006) Effects of wetland vegetation on rhizosphere microbial communities: A comparison of disturbed versus undisturbed estuarine sediments. *Soil Biol. Biochem.* **38**:2359-2371.
- Männistö MK, Häggblom MM (2006) Characterization of psychrotolerant bacteria from Finnish Lapland. *Systematic and Applied Microbiology* **29**:229-243.
- Narasingarao P, Häggblom MM (2006) *Sedimenticola selenatireducens*, gen. nov., sp. nov., an anaerobic selenate-respiring bacterium isolated from estuarine sediment. *Systematic and Applied Microbiology* **29**:382-388.
- Somsamak P, Richnow HH, Häggblom MM (2006) Carbon isotope fractionation during anaerobic degradation of methyl tert-butyl ether (MTBE) under sulfate-reducing and methanogenic conditions. *Appl. Environ. Microbiol.* **72**:1157-1163.
- Ahn Y-B, Häggblom MM, Fennell DE (2005) Co-amendment with halogenated compounds enhances anaerobic microbial dechlorination of 1,2,3,4-tetrachlorodibenzo-*p*-dioxin and 1,2,3,4-tetrachlorodibenzofuran in estuarine sediments. *Environ. Toxicol. Chem.* **24**:2775-2784.
- Ruess L, Schütz K, Haubert D, Häggblom MM, Kandeler E, Scheu S (2005) Application of lipid analysis to understand trophic interactions in soil. *Ecology* **86**:2075-2082.
- Ravit B, Häggblom MM, Ehrenfeld JG (2005) Salt marsh rhizosphere affects microbial biotransformation of the widespread halogenated contaminant tetrabromobisphenol A (TBBPA). *Soil Biol. Biochem.* **37**:1049-1057.
- Ruess L, Tiunov A, Haubert D, Richnow HH, Häggblom MM, Scheu S (2005) Carbon stable isotope fractionation and trophic transfer of fatty acids in fungal based soil food chains. *Soil Biol. Biochem.* **37**:945-953.
- Somsamak P, Richnow HH, Häggblom MM (2005) Carbon isotopic fractionation during anaerobic biotransformation of methyl *tert*-butyl ether and *tert*-amyl methyl ether. *Environ. Sci. Technol.* **39**:103-109.
- Jääskeläinen EL, Häggblom MM, Andersson MA, Salkinoja-Salonen MS (2004) Atmospheric oxygen and other conditions affecting the production of cereulide by *Bacillus cereus* in food. *Int. J. Food Microbiol.* **96**:75-83
- Turpeinen R, Kairesalo T, Häggblom MM (2004) Microbial activity and community structure in arsenic, chromium and copper contaminated soils. *FEMS Microbiol. Ecol.* **47**:39-50.
- 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.
- Haubert D, Häggblom MM, Scheu S, Ruess L (2004) Effects of fungal food quality and starvation on the fatty acid composition of *Protaphorura fimata* (Collembola). *Comp. Biochem. Physiol. Part B* **138**:41-52.
- Ruess L, Häggblom MM, Langel R, Scheu S (2004) Nitrogen isotope ratios and fatty acid composition as indicators of animal diets in belowground systems. *Oecologia* **139**:336-346.
- 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.
- Fennell DE, Rhee S-K, Ahn Y-B, Häggblom MM, Kerkhof LJ (2004) Detection and characterization of a dehalogenating microorganism by terminal restriction length fragment

- length polymorphism fingerprinting of 16S rRNA in a sulfidogenic, 2-bromophenol-utilizing enrichment. *Appl. Environ. Microbiol.* **70**:1169-1175.
- Kourtev PS, Ehrenfeld JG, Häggblom MM (2003) Experimental analysis of the effect of exotic and native plant species on the structure and function of soil microbial communities. *Soil Biol. Biochem.* **35**:895-905.
- Kelly JJ, Häggblom MM, Tate RL III (2003) Effects of heavy metal contamination and remediation on soil microbial communities in the vicinity of a zinc smelter as indicated by analysis of microbial community phospholipid fatty acid profiles. *Biol. Fertil. Soils* **38**:65-71.
- Ahn Y-B, Rhee S-K, Fennell DE, Kerkhof LJ, Hentschel U, Häggblom MM (2003) Reductive dehalogenation of brominated phenolic compounds by microorganisms associated with the marine sponge *Aplysina aerophoba*. *Appl. Environ. Microbiol.* **69**:4159-4166.
- Jääskeläinen EL, Häggblom MM, Andersson MA, Vanne L, Salkinoja-Salonen MS (2003) Potential of bakery products for producing cereulide, the *Bacillus cereus* emetic toxin: Quantitative analysis by chemical and biological methods. *Journal of Food Protection* **66**:1047-1054.
- Ravit B, Ehrenfeld JG, Häggblom MM (2003) A comparison of sediment microbial communities associated with *Phragmites australis* and *Spartina alterniflora* in brackish wetlands of New Jersey. *Estuaries* **26**:465-474.
- Rhee S-K, Fennell DE, Häggblom MM, Kerkhof LJ (2003) Detection of reductive dehalogenase motifs in PCR fragments from a sulfidogenic 2-bromophenol-degrading consortium enriched from estuarine sediment. *FEMS Microbiol. Ecol.* **43**:317-324.
- Knight VK, Berman MH, Häggblom MM (2003) Biotransformation of 3,5-dibromo-4-hydroxybenzotrile (Bromoxynil) under denitrifying, Fe(III)-reducing, sulfidogenic and methanogenic conditions. *Environ. Toxicol. Chem.* **22**:540-544.
- Turpeinen R, Virta M, Häggblom MM (2003) Analysis of arsenic bioavailability in contaminated soils. *Environ. Toxicol. Chem* **22**:1-6.
- Kourtev PS, Ehrenfeld JG, Häggblom MM (2002) Exotic plant species alter microbial community structure and function in the soil. *Ecology* **83**:3152-3166.
- Vela S, Häggblom MM, Young LY (2002) Biodegradation of aromatic and aliphatic compounds by rhizobial species. *Soil Science* **167**:802-810.
- Song B, Kerkhof LJ, Häggblom MM (2002) Characterization of denitrifying consortia utilizing 4-chlorobenzoate and 4-bromobenzoate as carbon sources. *FEMS Microbiol. Lett.* **213**:183-188.
- Launen LA, Eastep ME, Buggs VH, Enriquez RC, Leonard JW, Blaylock MJ, Huang J-W, Häggblom MM (2002) Bioremediation of polyaromatic hydrocarbon-contaminated sediments in aerated bioslurry reactors. *Bioremediation Journal* **6**:125-141.
- Häggblom MM, Apetroaie C, Andersson MA, Salkinoja-Salonen MS (2002) Quantitative analysis of cereulide, the emetic toxin of *Bacillus cereus*, produced under various conditions. *Appl. Environ. Microbiol.* **68**:2479-2483.
- Ruess L, Häggblom MM, Garcia Zapara EJ, Dighton J (2002) Phospholipid fatty acids of fungi and nematodes - possible biomarkers in the food chain? *Soil. Biol. Biochem.* **34**:745-756.
- 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.
- Knight VK, Nijenhuis I, Kerkhof LJ, Häggblom MM (2002) Degradation of aromatic compounds coupled to selenate reduction. *Geomicrobiology Journal* **19**:77-86.
- Daane LL, Harjono I, Barns SM, Launen LA, Palleroni NJ, Häggblom MM (2002)

- PAH-degradation by *Paenibacillus* spp. and description of *Paenibacillus naphthalenovorans* sp. nov., a naphthalene-degrading bacterium from the rhizosphere of salt marsh plants. *Int. J. Syst. Evolut. Microbiol.* **52**:131-139.
- Vargas C, Fennell DE, Häggblom MM (2001) Anaerobic reductive dechlorination of chlorinated dioxins in estuarine sediments. *Appl. Microbiol. Biotechnol.* **57**:786-790.
- Somsamak P, Cowan RM, Häggblom MM (2001) Anaerobic biotransformation of fuel oxygenates under different anoxic conditions. *FEMS Microbiol. Ecol.* **37**:259-264.
- Daane LL, Harjono I, Zylstra GJ, Häggblom MM (2001) Isolation and characterization of polycyclic aromatic hydrocarbon-degrading bacteria associated with the rhizosphere of salt marsh plants. *Appl. Environ. Microbiol.* **67**:2683-2691.
- Milligan PW, Häggblom MM (2001) Anaerobic degradation and dehalogenation of chlorosalicylates and salicylate under four reducing conditions. *Biodegradation* **12**:59-167.
- Song B, Palleroni NJ, Kerkhof LJ, Häggblom MM (2001) Characterization of halobenzoate-degrading denitrifying *Azoarcus* and *Thauera* isolates, and description of *Thauera chlorobenzoica* sp. nov. *Int. J. Syst. Evolut. Microbiol.* **51**:589-602.
- Song B, Palleroni NJ, Häggblom MM (2000) Isolation and characterization of diverse halobenzoate-degrading denitrifying bacteria from soils and sediments. *Appl. Environ. Microbiol.* **66**:3446-3453.
- Häggblom MM, Knight VK, Kerkhof LJ (2000) Anaerobic decomposition of halogenated aromatic compounds. *Environmental Pollution* **107**:199-207.
- Vargas C, Song BK, Camps M, Häggblom MM (2000) Anaerobic degradation of fluorinated aromatic compounds. *Appl. Microbiol. Biotechnol.* **53**:342-347.
- Song B, Palleroni NJ, Häggblom MM (2000) Description of strain 3CB-1, a genomovar of *Thauera aromatica*, capable of degrading 3-chlorobenzoate coupled to nitrate reduction. *Int. J. Syst. Evolut. Microbiol.* **50**:551-558.
- Turpeinen R, Pantsar-Kallio M, Häggblom M, Kairesalo T (1999) Influence of microbes on the mobilization, toxicity and biomethylation of arsenic in soil. *Sci. Total Environ.* **236**:173-180.
- Boyle AW, Häggblom MM, Young LY (1999) Dehalogenation of lindane ( $\gamma$ -hexachlorocyclohexane) by anaerobic bacteria from marine sediments and by sulfate-reducing bacteria. *FEMS Microbiol. Ecol.* **29**:379-387.
- Kelly JJ, Häggblom MM, Tate RL III (1999) Effects of the land application of sewage sludge on soil heavy metal levels and soil microbial communities. *Soil. Biol. Biochem.* **31**:1467-1470.
- Kelly JJ, Häggblom MM, Tate RL III (1999) Changes in soil microbial communities over time resulting from one time application of zinc: a laboratory microcosm study. *Soil. Biol. Biochem.* **31**:1455-1465.
- Song B, Häggblom MM, Zhou J, Tiedje JM, Palleroni NJ (1999) Taxonomic characterization of denitrifying bacteria degrading aromatic compounds and description of *Azoarcus toluovorans* sp. nov., and *Azoarcus toluclasticus* sp. nov. *Int. J. Syst. Bacteriol.* **49**:1129-1140.
- Knight VK, Kerkhof LJ, Häggblom MM (1999) Community analyses of sulfidogenic 2-bromophenol dehalogenating and phenol degrading consortia. *FEMS Microbiol. Ecol.* **29**:137-147.
- Daane LL, Häggblom MM (1999) Effect of earthworm egg capsule microbiota on degradation of 2,4-dichlorophenoxyacetic acid. *Appl. Environ. Microbiol.* **65**:2376-2381.
- Boyle AW, Knight VK, Häggblom MM, Young LY (1999) Transformation of 2,4-dichlorophenoxyacetic acid in four different marine and estuarine sediments: effects of

- sulfate, hydrogen and acetate on dehalogenation and side chain cleavage. *FEMS Microbiol. Ecol.* **29**:105-113.
- Milligan PW, Häggblom MM (1999) Anaerobic biodegradation and biotransformation of dicamba under different reducing conditions. *Environ. Sci. Technol.* **33**:1224-1229.
- Häggblom MM, Young LY (1999) Anaerobic degradation of halogenated benzoic acids by a denitrifying bacterium. *Arch. Microbiol.* **171**:230-236.
- Milligan PW, Häggblom MM (1998) Biodegradation of resorcinol and catechol by denitrifying enrichment cultures. *Environ. Toxicol. Chem.* **17**:1456-1461.
- Häggblom MM (1998) Reductive dehalogenation by a sulfate-reducing consortium. *FEMS Microbiol. Ecol.* **26**:35-41.
- Monserrate E, Häggblom MM (1997) Dehalogenation and biodegradation of brominated phenols and benzoic acids under iron-reducing, sulfidogenic, and methanogenic conditions. *Appl. Environ. Microbiol.* **63**:3911-3915.
- Häggblom MM, Rivera MD, Young LY (1996) Anaerobic degradation of halogenated benzoic acids coupled to denitrification observed in a variety of sediment and soil samples. *FEMS Microbiol Lett.* **144**:213-219.
- Kazumi J, Häggblom MM, Young LY (1995) Degradation of monochlorinated and non-chlorinated aromatic compounds under iron-reducing conditions. *Appl. Environ. Microbiol.* **61**:4069-4073.
- Coschigano PW, Häggblom MM, Young LY (1994) Metabolism of both 4-chlorobenzoate and toluene under denitrifying conditions by a constructed strain. *Appl. Environ. Microbiol.* **60**:989-995.
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- Häggblom MM, Young LY (1995) Anaerobic degradation of halogenated phenols by sulfate-reducing consortia. *Appl. Environ. Microbiol.* **61**:1546-1550.
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### ***Other Articles***

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- Alder AC, Häggbloom M, Young LY (1990) Reductive dechlorination of PCBs in sediments under methanogenic conditions. In: Water Pollution Research Report 25. Anaerobic degradation of xenobiotic compounds. Proc. of COST 641 Working Party 3 & 4 Workshop, Copenhagen, Nov. 22-23, 1990, pp. 115-122.
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- Häggbloom MM, Salkinoja-Salonen MS (1993) Ympäristömyrkkyjen hajotus mikrobien avulla. (Microbial degradation of environmental pollutants; in Finnish). *Kemia-Kemi* **20**(3):186-191.
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phenolic compounds occurring in pulp mill effluents. *Water Sci. Technol.* **20**:205-208.  
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### ***Patents***

Daane LL, Häggblom MM (2005) Bacterial strains that degrade polycyclic aromatic hydrocarbons. U.S. Patent 6,905,864, June 14, 2005.  
Daane LL, Häggblom MM (2003) Biologically pure *Paenibacillus validus* bacterial strains that degrade polyaromatic hydrocarbons. United States Patent 6,503,746, January 7, 2003.  
Valo RJ, Häggblom MM, Salkinoja-Salonen MS (1992) Menetelmä ja väliaine saastuneen maan mikrobiologiseksi puhdistamiseksi. Process and means for the microbial remediation of polluted soil and microorganisms for use in said process. Finnish Patent No. 85985.  
Valo RJ, Häggblom MM (1992) Veden mikrobiologinen puhdistaminen ja siihen käytettävä mikro-organismi. A Process for the microbiological purification of water and a microorganism for use in said process. Finnish Patent No. 85984. Australian Patent No. 635519.

### **CURRENT RESEARCH SUPPORT:**

Quantifying Enhanced Microbial Dehalogenation Impacting the Fate and Transport of Organohalide Mixtures in Contaminated Sediments. DoD/SERDP, \$1,883,300, 03/06-2/10. Principal Investigator  
Microbially mediated cycling of organohalides in marine sponges. NSF OCE, \$610,163, 03/01/05-02/31/09, PI.  
Developing tools for monitored natural attenuation of methyl tert-butyl ether. New Jersey Department of Environmental Protection Spill Research Fund, \$100,000, 7/07-9/09. 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  
IPY Microbial subzero activity and its impact on biogeochemical processes in frozen tundra and permafrost, NSF, \$538,647, 1/08-12/10, Co-PI (Lee Kerkhof Rutgers-PI).  
Assessing the Potential for Anaerobic Microbial Dechlorination of PCDD/Fs in River Kymijoki Sediments. Maj and Tor Nessling Foundation, Finland, Project No. 2009146, Euro 24,473 per year, 1/2009-12/2011. PI  
Physiological, ecological and chemical characterization of novel bacteria dominating forest and tundra soils of Arctic Finland (BIOARMI), Academy of Finland #128870, Euro 269,280, 1/2009-12/2012, Co-Investigator (PI P. Vuorela, Åbo Akademi University, Finland)

### **INVITED SEMINARS AND LECTURES:**

VTT Symposium on Non-waste Technology. Espoo, Finland, 1988.  
General Electric Research and Development Center, Schenectady, NY, 1989  
American Chemical Society 197th National Meeting, Dallas, Texas, 1989.  
American Society for Microbiology Annual Meeting, Anaheim CA, 1990.  
Rutgers University, Dept. of Biology, Newark, NJ, 1991.  
University of Washington, Dept. of Civil Engineering, Seattle, WA, 1991.  
University of Helsinki, Dept. of General Microbiology, Helsinki, Finland, 1992.

ASM Conference on Anaerobic Dehalogenation, Athens, GA, 1992.

University of British Columbia, Dept. of Microbiology, Vancouver, Canada, 1992.

Stanford University, Dept. of Civil Engineering, Stanford, CA, 1992.

American Society for Microbiology General Meeting, Atlanta, GA, 1993.

University of Wyoming, Dept. of Zoology and Physiology, Laramie, WY, 1993.

University of Helsinki, Dept. of Applied Chemistry and Microbiology, Helsinki, Finland, 1993.

Theobald Smith Society, New Brunswick, NJ, 1994.

University of Idaho, Dept. of Microbiology, Molecular Biology and Biochemistry, Moscow, ID, 1994.

Society for Industrial Microbiology Annual Meeting, Boston, MA, 1994.

University of Colorado, Cooperative Institute for Research in Environmental Sciences, Boulder, CO, 1995.

University of Helsinki, Dept. of Applied Chemistry and Microbiology, Helsinki, Finland, 1995.

Massachusetts Institute of Technology, Dept. of Civil & Environmental Engineering, Cambridge, MA, 1995.

Gordon Research Conference on Estuarine and Coastal Processes, Plymouth, NH, 1995.

International Seminar on Biosorption and Bioremediation, Merin, Czech Republic, 1995.

IBC's International Symposium on Biological Dehalogenation, Annapolis, MD, 1995.

University of Jyväskylä, Dept. of Biology and Environmental Sciences, Jyväskylä, Finland, 1996.

ONR Workshop on Biological Dehalogenation in Marine Sediments. Bethesda, MD, 1996.

California Institute of Technology, Environmental Engineering Science, Pasadena, CA, 1996.

University of Gent, Laboratory of Microbial Ecology, Gent, Belgium, 1997.

Wageningen Agricultural University, Dept. of Microbiology, Wageningen, The Netherlands, 1997.

14th Biennial Estuarine Research Federation International Conference, The State of Our Estuaries, Providence, RI Oct. 15, 1997.

Smith College, Colloquium in The Biological Sciences & Biochemistry Program, Northampton, MA, Oct 17, 1997.

Swiss Federal Institute of Technology, Institute of Terrestrial Ecology, Zürich, Switzerland, Jan. 13, 1988.

Rutgers University, Dept. of Biochemistry and Microbiology, New Brunswick, NJ, April, 1998.

New Jersey Institute of Technology / Rutgers University, Federated Dept. of Biology, Newark, NJ, April, 1998.

ONR Workshop on Biological Dehalogenation in Marine Sediments. Bethesda, MD, 1998.

Second International Seminar on Biosorption and Bioremediation, Prague, Czech Republic, 7/1998.

Symposium on Bioremediation of Contaminated Soil and Ground Water: Traditional Methods and Possibilities for Gene-technology. August 27-29, 1998, Helsinki, Finland.

Gordon Research Conference on Applied and Environmental Microbiology, July 3-8, 1999.

Theobald Smith Society, New Brunswick, NJ, 1999.

Barnard College, Microbiology Club, November 10, 1999.

The NEMPET Meeting, June 16, 2000.

University of Helsinki, Dept. of Applied Chemistry and Microbiology, Helsinki, Finland, 9/2000.

University of Helsinki, Dept. of Biosciences, Helsinki, Finland, 10/2000.

University of Jyväskylä, Dept. of Biology and Environmental Sciences, Jyväskylä, Finland, 11/2000.

University of Helsinki, Dept. Ecological and Environmental Sciences, Lahti, Finland, 2/2001.  
Colloquium on Anaerobic Dehalogenation, Cooperative Research Program Sfb 193, Technical University of Berlin, Germany April 2-3, 2001.  
American Society for Microbiology General Meeting, Orlando, FL, 2001.  
33rd Mid-Atlantic Industrial & Hazardous Waste Conference, Manhattan College, 2001  
Rutgers University, Ecology and Evolution Graduate Program Seminars, 2001.  
Society for Environmental Toxicology and Chemistry 22<sup>nd</sup> Annual Meeting, Baltimore, MD, Nov. 11-15, 2001.  
DuPont CRG Bioremediation Network, Wilmington, Del. Jan 15, 2002.  
"From the Banks of the Old Raritan" The Centenary of the Department of Soil Bacteriology and the 75th Anniversary of the Department of Agricultural Biochemistry, Cook College, Rutgers University, April 12-13, 2002  
Ohio University, Department of Biomedical Sciences, College of Osteopathic Medicine, Oct. 21, 2002.  
International SUREMA Sustainable Resource and Land-Use Management Network Meeting, November 22-26, 2002, Halle, Germany  
University of Georgia, Department of Microbiology, Athens, GA, March 27, 2003.  
53<sup>rd</sup> Annual Meeting Canadian Society of Microbiologists, Ville de Laval, Quebec, May 25-28, 2003.  
University of Tennessee, Center for Environmental Biotechnology, June 19, 2003.  
Society for Industrial Microbiology Annual Meeting, Anaheim, Calif, July 2004.  
International Petroleum Environmental Conference, Albuquerque, NM, Oct. 12-15, 2004.  
Society for General Microbiology 156<sup>th</sup> Meeting, Edinburgh, UK, April 4-7, 2005.  
Stevens Institute of Technology, Hoboken, NJ, April 27, 2005.  
Meadowlands Environmental Research Institute, June 15, 2005  
NATO-Advanced Research Workshop, Krakow, Poland, June 26-July 1, 2005.  
International Union of Microbiological Societies (IUMS) Conference, San Francisco, July 23-28, 2005.  
International Summer School "Biomonitoring, bioavailability and microbial transformation of pollutants in sediments and approaches to stimulate their biodegradation", Genoa, Italy, September 12-14, 2005  
International Conference on Alpine and Polar Microbiology, Innsbruck, Austria, March 27-31, 2006.  
AXIOM-Virtual Institute Spring School Microbial Activity at Biogeochemical Gradients, Leipzig, Germany, April 3-6, 2006.  
The NEMPET Meeting, June 23-25 2006, Blue Mountain Lake, NY  
Society for General Microbiology Irish Branch Meeting, August 31- September 1, 2006, Dublin, Ireland.  
Fermentation Club Seminars, Dept. of Biochemistry and Microbiology, Rutgers University, October, 2006.  
University of Minnesota, Dept. of Civil Engineering, March 26, 2007.  
The Fifth Tripartite Workshop in Biotechnology and Bioenergy, East Brunswick NJ, April 9-12, 2007.  
Fermentation Club Seminars, Dept. of Biochemistry and Microbiology, Rutgers University, March, 2008.  
Third International Conference on Polar and Alpine Microbiology, Banff, Canada May 1-15, 2008.  
Symposium on Toxins, Toxic Chemicals and their Microbial Transformations in Honor of Prof.

Mirja Salkinoja-Salonen, University of Helsinki, Finland, May 22, 2008.  
The NEMPET Meeting, June 20-22, 2008, Blue Mountain Lake, NY.  
International Workshop on Urban Wetland Ecology and Restoration, Xiamen, China Dec 12-15,  
2008.  
Invited Speaker, 10<sup>th</sup> International Symposium on Bacterial Genetics and Ecology, Uppsala,  
Sweden, June 2009.