

CURRICULUM VITAE**John William Costerton****I. BIOGRAPHICAL INFORMATION****PERSONAL INFORMATION**

Date of Birth:	July 21, 1934
Citizenship:	Canadian
Ethnic Classification:	Caucasian
Sex:	Male
Marital Status:	Married
Spouse's Name:	Vivian
University Address:	Center for Genomic Sciences Allegheny-Singer Research Institute 320 East North Avenue Pittsburgh, PA 15212-4772
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UNIVERSITY EDUCATION

1955	University of British Columbia, Vancouver, B.C., Canada B.A. Bacteriology & Immunology
1956	University of British Columbia, Vancouver, B.C., Canada M.A. Bacteriology & Immunology
1960	University of Western Ontario, London, Ontario, Canada Ph.D Bacteriology
1964-1966	Cambridge University, Cambridge, U.K. Postdoctoral Fellowship Botany

ACADEMIC APPOINTMENTS**Employment**

1961	Setting up and teaching in the Pre-Medical Sciences Department of Baring Union College, Batala Punjab, India
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1963	Dean of Science, Baring Union College, Batala Punjab, India
1964	Nuffield Research Fellow, Botany School, Cambridge University, Cambridge, United Kingdom
1968	Assistant Professor, Dept of Microbiology, Macdonald College of McGill University, Montreal, PQ, Canada
1970	Associate Professor, Dept of Biology, University of Calgary, Calgary, Alberta, Canada
1975	Professor of Biology, Dept of Biology, University of Calgary, Calgary, Alberta, Canada
1985	AOSTRA Research Professorship, University of Calgary, Calgary, Alberta, Canada
1990	NSERC Industrial Research Chair, University of Calgary, Calgary, Alberta, Canada
1993-2004	Director, Center for Biofilm Engineering, Montana State University, Bozeman, MT
1995-2001	Associate Dean for Research of the College of Engineering at Montana State University, Bozeman, MT
2004-2008	Director, Center for Biofilms, Dentistry, University of Southern California, Los Angeles, CA
2008 – Present	Director of Biofilm Research, Center for Genomic Sciences, Allegheny-Singer Research Institute, Pittsburgh, PA
2008 – Present	Director of Microbial Research, Department of Orthopedics, Allegheny General Hospital, Pittsburgh, PA

OTHER PREVIOUS EMPLOYMENT

Other Experience and Professional Memberships

2003	Organizer, Conference on Biofilms, American Society for Microbiology
2000	Organizer, Conference on Biofilms, American Society for Microbiology
1997	Fellow of the American Association for the Advancement of Science (AAAS)
1996	Organizer, Conference on Biofilms, American Society for Microbiology

HONORS, AWARDS, FELLOWSHIPS, SPECIAL LECTURES

- 2009 Doctorate (Honoris causa), University of Gent, Belgium
- 2008 ASM lecturer (Australian Society of Microbiology), Adelaide, Australia
- 2007 Awarded the Sarton Medallion by the Belgian Society for Microbiology
- 2006 Doctorate (Honoris causa), University of Guelph, Ontario, Canada
- 2005 Elected to the Royal Society of Canada: Life Sciences Division
- 2005 Procter and Gamble Prize in Environmental Microbiology, American Society for Microbiology
- 2003-2005 Honorary Professor in the Advanced Wastewater Management Centre, The University of Queensland
- 2002 Excellence in Surface Science Award from the Surfaces in Biomaterials Foundation
Leveraging/Collaboration Award as a member of the Seminar on Antimicrobial Device Testing Workgroup for the Food and Drug Administration (FDA) Marian E. Koshland Seminar Series Lecturer at the University of California - Berkeley
- 2001 Added to the Highly Cited List on www.isihighlycited.com. The Institute for Scientific Information (ISI) includes the top 250 preeminent individual researchers in each of 21 subject categories who have demonstrated great influence in their field as measured by citations to their work - the intellectual debt acknowledged by their colleagues. Honorary Degree of Doctor of Science honoris causa, in recognition of his distinguished work on Biofilms in environmental and medical microbiology, The University of Guelph, Ontario, Canada
- 2000 ASM Lecturer, Annual meeting of the American Society for Microbiology, Los Angeles
- Seymour J. Kreshover Lecturer, National Institutes of Health, Bethesda, MD
- 1995 Pasteur Institute Lectureship, Tahiti; Keynote Lecturer, Society for Applied Bacteriology, U.K.; Biotechnology Institute Lectureship, Turin, Italy; Keynote Lecturer, Australian Society for Microbiology
- 1994 Keynote Lecturer, Society Industrial Microbiology, Boston
- 1993 Keynote Lecturer, Contact Lens Association of Ophthalmologists; Society for General Microbiology Lecturer, U.K.; Organizer, Special Colloquium on Biofilms, American Society from Microbiology
- 1990 Royal College Speaker, Canadian Urological Association
Isaak Walton Killam Memorial Prize for Scientific Achievement
- 1988 Swiss Society for Microbiology Lecturer
- 1987 Tsukuba Lecturer in Microbiology (Japan); American Society Lecturer (Boston, MA); American Society for Microbiology "Future Directions in Microbiology" Lecturer
- 1985 South African Society for Microbiology Lectureship; Danish Society for Microbiology Lectureship; Founding Presidential Lecture (Biological Implications of Pathogenicity); CIL University-Industry Lecture series in Ontario
- Sir Frederick Haultain Prize for Outstanding Achievement in the Physical Sciences; Queen's Guest Lecturer, Queen's University; Australian Society for Microbiology Traveling Lectureship; New Zealand Society for Microbiology Traveling Lectureship; Sociedad Chilena de Infectology Lectureship; Brazil-Canada Workshop Lectureship

- 1981 University of Calgary Master Teacher Award, American Society for Microbiology
 “Institute Lecturer” = gave lectures to 14 ASM branch meetings, French Society for
 Microbiology special lecturer
- 1980 Canadian Society of Microbiology Prize

PROFESSIONAL ORGANIZATIONS

American Society for Microbiology
 International Society for Microbial Ecology
 International Association for Dental Research
 Royal Society of Canada
 American Association for the Advancement of Science
 Surface Science Society

II. ADMINSTRATIVE AND SERVICE ACTIVITIES EDITORIAL BOARDS and MANUSCRIPT REVIEW:

Editor

2005-2006 Biofilms: Online journal

Reviewer

2005-2006 Applied and Environmental Microbiology: Review 10 - 18 papers per year.

COMMITTEES:

USC School of Dentistry

2005-2006 Feasibility committee for new research building: Assisting architects in
 designing new dental research building

2006 Chair: Search committee Oral Microbiology/Biofilms
 Chair: Search Committee: Dental Materials/Biofilms

University of Southern California

2005-2006 University Committee on Nanobiotechnology. Major initiative of
 Provost's Office: 2 day retreat in early March 2006

Professional, National, International Organizations

2005-2006 Nominating Committee for International Society for Microbial Ecology

III. TEACHING ACTIVITIES

COURES DEVELOPED AND/OR PRESENTED

- 1970 – 1974 Developed introductory course in Cell Biology, at the University of Calgary. The course enrolled 1,000 students each year, with a full time PhD level laboratory coordinator. I was awarded the Best Teacher in Science designation by the student council.
- 1975 – 1979 Developed advanced course in Cell Biology, with a unique “research exam”, that was required in the pre-medical syllabus. The course provided real discrimination between “memorizers and “thinkers” that helped spread the marks in the medical entry class. I was awarded the Best Teacher in the University designation by the students.
- 1982 – Present I present approximately 50 lectures each year, from international professional meetings to simple departmental seminars, and I consider this to be my continuing teaching contribution to the biofilm field. In recent years I have developed a whole day traveling lecture for dental hygienists, that has been popular and has been presented +/- 12 times to date.

IV. SCHOLARLY ACTIVITIES

PUBLICATIONS

Selected peer-reviewed publications

Muench A, Brady RA, Costerton JW, Camper AK, Stoodley P, Leid JG, Shirtliff ME. 2009. Gene expression profiles in *Staphylococcus aureus* populations detached from biofilms. Mol Microbiol, In press.

Muench A, Jacobsen SM, Fux C, Leid JG, Camper AK, Costerton JW, Shirtliff ME. 2009. *Staphylococcus aureus* genes unique to clinical strains are more often up-regulated in biofilms compared to the genes of laboratory strains. J Bacteriol, In press.

Leid JG, Costerton JW, Calhoun JH, Shirtliff ME. Acute septic arthritis. 2009. FEMS Immun Med Micro, In press.

Sedghizadeh PP, Kumar SKS, Gorur A, Schaudinn C, Shuler CF, Costerton JW. 2009. Identification and characterization of bacterial biofilms in osteomyelitis and osteonecrosis of the jaws. J Oral Maxillofac Surg, In press.

Romero R, Schaudinn C, Kusanovic JP, Gorur A, Gotsch F, Webster P, Nhan-Chang CL, Erez O, Kim CJ, Espinoza J, Goncalves LF, Vaisbuch E, Mazaki-Tovi S, Hassan SS, Costerton JW. 2008. Detection of a microbial biofilm in intraamniotic infection. *Am J Obstet Gynecol*, 198(1): 135.e1-5.

James GA, Swogger E, Wolcott R, Pulcini E, Secor P, Sestrich J, Costerton JW, Stewart PS. 2008. Biofilms in chronic wounds. *Wound Repair Regen*, 16(1): 37-44.

Balaban N. 2008. Role of Signaling in Biofilms. J.W.Costerton series editor. Second in the 20 book series on Biofilms to be published by Springer.

Sedghizadeh PP, Kumar SK, Gorur A, Schaudinn C, Shuler CF, Costerton JW. 2008. Identification of microbial biofilms in osteonecrosis of the jaws secondary to bisphosphonate therapy. *J Oral Maxillofac Surg*, 66(4): 767-775.

Artini M, Scoarughi GL, Papa R, Dolci G, DeLuca M, Orsini G, Pappalardo S, Costerton JW, Selan L. 2008. Specific anti cross-infection measures may help to prevent viral contamination of dental unit waterlines: A pilot study. *Infection*, 36(5): 467-471.

Longhi C, Scoarughi GL, Poggiali F, Cellini A, Carpentieri A, Seganti L, Pucci P, Amoresano A, Cocconcelli PS, Artini M, Costerton JW, Selan L. 2008. Protease treatment affects both invasion ability and biofilm formation in *Listeria monocytogenes*. *Microb Pathog*, 45(1): 45-52.

Brady RA, Leid JG, Calhoun JH, Costerton JW, Shirtliff ME. 2008. Osteomyelitis and the role of biofilms in chronic infection. *FEMS Immunol Med Microbiol*, 52(1): 13-22.

Brady RA, Leid JG, Kofonow J, Costerton JW, Shirtliff ME. 2007. Immunoglobulins to surface-associated biofilm immunogens provide a novel means of visualization of methicillin-resistant *Staphylococcus aureus* biofilms. *Appl Environ Microbiol*, 73(20): 6612- 6619.

Costerton JW. 2007. The Biofilm Primer. Springer, Hiedelberg. Pp 1- 200, 67 figures, First in a 20 book series on biofilms.

Romero R, Kusanovic JP, Espinoza J, Gotsch F, Nhan-Chang CL, Erez O, Kim CJ, Khalek N, Mittal P, Goncalves LF, Schaudinn C, Hassan SS, Costerton JW. 2007. What is amniotic fluid 'sludge'? *Ultrasound Obstet Gynecol*, 30(5): 793-798.

Zalavras CG, Costerton JW. 2007. Biofilms and Orthopaedic Infections. In Malizos KN, and Soucacos PN (Eds.) P.M.P. Medical Publications. Athens.

Brady RA, Leid JG, Camper AK, Costerton JW, Shirtliff ME. 2006. Identification of *Staphylococcus aureus* proteins recognized by the antibody-mediated immune response to a biofilm infection. *Infect Immun*, 74(6): 3415-3426.

Brady J, Leid J, Costerton JW, Shirtliff ME. 2006. Osteomyelitis: Clinical overview and mechanism of infection persistence. *Clin Microbiol Newsletter*, 28: 65-72.

Davey ME, Costerton JW. 2006. Molecular genetics analyses of biofilm formation in oral isolates. *Periodontol*, 42:13-26.

Hu JF, Garo E, Goering MG, Pasmore M, Yoo HD, Esser T, Sestrich J, Cremin PA, Hough GW, Perrone P, Lee YS, Le NT, O'Neil-Johnson M, Costerton JW, Eldridge GR. 2006. Bacterial biofilm inhibitors from *Diospyros dendo*. *J Nat Prod*, 69(1): 118-120.

Costerton JW, Montanaro L, Arciola CR. 2005. Biofilm in implant infections: Its production and regulation. *Int. J Artif Organs*, 28(11): 1062-1068.

Purevdorj-Gage B, Costerton JW, Stoodley P. 2005. Phenotypic differentiation and seeding dispersal in non-mucoid and mucoid *Pseudomonas aeruginosa* biofilms. *Microbiology*, 151(Pt 5): 1569-1576.

Balaban N, Stoodley P, Fux CA, Wilson S, Costerton JW, Dell'Acqua G. 2005. Prevention of staphylococcal biofilm-associated infections by the quorum sensing inhibitor RIP. *Clin Orthop Relat Res*, 437: 48-54.

Costerton JW, Montanaro L, Arciola CR. 2005. Biofilm in implant infections: Its production and regulation. *Int J Artif Organs*, 28(11): 1062-1068.

Norris P, Noble M, Francolini I, Vinogradov AM, Stewart PS, Ratner BD, Costerton JW, Stoodley P. 2005. Ultrasonically controlled release of Ciprofloxacin from self-assembled coatings on poly (2-Hydroxyethyl Methacrylate) Hydrogels for *Pseudomonas aeruginosa* biofilm prevention. *Antimicrob Agents Chemother*, 49(10): 4272-4279.

Nucci C, Artini M, Pasmore M, Missiroli F, Costerton JW, Selan L. 2005. A microbiological and confocal microscope study documenting a slime-producing *Staphylococcus aureus* strain isolated from a nylon corneal suture of a patient with antibiotic-resistant endophthalmitis. *Graefe's Arch Clin Exp Ophthalmol*, 243: 951-954.

Marion K, Pasmore M, Freney J, Delawari E, Renaud F, Costerton JW, Traeger J. 2005. A new procedure allowing the complete removal and prevention of Hemodialysis biofilms. *Blood Purif*, 23(5): 339-348.

Fux CA, Shirliff M, Stoodley P, Costerton JW. 2005. Can laboratory reference strains mirror 'real-world' pathogenesis?" *Trends Microbiol*, 13(2): 58-63.

Fux CA, Costerton JW, Stewart PS, Stoodley P. 2005. Survival strategies of infectious biofilms. *Trends Microbiol*, 13(1): 34-40.

Dohar JE, Hebda PA, Veeh R, Awad M, Costerton JW, Hayes J, Ehrlich GD. 2005. Mucosal biofilm formation on middle-ear mucosa in a nonhuman primate model of chronic suppurative otitis media. *Laryngoscope*, 115(8): 1469-1472.

Ehrlich GD, Stoodley P, Kathju S, Zhao S, McLeod BR, Balaban N, Hu FZ, Sotereanos NG, Costerton JW, Stewart PS, Lin Q. 2005. Engineering approaches for the detection and control of orthopaedic biofilm infections. *Clin Orthop Relat Res*, 437: 59-66.

Costerton JW. 2005. Biofilm theory can guide the treatment of device-related orthopedic infections. *Clin Orthop Relat Res*, 437: 7-11.

Anderson JM, Cook G, Costerton JW, Hanson SR, Hensten-Pettersen A, Jacobsen N, Johnson RJ, Mitchell RN, Pasmore M, Schoen FJ, Shirtliff M, Stoodley P. 2004. Host Reactions to Biomaterials and Their Evaluation.," In: *Biomaterials Science: An Introduction to Materials in Medicine*, Ratner BD, Hoffman AS, Schoen FJ, Lemons JE (eds.) Elsevier Academic Press, pp. 345-354.

Hall-Stoodley L, Costerton JW, Stoodley P. 2004. Bacterial biofilms: From the natural environment to infectious diseases. *Nat Rev Microbiol*, 2(2): 95-108.

Ehrlich GD, Fen FZ, Qiao L, Costerton JW, Post JP. 2004. Intelligent implants to battle biofilms. *ASM News*, 70(3): 127-133.

Pasmore FJ, Schoen M, Shirtliff M, Stoodley P. 2004. Host Reactions to Biomaterials and Their Evaluation, In: *Biomaterial Science: An Introduction to Materials in Medicine*, Ratner BD, Hoffman AS, Schoen FJ, Lemons JE (eds.) Elsevier Academic Press, pp. 345-354.

Costerton JW. 2004. A Short History of the Development of the Biofilm Concept, In: *Microbial Biofilms*, Ghannoum MA, O'Toole GA (eds), ASM Press, Washington, DC, pp. 4-19.

Costerton JW, Stoodley P, Shirtliff ME, Pasmore M, Cook G. 2004. Biofilms, Biomaterials and Device-Related Infections, In: *Biomaterials Science: An Introduction to Materials in Medicine*, Ratner BD, Hoffman AS, Schoen FJ, Lemons JE.(eds.) Elsevier Academic Press, pp. 345-354.

Costerton JW, Wilson M. 2004. Introducing biofilms. *Biofilms*, 1(1): 1-4.

Pasmore M, Costerton JW. 2003. Biofilms, bacterial signaling, and their ties to marine biology. *J Ind Microbiol Biotechnol*, 30(7): 407-413.

Costerton JW, Stoodley P. 2003. Microbial Biofilms: Protective Niches in Ancient and Modern Geomicrobiology, In: *Fossil and Recent Biofilms: A Natural History of Life on Earth*, Krumbein WE, Paterson DM, Zavarzin GA (eds). Kluwer Academic Publishers, Dordrecht, ISBN 1-4020-1597-6.

Fux CA, Stoodley P, Hall-Stoodley L, Costerton JW. 2003. Bacterial biofilms: A diagnostic and therapeutic challenge. *Expert Rev Anti Infect Ther*, 1(4): 89-105.

Heersink J, Costerton JW, Stoodley P. 2003. Influence of the Sonicare® toothbrush on the structure and thickness of laboratory grown *Streptococcus mutans* biofilms assessed by digital time-lapse and confocal microscopy. *Am J Dent*, 16(2): 79-83.

Marion-Ferey KM, Pasmore M, Stoodley P, Wilson S, Husson GP, Costerton JW. 2003. Biofilm removal from silicone tubing: An assessment of the efficacy of dialysis machine decontamination procedures using an in vitro model. *J Hosp Infect*, 53(1): 64-71.

Shirtliff ME, Leid JG, Costerton JW. 2003. Basic Science of Musculoskeletal Infections, In: *Musculoskeletal Infections*, Mader JT, Calhoun JH (eds), Marcel Dekker, Inc., New York, NY, Chapter 1:1-61.

Veeh RH, Shirtliff ME, Petik JR, Flood JA, Davis CC, Seymour JL, Hansmann MA, Kerr KM, Pasmore ME, Costerton JW. 2003. Detection of *Staphylococcus aureus* biofilm on tampons and menses components. *J Infect Dis*, 188(4): 519-530.

Hentzer M, Wu H, Andersen JB, Riedel K, Rasmussen TB, Bagge N, Kumar N, Schembri MA, Song Z, Kristoffersen P, Manefield M, Costerton JW, Molin S, Eberl L, Steinberg P, Kjelleberg S, Hoiby N, Givskov M. 2003. Attenuation of *Pseudomonas aeruginosa* virulence by quorum sensing inhibitors. *EMBO J*, 22(15): 3803-3815.

Costerton JW, Veeh R, Shirtliff M, Pasmore M, Post C, Ehrlich G. 2003. The application of biofilm science to the study and control of bacterial infections. *J Clin Invest*, 112(10): 1466-1477.

Donlan RM, Costerton JW. 2002. Biofilms: Survival mechanisms of clinically relevant microorganisms. *Clin Microbiol Rev*, 15(2): 167-193.

Stoodley P, Sauer K, Davies DG, Costerton JW. 2002. Biofilms as complex differentiated communities. *Annu Rev Microbiol*, 56: 187-209.

Sauer K, Camper AK, Ehrlich GD, Costerton JW, Davies DG. 2002. *Pseudomonas aeruginosa* displays multiple phenotypes during development as a biofilm. *J Bacteriol*, 184(4): 1140-1154.

Purevdorj B, Costerton JW, Stoodley P. 2002. Influence of hydrodynamics and cell signaling on the structure and behavior of *Pseudomonas aeruginosa* biofilms. *Appl Environ Microbiol*, 68(9): 4457-4464.

Leid JG, Shirtliff ME, Costerton JW, Stoodley P. 2002. Human leukocytes adhere to, penetrate, and respond to *Staphylococcus aureus* biofilms. *Infect Immun*, 70(11): 6339-6345.

Ehrlich GD, Veeh R, Wang X, Costerton JW, Hayes JD, Hu FZ, Daigle BJ, Ehrlich MD, Post JC. 2002. Mucosal biofilm formation on middle-ear mucosa in the chinchilla model of otitis media. *JAMA*, 287(13): 1710-1715.

Costerton JW. 2002. Anaerobic biofilm infections in cystic fibrosis. *Molecular Cell*, 10: 1-20.

Leid JG, Costerton JW, Shirtliff ME, Gilmore MS, Engelbert M. 2002. Immunology of staphylococcal biofilm infections in the eye: New tools to study biofilm endophthalmitis. *DNA Cell Biol*, 21(5/6): 405-413.

Bollinger N, Hassett DJ, Iglewski BH, Costerton JW, McDermott TR. 2001. Gene expression in *Pseudomonas aeruginosa*: Evidence of iron override effects on quorum sensing and biofilm-specific gene regulation. *J Bacteriol*, 183(6): 1990-1996.

Costerton JW. 2001. Cystic fibrosis pathogenesis and the role of biofilms in persistent infection. *Trends Microbiol*, 9(2): 50-52.

Costerton JW, Stewart PS. 2001. Battling biofilms. *Scientific American*, 285(1): 60-67.

Stewart PS, Costerton JW. 2001. Antibiotic resistance of bacteria in biofilms. *Lancet*, 358: 135-138.

Cook G, Costerton JW, Darouiche RO. 2000. Direct confocal microscopy studies of the bacterial colonization in vitro of a silver-coated heart valve sewing cuff. *Int J Antimicrob Agents*, 13: 169-173.

Davies DG, Parsek MR, Pearson JP, Iglewski BH, Costerton JW, Greenberg EP. 1999. The use of signal molecules to manipulate the behavior of biofilm bacteria. *Clin Microbiol Infect*, 5: 5S7-5S8.

Costerton JW, Stewart PS, Greenberg EP. 1999. Bacterial biofilms: A common cause of persistent infections. *Science*, 284: 1318-1322.

Books:

The Biofilm Primer, J.W.Costerton. The book was published in March of 2007 and has already sold > 800 copies.

Edited Volumes:

Biofilm Series

J.W. Costerton Series Editor

20 books on biofilms will be published by Springer

I have made 23 presentations to major scientific meetings, including an ENT meeting in Manchester UK, and an orthopedic surgery meeting in Naples Italy. I made 2 major presentations to the ADA meeting in Las Vegas.

MAJOR PUBLIC PRESENTATIONS

During the past 25 years I have presented keynote lectures to the following professional societies ::

- *American Dental Association (4)
- *American Periodontal Association
- *International Association for Dental Research (2)
- *American Urological Association = audience of 4,800
- *International ENT society (2)
- *International Bone and Joint Infection Society (2)
- *Musculoskeletal Infection Society (3)
- *Infectious Diseases Society of America
- *International Otolaryngological Society (2)
- *Society for Industrial Microbiology (5)
- *Biodegradation and Biodeterioration Society (3)
- *Society for Petroleum Engineering (4)
- *National Association of Corrosion Engineers (6)

During the past 25 years I have presented special lectures to the following scientific societies:

- *American Society for Microbiology: annual lecture = audience of 4,000
- *American Society for Microbiology (20)
- *Canadian Society for Microbiology (24)
- *French Society for Microbiology
- *Australian Society for Microbiology (3)
- *Chilean Society for Microbiology (2)

- *Pasteur Institute – Paris (4)
- *Pasteur Institute – Tahiti
- *New Zealand Society for Microbiology (2)
- *South African Society for Microbiology (2)
- *National Institute of Health – Italy
- *State Serum Institute – Denmark (3)
- *National Research Council – Germany (2)
- *Medical Microbiology group – Switzerland
- *Medical and Infectious Disease groups – Japan (10)
- *Gastroenterology group in Hong Kong (2)
- *International Corrosion Conference – Singapore

Because I cannot list all of the talks I have given over many years, I offer a complete list of my engagements for 2006 = a typical year.

2006 = typical year

Jan - USC periodontis meeting (keynote) Jan - Philips Oral Healthcare = seminar Feb - Technical Advisory Committee = Montana State (keynote) Feb - Novapharm = seminar Feb - Material Sciences USC = seminar Feb - UC Berkeley = seminar Feb - USCSD = Dean's Lecture Feb - USC gastroenterology = seminar Mar - Swiss Society for Infectious Disease (keynote) Mar - University of Rome = seminar Mar - USC urology = seminar Apr - European Society for Infectious Diseases (Copenhagen) keynote Apr - UCLA Urology = seminar Apr - USC civil engineering = seminar Apr - World meeting on Otitis media (Amsterdam) keynote May - Inauguration of Biofilm Center at Danish Technical University (Lyngby) keynote May - International meeting on cardiology = keynote June - American Society for Microbiology = division lecture June - Italian biofilm meeting (Rome) = keynote July - Technical Advisory meeting, Montana State = keynote Aug - Becton-Dickinson (Salt Lake City) = seminar Sept - USC Molecular Biology = seminar Oct - USC orthodontics symposium = lecture Oct - USC biofilm conference = 2 symposium presentations, 1 workshop, and 2 day retreat on biofilm methods. I organized this conference and it attracted 180 people from 16 countries. Oct - USCSD 125th anniversary celebration = lecture Nov - Endodontic TDO meeting (San Diego) = keynote Nov - Engineering Research centers meeting = lecture Dec - Specialty Labs (L.A.) = seminar

GRANTS AND CONTRACTS AWARDED

During my 23 years at the University of Calgary, the funding for my large (+/- 25 person) lab exceeded \$ 1.5 million per year for at least 12 years. During my 11 year tenure as Director of the Center for Biofilm Engineering (CBE) at Montana State University, the grant and industrial support for the Center exceeded \$ 4.0 million for 9 years. Therefore, at a conservative estimate, my research on the structure and function of microbial biofilms has attracted more than \$ 80 million in support, over the course of my career.

Research Support – Active and Recent Past

R01 DC002148 (Ehrlich, G.D.)

Molecular Analysis of Pathogens in Otitis Media by PCR

Otitis Media is caused by a complex community of pathogenic bacteria. Culture methods fail to recover all of the organisms present in any individual infection, so we identify these bacteria their 16S RNA and DNA profiles.

NIH (sub from Allegheny-Singer Research Institute)

April 1, 2004 to March 31, 2005

\$65,200

R01 DC005659 (Post, J.C.)

Pneumococcal Biofilms in Otitis Media

The overall goal of this project is to investigate *Streptococcus pneumoniae* and identify proteins that can serve either as immunogens for vaccine development, or targets for novel antimicrobial agents.

NIH/NIDCD (sub from Allegheny-Singer Research Institute)

March 1, 2004 to February 28, 2005

\$27,300

MRI-BES-0079789 (Costerton, J.W.)

Development of an Ultra-Miniature Confocal Laser Scanning Microscope

The major goal of this project is to develop an ultra-miniature confocal laser scanning microscope that will be mounted on an optical fiber.

National Science Foundation

September 1, 2000 to August 31, 2006

\$398,332

EEC-0121881 (Costerton, J.W.)

PER: Engineering Research Center for Interfacial Microbial Process Engineering

The major goal of this is to fulfill NSF Partnership in Education and Research Initiatives by examination of UWEB Biomaterials for Antibacterial Properties.

National Science Foundation

September 1, 2001 to August 31, 2006

\$257,180

R42 RR16363 (Costerton, J.W.)

Control of Biofilms by Natural Products

Identify compounds produced by plants that inhibit biofilm formation. These biofilm-inhibiting compounds are typically blocking analogues of signals that control this community development.

NIH (sub from Sequoia Sciences)

January 1, 2003 to December 31, 2005

\$174,350

RO1 EB004422-01A1 (Olerud, J.E.)

Percutaneous Devices Permitting Skin Attachment

Assess the growth of biofilm-forming skin bacteria in the presence of transcutaneous devices in which the dermis integrates with elements of the device.

NIH (Sub from University of Washington)

July 12, 2005 to April 30, 2009

\$70,407

Philips Oral Healthcare

PI

2006 to 2007

\$55,000

Develop D-HPLC method for population analysis in dental biofilms

Waterpik Corporation

P.I.

2008

\$58,000

Assess efficacy of water irrigation devices in removing biofilm

Capture microscope upgrade at Norris Cancer Center and Doheney Eye Institute

Provost's Office

Collaborator

2006

\$400,000