

CURRICULUM VITAE

Name: David Arnold Relman

Date of birth: September 28, 1955

Place of birth: Boston, Massachusetts

Nationality: USA

Education:

1973-7 S.B. Massachusetts Institute of Technology

1977-82 M.D. Harvard Medical School

Scholastic honors:

1977 Eloranta Summer Research Fellowship (MIT) (spent at
Department of Biochemistry, University of Oxford, England)

1982 Dr. Harold Lamport Biomedical Research Prize

1982 Magna cum laude, Harvard Medical School

Postdoctoral training:

1982-3 Intern, Internal Medicine, Massachusetts General Hospital (MGH)

1983-5 Resident, Internal Medicine, Massachusetts General Hospital

1985-6 Clinical Fellow, Infectious Diseases, MGH, Boston, MA

1986-92 Research Fellow, Infectious Diseases, and Postdoctoral Scholar,
Department of Microbiology and Immunology, Stanford
University School of Medicine, Stanford, CA

Academic Appointments:

1992-4 Acting Assistant Professor of Medicine, Stanford University

1994-01 Assistant Professor of Medicine (Infectious Diseases and Geographic
Medicine), and of Microbiology & Immunology, Stanford University

2001-08 Associate Professor of Medicine (Infectious Diseases and Geographic
Medicine), and of Microbiology & Immunology, Stanford University

2008- Professor of Medicine (Infectious Diseases and Geographic
Medicine), and of Microbiology & Immunology, Stanford University

2009- Thomas C. and Joan M. Merigan Endowed Professorship

2011-12 Affiliated Faculty, Center for International Security and Cooperation,
Stanford University

2013- Co-Director, Center for International Security and Cooperation,
Stanford University

2013- Senior Fellow, Freeman Spogli Institute for International Studies,
Stanford University

Non-academic Public Service and Activities:

1977-8 Volunteer worker, Massachusetts Poison Control Center
 1986- Volunteer physician & Member of Advisory Board, Rock Medicine, Haight-Ashbury Free Clinics, San Francisco
 1991 Volunteer lecturer ("Hypothermia"), Rafting Guide Training Course, Friends of the River, San Francisco
 1995-7 Medical Correspondent, MTV (Music Television)
 2006-12 Chief Medical Officer, Rock Medicine, Haight-Ashbury Free Clinics, San Francisco
 2012- Medical Co-Director, Rock Medicine, Haight-Ashbury Free Clinics, San Francisco

Hospital Appointments:

1990- Staff Physician, Stanford University Hospital
 1992- Staff Physician, Veterans Affairs Palo Alto Health Care System
 2001 Acting Chief, Infectious Diseases, VA Palo Alto Health Care System
 2002- Chief, Infectious Diseases, VA Palo Alto Health Care System

Stanford and VAPAHCS Committees, and Academic Service:

1977-82 Curriculum Committee, Harvard-MIT Program in Health Sciences and Technology
 1980-82 Committee on Human Studies, Harvard Medical School
 1994- Administrative Panel on Biosafety, Stanford University
 1995-98 Department of Medicine Research Seminar Committee
 1996-98 Graduate Admissions Committee, Dept of Microbiology & Immunology, Stanford University
 1996- Ph.D. Thesis Committees: Dianne McFadden, Anthea Lee, Michael Wilson, Joanna MacKichan, Charles Kim, Kaman Chan, Ryan MacFarlane, Leigh Baxt, Drew Hotson, Annie Brotcke, Tammy Doukas, Maddie Moule, Jon Jones, Junaid Ziauddin, Moria Chambers, Audrie Lin, Jessica Ferreyra, Zach Bjornson, Sam Smits, Lauren Smith, Brenda Torres, Katie Cumnock, Liz Stanley, Michelle Lissner (Microbiology); Aaron Warnock, Jenny Radosevich-Kantor (Immunology); Ash Alizadeh, Max Diehn (Biophysics); Chana Palmer (Genetics); Clara Davis (Biological Sciences); Ellen Casavant, Joshua Lichtman (Chemical & Systems Biology)
 1997-00 Research & Development Committee, VA Palo Alto HCS

1997-00	Board of Directors, radio station KZSU, Stanford University
1998-99	Office of Technology and Licensing Research Incentive Fund Grant Selection Committee
2000-	Stanford Functional Genomics Facility Oversight Committee
2001-	Chair, Administrative Panel on Biosafety, Stanford University
2002-	Walter and Ida Berry Fellowship Selection Committee
2003-2008	Director, Infectious Diseases Fellowship Training Program
2005-	Steering Committee, Institute of Immunity, Transplantation and Infection
2006-2007	Dept. of Microbiology & Immunology Graduate Admissions Committee
2009-2012	Committee on Academic Computing and Information Systems (C-ACIS)
2009-2012	Dept. of Bioengineering Appointments & Promotions Executive Committee
2014-	Co-Director, Center for International Security and Cooperation
2014-	University Senate AdHoc Information Technology Committee
2014-	Dept. of Medicine Appointments & Promotions Executive Committee
2015-16	Division of Infectious Diseases (Department of Medicine) Faculty Search Committee

Stanford University: Ph.D. Doctoral Supervision:

2001-	Mary Brinig, Miling Yan, Yana Hoy, Alix Switzer, Diana Proctor, Dan Sprockett (Microbiology & Immunology); Kate Rubins (Cancer Biology); Katie Turner Shelef (Biology); Stephanie Bachas-Daunert (Civil & Environmental Engineering); Tomer Altman (Biomedical Informatics); Henry Cheng (Bioengineering); Natasha Dudek (Ecology & Evolution, University of California, Santa Cruz)
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Stanford University: Undergraduate Honors Thesis Supervision:

2014-	Laurie Rumker, Annie Kapnick
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Stanford University: Teaching:

1992-	Lecturer, Medical Housestaff Noon Lecture Series
1992-7	Lecturer, MI202/220B/201: Infectious Basis of Disease
1993-4	Lecturer, Medicine 229: Molecular & Genetic Medicine
1995-	Lecturer, Division of Infectious Diseases Didactic Lecture Series
1995-7	Course Co-Director & Lecturer, Microbiology 207: Pathogenesis of Infectious Diseases
1995-6	Lecturer, Pharmacology 202
1997	Discussion Leader, Medicine 255: The Responsible Conduct of Research
1997-11	Lecturer, HRP 231: Infectious Diseases Epidemiology
1997,9	Lecturer, MI025: Modern Plagues
1998	Lecturer, MI220A: Host-Parasite Interactions and Host Defense

1998-	Lecturer, MI210/209: Pathogenesis of Bacteria, Viruses, and Eukaryotic Parasites
1998-02	Lecturer, HumBiol 4S: Bioethical Issues in Human Biology
1999-16	Lecturer, Biochem203: Molecular Biology
2001	Course Director and Lecturer, MI 025: Modern Plagues
2005-6	Lecturer, Sophomore Seminar "Medicine's Greatest Discoveries"
2007	Lecturer, BioHopkins 274: Hopkins Microbiology Course
2007,09,11	Lecturer, EESS 259: Environmental Microbial Genomics
2011	Lecturer, MI 18SC: The Coming Influenza Pandemic
2012-	Lecturer, BIOCHEM203: Molecular Foundations
2012-	Lecturer, MS&E 193/293: Technology and National Security
2014	Lecturer, POLS 114S/IPS 241: International Security in a Changing World
2014,16	Lecturer, BIO 120/MI 120: Bacteria in Health and Disease
2014-	Lecturer, HUMBIO 4A: The Human Organism
2016	Lecturer, HUMBIO 57: Epidemic Intelligence: How to identify, investigate and interrupt outbreaks of disease

National Committees, Government and International Service:

1991	Task Force on Microbiology and Infectious Diseases, NIAID, NIH
1994-95	Consultant on genotype-based detection of fastidious microbial pathogens and antimicrobial resistance, Office of Technology Assessment, Congress of the United States
1995-96	Ad Hoc Panel on Opportunistic Infections Research, Chair of Emerging Infections Subgroup, NIH OAR AIDS Research Program Evaluation Working Group
1996	Task Force on Challenges in IBD Research, Crohn's and Colitis Foundation of America
1996-97	<i>Cyclospora</i> Advisory Panel, California Strawberry Commission
1996-97	<i>Cyclospora</i> Advisory Panel, US Food & Drug Administration
1996-01	Annual Meeting Program Committee, Infectious Diseases Society of America (IDSA); Vice-Chair 1999; Chair 2000
1996-04	Consultant, Unexplained Deaths Project, Emerging Infections Program, Centers for Disease Control and Prevention
1996-00	Biological Warfare Defense Review Panel, Defense Advanced Research Projects Agency, Department of Defense
1997-00	Co-chair, Microbial Genome Sequencing Colloquium Steering Committee, American Academy of Microbiology (ASM)
1998-01	Scientific Advisory Committee, Emerging Infections Network, IDSA
1998-01	Emerging Infections Committee, IDSA
1999	Ad Hoc Reviewer, NIAID ICIDR Grant Program, NIH
1999	Technical Evaluator, Gulf War Illness Study, U.S. Dept of Veterans Affairs
1999	Blue Ribbon Panel on Microbial Genome Sequencing, NIAID, NIH
2000-02	Mars Sample Handling Working Group, NASA

- 2000 Member, Special Emphasis Review Panel, Centers of Biomedical Research Excellence Grant Program, NCRR, NIH
- 2000-01 Program Committee, Conference on Diagnostic Approaches for Infectious Diseases, Infectious Diseases Society of America
- 2000 LHBP Genome Scale Analysis Section Search Committee, NIAID
- 2001 Consultant to Office of Secretary of Defense, Chemical and Biological Technology Area Review and Assessment, Dept. of Defense
- 2001-05 Biology & Biotechnology Advisory Board, Lawrence Livermore National Laboratory, US Department of Energy
- 2001-02 JID Editor Selection Committee, IDSA
- 2001-02 Co-chair, Steering Committee, "Microbial Genomes & Ecology" Colloquium, American Academy of Microbiology (ASM)
- 2002 Committee on Science & Technology for Countering Terrorism, Panel on Biological Issues, National Academies of Science, National Research Council
- 2002 Advisory Committee to National Nuclear Security Administration, U.S. Department of Energy
- 2002 Blue Ribbon Panel on Bioterrorism Research, NIAID, NIH
- 2002-03 Committee on Transmissible Spongiform Encephalopathies, Institute of Medicine, NAS
- 2003-06 Chair, Merck Irving S. Sigal Young Investigator Award Selection Committee, ASM
- 2003 Special Emphasis Panel, ZRG1 EVR (40), Center for Scientific Review, NIAID, NIH
- 2003 Steering Committee, "Microbiology in the 21st Century" Colloquium, American Academy of Microbiology (ASM)
- 2003-08 Board of Scientific Counselors, NIDCR, NIH
- 2003 Board of Scientific Counselors, Ad Hoc member, NIAID, NIH
- 2003-06 Board of Directors, Infectious Diseases Society of America
- 2004-06 Co-Chair, Committee on Advances in Technology and the Prevention of their Application to Next Generation Biowarfare Threats, NRC/IOM, National Academies of Science
- 2004 Grant Review Panel (Grand Challenges in Global Health), Bill and Melinda Gates Foundation / Foundation for the NIH
- 2004 Project Review Panel, Genome Canada
- 2004-06 Medical Advisory Board, National Center for Space Biological Technologies
- 2005- Forum on Microbial Threats, Institute of Medicine, NAS
- 2005-06 Scientific Working Group, NIAID Bioinformatics Resource Center, The Institute for Genomic Research (TIGR)
- 2005-06 Senior Advisory Group for Biodefense, Office of the Secretary of Defense
- 2005-14 National Science Advisory Board for Biosecurity
- 2005-07 Scientific Steering Committee, Exhibition on Infectious Disease, Marian Koshland Science Museum of the National Academy of Sciences, Washington, DC

- 2005-07 Chemistry, Materials, and Life Sciences Directorate Review Committee (Chair, Biology Subcommittee), Lawrence Livermore National Laboratory, DOE/NNSA
- 2006 Blue Ribbon Panel on Intramural Research Program, NIDCR, NIH
- 2007-08 Chair, Board of Scientific Counselors, NIDCR, NIH
- 2007 Science & Technology Advisory Panel on Biosecurity, Lawrence Livermore National Laboratory, DOE
- 2007 Consultant, Immunization Safety Office, Centers for Disease Control
- 2007 Selection Committee for Editor-in-Chief, *Science*, AAAS
- 2007- Chair, Forum on Microbial Threats, Institute of Medicine, NAS
- 2007-8 Review Panel, Howard Hughes Medical Institute 2008 Investigator Competition
- 2008-12 Physical and Life Sciences Directorate Review Committee, Lawrence Livermore National Laboratory, DOE/NNSA
- 2008-09 Committee on Assessment of Future Scientific Needs for Live Variola Virus, IOM/NAS
- 2008 NIH Special Emphasis Panel/Scientific Review Group 2009/01 ZRG1: Human Microbiome Demonstration Project
- 2008 Audit Committee, School of Life Sciences, École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
- 2009-12 Communications Committee, American Society for Microbiology
- 2009 Challenge Grant Editorial Panel 26, 2009/10 ZRG1 HDM-P (58R), NIH
- 2009 ZGM1 NDIA-O 03 X Workgroup 001, Review of 2009 NIH Director's New Innovator Award Applications
- 2009-10 Organizing Committee, 3rd ASM Beneficial Microbes Conference
- 2009-11 Committee on the Review of the Scientific Approaches Used During the FBI's Investigation of the 2001 *Bacillus Anthracis* Mailings (Vice-Chair), NRC/NAS
- 2010 Blue Ribbon Panel on Genomics, NIAID, NIH
- 2010-11 Selection Committee for Director, National Institute for Dental and Craniofacial Research, NIH
- 2010-11 Organizing Committee, 2011 Gordon Research Conference on Chemical & Biological Terrorism Defense
- 2010-11 Vice-President, Infectious Diseases Society of America
- 2011- Scientific Advisory Board, National Marine Mammal Foundation
- 2011- Defense Advanced Research Projects Agency Synthetic Biology Panel
- 2011-12 President-Elect, Infectious Diseases Society of America
- 2012-15 Committee on Science, Technology, and Law, National Academy of Science
- 2012 NIH Special Emphasis Panel/Scientific Review Group, 2012 NIH Director's Pioneer Award
- 2012- Science, Technology and Engineering Advisory Panel, Lawrence Livermore National Laboratory
- 2012 Chair, Workshop on Microbiome and Aging, National Institute on Aging, NIH
- 2012-13 President, Infectious Diseases Society of America

- 2013 Co-Chair, Workshop on Microbial Community Dynamics, National Institute of General Medical Sciences, NIH
- 2013- Scientific Advisory Board, Microbial Ecology and Theory of Animals Center for Systems Biology, University of Oregon
- 2013 External Review Panel, *Emerging Infectious Diseases*, Centers for Disease Control, Atlanta, GA
- 2014 Working Group on Antimicrobial Resistance, President's Council of Advisors on Science and Technology, The White House
- 2014-15 Laboratory Safety Workgroup of the Advisory Committee to the Director, CDC
- 2015- Vice-Chair, General Meeting Planning Committee, American Society for Microbiology
- 2015- Advanced Environmental Health/Advanced Food Technology Standing Review Panel, NASA
- 2015- Board of Scientific Counselors, NCBI, NIH
- 2016 Working Group on Biodefense, President's Council of Advisors on Science and Technology, The White House
- 2016 NIH Special Emphasis Panel/Scientific Review Group, 2016 NIH Director's Pioneer Award
- 2016- Steering Committee for National Academies Keck Futures Initiative on Deep Ocean Science
- 2016 Intelligence Community Studies Board, National Academies of Science

Editorial Boards:

- 1997- *Emerging Infectious Diseases*
- 1999- Medscape-Infectious Diseases
- 1999- *Genome Biology*
- 2000-09 *Infection, Genetics and Evolution*
- 2001-05 Faculty of 1000
- 2005- BMC Genomics
- 2006- *FEMS Microbiology Ecology*
- 2006- *The ISME Journal: Multidisciplinary Journal of Microbial Ecology*
- 2006- *Environmental Microbiology*
- 2006- *Journal of Infectious Diseases*
- 2009- *Biosecurity and Bioterrorism*
- 2009- *Genome Research*
- 2010-19 *mBio*
- 2011- *Scientific Reports* (Nature Publishing Group)
- 2011-14 Senior Editor, *The ISME Journal*

Certification and Licensure:

- 1982-87 Massachusetts State Medical License, No. 52288

- 1985- Certified, Internal Medicine, American Board of Internal Medicine
 1986- California State Medical License, No. G59378
 1988- Certified, Infectious Diseases, American Board of Internal Medicine

Professional Associations:

- 1985- American College of Physicians
 1992- American Society for Microbiology
 1993- American Federation for Medical Research
 1993- Infectious Diseases Society of America (IDSA)
 1998- American Society for Clinical Investigation (ASCI)
 2010- Association of American Physicians (AAP)

Honors and Awards:

- 1987-1989 Daland Fellowship for Research in Clinical Medicine, American Philosophical Society
 1987-1989 Bank of America-Giannini Foundation Fellowship for Medical Research
 1990-1997 Lucille P. Markey Scholar Award in Biomedical Science, Lucille P. Markey Charitable Trust
 1993-1996 American Federation for Clinical Research (AFCR) Foundation Early Career Development Award
 1994 Upjohn Award for Excellence in Infectious Diseases Research, American Federation for Clinical Research, Western Section
 1995 Baxter Diagnostics MicroScan Young Investigator Award, American Society for Microbiology (ASM)
 1996 Outstanding Investigator Award, AFCR Western Section
 1997 Young Investigator Award, VA Palo Alto HealthCare System
 1998 Member, American Society for Clinical Investigation
 1999 Fellow, Infectious Diseases Society of America
 1999 Paper (Relman et al, NEJM 1990; 323:1573) selected by ASM as one of 50 most important in microbiology in the past century
 2001 Squibb Award, Infectious Diseases Society of America
 2002 Senior Scholar Award in Global Infectious Diseases, Ellison Medical Foundation
 2003 Fellow, American Academy of Microbiology
 2005 Kinyoun Lecturer, NIAID, NIH
 2006 ASM Lecturer, ASM 106th General Meeting
 2006 NIH Director's Pioneer Award
 2006 Doris Duke Distinguished Clinical Scientist Award
 2007 Edward H. Kass Lecturer, Infectious Diseases Society of America
 2009 Thomas C. and Joan M. Merigan Endowed Professorship
 2010 Member, Association of American Physicians
 2010 Arnold G Wedum Memorial Lecture Award, American Biological Safety Association

- 2010 Fellow, American Association for Advancement of Science
 2011 Member, Institute of Medicine
 2011 National Associate, National Research Council
 2013 NIH Transformative Research Award
 2014 2014 Allergan Lecture in Modern Biology, School of Biological Sciences, University of California, Irvine, CA
 2014 'Critical Conversation 2014' Presidential Lecture, State University of New York, Buffalo, NY
 2015 Windsor Cutting Endowed Lecture, 50th Anniversary Celebration of University of Hawaii John A. Burns School of Medicine
 2016 The Joshua Lederberg Memorial Lecture, The Rockefeller University, New York, NY

Research Grants and Contracts:

Current

- 07/15/14-06/30/17 NIH/NIEHS R21ES023387
 Principal Investigator: David A. Relman
 Title: Environmental Arsenic Exposure, Microbiome, and Human Health
 Current year direct costs: \$200,000
- 09/25/13-08/31/18 NIH/NIAID R01AI112401
 Co-Principal Investigator: David A. Relman
 Title: Predicting Resilience in the Human Microbiome
 Current year direct costs: \$1,065,503
- 07/01/13-06/30/18 NIH/NIDCR R01DE023113
 Principal Investigator: David A. Relman
 Title: Hyposalivation and the Human Oral Microbiome
 Current year direct costs: \$561,967
- 12/17/12-11/30/16 NIH/NIGMS R01GM099534
 Principal Investigator: David A. Relman
 Title: Antibiotics and human microbial community dynamics
 Current year direct costs: \$180,000
- 03/07/14-02/28/19 NIH/NIAID U19AI109761
 Principal Investigator: W. Ian Lipkin
 Role: Project Leader
 Title: Center for Research in Diagnostics and Discovery
 Project Title: Integration of Microbe and Host Data for Diagnosis of Febrile Illness

Current year direct costs: \$499,030

- 01/01/11-12/31/16 March of Dimes Birth Defects Foundation
Principal Investigator: David Stevenson (Stanford)
Role: Co-Investigator
Title: Stanford Center for Prevention of Preterm Birth
Current Year Direct Costs: \$282,611
- 10/01/14-09/30/17 The Leona & Harry B. Helmsley Foundation
Principal Investigator: David A. Relman
Title: The gut microbiome as a contributory co-factor and
classification tool in children with VEO-IBD
Current year direct costs: \$82,040

Publications

Journal Articles (peer reviewed):

1. Asakura T, Agarwal P, Relman D, McCray J, Chance B. Mechanical instability of the oxy-form of sickle haemoglobin. *Nature* 1973; 244:437-8.
2. Relman DA, Ruoff K, Ferraro MJ. *Stomatococcus mucilaginosus* endocarditis in an intravenous drug abuser. *J Infect Dis* 1987; 155:1080-2.
3. Relman DA, Domenighini M, Tuomanen E, Rappuoli R, Falkow S. Filamentous hemagglutinin of *B. pertussis*: nucleotide sequence and crucial role in adherence. *Proc Natl Acad Sci (USA)* 1989; 86:2637-41.
4. Kimura A, Mountzouros KT, Relman DA, Falkow S, Cowell JL. *Bordetella pertussis* filamentous hemagglutinin: evaluation as a protective antigen and colonization factor in a mouse respiratory infection model. *Infect Immun* 1990; 58:7-16.
5. Domenighini M, Relman D, Capiou C, Falkow S, Prugnola A, Scarlato V, Rappuoli R. Genetic characterization of *Bordetella pertussis* filamentous hemagglutinin: a protein processed from an unusually large precursor. *Molecular Microbiology* 1990; 4:787-800.
6. Relman DA, Tuomanen E, Falkow S, Golenbock DT, Saukkonen K, Wright SD. Recognition of a bacterial adhesin by an integrin: macrophage CR3 ($\alpha M\beta 2$, CD11b/CD18) binds filamentous hemagglutinin of *Bordetella pertussis*. *Cell* 1990; 61:1375-82.

7. Relman DA, Loutit JS, Schmidt TM, Falkow S, Tompkins LS. The agent of bacillary angiomatosis: an approach to the identification of uncultured pathogens. *N Engl J Med* 1990; 323:1573-80.
8. Relman DA, Lepp PW, Sadler KN, Schmidt TM. Phylogenetic relationships among the agent of bacillary angiomatosis, *Bartonella bacilliformis*, and other alpha-proteobacteria. *Molecular Microbiology* 1992; 6:1801-1807.
9. Relman DA, Schmidt TM, MacDermott RP, Falkow S. Identification of the uncultured bacillus of Whipple's disease. *N Engl J Med* 1992; 327:293-301.
10. Sagerman PM, Relman DA, Niroomand F, Neidt GW. Localization of *Mycobacterium avium-intracellulare* within a skin lesion of bacillary angiomatosis in a patient with Acquired Immunodeficiency Syndrome. *Diagn Mol Pathol.* 1992; 1:212-6.
11. Hamed KA, Dormitzer PR, Su CK, Relman DA. *Haemophilus parainfluenzae* endocarditis: application of a molecular approach for bacterial species identification. *Clin Infect Dis* 1994; 19:677-83.
12. Rowley AH, Wolinsky SM, Relman DA, Sambol SP, Sullivan J, Terai M, Shulman ST. Search for highly conserved viral and bacterial nucleic acid sequences corresponding to an etiologic agent of Kawasaki disease. *Pediatr Res* 1994; 36:567-571.
13. Ishibashi Y, Claus S, Relman DA. *Bordetella pertussis* filamentous hemagglutinin interacts with a leukocyte signal transduction complex and stimulates bacterial adherence to monocyte CR3 (CD11b/CD18). *J Exp Med* 1994; 180:1225-33.
14. Rickman LS, Freeman WR, Green WR, Feldman ST, Sullivan J, Russack V, Relman DA. Uveitis caused by *Tropheryma whippelii* (Whipple's bacillus). *N Engl J Med* 1995; 332:363-366.
15. Relman DA, Schmidt TM, Gajadhar A, Sogin M, Cross J, Yoder K, Sethabutr O, Echeverria P. Molecular phylogenetic analysis of *Cyclospora*, the human intestinal pathogen, suggests that it is closely related to *Eimeria* species. *J Infect Dis* 1996; 173:440-5.
16. Santamaria-Fries M, Fajardo LF, Sogin ML, Olson P, Relman DA. Lethal infection by a previously-unclassified metazoan parasite. *Lancet* 1996; 347:1797-1801.
17. Lynch T, Odel J, Louis ED, Fahn S, Cote L, Lovelace RE, Rotterdam H, Forman S, Fredricks DN, Relman DA. Polymerase chain reaction-based detection of

- Tropheryma whippelii* in central nervous system Whipple's disease. *Ann Neurol* 1997; 42:120-4.
18. Ramzan NN, Loftus E, Burghart LJ, Rooney M, Batts KP, Wiesner RH, Fredricks DN, Relman DA, Persing DH. Diagnosis and monitoring of Whipple's disease by polymerase chain reaction. *Ann Intern Med* 1997; 126:520-7.
 19. Boschwitz JS, Batanghari JW, Kedem H, Relman DA. *Bordetella pertussis* infection of human monocytes inhibits antigen-dependent CD4 T cell proliferation. *J Infect Dis* 1997; 176:678-86.
 20. Boschwitz JS, van der Heide HGJ, Mooi FR, Relman DA. *Bordetella bronchiseptica* expresses the fimbrial structural subunit gene, *fimA*. *J Bacteriol* 1997; 179:7882-7885.
 21. Stark P, Relman DA, Santamaria-Fries M, Fajardo LF. Case Report: Radiologic features of a fatal platyhelminth (tapeworm) infection in an AIDS patient. *AJR--Am J Roentgenol* 1998; 170:136-138.
 22. Tasken K, Schulz T, Elgjo K, Skullerud K, Relman D, Brubakk O. Diagnostic utility of the polymerase chain reaction in two cases of suspected Whipple disease. *Arch Intern Med* 1998; 158:801-3.
 23. Baorto E, Payne MR, Slater LN, Lopez F, Relman DA, Min KW, St Geme JW. Culture-negative endocarditis due to *Bartonella henselae*. *J Pediatr* 1998; 132:1051-4.
 24. Petrides PE, Muller-Hocker J, Fredricks DN, Relman DA. PCR analysis of *T. whippelii* DNA in a case of Whipple's disease: effect of antibiotics and correlation with histology. *Am J Gastroenterol* 1998; 93:1579-82.
 25. Fredricks DN, Relman DA. Improved amplification of microbial DNA from blood cultures by removal of the PCR inhibitor sodium polyanetholesulfonate. *J Clin Microbiol* 1998; 36:2810-2816.
 26. Cotter PA, Yuk MH, Mattoo S, Akerley BJ, Boschwitz J, Relman DA, Miller JF. Filamentous hemagglutinin of *Bordetella bronchiseptica* is required for efficient establishment of tracheal colonization. *Infect Immun* 1998; 66:5921-9.
 27. Fredricks DN, Relman DA. Paraffin removal from tissue sections for PCR analysis. *Biotechniques* 1999; 26:198-200.

28. Lopez FA, Manglicmot J, Schmidt TM, Yeh C, Smith HV, Relman DA. Molecular characterization of *Cyclospora*-like organisms from baboons. *J Infect Dis* 1999; 179:670-6.
29. Relman DA, Fredricks DN, Yoder K, Mirowski G, Berger T, Koehler JE. Absence of Kaposi's sarcoma-associated herpesvirus DNA in bacillary angiomatosis-peliosis lesions. *J Infect Dis* 1999; 180:1386-9.
30. Kroes I, Lepp PW, Relman DA. Bacterial diversity within the human subgingival crevice. *Proc Natl Acad Sci (USA)* 1999; 96:14547-14552.
31. Jacob-Dubuisson F, Kehoe B, Willery E, Reveneau N, Locht C, Relman DA. Molecular characterization of *Bordetella bronchiseptica* filamentous hemagglutinin and its secretion machinery. *Microbiol* 2000; 146:1211-1221.
32. Fredricks DN, Jolley JA, Lepp PW, Kosek JC, Relman DA. *Rhinosporidium seeberi*: A human pathogen from a novel group of aquatic protistan parasites. *Emerg Infect Dis* 2000; 6:273-282.
33. Maiwald M, Herbay A, Lepp PW, Relman DA. Organization, structure and variability of the rRNA operon of the Whipple's disease bacterium, "*Tropheryma whippelii*". *J Bacteriol* 2000; 182:3292-3297.
34. Belcher CE, Drenkow J, Kehoe B, Gingeras TR, McNamara N, Lemjabbar H, Basbaum C, Relman DA. The transcriptional responses of respiratory epithelial cells to *Bordetella pertussis* reveal host defensive and pathogen counter defensive strategies. *Proc Natl Acad Sci (USA)* 2000; 97:13847-13852.
35. Maiwald M, von Herbay A, Persing DH, Mitchell PS, Abdelmalek MF, Thorvilson JT, Fredricks DN, Relman DA. *Tropheryma whippelii* DNA is rare in the intestinal mucosa of patients without other evidence of Whipple disease. *Ann Intern Med* 2001; 134:115-119.
36. Abramson T, Kedem H, Relman DA. Proinflammatory and proapoptotic activities associated with *Bordetella pertussis* filamentous hemagglutinin. *Infect Immun* 2001; 69:2650-2658.
37. Fredricks DN, Relman DA. Localization of *Tropheryma whippelii* rRNA in tissues from patients with Whipple's disease. *J Infect Dis* 2001; 183:1229-1237.
38. Nikkari S, McLaughlin I, Bi W, Dodge D, Relman DA. Does blood of healthy subjects contain bacterial ribosomal DNA? *J Clin Microbiol* 2001; 39:1956-1959.

39. Ishibashi Y, Relman DA, Nishikawa A. Invasion of human respiratory epithelial cells by *Bordetella pertussis*: possible role for a filamentous hemagglutinin Arg-Gly-Asp sequence and $\alpha 5\beta 1$ integrin. *Microbial Pathogenesis* 2001; 30:279-288.
40. Olivier C, van de Pas S, Lepp PW, Yoder K, Relman DA. Sequence variability in the first internal transcribed spacer region within and among *Cyclospora* species is consistent with polyparasitism. *Int J Parasitol* 2001; 31:1475-1487.
41. Nikkari S, Lopez FA, Lepp PW, Cieslak PR, Ladd-Wilson S, Passaro D, Danila R, Relman DA. Broad range bacterial detection and the analysis of unexplained death and critical illness. *Emerg Infect Dis* 2002; 8:188-194.
42. Hajjeh R, Relman DA, Sofair A, et al. Surveillance for unexplained deaths and critical illnesses due to infectious causes, USA, 1995-98. *Emerg Infect Dis* 2002; 8:145-153.
43. Nikkari S, Gotoff R, Bourbeau PP, Brown RE, Kamal NR, Relman DA. Identification of *Cardiobacterium hominis* by broad range bacterial PCR from a case of culture-negative endocarditis. *Arch Intern Med* 2002; 162:477-479.
44. Boldrick JC, Alizadeh AA, Diehn M, Dudoit S, Liu CL, Belcher CE, Botstein D, Staudt LM, Brown PO, Relman DA. Stereotyped and specific gene expression programs in human innate immune responses to bacteria. *Proc Natl Acad Sci (USA)* 2002; 99:972-977.
45. Ishibashi Y, Yoshimura K, Nishikawa A, Claus S, Laudanna C, Relman DA. Role of phosphatidylinositol 3-kinase in the binding of *Bordetella pertussis* to human monocytes. *Cellular Microbiology* 2002; 4:825-833.
46. Neilan BA, Burns BP, Relman DA, Lowe DR. Molecular identification of cyanobacteria associated with stromatolites from distinct geographical locations. *Astrobiology* 2002; 2:271-280.
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Invited Articles (peer-reviewed), Articles (non-peer reviewed), and Editorials:

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