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3. Levine MM, Gangarosa EJ. Oral attenuated streptomycin-dependent (SmD) shigella vaccines: *In* vivo stability and transmissibility. Ped. Res. 7:736, l973 (abstract).

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5. Levine MM and Hornick RB. Lactulose therapy in shigella carrier state and acute dysentery. l4th Interscience Conference on Antimicrobial Agents and Chemotherapy. San Francisco, Sept. l974 (abstract).

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35. Levine MM, Black RE, Ferreccio C, Clements ML, Lanata C, Rooney J, Germanier R, Chilean Typhoid Committee. The Efficacy of Attenuated *Salmonella typhi* oral vaccine strain Ty21a evaluated in controlled field trials. Development of Vaccines and Drugs against Diarrhea. 11*th* Nobel Conference, Stockholm, June 3-6, 1985.

36. Levine MM, Losonsky G, Herrington D, Kaper JB, Tacket CO, Rennels MB, Morris JG. Pediatric Diarrhea: The Challenge of Prevention. Thrasher International Conference on Pediatric Enteric Infections. Salt Lake City, June 13-15, 1985.

37. Levine MM, Morris JG, Losonsky G, Boedeker E, Rowe B. Fimbriae (Pili) Adhesins as Vaccines. Federation of European Microbiology Societies Symposium on Molecular Biology of Pathogenic Microorganisms. Lulea, Sweden, June 17-20, 1985.

38. Levine MM. Pathogenesis of Bacterial Enteric Infection. Keynote Speaker, Third International Workshop on Campylobacter Infections. Ottawa, July 8-10, 1985.

39. Levine MM. Stimulation of Mucosal Immunity against Enterotoxigenic *Escherichia coli.* Conference on Immunity and Infection at Mucosal Surfaces. Hamilton, Montant, August 26-28, 1985.

40. Levine MM. The Pathogenesis of Bacterial Diarrheas: A Basis for Rational Therapy. Canadian Society of Clinical Investigation. Vancouver, Canada, September 12, 1985.

41. Levine MM, Herrington D. The Current Status of Phase I and II Clinical Trials of the Anti-Sporozoite *Plasmodium falciparum* Vaccines. Agency for International Development Americas Conference on Malaria Vaccines. Ft. Lauderdale, October 9-12, 1985.

42. Levine MM. Status of Vaccines against Enteric Infections. Typhoid Vaccines. Interscience Conference on Antimicrobial Agents and Chemotherapy. Minneapolis, September 29 - October 2, 1985.

43. Levine MM, Kaper JB, Morris JG, Herrington D, Losonsky G, Tall B, Hall R. Reactogenicity, Colonizing Capacity and Immunogenicity of Further Attenuated, Genetically-Engineered *Vibrio cholerae* 01 Vaccine Strains. 21*st* *U.S.-Japan* Joint Conference on Cholera. Bethesda, October 21-23, 1985.

44. Levine MM. *Escherichia coli* qui Causent les Maladies Diarrheiques. Congres Africain de Maladies Infectieuses. Kigali, Rwanda, January 21-23, 1986.

45. Levine MM. Patogenia e Inmunidad de las Infecciones Intestinales. International Seminar on Diarrheal Diseases and Oral Rehydration. Mexico City, April 2-4, 1986.

46. Levine MM. New Vaccines under Development. Federation of Societies for Experimental Biology. St. Louis, April 13, 1986.

47. Levine MM. Immunity to Shigellosis. World Health Organization Meeting on Development of Vaccines against Shigellosis. Calcutta, May 19-22, 1986.

48. Levine MM. *Salmonella typhi* Vaccine. International Symposium on Vaccine Development and Utilization. Sponsored by the U.S. Agency for International Development and the Pan American Health Organization. Washington, D.C., June 9 and 10, 1986.

49. Levine MM. Vaccines against Bacterial Enteric Infections. International Congress of Pediatrics, Honolulu, July 9, 1986.

50. Levine MM. New Approaches to Antibacterial Vaccines. Vaccines against Enteric Infections. IX*th* International Congress of Infections and Parasitic Diseases. Munich, July 20-26, 1986.

51. Levine MM. Keynote Speaker, 24th Annual Meeting of the Infectious Diseases Society of America. *Escherichia coli* that cause Diarrhea. New Orleans, October 3, l986.

52. Levine MM. Clinical and field trials to assess the efficacy of vaccines against bacterial enteric infections. Sclavo International Symposium. November 17-19, 1986.

53. Levine MM, Jian-Guo J, Kaper JB, Lior H, Prado V, Tall B, Nataro J, Karch H, Wachsmuth K. International Symposium and Workshop on Verocytotoxin-Producing Infections. A DNA Probe to Identify Enterohemmorhagic *Escherichia coli* of 0157:H7 and other Serotypes that Cause Hemorrhagic Colitis and Hemolytic Uremic Syndrome. Toronto, July 12-15, 1987.

54. Levine MM. Vaccines against typhoid fever. The Annual Howard Florey Memorial Lecture, University of Adelaide, September, 1987.

55. Levine MM. Prospects for a Vaccine against AIDS. Annual meeting of the Chilean Infectious Diseases Society, October, 1987.

56. Levine MM. Identification of diarrheagenic *Escherichia coli* by DNA probes. Fifth International Symposium on Rapid methods and Automation in Microbiology and Immunology. Florence, Italy, November 6, 1987.

57. Levine MM. Diarrheal diseases in young children in the developing world: magnitude of the problem and prospects for prevention by vaccines and other interventions. Sackler Visiting Scholar Lecture, Sackler Institute of Advanced Studies, Tel Aviv University Medical School, November 8, 1987.

58. Levine MM. Update on vaccines against bacterial infections in pediatrics. International Congress of Pediatrics, Bangkok, Thailand, November 11, 1987.

59. Levine MM. Progress in vaccines against typhoid fever. International Conference on Advanced Knowledge on Vaccines for Tropical Diseases of Public Health Importance. Bangkok, Thailand, February 1, 1988.

60. Levine MM. New developments in vaccines against typhoid fever. Tel Hashomer Hospital, Tel Aviv, Israel, November 26, 1987.

61. Levine MM. The pathogenesis and epidemiology of *Escherichia coli* that cause diarrhea. Colloquium Lecture, Tel Aviv University School of Medicine, December 9, 1987.

62. Levine MM. New developments in vaccines against cholera. International Conference on Advanced Knowledge on Vaccines for Tropical Diseases of Public Health Importance. Bangkok, Thailand, February 2, 1988.

63. Levine MM. Progress in vaccines against typhoid fever. International Conference on Advanced Knowledge on Vaccines for Tropical Diseases of Public Health Importance. Bangkok, Thailand, February 2, 1988.

64. Levine MM. The application of biotechnology to vaccine development. Keynote talk at the Annual Meeting of the Israeli Society of Microbiology, Tel Aviv, Israel, February 8, 1988.

65. Levine MM. The role of clinical trials in vaccine development. Joint Israel Defence Forces - United States Army Conference on Vaccines of Military Importance. Kfar Maccabiah, Ramat Gan, Israel, March 21-23, 1988.

66. Levine MM. New diagnostic tools in gastrointestinal microbiology. International Meeting on Recent Progress in Pediatric Gastroenterology and Nutrition. Naples, June 2-3, 1988.

67. Levine MM. Pathogenesis of diarrhoeal diseases caused by *Escherichia coli.* International Symposium on Infections in Developing Countries. Johannesburg, South Africa, August 31, 1988.

68. Levine MM. New developments in malaria vaccines. International Symposium on Infections in Developing Countries. Johannesburg, South Africa, September 1, 1988.

69. Levine MM. *Escherichia coli* que causan la diarrhea: patogenia y propiedades de virulencia. Keynote speaker, Annual meeting of the Argentinian Society of Microbiology, Mar de Plata, Argentina, November 21-22, 1988.

70. Levine MM. Prospects for oral enteric vaccines. XIII International Symposium on Intestinal Microecology. Sardinia, Italy, September 11-14, 1988.

71. Levine MM. Oral vaccines against typhoid fever: results of recent controlled field trials. Symposium on oral vaccines, American Society for Microbiology Annual Meeting, Miami Beach, May 9, 1988.

72. Levine MM. The pathogenic mechanisms in *Escherichia coli* diarrhea. Dallas Infectious Diseases Dinner Seminar, Dallas, Texas, January, 1989.

73. Levine MM. Typhoid vaccines. Armed Forces Epidemiological Board, Washington, D.C., February 16, 1989.

74. Levine MM. Enteroaggregative *Escherichia coli.* A new diarrheal agent. Federation of European Microbiological Societies Workshop on Microbial Surface Components and Toxins in Relation to Pathogenesis. Ramat Rachel, Israel, May 15-19, 1989.

75. Levine MM. The epidemiology of diarrhea due to *Escherichia coli* in children less than five years of age. Second Annual Joint Israel Defence Force - U.S. Army Medical Research and Development Command Conference on Vaccines. Tel Hashomer Hospital, Tel Aviv, May 30-31, 1989.

76. Levine MM. Attenuated *Salmonella typhi* live oral vaccine strains expressing foreign antigens: a summary of clinical experience. World Health Organization Meeting on the Potential Use of Live Vectors for Vaccines: the Biological Requirements and the Medical Constraints. Geneva, Switzerland June 19-22, 1989.

77. Levine MM. Shigellosis. 26th Annual Semana Pediatrica, Hospital Nacional de Ninos. San Jose, Costa Rica, September 18-22, 1989.

78. Levine MM. Attenuated *Salmonella* as carrier vaccine strains for the expression of foreign antigens. U.S. - India Joint Vaccine Working Group Meeting. New Delhi, India, October 23-26, 1989.

79. Levine MM. Progress in the development of live oral vaccines to prevent cholera. International Center for Diarrhoeal Diseases Research, Bangladesh. Dhaka, Bangladesh, October 28, 1989.

80. Levine MM. *Salmonella* vectors for immunization. Seminar given at the Walter and Eliza Hall Institute for Immunology, Melbourne, Australia, November 8, 1989.

81. Levine MM. The Center for Vaccine Development. Invited lecture given at the Commonwealth Serum Laboratories, Melbourne, Australia, November 10, 1989.

82. Levine MM. Vaccines against enteric infections. Annual Meeting of the Australian Society for Infectious Diseases, Melbourne, Australia, November 13, 1989.

83. Levine MM. The pathogenesis of bacterial enteric infections. 2nd Annual Course in Infectious, Parasitic and Tropical Diseases, Armed Forces Institute of Pathology. Bethesda, Maryland November 30, 1989.

84. Levine MM. Field trials of efficacy of live oral typhoid vaccine, Ty21a. American Epidemiological Society, Baltimore, March 1990.

85. Levine MM. Prevention of enteric infections using vaccines and oral immunoglobulin preparations. International Symposium on the Management of Acute Diarrhea. Stuart, Florida, May 17-19, 1990.

86. Levine MM. The design of clinical trials. First European Course on Hospitology. Annecy, France, June 1, 1990.

87. Levine MM. Clinical and field trials with attenuated *Salmonella typhi* as live oral vaccines and as "carrier" vaccines. International Symposium on Oral Immunization using Recombinant Bacteria. Munich, June 4-8, 1990.

88. Levine MM. A large-scale field trial comparing the efficacy of Ty21a, live oral typhoid vaccine in liquid versus enteric-coated capsule formulations. Annual Joint Meeting on Vaccines of the U.S. Army Medical Research and Development Command and the Israel Defence Force. Gaithersburg, Maryland June 18-20, 1990.

89. Levine MM. *Salmonella* vaccines. International symposium on New Antimicrobial Strategies, Brocket Hall, England, July 1-3, 1990.

90. Levine MM. Vaccines against typhoid fever. Department of Chemical Immunology Seminar, the Weizmann Institute of Science, Rehovoth, Israel, July 13, 1990.

91. Levine MM. Attenuated *Salmonella typhi* as a live oral vaccine and as a carrier to express foreign antigens. Life Science Transfer Technology Seminar, Kyoto, September 19, 1990.

92. Levine MM. *Escherichia coli* that cause diarrhea in the tropics. International Union of Microbiological Societies, Osaka, Japan, September, 19, 1990.

93. Levine MM, Fasano A, Savarino S, Robertson D, Maneval D. Enterotoxins elaborated by enteroinvasive and enteroaggregative *Escherichia coli.* 26th Joint Conference of the U.S.- Japan Cooperative Medical Science Program on Cholera and Related Diarrheal Diseases. Kyoto, September 24-26, 1990.

94. Levine MM. Typhoid vaccines. Council on Industrial Health. Johns Hopkins University, Baltimore, MD, October 3, 1990.

95. Levine MM. The new generation of typhoid vaccines: prospects for the protection of international travelers and children in endemic areas. Centers for Infectious Diseases Grand Rounds. Centers for Diseases Control, Atlanta, Georgia, October 10, 1990.

96. Levine MM. Vaccines against diarrheal infections. Symposium on diarrheal diseases at the Annual Meeting of the American Society of Tropical Medicine and Hygiene. New Orleans, November 6, 1990.

97. Levine MM. *Salmonella typhi* and foreign epitopes. Philippe Laudat International Conference on Immune Responses to Proteins with Recombinant Epitopes: Perspectives for Vaccines. Bischenberg, France, November 12-15, 1990.

98. Levine MM. Advances en el desarrollo de vacunas contra la fiebre tifoidea. 5th Congreso Panamericano de Infectologia, Lima, Peru, April 7-10, 1991.

99. Levine MM. Cholera: epidemiologia y control de la enfermedad. 5th Congreso Panamericano de Infectologia, Lima, Peru, April 7-10, 1991.

100. Microbiologia, inmunologia y patogenia del colera. Congreso Paraguayo de Pediatria, October 11, 1991, Asuncion, Paraguay.

101. Fisiologia de la rehidratacion oral. Congreso Paraguayo de Pediatria, October 11, 1991, Asuncion, Paraguay.

102. Vacunas del futuro. Sociedad Colombiana de Medicina Tropical y Parasitologia, Bogota, Colombia, October 13, 19, 1991.

103. La epidemiologia global del colera. Sociedad Colombiana de Medicina Tropical y Parasitologia, Bogota, Colombia, October 13, 1991.

104. *Escherichia coli* that cause diarrhea. Annual Meeting of the Brazilian Pediatric Society, Porto Alegre, Brazil, October 17, 1991.

105. Vaccines against *Haemophilus influenzae* type b. Annual Meeting of the Brazilian Pediatric Society, Porto Alegre, Brazil, October 17, 1991.

106. New vaccines against typhoid fever and cholera. Congreso Latinoamericano de Infectologia Pediatrica, Santiago, Chile October 23, 1991.

107. Perspectives on diarrhea caused by *Escherichia coli.* Congreso Latinoamericano de Infectologia Pediatrica, Santiago, Chile October 23, 1991.

108. Cholera - Worldwide epidemiology and prevention. Annual Meeting of the Israel Society for Microbiology, Beer Sheva, Israel February 11, 1992.

109. Current trends in *S. typhi* vaccines. Society for General Microbiology, 122nd Meeting, University of Wales College of Cardiff March 23-26, 1992.

110. Cholera. Biomedical Research Advancement: Saturday Scholars (BRASS) Program, National Institutes of Health, April 4, 1992.

111. A progress report on the safety, immunogenicity and efficacy of CVD 103-HgR, a one dose, genetically engineered live oral cholera vaccine. First International Symposium on Cholera in the Americas, Mexico City, April 20-21, 1992.

112. The problem of cholera in the world. International Symposium on Cholera in Laltin America, Buenos Aires, Argentina, April 29, 1992.

113. Vaccine development. International Symposium on Cholera in Laltin America, Buenos Aires, Argentina, April 29, 1992.

114. Cholera: Keynote address for the Cholera session. Vaccines for Enteric Diseases, Cambridge, England, April 13-15, 1992.

115. Attenuated *Salmonella typhi* as live oral vaccines to prevent typhoid fever and as carrier vaccines to express foreign antigens. NATO Advanced Research Workshop on the Biology of *Salmonella*, Portorosa, Italy, May 10-15, 1992.

116. Production, laboratory evaluation, and clinical trial of vaccines against cholera. International Symposium on Cholera in the American Continents, Sao Paulo, Brazil, May 21-23, 1992.

117. Old and new cholera vaccines: A 100 year perspective. The American Society for Microbiology 1992 General Meeting, New Orleans, Louisiana, May 27, 1992.

118. A new generation of cholera vaccines. The Bazeley Oration, The Australian Society for Microbiology 1992 Annual Meeting, Sydney, Australia, July 16, 1992.

119. Cholera. Brazilian Society of Immunology Annual Meeting, August 26, 1992.

120. Enteric Fever: *Salmonella typhi*. Eastern Pennsylvania Branch, American Society for Microbiology, Philadelphia, PA, November 12, 1992.

121. Attenuated *Salmonella typhi* live vector vaccines expressing foreign antigens: Versatility to meet public health demands. University of California at San Francisco. February 9, 1993.

122. Attenuated *Salmonella typhi* live vector vaccines expressing foreign antigens. The Mount Sinai Medical Center, New York, February 23, 1993.

123. The recent cholera epidemic in Latin America. Baltimore Tropical Medicine Dinner Club. Baltimore, Maryland. March 17, 1993.

124. Vaccines to prevent enteric infections in travelers. Presented at the 3rd Conference on International Travel Medicine, Paris, France, April 26, 1993.

125. CVD 103-HgR, live oral cholera vaccine. Presented at the International Workshop on New Approaches to Bacterial Vaccines. Munich, Germany, April 28-29, 1993.

126. Vacuna oral contra el colera. Congreso de la Sociedad Panameircana de Infectologia, Viña del Mar, Chile, May 27, 1993.

127. Vacunas contra enfermedades entericas. Congreso de la Sociedad Panameircana de Infectologia, Viña del Mar, Chile, May 27, 1993.

128. Vaccines against cholera and enterotoxigenic *E. coli*. The 18th International Congress of Chemotherapy. Stockholm, Sweden. June 27-July 2, 1993.

129. Modern approaches to the development of vaccines against bacterial enteric infections. Canadian Society of Microbiology/Society for Industrial Microbiology Annual Meeting. Symposium on Vaccination Strategies for Bacterial Pathogens, keynote address. Toronto, Ontario, August 3, 1993.

130. *Shigella, Salmonella* and other enteric vaccines. Ross Conference on Strategies for Pediatric Vaccines: conventional and molecular approaches. San Diego, CA, September 19-22, 1993.

131. The emergence of diarhreal diseases including cholera. Colloquium on Changes in Human Ecology and Behavior: Infectious Diseases. National Academy of Sciences, Washington, D.C., September 27-28, 1993.

132. Cholera Vaccines and Typhoid Vaccines. Invited talks goven at the Mexican Infectious Diseases Society XVIII Annual Meeting, Mexico City, November 21-24, 1993.

133. Recent Advances in Vaccine Development. Invited talk delivered at the XI Biennial Conference of the Pakistan Pediatric Association, Lahore, Pakistan, February 2-5, 1994.

134. Experiences with *Haemophilus influenzae* type b capsular polysaccharide-tetanus protein conjugate vaccine in Chilean infants. Special lecture of the Korean pediatric Society, Seoul, Korea, March 30, 1994.

135. Bacterial enteric vaccines. Mucosal Immnuology Symposium, FASEB, Anaheim, CA, April 28, 1994.

136. Cholera Vaccines. Invited lecture presented at the 2nd Simposio Internacional de Infectologia Pediatrica, Cordoba, Argentina, May 9, 1994.

137. Mucosal immunization -- The perspective of the vaccinologist versus the immunologist. Invited talk at the inaugural meeting of the International Society for Vaccines. Las Vegas, May 22-23, 1994.

138. Live oral cholera vaccines - A status report. 7th Asian Conference on Diarrheal Diseases. Dhaka, Bangladesh, September 17, 1994.

139. Attenuated strains of *Vibrio cholerae*, *Salmonellaytyphi* and *Shigella* as live oral vaccines and as live vectors. Keystone Conference on Mucosal Immunization. January, 1995.

140. The epidemiology of typhoid fever. WHO meeting on Vaccines against Bacterial Infections, Madrid, March 1-2, 1995.

141. Large-scale post-licensure effectiveness trial of PRP-T conjugate vaccine in preventing invasive *Haemophilus influenzae* type b infections in Chilean infants. Annual Meeting of the American Epidemiological Society, Tampa, Florida March 23, 1995.

142. Attenuated *Salmonella* as live oral vaccines against typhoid fever and as live vectors. New Approaches to Vaccine Development, Vienna April 12, 1995.

143. Enteric vaccines -- the next five years. Keynote talk at the 8th International Workshop on *Campylobacters*, *Helicobacters* and Related Organisms. Winchester, United Kingdom, July 12, 1995,.

144. Characteristics of newly licensed typhoid vaccines (Ty21a, Vi polysaccharide), candidate Vi conjugate vaccines and new generation attenuated vaccine strains. U.S.-India Vaccine Program, New Delhi, July 17, 1995.

145. Immunizations for diarrheal diseases. International Congress of Chemotherapy, Montreal, July 20, 1996.

146. The epidemiology of enteropathogenic *Escherichia coli* (EPEC) infections in Chile. International Symposium on EPEC, Sao Paulo, Brazil, August 28, 1995.

147. Prospects for a vaccine against EPEC. International Symposium on EPEC, Sao Paulo, Brazil, August 28, 1995.

148. Engineered live oral cholera vaccines. State of the Art Minilecture, 35th Interscience Conference on Antimicrobial Agents and Chemotherapy, San Francisco, September 18, 1995

149. Development of a live oral cholera vaccine; a paradigm. NIH Meeting on Planning and Implementing Clinical Trials for Parasitic Diseases, Bethesda, MD, September 19, 1995,.

150. Live attenuated vaccines against bacterial enteric infections. Year of Louis Pasteur Symposium, Paris, September 26, 1995.

151. Vaccines against diarrheal disease, dysentery and enteric fever. Presented at Nestlé Nutrition Workshop Series 38:Diarrheal Diseases. Islamabad, Pakistan, October 23, 1995.

152. New developments in cholera vaccines. Congress of the African Society of Microbiology. Bamako, Africa.

February 2, 1996.

153. A consideration of the host factors that modulate susceptibility to cholera and the immune response to engineered live oral cholera vaccines. ICTDR Meeting, Bethesda, MD, April 23, 1996.

152. Mucosal routes of vaccination. Edward Jenner Bi-centennial Celebration, Royal College of Physicians, London. May 15, 1996.

153. Attenuated Salmonella typhi and Shigell flexneri as live vector vaccines: Expression of foreign antigens and elicitation of relevant immune responses. Munich, Germany. May 28, 1996.

154. New vaccines against cholera and typhoid fever. International Society for Infectious Diseases, Hong Kong, June 12, 1996.

155. Engineered vibrio cholerae and shigella strains as live oral vaccines and as live vectors to deliver foreign antigens by mucosal immunization. 10th International Biotechnology Symposium. Sydney, Australia. August 26, 1996.

156. The vaccine development paradigm: Illustrative examples in the development of vaccines against tropical diseases. American Society of Tropical Medicine and Hygiene, Baltimore, MD, December 2, 1996.

157. Development of enteric vaccines. Asia Pan Pacific Society for Paediatric Gastroenterology and Nutrition, Jakarta, Indonesia, December 16, 1996.

158. Quantitating invasive Hib disease in Santiago, Chile. Revelation of an important public health problem. First International Symposium on Hib in Asia, Bali, Indonesia, December 17, 1996.

159. Cholera vaccine for travelers: Indications and options. Presented at the Fifth International Conference on Travel Medicine, Geneva, SW, March 24, 1997.

160. Bacterial live vector vaccines. Presented at 2nd National Symposium on Basic Aspects of Vaccines, Walter Reed Army Institute of Research, Bethesda, MD, April 30, 1997.

161. Salmonella vaccines as carriers of foreign antigens. American Gastroenterological Association. Washington, DC. May 13, 1997.

162. The molecular epidemiology of 19th century cholera: What was the serogroup and biotype of Vibrio cholerae responsible for the early cholera pandemics? First International Symposium The Archaeology of Emerging Diseases, Tel Aviv, Israel, May 20, 1997.

163. Artificial challenge studies. Presented at International Association of Biologic Standardization Meeting on Clinical Trials in Paris, France, May 28, 1997.

164. Phase 1 and 2 clinical trials of candidate malaria vaccines. Presented at the Second Global Meeting on Parasitic Diseases with a focus on Malaria, Hyderabad, India. August 18, 1997.

165. New strategies of bacterial vaccines against enteric infections. Presented at the Deutchen Gesellschaft für Hygiene und Mikrobiologie in Jena Germany. October 7, 1997.

166. Developments in prevention: The way forward. Presented at the Strategies for Vaccine Protection in Developing Countries, Universidad Nacional Autonoma de Mexico, Mexico City. October 17, 1997.

167. Emerging infections: fundamental concepts and models to explain a phenomenon of global importance. Presented at the Congreso Chileno de Infectología, Valdivia, Chile, December 2, 1997.

168. Mucosal vaccines. Presented at the Congreso Chileno de Infectología, Valdivia, Chile, December 3, 1997.

169. Recent research on vaccines and prevention of typhoid fever. Presented at the Third Asia-Pacific Symposium on typhoid fever and other salmonelloses, Denpasar, Bali, Indonesia December 8-10, 1997.

170. New typhoid vaccine development. Presented at Workshop on Typhoid Fever, National Institute of Health, Seoul, Korea, December 16, 1997.

171. *Salmonella* as a live vector. Presented at the WHO/NIAID Workshop on Vaccines administered via Mucosal Surfaces, February 9-11, 1998.

172. Vaccines delivered via mucosal surface. Presented at the International Workshop on Vaccine Development, Rio de Janeiro, April 14-16, 1998.

173. Mucosal Immunization. Presented at the 8th International Congress on Infectious Diseases meeting, Boston, May 15-18, 1998

174. Prospects for improving disease control through simplifying vaccination: Oral/mucosal vaccines and combinations. Presented at the Consultative Group Meeting of the Children's Vaccine Initiative in Geneva, Switzerland, November 9-10, 1998.

175. Live oral vaccines against enteric pathogens. Presented at the Centennial celebration of the Swiss Serum and Vaccine Institute, Berne, Switzerland, November 6, 1998.

176. Rotavirus Vaccines. Presented at the Infectious Diseases in Children conference, New York, November 21-22, 1998.

177. Status of typhoid vaccines. Presented at the V International Congress of Tropical Pediatrics, Jaipur, India, February 10-15, 1999.

178. Oral and Nasal Immunization. Presented at ANew Approaches to Bacterial Vaccine Development, Munich, Germany, May 19-22, 1999.

179. Update on Edible Vaccines. Presented at meeting on An Overview on Vaccine Research in WHO and UNAIDS, Montreux, Switzerland, June 16-18, 1999.

180. Vacunas contra Enfermedades Entericas. Presented at the 8th Congreso de la Sociedad Latinoamericana de Infectología Pediatrica. Asunción, Paraguay, August 8-11, 1999.

181. Enfermedades Emergentes. Presented at the 8th Congreso de la Sociedad Latinoamericana de Infectología Pediatrica. Asunción, Paraguay, August 8-11, 1999.

182. Development of new vaccines against diarrheal pathogens -- a hope for developing countries? Presented at the International Congress on Cooperative Research with Developing Countries. Basel, Switzerland, August 19-21, 1999.

183. How to test vaccines in the field -- Are there alternatives? Presented at the International Congress on Cooperative Research with Developing Countries. Basel, Switzerland, August 19-21, 1999.

184. Organizing Vaccine Trials. Presented at the 1st Global Conference on Vaccines and Immunisation into the next millennium. Manchester, UK, September 6-9, 1999.

185. Evaluaciones de la eficacia y la efectividad (impacto epidemiológico) de las vacunas. Second Congress of the Sociedad Española de Medicina Tropical y Salud Internacional. Sitges (Barcelona), January 27-29, 2000.

186. Current status of new generation vaccines: Live oral; Live oral Shigella vaccines; and Live oral Cholera vaccines (CVD candidates). Three talks presented at the DOMI Program Meeting, WHO headquarters, Geneva, Switzerland. February 7-8, 2000.

187. Live oral vaccines to prevent enteric infections in travelers. Presented at the Oral Vaccination Symposium at I. Matzkel "Droreth" Ltd., Tel Aviv, Israel. March 23, 2000.

188. Live attenuated vectors: have they delivered? Presented at the Millennium Joint Meeting of the Society for General Bacteriology and the Society for Applied Microbiology, April 10-14, 2000.

189. Global efforts in vaccination. From the laboratory to the field. Presented at the Wellcome Trust conference on Bacteriology in the Tropics. Cambridgeshire, UK, May 14-17, 2000.

190. The global burden of diarrheal diseases: A perspective. Presented at the XV International Congress for Tropical medicine and Malaria. Cartagena, Bogota, Colombia, August 20-25, 2000.

191. Progress in non-parenteral delivery of vaccines. Infectious Disease Society of America. New Orleans, LA, September 7-10, 2000.

192. Ethical Considerations in Mass Vaccination Campaigns. Presented at the Berzelius Symposium, Vaccines are beneficial! What are the risks? Stockholm, February 8-10, 2001.

193. Vaccines against enteric infections: Public health rationale, vaccinology strategies, successes, disappointments and surprises. Presented at the Institute Butantan Symposium on vaccines against enteric infections. Sao Paulo, Brazil, February 19-22, 2001.

194. Realizing the promise of new vaccine technologies: Pitfalls, perseverance, disappointments and successes. Presented at the World Vaccine Congress. Montreal, Canada, April 3-5, 2001.

195. Vaccine triumphs and tribulations in the USA and globally. Presented at the Practical Day of Pediatrics, University of Alabama-Birmingham, May 16-17, 2001.

196. "Oral Vaccines", and, "Attenuated *Salmonella typhi* and *Shigella* as live vectors to deliver foreign protein antigens or DNA vaccines to the mammalian immune system". Both lectures presented at the American Society for Microbiology. Orlando, Florida, May 20-24, 2001.

197. Review of issues too be considered in Phase 3 trials: Lessons from various clinical trials. Presented at the Second Advanced Vaccinology Course. Merieux Foundation, Annecy, France, May 23, 2001.

198. Issues in clinical trials. Presented at the Global Vaccine Research Forum. Montreux, Switzerland, June 10-12, 2001.

199. Cholera Vaccines – Overview. Presented at the Vaccines for Enteric Diseases VED 2001. Tampere, Finland, September 12-14, 2001.

200. Widespread Vaccination Against Gastrointestinal Pathogens in DCC - Is it Worthwhile? Pediatric Infectious Disease Conference. Monterey, California, October 28-30, 2001.

201. Vaccines against bioterror agents: Overcoming the challenges to development, testing, stockpiling and implementation. Presented at the University of Maryland, Baltimore, Health Policy Seminar, November 16, 2001.

202. Overview of the Research and Development Activities of the Global Alliance for Vaccines and Immunization. Presented at the NFID's Fifth Annual Conference on Vaccine Research. Baltimore, Maryland, May 6-8, 2002.

202. Memory at the Mucosal Level. Presented at the NIFID's Fifth Annual Conference on Vaccine Research. Baltimore, Maryland, May 6-8, 2002.

203. Attenuated Shigella and Salmonella Typhi Live Vectors to Deliver DNA Vaccines via Mucosal Administration. Presented at the 4th International Meeting, New Approaches to Bacterial Vaccine Development. Munich, Germany, May 26-29, 2002

204. Typhoid Fever: Lessons from the Past and Challenges for the Future. Typhoid Symposium. American Society of Tropical Medicine and Hygiene, Annual Meeting, November 12, 2002, Denver.

205. The Future: Typhoid and Cholera Vaccines. Presentation at the Centennial Celebration of the Pan American Health Organization, November 25, 2002, Washington, D.C.

206. Typhoid. Presentation at the International Vaccine Institute's Inaugural Symposium, New Frontiers in Vaccinology Research, June 26, 2003, Seoul, Korea.

207. Research and Development of Vaccines against Typhoid Fever. Presented at the Global Vacine Research Forum. July 2, 2003, Seoul, Korea.

208. Sequential stages of clinical trials and overview of issues to be considered. Presented at the Fifth Advanced Course of Vaccinology, Fondation Merieux, Annecy, France. May 12, 2004

209. Activation of Mucosal Immunity. Presented at the Fondation Mérieux meeting on Innate and Adaptive Immunity after Transcutaneous or Muosal Vaccination. June 18, 2004, Veyrier du Lac, France.

210. The plague cometh: Pandemic influenza in the 21st century. Presented at the University of Maryland School of Medicine's Grand Rounds. February 13, 2004, Baltimore, Maryland.

211. Accomplishments and Lessons from Enteric Vaccines. Presented at the World Health Organization's meeting on Future Needs and Directions for Shigella Vaccines. September 14, 2004, Geneva, Switzerland.

212. Keynote talk, New England Mucosal Biology Society, September 20, 2004. Attenuated *Salmonella typhi* and *Shigella* as Oral Vaccines and as Live Vectors. Harvard University, Boston, Massachuetts.

213. A multivalent live vector oral vaccine to prevent Shigellosis and Enterotoxigenic Escherichia coli diarrhea. Presented at the US/Japan Cholera Conference. December 8, 2004, Kyoto, Japan.

214. Diarrhoeal Diseases. Presented at the WHO/TDR Advanced Course on Immunology, Vaccinology and Biottechnology Applied to Infectious Diseases, Havana, Cuba, December 16, 2004.

215. On the Road to Timbuktu: Attenuated Salmonella Typhi and Shigella as live oral vaccines and live vectors. Presented to the Vaccine Dinner Club, Emory University. April 6, 2005. Atlanta, Georgia.

216. Logistical challenges to delivery of oral vaccines in developing countries. Presented to the WHO Challenges to the Oral Delivery of Live Vaccines Conference. May 6, 2005. Geneva, Switzerland.

217. Aerosol as agents for vaccine delivery. Presented at the American Thoracic Society. May 21, 2005, San Diego, CA.

218. Sequential stages of clinical trials and overview of issues to be considered. Presented at the Advanced Vaccinology Course. May 25, 2005. Annecy, France.

219. Current status of Shigella vaccine development. Presented at the WHO Global Research Forum. June 15, 2005. Salvador de Bahia, Brazil.

220. On the road to Timbuktu: Hurdles to developing and introducing vaccines for the world's poorest populations. Presented at Joint Medicine and Pediatric Grand Rounds, The University of Vermont. June 24, 2005. Burlington, Vermont.

221. Attenuated *Salmonella* Typhi and *Shigella* as mucosal vaccines and as live vectors. Presented at the Vaccinology Conference-Berlin: New Approaches to Vaccine Development: From the Bench to the Field. September 10, 2005. Berlin, Germany.

222. Update on vaccines against Typhoid Fever. Presented at the Program for the Third International Rushmore Conference on Enteric Diseases, Rapid City, SD. October 1, 2005

223. Experience with Ty21a, a live oral typhoid vaccine: lessons applicable to new generation oral vaccines. Present at the Sixth International Conference on Tyhpoid Fever and Other Salmonelloses. November 13, 2005. Guilin, China.

224. Live Oral Typhoid Vaccines. Presented as the American Society of Tropical Medicine and Hygiene Annual Meeting. December 12, 2005. Washington, D.C.

225. Challenges in Global Health. Presented at the St. Jude-Pediatric Infectious Diseases Society Pediatric Microbial Research Conference. February 25, 2006. Memphis, Tennessee.

226. Vaccines: Yesterday, today and tomorrow. Presented at the V International Symposium for Latin American Experts. May 2, 2006, Pucón, Chile.

227. Sequential stages of clinical trials and overview of issues to be considered. Presented at the Advanced Vaccinology Course. May 17, 2006. Annecy, France.

228. Progress with Salmonella Typhi and Shigella Live Vector Vaccines. Presented at FOCIS 2006. June 2, 2006, San Francisco, CA.

229. Principles of Vaccinology. Presented at International Symposium on Cholera and Other Diarrhoeal Diseases. June 10, 2006, Kolkata, India.

230. EPI Vaccine and Preventable Diseases. Presented at the Clinical Tropical Medicine and Parasitology Course, West Virginia University. June 19, 2006. Morgantown, West Virginia.

231. Diarrheal Diseases in Infants and Young Children – Causative Agents, Transmission, Treatment and Prevention. Presented at the National University of Laos School of Medicine. September 5, 2006.

232. Vaccination and Clinical Disease. Presented at ASM Conference on Salmonella; From Pathogenesis to Therapeutics. September 12, 2006, Victoria, BC, Canada.

233. Musing on vaccines against typhoid and paratyphoid fever, shigellosis and enterotoxigenic *Escherichia coli* diarrhea. Presented at the Federal of Infection Sociieties 2006 conference. December 1, 2006, Cardiff, Wales.

234. Typhoid fever vaccination in adolescents. Presented at the Adolescent Immunization: From Science to Policy meeting, Fondation Merieux, Les Pensieres, Annecy, December 14, 2006

235. Burden and Etiology of Severe Diarrhea. Presented at the Vaccines for Enteric Diseases meeting. April 25, 2007, Lisbon, Portugal.

236. Future of the Immunization in the Pregnant Woman, and, Vaccines Against Enteric Pathogens. Presented at the Sociedad Latinoamericana de Infectologia Pediátrica. May 10, 2007, San Jose, Costa Rica.

237. Sequential stages of clinical trials and overview of issues to be considered. Presented at the Advanced Vaccinology Course. May 16, 2007. Annecy, France.

238. Oral Vaccines…More reasons than ever. Presented at the Congress of the International Society of Travel Medicine. May 23, 2007, Vancouver, BC.

239. EPI Vaccine and Preventable Diseases. Presented at the Clinical Tropical Medicine and Parasitology Course, West Virginia University. June 18, 2007. Morgantown, West Virginia.

240. Typhoid Fever in Africa – what do we know? Presented at the WHO Typhoid Vaccine Policy Meeting. August 14, 2007, Geneva, Switzerland.

241. Vaccines against Bacterial Enteric Pathogens and Importance in the Tropics. Presented at the Royal Society of Tropical Medicine and Hygiene Centenary Conference. September 15, 2007, London, UK

242. Differences in Immune Responses in Different Populations. Presented at the Challenges of Global Vaccine Development Conference. October 9, 2007, Cape Town, South Africa.

243. Overview of The Global Enteric Multi-Center Study (GEMS). Presented at the American Society of Tropical Medicine and Hygiene Annual Meeting. November 7, 2007, Philadelphia, PA.

244. Lessons learnt for the new live rotavirus vaccines. Presented at Rotavirus Vaccines: Evaluating Clinical Trial Data and Guiding Future Research meeting. November 29, 2007, CDC, Atlanta, GA.

245. Vaccine priorities for developing countries and the Gates Enteric Multicenter Study. Presented at Aga Khan University, Karachi, Pakistan. December 14, 2007.

246. Cholera, ETEC, Shigella, Typhoid: progress and obstacles in the development of vaccines. Presented at the Institut Pasteur Vaccinology Course. March 31, 2008, Paris, France.

247. Enteric infections in the least developed countries: what is the role for vaccines? Seminar presented at the Institut Pasteur, April 1, 2008, Paris, France.

248. EPI Vaccine and Preventable Diseases. Presented at the Clinical Tropical Medicine and Parasitology Course, West Virginia University. June 16, 2008. Morgantown, West Virginia.

249. Typhoid. Presented at Johns Hopkins School of Public Health Summer Institute in Tropical Medicine 2008, July 24, 2008. Baltimore, MD.

250. Epidemiology of Pneunmococcal Disease in Latin America: Insights from Extended, Population-Based Surveillance in Santiago, Chile. Presented at the International Symposium on Vaccines, Sao Paulo, Brazil, August 8, 2008

251. The Global Enteric Multi-Center Study. Presented at the US Experts in Diarrhoeal Disease to the UK, London, UK, October 5, 2008

252. Advocacy as an important role in the fight against Pneumococcal Disease. Presented at the National Press Club on behalf of The American Society of Tropical Medicine and Hygiene (ASTMH) and Pneumococcal Awareness Council of Experts (PACE), October 24, 2008. Washington, DC.

253. An Overview of Vaccinology. Presented at the National Foundation for Infectious Diseases Clinical Vaccinology Course, November 14, 2008. Bethesda, MD.

254. The Global Enteric Multi-Center Study (GEMS). Presented at the US-Japan Cooperative Medical Science Program, Fukuoka, Japan. November 19, 2008

255. Eradication and the role of vaccines. Presented at Barecelona Centre for International Health Research's (CRESIB) launch of Malaria Eradication Research Agenda. November 22, 2008, Montreux, Switzerland.

256. Diarrheal disease in infants and young children in developing countries (The Global Enteric Mutli-Center Study, "GEMS"). Kyushu University, Fukuoka, Japan, November 17-19, 2008.

257. Institute of Medicine Process and Findings from the Intermittent Preventive Treatment in Infants (IPTi) study. Presented at the The American Society of Tropical Medicine and Hygiene (ASTMH). December 10, 2008, New Orleans, LA.

258. Introduction and Overview of Global Enteric Multi-Center (GEMS) Study: The Asian Sites and an Overall Progress Report. Presented at the The American Society of Tropical Medicine and Hygiene (ASTMH). December 10, 2008, New Orleans, LA.

259. Strategies and hurdles in developing a vaccine to prevent invasive non-typhoidal *Salmonella* infections in young children in sub-Saharan Africa. Presented at the Seventh International Conference of Typhoid Fever and Other Invasive Salmonelloses, Kilifi, Kenya. January 28, 2009.

260. Mucosal versus parenteral vaccines. Mucosal Immunology of the Gut, Gates Foundation, Seattle, WA. February 11, 2009.

261. Lachesis muta (silent fate): Burden and prospects for control of paediatric invasive non-typhoidal *Salmonella* infections in sub-Saharan Africa. Presented at the Medical Research Council (MRC) Laboratories, The Gambia. February 9, 2009.

262. Cholera, ETEC, Shigella, Typhoid: progress and obstacles in the development of vaccines. Presented at the International Vaccinology Course, Institut Pasteur School of Infectiology, Annecy, France, March 27, 2009

263. EPI Vaccine and Preventable Diseases. Presented at the Clinical Tropical Medicine and Parasitology Course, West Virginia University, Morgantown, WV. June 15, 2009.

264. Swine origin H1N1 influenza: Lessons from the field. Presented at the 13th Annual Hospital Epidemiology and Infectious Diseases Fellows Course, Johns Hopkins University School of Medicine, Baltimore, MD. July 8, 2009.

265. Typhoid. Presented at the Summer Institute in Tropical Medicine, Johns Hopkins School of Public Health, Baltimore, MD. July 29, 2009.

266. Overview of H1N1. Presented at the IOM Workshop on Personal Protective Equipment for Healthcare Workers in the Workplace Against Novel H1N1 Influenza A, Washington, DC, August 12, 2009

267. Vaccinology. Presented at the Host Defenses and Infectious Diseases course, University of Maryland School of Medicine, Baltimore, MD. September 4, 2009.

268. Invasive non-typhoidal infections: Burden and vaccine development strategies. Presented at the Vaccines for Enteric Diseases, Malaga, Spain. September 9, 2009.

269. Vaccines, global health and social equity. Presented at the Division of Cellular and Molecular Medicine Seminar, St. Georges, University of London. November 5, 2009.

270. Etiology of diarrhoeal and enteric diseases in developing countries. Presented at the WHO Global Vaccine Research Forum, Bamako, Mali. December 9, 2009.

271. Invasive bacteremic *Salmonella* infections; New insights on old pathogens and strategies for prevention. ICDDR,B, Mohakhali, Dhaka, Bangladesh. February 17, 2010.

272. Invasive Bacteremic *Salmonella* Infections: new insights on old pathogens and strategies for prevention. Presented at the 7th International Symposium on Pneumococci & Pneumococcal Diseases, Tel Aviv, Israel, March 14, 2010

273. Multi-antibiotic-resistant invasive non-typhoidal Salmonella infections emerging in sub-Sharan Africa and the USA: challenging dogma and developing vaccines. Presented at the Regional Centers of Excellence National Meeting, Las Vegas, NV. April 13, 2010.

274. The tropical barrier to enteric vaccine efficacy. Presented at the Gates Foundation, Underperformance of Vaccines for Enteric/Enterically-Acquired Pathogens in the Developing World, Seattle, WA. April 20, 2010.

275. Live attenuated vaccines against cholera and typhoid. Presented at the Second Greater Boston Symposium on Vaccine Science, Cambridge, MA. April 27, 2010.

276. Safety issues with mucosal adjuvants. Presented at the IABS International Scientific Workshop, Bethesda, MD, USA. April 30, 2010.

277. Sequential stages of clinical trials and overview issues to be considered. Presented at the Advanced Vaccinology Course, Fondation Merieux, Annecy, France. May 12, 2010.

278. Vaccines, global health, disease eradication and social equity. Presented at the Omicron Kappa Upsilon National Dental Honor Society, University of Maryland Dental School, Baltimore, MD. May 19, 2010.

279. EPI Vaccine and Preventable Diseases. Presented at the Clinical Tropical Medicine and Parasitology Course, West Virginia University, Morgantown, WV. June 21, 2010.

280. Vaccines to prevent bacterial enteric infections of importance in middle income countries. Presented at the Merck Vaccines seminar series, North Wales, PA. June 27, 2010.

281. Typhoid. Presented at Johns Hopkins School of Public Health Summer Institute in Tropical Medicine, Baltimore, MD. July 21, 2010.

282. An international consortium to facilitate progress. Presented at the Sanaria Data Analysis Meeting, Bethesda, MD. July 28, 2010.

283. Typhoid and other enteric vaccines. Presented at the Oral Vaccination Response in Developing Countries and the Intestinal Microbiome Meeting, Goa, India. August 17, 2010.

284. The role of research in disease eradication and elimination efforts: lessons learned. Presented at the Symposium on Smallpox Eradication, Rio de Janeiro, Brazil. August 26, 2010.

285. Vaccinology. Presented at the Host Defenses and Infectious Diseases course, University of Maryland School of Medicine, Baltimore, MD. September 7, 2010.

286. Prioritization of the main goals of the GEMS-1 project and timelines/expectations for the final year and beyond. Presented at the The Global Enteric Multi-Center Study (GEMS) Annual Meeting, Maputo, Mozambique. September 28, 2010.

287. Expanding immunization against human *Salmonella* Infections: vaccines to prevent invasive non-typhoidal *Salmonella* infections emerging in sub-Saharan Africa and *Salmonella* Paratyphi A in Asia. Presented at the 4th Vaccine and International Society for Vaccines (ISV) Annual Global Congress, Vienna, Austria. October 3, 2010.

288. The licensed vaccines that exist today and new vaccines that will be available tomorrow. Presented at the ASTMH Annual Meeting, Atlanta, GA. November 4, 2010

289. The White paper, an outside view. Presented at the malERA Symposium held during the ASTMH Annual Meeting, Atlanta, GA. November 6, 2010

290. The Burden of Disease. Presented at the Gates Foundation GUT Integrity Meeting, Seattle, WA. December 15, 2010.

291. New insights on novel non-typhoidal *Salmonella* serovars from sub-Saharan Africa. Presented at the Lorne Infection & Immunity Conference 2011, Lorne, Victoria, Australia. February 17, 2011.

292. Global Enteric Multi-Center Study ("GEMS"): Etiology and Consequences of Severe Paediatric Diarrhoeal Disease in Sub-Saharan Africa and South Asia. Presented at the Department of Microbiology & Immunology, The University of Melbourne. February 22, 2011.

293. Diarrhea: A Worldwide Scourge. An Overview of the Problem. Presented at the AGA/DDW, Chicago, IL, May 10, 2011.

294. Etiology and outcomes of acute moderate and severe diarrheal infections in young children in developing countries: insights from the Global Enteric Multi-center Study (GEMS). Presented at the 6th International Conference on Vaccines for Enteric Diseases, Cannes, France, September 14, 2011.

295. Overview of live oral vaccines against *S*. Typhi and *S*. Paratyphi. Presented at the 6th International Conference on Vaccines for Enteric Diseases, Cannes, France, September 15, 2011.

296. Cholera – Status of Oral, Live Vaccines. Presented at IDSA, Boston, MA. October 20, 2011

297. Lessons learned from the Smallpox Eradication Program, the Global Polio Eradication Initiative and the Measles Mortality Control Initiative. Presented at the Department of Biochemistry Seminar, University of Otago, Dunedin, New Zealand. November 1, 2011.

298. Oral vaccination in developing countries. Presented at the 4th Annual Conference Otago International Health Research Network Scientific Meeting, University of Otago, Dunedin, New Zealand. November 8, 2011.

299. Non-typhoidal *Salmonella*: Dogma re-visited. Presented at the University of Otago Grand Rounds, Christchurch, New Zealand. November 9, 2011.

300. Vaccines to prevent invasive Non-typhoidal *Salmonella* infections in sub-Saharan Africa. Presented at the Department of Microbiology & Immunology Seminar, University of Otago, Dunedin, New Zealand. November 10, 2011.

301. Immunological basis of mucosal vaccines. Presented at the First Course on Vaccinology for Latin America, Lima, Peru. December 12, 2011

302. Concepts of vaccines: Immunogenicity, efficacy, effectiveness. Presented at the First Course on Vaccinology for Latin America, Lima, Peru. December 12, 2011

303. How will current technological developments lead to innovative vaccines in the future? Presented at the Phacilitate Vaccine Forum - 2012, Washington, DC. January 31, 2012.

304. Overview cholera vaccines (current & developing). Presented at the World Health Organization, Oral Cholera Vaccine Stockpile, Geneva, Switzerland, April 26, 2012

305. Global Enteric Multi-Center Study (GEMS). Presented at the Pediatric Academic Society Meeting, Boston, MA. April 30, 2012

306. Clinical trials: an overview of issues to be considered. Presented at the International Advanced Vaccinology Course, Fondation Merieux, Annecy, France, May 17, 2012

307. Current efforts to develop new vaccines: target population, new antigens, adjuvants and immunization strategies. Presented at the International Meeting on EPEC and Shigella, Buenos Aires, Argentina, May 27, 2012

308. Polio and Smallpox Eradication. Presented at the Barcelona Institute for Global Health sponsored course held at Harvard Business School, Boston, MA, June 4, 2012

309. The Typhoid Fever Control Program of the Ministry of Health, Republic of Chile, 1979-1992Fiji Ministry of Health Typhoid Advisory Meeting, Suva, Fiji, August 28, 2012

310. A vaccinologist's view on new adjuvants: Why they are needed and challenges to confirm their safety and effectiveness. Presented at the Third Joint Annual NIAID Adjuvant Development and Adjuvant Discovery Program Meeting, Rockville, MD, October 1, 2012

311. Recent advances in understanding and managing the burden of childhood diarrhea. Presented to the AKU Biennial Pediatric Conference, Karachi, Pakistan. November 4, 2012

312. Enteric fever – epidemiology,diagnostics ,and vaccines. Presented to the AKU Biennial Pediatric Conference, Karachi, Pakistan. November 14, 2012

313. Human/animal challenge studies. Presented at the WHO Typhoid ViCV Clinical Working Group Meeting, Royal Society of Medicine, London, UK. January 7, 2013

314. Historical and contemporary perspectives on human microbial challenge models. Presented at the Controlled Human Infections Studies in the Development of Vaccines and Therapeutics, University of Oxford, January 9, 2013

315. Human Typhoid challenge model and vaccine trials. Presented at the Controlled Human Infections Studies in the Development of Vaccines and Therapeutics, University of Oxford, January 10, 2013

316. An Overview of iNTS. Presented at the 8th International Conference on Typhoid Fever and Other Invasive Salmonelloses, Dhaka, Bangladesh, March 1, 2013

317. Oral vaccine approaches to typhoid and paratyphoid. Presented at the 8th International Conference on Typhoid Fever and Other Invasive Salmonelloses, Dhaka, Bangladesh, March 2, 2013

318. Clinical Trials: an overview of issues to be considered. Presented at the 14th Advanced Course of Vaccinology, Annecy, France, May 9, 2013

319. Infectious Diarrhea in Children: A Global Perspective. Presented at the ACVIM Forum, Seattle, WA, June 14, 2013

320. Salmonella Infection: Readjusting Dogma. Presented at the ACVIM Forum, Seattle, WA, June 14, 2013

321. Enteric vaccines development priorities in view of the Global Enteric Multi-Center Study (GEMS) findings. Presented at the School of Public Health, Tel Aviv University, July 14, 2013

322. Cholera and typhoid & non-typhi salmonellosis: Rational for vaccine development. Presented at the School of Public Health, Tel Aviv University, July 14, 2013

323. Cholera and Salmonella Vaccines. Presented at the School of Public Health, Tel Aviv University, July 14, 2013.

324. Development of live-attenuated ETEC vaccines. Presented at the School of Public Health, Tel Aviv University, July 16, 2013.

325. Development of combined Shigella-ETEC vaccines. Presented at the School of Public Health, Tel Aviv University, July 16, 2013.

326. Aetiology and burden of diarrheal disease in Africa and Asia: "GEMS". Presented at the Vaccines for Enteric Diseases Meeting, Bangkok, Thailand, November 6, 2013.

327. Diarrhoea in Africa, South America, and Asia. Presented at the World Society for Pediatric Infectious Diseases, Cape Town, South Africa, November 22, 2013.

328. Invasive Non-typhoidal *Salmonella* in Africa. Presented at ICAAC, Washington, DC, September 9, 2014

329. Lessons from the global Enteric multicenter Study (GEMS); Presented at ICAAC, Washington, DC, September 9, 2014

330. Historical perspective on human challenge trials. Presented at the IABS Human Challenge Trials in Vaccine Development: Scientific and Regualtory Issues, Strasbourg, France, Sept. 29, 2014

331. Control of Ebolavirus disease with judicious use of vaccine. Key target groups for vaccination outside clinical trials if 500, 3000, 15,000, 100,000 or millions of doses were available. WHO Ebola Vaccine Consultation, Geneva, 29 September 2014.

332. WHO Global Advisory Committee on Vaccine Safety. GSK Ebola Vaccine Development. Presented by M.M. Levine on behalf of the ChAd3-EBO Z Ebola Vaccine Consortium, December 4, 2014.

333. Summary comments. Ebola Immunology Workshop. FDA, December 12, 2014.

334. Vaccines and Vaccine Development: Ebola changes the paradigm. Presented at Johns Hopkins Bayview Medical Grand Rounds, January 20, 2015

335. Accelerated Development of Ebola Vaccine. Presented at Johns Hopkins Bloomberg School of Public Health, W. Harry Feinstone Dept. of Molecular Microbiology and Immunology Seminar Series, March 12, 2015.

336. Vaccines and Vaccine Development: Ebola changes the paradigm. Presented at the University of Florida, Emerging Pathogens Institute Research Day, Gainsville, Florida, February 26, 2015.

337. Clinical trials: an overview of issues to be considered. Presented at the 16th Advanced Course of Vaccinology, Centre de Conferences Les Pensieres, Annecy, France, May 13, 2015.

338. Vaccines against West African Ebolavirus, a diarrheal disease. Presented at Royal College of Physicians of Edinburgh, Vaccines for Enteric Diseases, Edinburgh, Scotland, July 8, 2015

339. Clinical studies of enteric vaccine candidates, from early phases to challenge studies and field trials. Presented at STOPENTERICS meeting, University of Oxford, Sept. 30, 2015

340. Challenges in Diagnosis of Enteric Infections in Developing Countries. Presented at Southern California ASM annual meeting, La Jolla, CA, Oct. 15, 2015

341. Antibody biomarker measurements in serum and oral fluid as objective evidence of population immunity, vaccine coverage and the quality of immunization services. Presented at BD Diagnostic Systems Headquarters, San Diego, CA, Oct. 16, 2015

342. Vaccines Against Invasive Salmonella Infections. Presented at International Conference on Vaccines Research and Development-2015, DoubleTree by Hilton Baltimore-BWI Airport, Nov. 2, 2015.

343. Points to consider in designing efficacy studies for vaccines against emerging infectious diseases in developing countries. Presented at 2015 PDA/FDA Vaccines Conference, Bethesda, MD, Dec. 2, 2015

344. Vaccines to Prevent typhoid and cholera. Presented at 2015 Ciro de Quados Vaccinology Course for Latin America, Santiago, Chile, Dec. 8, 2015

345. Immune protection in cholera and immune responses to Cholera vaccination: knowledge from challenged volunteer model. Presented at Correlates of Enteric Vaccine-induced Protection Conference, Annecy, France, March 22, 2016

346. Clinical trials: an overview of issues to be considered. Presented at the 17th Advanced Course of Vaccinology, Centre de Conferences Les Pensieres, Annecy, France, May 25, 2016.

347. CVD 103-HgR, a single-dose live oral cholera vaccine for travelers and for reactive immunization to control “virgin soil” epidemics in immunologically-naïve populations. Presented at Hwasun International Vaccine Forum 2016, Hwasun, S. Korea, June 10, 2016

348. Diarrhoeal diseases: overview of current disease burden, its pathogens and diagnostics in sub-Saharan Africa. Presented at the EDCTP Stakeholder Meeting on Diarrhoeal Diseases, Amsterdam, The Netherlands, July 5, 2016

349. The History of Vaxchora. Presented at the Vaxchora US Launch Meeting in Boston MA, July 19, 2016

350. Lessons Learnt from Clinical Development to Licensure. Presented at 16th ThaiTECT Annual Meeting 2016, Bangkok, Thailand, August 5, 2016

351. My personal vaccine development “bucket list”. Presented at University of Texas Medical Branch, Basic Science Distinguished Seminar, September 13, 2016

352. Can serum vibriocidal antibodies mediate bactericidal activity against *Vibrio cholerae* 01 in the small intestine of persons recovered from wild type cholera and in recipients of live oral vaccine? Presented at International Society for Vaccines (ISV) Annual Congress 2016, Boston, MA, October 4, 2016

353. How to control typhoid: Lessons from the Americas. Presented at the TCV effectiveness studies meeting sponsored by Oxford University, Oxford, UK, October 27, 2016

354. Important stages in vaccine clinical development. Presented at the Vaccinology Course sponsored by Dodet Bioscience at the Fondation Mérieux Conference Center, Veyrier-du-Lac, France, November 29, 2016

355. Typhoid fever, cholera, and other enteric diseases. Presented at the 2016 Ciro de Quadros Vaccinology Course for Latin America sponsored by the Sabin Vaccine Institute in Santiago, Chile, December 6, 2016.

356. Human Experimental Challenge Models in Vaccine Development: A Historical Perspective. Presented at the Emory University Vaccine Dinner Club, Atlanta, Georgia, March 1, 2017

357. A broad-spectrum vaccine to prevent invasive Salmonella disease in sub-Saharan Africa. Presented at the Conference on Typhoid and Other Salmonelloses, Entebbe, Uganda, April 5, 2017

358. Paratyphoid A fever and vaccine development: The importance of vaccines with the rise of antibiotic resistance. Presented at the World Vaccine Congress, Washington, D.C., April 12, 2017

359. Key data on ViPS and Ty21 vaccines – Current policy recommendations and vaccine use. Presented at the WHO SAGE Working Group on Typhoid Vaccines, Geneva, Switzerland, April 29, 2017

360. Key data on ViPS and Ty21 vaccines – current policy recommendations and vaccine use. Presented at Strategic Advisory Group of Experts on immunization (SAGE) Working Group on Typhoid Vaccines meeting, Geneva, Switzerland, May 30, 2017.

361. Control Strategies: Treatment as control, vaccines and WASH strategies. Presented at the American Society of Microbiology Microbe meeting, New Orleans, Louisiana, June 4, 2017

362. CVD multivalent live vector oral vaccine to prevent shigellosis and enterotoxigenic *Escherichia coli* (ETEC) diarrhea. Presented at PaxVax Scientific Advisory Board Meeting, San Diego, California, June 23, 2017

363. Typhoid. Presented at Johns Hopkins School of Public Health Summer Institute in Tropical Medicine and Hygiene, Baltimore, MD. July 27, 2017.

364. Ebola. Presented at Johns Hopkins School of Public Health Summer Institute in Tropical Medicine and Hygiene, Baltimore, MD. July 27, 2017

365. Enteric Vaccines. Presented at Johns Hopkins School of Public Health Summer Institute in Tropical Medicine and Hygiene, Baltimore, MD. July 27, 2017.

366. Typhoid; Ebola; Enteric Vaccines. Presented at the Sabin Institute – R&D Workshop, Washington, DC. August 8, 2017.

367. Historical perspective on human challenge trials. Keynote presented at the IABS 2nd Human Challenge Trials in Vaccine Development conference, Washington, D.C. September 28, 2017.

368. A Multivalent Vaccine to Prevent Invasive Salmonella Disease in Sub-Saharan Africa. Presented at Vaccines for Enteric Diseases (VED), Albufeira, Portugal. October 11, 2017.

369. The future of oral cholera vaccines. Presented at the Gobal Task Force on Cholera Control, Lagos, Portugal. October 12, 2017.

370. Evidence review on the immunogenicity, efficacy/effectiveness and safety of typhoid conjugate vaccines. Presented at the WHO Strategic Advisory Group of Experts (SAGE) on Immunization Meeting, Geneva, Switzerland. October 17, 2017.

371. Understanding the role of chronic carriers in the transmission and control of typhoid fever. Lessons from Chile. Presented at American Society of Tropical Medicine and Hygiene annual meeting, Baltimore, Maryland. Novenber 8, 2017.

Major Invited Speeches

Special Lectures, Named Visiting Professorships:

Howard Florey Memorial Lecturer and Visiting Professor, University of Adelaide, South Australia, September, 1987.

Bazeley Oration, Australian Society for Microbiology, Sydney, 1992.

Felton Bequest Visiting Professor, Royal Children's Hospital, Melbourne, Australia, October, 1994.

Lederle-Praxis Visiting Professor of Vaccinology, Oxford University, December, 1994

Bradford Dixon Memorial Lecture, The University of Alabama at Birmingham and The Children's Hospital, Birmingham, Alabama, May, 2001.

Division Y (Public Health) Divisional Lecture, American Society for Microbiology 103rd General Meeting, Washington, D.C., May 21, 2003

The Holmes Fund Annual Lecture, Uniformed Services University of the Health Sciences. Sept. 13, 2004, Bethesda, Maryland. "On the Road to Timbuktu: Attenuated *Salmonella typhi* and *Shigella* as Oral Vaccines and as Live Vectors".

Henry L. Barnett Lecture, Department of Pediatrics, Albert Einstein College of Medicine, Bronx, New York, September 28, 2006

Presidential Address, American Society of Tropical Medicine and Hygiene, November 15, 2006, Atlanta, GA. "Once Upon a Time, About 50,000 Years Ago".

Maurice Hilleman Endowed Lecture, Children's Hospital of Philadelphia. October 17, 2007, Philadelphia, PA. "Meeting the Challenge: The Science and Politics of Modern Typhoid Vaccines for Children in Developing Countries".

Medical College of Virginia Alumni Association Grand Rounds in recognition of receiving the Outstanding Medical Alumnus Award. November 1, 2007, Richmond, Va. "Challenges and gratification on the road to Timbuktu - musings on a career in global health.

Nancy Millis Lecture, La Trobe University, July 3, 2008, Melbourne, Australia. Vaccines, Global Health and Social Equity.

Bazeley Oration, Australian Society for Microbiology 2008 Melbourne, Australia, July 7, 2008. Salmonella enterica: My enemy, my friend …

Tulane University First Presidential Symposium, December 5, 2008, New Orleans, LA. "On the Horizon: Typhoid and paratyphoid fever resistant to all antibiotics?"

Infectious Disease Society of America, Joseph Smadel Lecture, October 30, 2009, Philadelphia, PA. "A Tale of Two Salmonellae: Typhoidal and non-typhoidal".

St. George's Hospital Medical School, University of London, Jenner Lecture November 4, 2009, London, UK. "Silent fate; Lethal invasive nTA infections in Africa"

Tel Aviv University, Sackler Faculty of Medicine, Visiting Professor, March 14, 2010, Tel Aviv, Israel. "Invasive bacteremic *Salmonella* Infections: New Insights on Old Pathogens and Strategies for Prevention".

McAuley Oration in International Health, University of Otago, James and Jean Davis Prestige Visiting Fellow, November 7, 2011, Dunedin, New Zealand. "Vaccines, social equity and international health"

Maurice Hilleman/Merck Award lecture, American Society of Microbiology Annual Meeting, June 18, 2012, San Francisco, CA. "Vaccines to prevent emerging invasive *Salmonella* infections of humans"

American College of Veterinary Internal Medicine Forum, State of the Art speaker (SOTA). June 14, 2013, Seattle, WA. "Infectious Diarrhea in Children: A Global Perspective" and "Salmonella Infection: Readjusting Dogma"

Harvard Business School, Science of Eradication: Malaria Leadership Course, Ned Hayes Lecture. June 15, 2015, Boston, MA. "Lessons Learned from Past Eradication Campaigns"

Field Experiences (Partial Listing):

1. Safety testing of *Shigella flexneri* 2 and *Shigella sonnei* oral attenuated vaccines in institutionalized children, l970.

2. Principal Investigator, U.S. Public Health Service *Shigella sonnei* Vaccine Field Trial, Fort Myers, Florida l972-l973.

3. Principal Investigator, U.S. Public Health Service *Shigella flexneri* 2 Vaccine Field Trial, Staten Island, New York, 1971-1973.

4. Pan American Health Organization Consultant Epidemiologist to the Ministry of Health of the Dominican Republic to assist in the investigation and control of epidemic poliomyelitis. June-July 1971.

5. Conduction of a rectal swab and sero-survey to determine the prevalence of enteroviruses and enteroviral antibodies in the Republic of Haiti. July 1971.

6. Pan American Health Organization Consultant to Guatemala to discuss Epidemic Shiga Dysentery. August l97l.

7. World Health Organization Temporary Advisor to Morocco to evaluate diarrheal and enteric diseases. June l972.

8. Site Inspector to report on the status of the U.S. PL 480-funded *Shigella* field trials of Dr. David Mel in Yugoslavia. July 1972.

9. Preliminary inspection of prospective field sites in South and Central America for the conduction of an oral typhoid vaccine field trial. April-June 1973.

10. Pan American Health Organization Consultant for the evaluation of endemicity of typhoid fever in Peru. August 1973.

11. World Health Organization Consultant Epidemiologist to the Smallpox Eradication Program during August, September and October 1975. Service as District Coordinator of Rajshahi District, Bangladesh during this period.

12. World Health Organization/Pan American Health Organization Advisor to Guatemala November l975, to participate in a symposium and teaching seminar on enteric diseases, "Seminario sobre Nuevas Tendencias para el Diagnostico y Tratamiento del Sindrome Diarreico."

13. Director and Coordinator, "Swine Influenza Vaccine Testing Program," Maryland 1976.

14. Guest of the Ministry of Health, Cuba, to observe the Infant Diarrhea Control Program. September, l977.

15. Pan American Health Organization Temporary Advisor on Diarrheal Diseases and Oral Fluid Therapy. Dominican Republic, Guatemala, Costa Rica, Panama, and Nicaragua, November, 1977.

16. Pan American Health Organization Advisor to Costa Rica, December 1977 to design, initiate and coordinate an investigation of the efficacy of glucose/electrolyte and rehydration therapy in infantile diarrhea due to rotavirus.

17. Pan American Health Organization Advisor to Costa Rica, July, 1978 to participate as Technical Consultant and Course Manager in Expanded Program on Immunization Course.

18. Pan American Health Organization Temporary Advisor to Surinam to discuss enteric diseases.

19. Pan American Health Organization consultant to Chile to study the epidemiology of endemic typhoid fever and design control measures.

20. Pan American Health Organization Temporary Advisor to Peru to assist as course manager in the Expanded Program on Immunization Course, January 1979.

21. Consultant to the World Health Organization Program on Diarrheal Diseases, Geneva, February 1979. Development of teaching aids and manuals to assist senior health officials to establish diarrhea disease control program.
22. Consultant to the Agency for International Development and the Academy for Educational Development project on use of madd media communication methods to combat diarrheal disease. Tanzania and Cameroon, April 1979.

23. Consultant to the Agency for International Development and the Academy for Educational Development project on use of mass media communication methods to combat diarrheal disease. Honduras and Ecuador, May 1979.

24. Temporary Advisor to Pan American Health Organization to assist in provincial level courses on treatment and control of diarrheal diseases, Amitilan and Huehuetenango, Guatemala, September 1979.

25. Consultant to the Academy for Educational Development project on use of mass media communication methods to combat diarrheal disease. Honduras, September 1979.

26. Temporary Advisor to Pan American Health Organization for the Regional Seminar on Diarrheal Disease Control. Lima Peru, October 1979.

27. U.S. Agency for International Development Consultant to the Government of Honduras to design a five year Diarrheal Disease Control Program, December 1979.

28. Pan American Health Organization consultant to Honduras to initiate oral therapy studies at Hospital Materno Infantil, February 1980.

29. Pan American Health Organization consultant to Peru to teach a course on diarrheal diseases, February 1980.

30. World Health Organization Consultant to Rwanda and Burundi, July 1980, to advise the ministries of health in organizing national diarrheal disease control programs for those countries with oral rehydration activities as the keystone.

31. Consultant to the Ministry of Health, Santiago, Chile on the control of endemic typhoid fever. Approximately two months annually since 1980 are spent supervising activities in Chile where the Center for Vaccine Development maintains a field unit in collaboration with the Ministry of Health.

32. U.S. Agency for International Development consultant to Bangladesh, December, 1982, to review the status of epidemiologic activities at the International Center for Diarrheal Disease Research, Bangladesh.

33. Supervised a large-scale controlled field trial of Ty21a oral typhoid vaccine involving 150,000 schoolchildren in Area Occidente, Santiago, Chile. Vaccination occurred in August and September, 1983. Surveillance for tyhpoid fever in the cohort was maintained for seven years.

34. Agency for International Development (PRITECH) consultant to Kenya to review the status of oral rehydration activities, 1984.

35. Consultant to the Egyptian Diarrheal Disease Control Project, July 1984.

36. Invited consultant to the Lanzhou Institute of Biological Products, Lanzhou, People's Republic of China, to discuss vaccines against enteric infections, November 1984.

37. U.S. Agency for International Development Consultant to the Vaccine Assistance Program, Delhi, India, to explore the possibility of field trials of new typhoid vaccines. May, 1986.

38. U.S. Agency for International Development Consultant to the International Center for Diarrheal Disease Research, Bangladesh, to evaluate the status of research at the Center. May, 1986.

39. U.S. Agency for International Development Consultant to Mahidol University Vaccine Trial Centre, Bangkok, Thailand, to explore the possibility of Phase 1 and 2 trials of malaria vaccine candidates. June, 1986.

40. Initiation of longitudinal field studies of the etiology and prevention of pediatric diarrhea in Santa Julia, Santiago, Chile in collaboration with the Ministry of Health and the Microbiology Unit of the University of Chile, November, 1986 - present.

41. Co-designed and participated in an AID-supported study of malaria in Yanomami Indians living along the Orinoco River in the Amazon region of Venezuela, 1987.

42. Initiation of collaborative studies of the etiology of persistent diarrhea in children with Dr. M.K. Bhan of the Department of Paediatrics, All-India Institute of Medical Sciences, New Delhi, India June 1987 - present.

43. Consultant to the Department of Preventive Medicine, Israel Defence Forces on the control of diarrheal diseases in soldiers, August, 1987 to present.

44. Initiation of Phase 2 studies of live oral cholera vaccine CVD 103-HgR in Thai university students and in Thai military personnel, Bangkok, Thailand, 1988.

45. Designed and provided overall coordination of Phase 2 pediatric studies of the safety and immunogenicity of CVD 103-HgR live oral cholera vaccine in Indonesian children, Jakarta, Indonesia, 1989-1992.

46. Consultant to the Institute of Epidemiology and Microbiology of the Chinese Academy of Preventive Medicine, Beijing China on enteric vaccine development, September, 1990.

47. Consultant to the Minister of Health, Chile on control of cholera, May, 1991.

48. Ad Hoc invited member, Chilean Cholera Commission, May, 1991.

49. Consultant to Centre Muraz, Bobo Doulasso, Burkina Faso, to explore possible collaborative studies on diarrheal diseases. 1991.

50. Consultant to the Sociedad Colombiana de Medicina Tropical y Parasitologia on the subject of cholera (inspection of two cholera affected areas of Colombia), October, 1991.

51. World Health Organization (Western Pacific Regional Office) Consultant in Vaccine Development to the People's Republic of China, November, 1991.

52. World Health Organization Consultant to the Program for Vaccine Development, 1992-1994.

53. Member of the U.S. Army Data Monitoring Safety Board for HIV Vaccine Field Trials, 1992 to present.

54. Consultant to the Ministry of Health and the Fundación Centro de Estudios Infectologicos, Argentina, February, 1993, to investigate epidemic cholera in Northern Argentina and to review activities of the the National Cholera Control Commission.

55. Evaluation of potential field sites in Mali to conduct phase 2 trial of CVD 103-HgR live oral cholera vaccine in HIV +/- adults. Mali, Africa. February, 1996.

56. Member of Vaccine Action Program and U. S. Malaria Mission. Mumbai and Rajasthan, India. February, 1997.

57. Member of a WHO field site team assessing the feasibility of using leishmanization to assess the efficacy of new *Leishmania* vaccines. Samarkand, Uzbekistan, September, 1997.

58. Participant “Consultative Meeting on Vaccine Development and Immunization Implementation”, Harare, Zimbabwe, December 4, 1998.

59. Organizer, “Consultative Meeting on Vaccine Development and Immunization Implementation”, Santiago, Chile, January 15 & 16, 1999.

60. Organizer, “Consultative Meeting on Vaccine Development and Immunization Implementation”, New Delhi, India, February 9, 1999.

61. Member, initial GAVI mission to China, December, 2000.
62. Member of the CVD team that established, in conjunction with the Ministry of Health of Mali, a clinical bacteriology laboratory in the Gabriel Touré Hospital in Bamako, Mali, February, 2002.

63. WHO consultant participating in the preparation of a field manual for the diagnosis, treatment and prevention of typhoid fever, Hanoi Vietnam, March, 2002.

64. WHO consultant to SEARO, Delhi, India for consultation on aerosol measles vaccine production and licensure track, September, 2002.

65. WHO consultant to SEARO, Delhi, and to the Serum Institute of India for consultation on aerosol measles vaccine production and licensure track, March, 2003.

66. Evaluation of pediatric diarrheal disease burden and treatment programs, Laos, September 2006.

67. Evaluation of Malian Expanded Programme on Immunization Hib Vaccine Introduction Program, January 2007.

68. Inspection of U.S. Department of Defense Avian influenza surveillance activities at Naval medical research Unit 2 (NAMRU-2), Jakarta, Indonesia and Phnom Penh, US Army Medical Research Unit, Kenya and Walter Reed Army Institute of Research Research Unit, Kampala, Uganda, March 2007.

69. Evaluation of potential field sites in three woredas of Ethiopia (Afar, SNSS and Tigray) for possible serosurveys in conjunction with immunization coverage surveys. January 2012.

70. Team Leader, Wellcome Trust Site visit team to the Malawi/Liverpool/Wellcome Trust Unit in Balntyre, Malawi. February 2013.

71. WHO Consultant on Typhoid Fever, Samoa. March 2013.

72. To help prepare CVD-Mali for Phase 1B trials of an Ebola vaccine candidate. Bamako, Mali, September 2014.

73. To assist CVD-Mali staff in performing a Phase 1B clinical trial of a chimpanzee adenovirus 3-vectored Ebola Zaire vaccine. Bamako, Mali, October 2014.

74. Site preparation visit to proposed field sites for a WHO-sponsored field trial of efficacy of an Ebola vaccine. Conakry, Guinea, January, 2015.

75. To re-inforce a capacity building collaboration with the Ethiopian Public Health Institute to transfer technology to measure several vaccine-induced IgG antibodies for support of serosurveys in rural Ethiopia. Addis Ababa, February, 2015.

76. Organization of a Training Course in Good Clinical Practices for Guinean and other investigators who will perform the Phase 3 field trial of efficacy of a candidate Ebola vaccine. February-March 2015

U.S. Post-Doctoral Fellows Mentored by Myron M. Levine, M.D., D.T.P.H. 1976 until Present			
Name	**Training period**	**Title of research project**	**Last position**
Stephen Sotman, M.D.	1976- 1977	Clinical studies with enteropathogenic *Escherichia coli* strains for infant nursery outbreaks	
Margaret B. Rennels, M.D.	1977-1978	Clinical microbiology of cholera. ETEC colonization factors	Retired Professor of Pediatrics, University of Maryland School of Medicine. Chief Pediatric Clinical Studies Section, CVD
David Hoover, M.D.	1977-1978	Volunteer studies of ETEC and cholera	Head, *Brucella* Research, Walter Reed Army Institute of Research
Erick J Bergquist, M.D., Ph.D.	1977-1978	Immunity to enterotoxigenic *Escherichia coli*	Thomas Jefferson Medical College, Philadelphia, PA
Stephen Sears, MD	1981-83	Immunological response to outer membrane proteins of *Vibrio cholerae*	Private practice of Infectious Diseases
Mary Baldini, PhD	1981-85	Molecular Genetics of enteropathogenic *E. coli*	Unknown
J. Glenn Morris, Jr.,MD	1982-84	Pathogenesis of *Vibrio vulnificus*	Director, Emerging Pathogens Institute, University of Florida
Deirdre Herrington, MD	1983-85	*Plesiomonas* pathogenesis and clinical trials of vaccine candidates	ID Physician, Blue Ridge Medical Associates
Carol O. Tacket, MD	1983-85	*E. coli* colonization factors and role in vaccines	2009 Retired, Professor, Univ. of MD School of Medicine
Karen Kotloff, MD	1983-86	Epidemiology and etiology of diarrhea in Baltimore children and impact of rotavirus	Professor of Pediatrics, Univ. of MD School of Medicine
David DiJohn, MD	1986-88	Immunological responses to malaria infection and vaccination	New York Univ. Sch. of Med.
Gerald Poley, MD	1987-88	*E. coli* colonization factors	NIAID, NIH
Stephen Savarino, MD	1988-90	Enteroaggregative *E. coli* pathogenesis	Head, Department of Enteric Diseases, NMRI; Capt., US Navy
David Hone, PhD	1988-89	Attenuated *Salmonella typhi* vaccine development	Asst. Prof., Univ. MD, Med. Biotechnology Center
Alessio Fasano, MD	1988-90	Enterotoxins of *Shigella* and enteroinvasive *Escherichia coli*	Professor of Pediatrics, Harvard Medical School. Director, Center for Celiac Research, Massachusetts General Hospital for Children, Boston, MA
W. Gray Heppner, MD	1989-92	Development of malaria vaccines	Retired Colonel. Previously, Head of Malaria Research, Walter Reed Army Institute of Research, Silver Spring, MD
Fernando Noriega, MD, MPH	1989-93	*Shigella* vaccine development	Head of Clinical Translational Vaccinology & Head of Clinical Development Latin America, Sanofi Pasteur Vaccines, Swiftwater, PA
Charles Pumpuni, PhD	1991-92	Malaria vaccine development	Assist. Prof., Univ. of MD
Eileen Barry, Ph.D.	1994-1996		Professor of Medicine. Chief, Shigella Vaccines Section, CVD, UMB, Baltimore, MD
Thames Pickett, Ph.D.	1996-1999	*Salmonella* live vector vaccines	Office of Biodefense Research Resources and Translational Research, NIAID, NIH, Bethesda, MD
Taraz Samandari, M.D. (Vaccinology)	1998-2001	Protective Immune mechanisms in human *Shigella* vaccines	Centers for Disease Control & Prevention, Atlanta, GA

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Name	**Training period**	**Title of research project**	**Last position**
James D Campbell, M.D.	1998-2001	Detailed measurement of human infant immune response to fractional doses of Hib conjugate vaccine, including antibody avidity	Center for Vaccine Development, University of Maryland School of Medicine
Milagritos Tapia, M.D.	2001 - 2003	Measurement of tetanus antitoxin in oral fluids from Malian infants, children and adults. Measles serosurveys to define the "window of vulnerability" in rural Malian infants	Asst. Prof. Univ. of MD School of Medicine
Jakub Simon, M.D.	2003-2005	Measurement of measles antibodies in Chilean adults immunized with Edmonston Zagreb attenuated measles vaccine administered intranasally or subcutaneously	Director, Clinical Research, Vaccines Merck & Co
Julia Hutter, M.D.	2006-2009	Cross-sectional survey of anti-*Haemophilus influenzae* type b (Hib) antibody and tetanus antitoxin	DAIDS, NIAID, NIH
Kelly K. Baker, Ph.D.	2009-2011	Comparison of water and sanitation conditions of case versus control households to identify environmental risk factors for the development of severe pediatric diarrheal disease	Assistant Professor, Occupational & Environmental Health, University of Iowa
Raphael Simon. Ph.D.	2009-2012	Development of a bivalent *Salmonella* Enteritidis/*Salmonella* Typhimurium conjugate vaccine to prevent invasive non-typhoidal *Salmonella* disease in sub-Saharan Africa	Assistant Professor of Medicine, Head Antigen Purification Unit, CVD, Univ. of Maryland School of Medicine
Adetinuke Mary Boyd, M.D.	2011-2013	Measurement of serum bactericidal antibody against non-typhoidal *Salmonella* serovars. Development of an ultra-sensitive quantitative real-time PCR method for identifying invasive *Salmonella* infections in blood. Setting up a field trial in Karachi, Pakistan to test the sensitivity and specificity of a new qPCR diagnostic versus standard blood culture	Medical Officer, DHHS/CDC/CGH/DGHT - Lusaka, Zambia

International Post-Doctoral Fellows Mentored by Myron M. Levine, M.D., D.T.P.H. 1981 through Present			
Name	**Training period**	**Title of research project**	**Present position**
Roy M. Robins-Browne, MBBCh, PhD	1979-1980	Pathogenesis of EPEC diarrhea	Professor of Microbiology, School of Microbiology, University of Melbourne, Parkville, Victoria, AU
Claudio Lanata, PhD (Peru)	1981-1982	Detection of enterotoxigenic *E. coli* using DNA probes & large scale vaccine field trials	Director General, Inst. for Nutri. Res., Peru
Catterine Ferreccio, M.D.	1982		Professor, Master Director Epidemiology, Pontificia Universidad Catolica de Chile

International Post-Doctoral Fellows Mentored by Myron M. Levine, M.D., D.T.P.H. 1981 through Present			
Name	**Training period**	**Title of research project**	**Present position**
Luis Cisneros, M.D.	1982-1983	Pathogenesis of cholera nad ETEC infections in volunteers	Private Pracice
Jian-Guo Xu, MD (China)	1985-86	ETEC and EHEC vaccine development and diagnostics	National Institute for Communicable Disease Control & Prevention, Chinese Center for Disease Control and Prevention, Changping Beijing, China
Robert Hall, PhD (U.K.)	1985-90	Cholera pathogenesis & vaccine development	Enteric Diseases Section, DMID, NIAID, NIH
Pablo Vial, MD (Chile)	1985-87	Pathogenesis of enteroaggregative *Escherichia coli* diarrhea	Dean, Facultad de Medicina, Universidad del Desarrollo, Santiago, Chile
Bernadette Baudry, PhD (France)	1988-91	Molecular genetics of enteroaggregative *E. coli*	Deceased. Last employment at USUHS, Bethesda, MD
Rosanna Lagos, MD (Chile)	1988-90	*Haemophilus influenzae* virulence & vaccine testing	Coordinator, CVD-Chile, Santiago, Chile
Oscar Gomez, MD, PhD (Colombia)	1990-1994	Genetic regulation in enteropathogenic *E. coli*	Assistant Professor, Department of Pediatrics, Vanderbilt University School of Medicine
Jorge Giron, PhD (Mexico)	1991-1994	Enterotoxigenic *E. coli* vaccines	Emerging Pathogens Institute, University of Florida, Gainesville, FL
Cesar Gonzalez, MD, PhD (Mexico)	1991-1992	Expression of malaria and *Leishmania* antigens in *Salmonella*	Assoc. Invest., Social Security Institute, DF, Mexico
Shaoguang Wu (China)	1993-1995	*Salmonella* live vector vaccines	Johns Hopkins University
Zhao Ying Xiang (China)	1995	*Vibrio cholerae* 0139 pathogenesis	Unknown
Christoph Tang, MBBS, PhD (U.K.)	1996-1998	Meningococcal and *Shigella* vaccine development	Glaxo Chair of Cellular Pathology, Sir William Dunn School of Pathology, Oxford University, U.K. Co-Director, Oxford Martin Programme on Vaccines
Richard J. Anderson, PhD (U.K.)	1996-1999	*Shigella* vaccine construction	Oxford University, U.K.
Nadav Orr, PhD (Israel)	1996-98	Salmonella live vector-based oral diphtheria vaccine	Army Health Branch Research Unit Israel Defense Force
Cecilia Gonzalez, MD (Chile; Emerging Infections)	1998-1999	Emerging infection surveillance, improved diagnosis, collation and exchange of surveillance information as well as disease control interventions.	I.D. Consultant, Roberto del Rio Hospital, Chile
Rodrigo Vergara, MD (Chile; Emerging Infections)	1999-2000	Expression of protein antigens of *Streptococcus pneumoniae* in attenuated *Salmonella* Typhi vaccine strains.	Prof. of Microbiology, Universidad de Valparaiso, Chile
Jaime Rodriguez, MD (Chile; Emerging Infections)	1999-2000	Using PCR to detect sequences of *Streptococcus pneumoniae* in blood or otherwise sterile body fluids of patients with syndromes compatible with invasive pneumococcal disease	Pediatric Infectious Diseases Section, Hospital Roberto del Rio, Santiago, Chile

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Name	**Training period**	**Title of research project**	**Present position**
Licheng Zhao, M.D. (China)	2001-2006	Malaria vaccine and S. Typhi-based vaccine to prevent DTP	Research Scientist, Mucosal Biology Research Center, UMB
Mahender Singh, Ph.D. (India)	2000-200l	Clone measles virus H and F genes	Unknown
Miguel A. Ascon, Ph.D.	2000-2001	Expression of *Plasmodium falciparum* antigens in attenuated *Salmonella* Typhi	BriJen Biotech, LLC, Co-Founder, President & CEO
Juan Carlos Hormazabal, M.D. (Chile)	2000 - 2002	Molecular epidemiology of meningococcal disease in Chile.	Institute of Public Health, Santiago, Chile
Christofer Vindurampulle, Ph.D. (Australia)	2002 - 2005	Construction and pre-clinical studies of attenuated *Salmonella* Paratyphi A vaccine strain for oral administration	Patents and Trade Marks, Watermark, Melbourne, Victoria, AU
Man Ki Song, Ph.D. (Korea)	2002 - 2004	Construct Sindbis replicon encoding measles H and both H and F proteins. Animal studies of safety, immunogenicity & efficacy	International Vaccine Institute, Seoul, Korea
Boubou Tamboura, Ph.D. Mali - Emerging Infections	2003 -2004	Molecular and classical microbiologic tools for identification of bacterial pathogens.	Head, Microbiology & Molecular Lab, Centre Pour le Développement des Vaccins du Mali (CVD-Mali), Bamako, Mali
Souleymane Diakite, Ph.D. Mali - Emerging Infections	2003 - 004	Techniques in humoral and mucosal immunology related to vaccine development.	PharmD, ONG in Mali, Africa
Sharon Tennant, Ph.D.	2007-2010	Expression of the SARS glycoprotein S antigen from SARS-CoV in *Salmonella* Typhi vaccine strain CVD 908-*htrA*. Development of a multiplex PCR technique for serotyping invasive *Salmonella* serovars	Assoc. Professor of Medicine, Univ. of Maryland Sch. of Medicine & Chief, Molecular Diagnostics Section, CVD, UMB
Khitam Muhsen, R.N., M.P.H., Ph.D. (Israel)	2011 - 2013	The role of *Helicobacter pylori* infection on the immune response to oral vaccines. Role of *Giardia lamblia* as a cause of acute and persistent pediatric diarrheal illness	Senior Lecturer, Dept. of Epidemiology & Preventive Medicine, School of Public Health, Faculty of Medicine, Tel Aviv University, Israel
Ellen Higginson,Ph.D. (Australia)	2013 -	Attenuation of *Salmonella* Paratyphi B by introducing mutations identified in zero gravity (space)	Current fellow