SESSION 10 : SHIGELLA
Moderator: Arnele Phalipon (Institut Pasteur, Paris, France)

10.30-10.45 ‘Protection against Shigella in mice by a novel approach using outer membrane particles’
Christiane Ormke, Francesco Ferrari, Aida Maria Calveri, Laura Magoni, Isabella Proen, Marioneta Calvari, Vita Di Cico, Kristin Broek and Allen J. Saul (Novartis Vaccines Institute for Global Health, Siena, Italy)
10.45-10.55 ‘On the road to a synthetic carbohydrate-based vaccine against endemic shigellosis’
Laurence A. Malan, David Gauthier, Tur Hourin, Pierre Chassagne, Francois Thouron, Catherine Guermious, Francois-Xavier Theillet, Marie Derijcke, Philippe J. Sansounti and Arnette Phalipon (Institut Pasteur, Paris, France)

10.00-10.15 Development of a multivalent, inactivated whole cell vaccine for Shigella’
R. Kaminski, M. Wu, T. Toddy, A. Su, A. Clark, E. Chen, B. Tai, C. V. De Vrée, I. Bourgois, B. Robertson, R. Walker and J. D. Saks (NIH, Silver Spring, Maryland, USA)

Evaluation of live, attenuated oral Shigella dysenteriae 1 vaccine candidates WRS60 and WRSe in rhesus monkeys (Macaca mulatta)?
Oliva Islam, Nattaya Ruamrass, Achira Aksismeth, Paliphat Khattapa, Boochan Wongstitwilairoong, Rawiwan Imterasin, Malay M. Venkataraman, Ladaporn Bodhidatta and Carl J. Mason (Vaccine Research Institute of Medical Sciences, Bangkok, Thailand)

09.30-09.45 ‘Protection against Shigella sonnei infection and the incidence of shigellosis and other diarrheal diseases’
Heliobacter pylori
Heliobacter pylori
Ladaporn Bodhidatta and Carl J. Mason (Vaccine Research Institute of Medical Sciences, Bangkok, Thailand)

09.15-09.30 ‘Evaluation of live, attenuated oral Shigella dysenteriae 1 vaccine candidates WRS60 and WRSe in rhesus monkeys (Macaca mulatta)?
L. Ven de Verg, L. Bourgeois, G. Robertson, R. Walker and E. Oaks (NIH, Silver Spring, Maryland, USA)

09.00-09.15 ‘Shigellosis’
Muriel Delepierre, Philippe J. Sansounti and Armelle Phalipon (Institut Pasteur, Paris, France)

SESSION 11 : MUCOSAL
Moderator: Jan Holmgren (University of Gothenburg, Sweden)

11.00-11.15 ‘The continuous problem of developing a non-invasive readout for intestinal immune induction after oral/oral vaccine administration’
Per Brandtzaeg (University of Oslo, Oslo, Norway)
11.15-11.30 ‘Exploration of ‘biologic data for GVP and rotavirus vaccine failure’
11.30-11.45 ‘ADP–riboseylating enterotoxins as antigens and adjuvants for enteric vaccines’
John D. Clements (Tufts University, New Orleans, Louisiana, USA)
11.45-11.55 ‘Sublingually administered tetanus C expressing Bacillus subtilis induces protective systemic and mucosal antibodies against tetanus toxin in mice and gogles?’
Saul Tojphi, Santon Lee, Hellen Amagon, Gerald Kreuch and Abraham Sorensen (Tufts University, North Grafton, Massachusetts, USA)
12.00-12.10 ‘Mimopath’ – a versatile vaccine technology for the development of oral vaccines’
Kees Lemnouts (Marcos BV, Groningen, The Netherlands)
SESSION 1: OPENING PLENARY SESSION
Moderator: Duncan Merrett (PATH, Seattle, Washington, USA)
09.00-09.30
Evaluation of vaccines against enteric infections: a clinical and public health research agenda for developing countries
John Clemens (FHI, Seoul, South Korea)
09.30-10.00
The NIAD Program for enteric vaccine development
Robert H. Hui (NIAD/NIN/Bethesda, Maryland, USA)
10.00-10.30
Steppelinfics Initiative
Philippe Sansavini (Institut Pasteur, Paris, France)
10.30-11.00
Vacination strategies for cholera
Mr A. Longini (University of Florida, Florida, USA)
11.00-11.20 Coffee Break & Poster Set-Up (For Posters 101-125)

SESSION 2: SPECIAL PLENARY SESSION: Preventable Burden of Enteric Diseases
Moderator: Mark Riddel (MMWR, Bethesda, Maryland, USA)
11.20-11.40
The global burden of diarrheal diseases
Hope L. Johnson (University of Florida, Florida, USA)
11.40-12.00
Etiology and outcomes of acute moderate and severe diarrheal infections in young children: insights from the Global Enteric Multi-Center Study (GEMS)
Maryon M. Levin (University of Maryland School of Medicine, Baltimore, Maryland, USA)
12.00-12.20
Chronic consequences of acute enteric infections in the developing world: physical and cognitive outcomes
Richard Guerrant (University of Virginia/Virginia/USA)
12.20-12.40
Post-infectious sequelae of diarrheal diseases: utilization of DoD medical encounter database to describe risks in a healthy travel population
Chad Porter (FHI, Bethesda, Maryland, USA)
12.40-13.00
Pathogen-to-epidemiologic mechanisms of functional diarrheal disorders: The example of Campylobacter and SIBO
Christopher Chung (Crean-Oh MediCenter, Los Angeles, California, USA)
13.00-14.00 Lunch & Posters (Posters 101-125)

SESSION 3 : ROTAVIRUS VACCINES: Studies in Developing Countries
Moderator: Harry Greenberg
(Stanford University School of Medicine, Stanford, California, USA)
14.00-14.20
Global mortality associated with rotavirus disease among children in 2000
Jacqueline E. Tate, Anthony Burton, Cynthia Boschetti-Pinto, Duncan Steer, Mary Apries and Umer D. Parashar (CDC, Atlanta, Georgia, USA)
14.20-14.40
Global impact of routine rotavirus vaccination
Umer D. Parashar (CDC, Atlanta, Georgia, USA)
14.40-15.00
‘Identification of Rotavirus’ vaccine in pediatric patients with acute gastroenteritis following routine vaccination
C.K. Kirkwood, C. Dorens, L.S. Ortiz, K. Muchir, and N. Crawford
(Marshak Childrens Research Institute, Royal Children’s Hospital, Melbourne, Victoria, Australia)
15.00-15.20
‘Re-admission to hospital within 30 days of hospital discharge with rotavirus gastroenteritis: a UK study on children under 5 years of age’
D.J. Cameron, A. Adelang, A. Aslani, A. Fajawaz, and S. Caremel
(Shedihill Children’s Hospital, Sheffield, Sanofi Pasteur MSD, Maidenhead, UK)
15.20-15.40
‘Expanded rotavirus vaccine efficacy in low socio-economic settings: a mathematical modelling study’
Ben Lopman, Manish Patri, Umer Parashar, Christine Atchison, John Edmunds, Virginia Pizar, Rajiv Sarvar, Behn Glaeski and Supapan Kopng-Kung
(CDC, Atlanta, Georgia, USA)
15.40-16.00
‘Evaluation of the human rotavirus vaccine early after introduction at three sentinel sites in South Africa (2009-2010)’
Pieter Nizaar and G. Andreas, Johannesburg, South Africa
16.00-16.20 Tea Break & Posters (Posters 101-125)

SESSION 4 : ROTAVIRUS VACCINES
Moderator: Umer D. Parashar (CDC, Atlanta, Georgia, USA)
16.20-16.40
‘Rotavirus vaccines: Continuing challenges to achieve a common, if elusive goal’
Sper Grass (Fogarty Center, NIH, Bethesda, Maryland, USA)
16.40-17.00
‘Determinants of rotavirus (RV) host range restriction and pathogenesis: Key factors regulating the safety and immunogenicity of American RV vaccines’
Henry Greenberg
(Stanford University School of Medicine, Stanford, California, USA)
17.00-17.20
‘Stabilized liquid and quick dissolving oral thin film formulations for live attenuated bovine rotavirus vaccines’
Fermin Garcia (Infusapharmaticos, San Jose, California, USA)
17.20-17.40
‘Inactivated rotavirus vaccine: An update and pathway forward’
Ramuisingh Iacono, Itay Schneidman, Umer Parashar, John Bentley and Simon Renton (The University of Melbourne, Australia)
17.40-18.00
‘RV’s rotavirus – the development of a human, neonatal rotavirus vaccine for the global population’
18.00-18.20
‘Immunogenicity update’
Julie Bines (University of Melbourne, Australia)
18.20-18.40
‘Preclinical evaluation of inactivated ETEC vaccine +/- dmLT adjuvant’
Maryon M. Levin (University of Maryland, Baltimore, Maryland, USA)
18.40-19.00
‘The global investment case for vaccines against typhoid fever’
Y.B. Pradhan (International Centre for Diarrhoeal Disease Research, Bangladesh)
19.00-19.20
‘Addressing the burden of typhoid fever in Pakistan: An evidence-based introduction of Typhoid Vaccines’
Lester Shulman (The Aga Khan University, Karachi, Pakistan)
19.20-19.40
‘Closing remarks’
Christopher B. Nelson (The Johns Hopkins University, Baltimore, Maryland, USA)
19.40-20.00
‘Development of a combined norovirus-rotavirus vaccine’
Timo Viskari, S. Lappalainen, K. Nurminen, L. Huhti and V. Blasić (University of Tampere, Tampere, Finland)
20.00-20.15
‘Incidence and characteristics of norovirus gastroenteritis associated with hospitalization in children less than five years of age in Italy’
Khilem Muhon, D. Cohen, Eisa Kaeem, Uri Rubinstein, Aki Kennes, Shachar Jabour, Jova Zilstein, Sophia Stemke, Miriam Ephrin and Lester Shulman
(Center for Enteric and Diarrheal Diseases, Tel Aviv, Israel)
20.15-20.30
‘Cholera/deadly new clinical data’
Kevin Killeen (MMWR, Bethesda, Maryland, USA)
Conference Programme – Poster Session - Wednesday 14th September

Poster 101
‘Pharmaceutical and immunological evaluation of mucoadhesive nanoparticles based delivery system(s) administered intranasally’
Sharad Mangal and K. S. Jaganathan
(Shantha Biotechnics Ltd, Hyderabad, India)

Poster 102
‘Molecular epidemiologic analysis of protective antigen ECOK1,3385 in pathogenic and faecal E. coli isolates for the development of a universal vaccine’
Roberto Rosini et al.
(Novartis Vaccines and Diagnostics Research Center, Siena, Italy)

Poster 103
‘Characterization of S. Flexneri 2a vaccine strain CVD1401 containing a functional pic locus’
Eileen M. Barry et al. (University of Maryland, Baltimore, Maryland, USA)

Poster 104
‘Molecular characterization of rotavirus strains detected during a clinical trial of a human rotavirus vaccine in Blantyre, Malawi’
Nigel A. Cunliffe et al. (University of Liverpool, Liverpool, UK)

Poster 105
‘ß-glucan microparticles as mucosal delivery system in oral vaccine development’
Rebecca De Smet et al. (Ghent University, Ghent, Belgium)

Poster 106
‘Protection induced by a broadly conserved vaccine candidate against different E. coli pathotypes using different animal model of infection’
Angela Spagnuolo et al. (Novartis Vaccines & Diagnostics, Siena, Italy)

Poster 107
‘Setting of an in vitro correlate of protection for a vaccine against pathogenic Escherchia coli’
Rosselia Muttera et al. (Novartis Vaccines & Diagnostics, Siena, Italy)

Poster 108
‘Molecular characterization of rotavirus species A P[8]G1 strains from children vaccinated with Rotarix® vaccine’
Jose Paulo G. Leite et al. (Osowaldo Cruz Institute, Rio de Janeiro, Brazil)

Poster 109
‘CalciNet: A novel norovirus outbreak surveillance network in the United States’
Jan Vinje et al. (CDC, Atlanta, Georgia, USA)

Poster 110
‘A flow cytometry-based assay to assess inhibition of Shigella invasion of HeLa cells’
David Ponceet al. (Sanofi Pasteur Discovery, Marcy l’Etoile, France)

Poster 111
‘Rotavirus strains surveillance in Europe: EuroRotaNet’
Miren Iturriza-Gomara and Sameena Nawaz
(Health Protection Agency, London, UK)

Poster 112
‘The under-recognized burden of severe norovirus gastroenteritis in US children’
Daniel C. Payne et al. (CDC, Atlanta, Georgia, USA)

Poster 113
‘Atomic resolution model for assembly, architecture, and function of ETEC colonization factor SC6’
Anton Zavialov et al. (University of Turku, Turku, Finland)

Poster 114
‘Childhood diarrhea etiologies following rotavirus vaccine introduction in Nicaragua: A prospective, population-based study’
Sylvia Becker-Dreps et al.
(University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA)

Poster 115
‘Attenuated, live Ty21a–vectored multivalent shigella oral vaccine development’
D.G. Xu et al. (CBER, Bethesda, Maryland, USA)

Poster 116
‘Pathogen-specific risk of post-infective functional gastrointestinal disorders, gastroesophageal reflux disease and celiac disease following acute enteric infection’
Chad K. Porter et al.
(Naval Medical Research Center, Silver Spring, Maryland, USA)

Poster 117
‘A case control study of post-infective sequelae following outbreaks of norovirus in US military populations’
Chad K. Porter et al.
(Naval Medical Research Center, Silver Spring, Maryland, USA)

Poster 118
‘Role of matrix metalloproteinase in pathogenesis of acute gastroenteritis in children’
Ken Sugata et al.
(Fujita Health University School of Medicine, Aichi, Japan)

Poster 119
‘Genotype distribution a year prior to and a year after rotavirus vaccine introduction into the national expanded program of immunization in South Africa’
Nicola Page et al. (NICD, Johannesburg, South Africa)

Poster 120
‘Estimates of benefits and potential risks of rotavirus vaccination in the United States’
Margaret M. Cortese et al. (CDC, Atlanta, Georgia, USA)

Poster 121
‘Development and testing of heat-labile holotoxin-like adhesion-toxoid chimeras for an adhesion-based enterotoxigenic Escherchia coli vaccine’
Stephen Savarino et al.
(Naval Medical Research Center, Silver Spring, Maryland, USA)

Poster 122
‘Safety and immunogenicity of a prototype enterotoxigenic Escherchia coli fimbrial tip adhesion vaccine administered by transcutaneous immunization in rabbits’
Stephen Savarino et al.
(Naval Medical Research Center, Silver Spring, Maryland, USA)

Poster 123
‘Immunogenicity and protective efficacy of enterotoxigenic Escherchia coli adhesion-based vaccines given with LT-based adjuvants by intradermal injection’
Stephen Savarino et al.
(Naval Medical Research Center, Silver Spring, Maryland, USA)

Poster 124
‘Differential profiles of non-immune components in breast milk from mothers in developing and developed countries’
Sung-Sil Moon et al. (NICD, Johannesburg, South Africa)

Poster 125
‘Dose sparing of and enhanced immune response to inactivated rotavirus vaccine by skin vaccination using a microneedle patch in mice’
Yuhuan Wang et al. (CDC, Atlanta, Georgia, USA)

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Conference Programme – Poster Session - Thursday 15th September

Poster 126
‘Quantifying the incidence and burden of post-infectious enteric sequelae and well established deployment related health outcomes’
Wendy M. Munera et al.
(Naval Medical Research Center, Silver Spring, Maryland, USA)

Poster 127
‘A new live attenuated *Shigella flexneri* 2a strain WRS2F2G15: A combination of gene deletions designed to enhance the safety of live *Shigella* vaccines’
Ryan T. Ranallo et al. (WRAIR, Silver Spring, Maryland, USA)

Poster 128
‘Immunogenicity and protective efficacy after sublingual immunization of mice with *Shigella* InvaplexAR’
Robert W. Kaminski et al. (WRAIR, Silver Spring, Maryland, USA)

Poster 129
‘Construction of a non-toxigenic and immunogenic *E. coli* strain expressing high amounts of CS6 for use as vaccine against enterotoxigenic *Escherichia coli*’
Joshua Tobias et al. (University of Gothenburg, Gothenburg, Sweden)

Poster 130
‘Pre-existing immunity to norovirus GII does not impair de novo immune responses to norovirus GII–12 genotype’
Kirsu Nurminen et al. (University of Tampere, Tampere, Finland)

Poster 131
‘Cross-reactive immune responses induced by the two norovirus subviral structures, virus-like particles (VLPs) and P–particles’
Kirsu Nurminen et al. (University of Tampere, Tampere, Finland)

Poster 132
‘Combination vaccine of norovirus virus-like particles (VLPs) and rotavirus VP6 protein for childhood gastroenteritis’
Suvi Lappalainen et al. (University of Tampere, Tampere, Finland)

Poster 133
‘Comparison of B cell and T cell immune responses induced by two rotavirus oligomeric subviral structures’
Suvi Lappalainen et al. (University of Tampere, Tampere, Finland)

Poster 134
‘Development of an outer membrane particle-based vaccine against nontyphoidal Salmonella’
Sara Sa Silva et al.
(Novartis Vaccines Institute for Global Health, Siena, Italy)

Poster 135
‘Safety and oral adjuvanticity of an *Escherichia coli* heat-labile enterotoxin mutant, R192G/L211A’
Louise B. Lawson et al. (Tulane University, New Orleans, Louisiana, USA)

Poster 136
‘Rotavirus genotypes and clinical characteristics associated with acute infantile diarrhea in Egypt’
Salwa F. Ahmed et al. (US Naval Medical Research Unit No 3, Egypt)

Poster 137
‘Norovirus genogroup II diversity in children with diarrhoea in South Africa in 2009’
Janet Mans et al. (University of Pretoria, Pretoria, South Africa)

Poster 138
‘The adjuvant double mutant *Escherichia coli* heat labile toxin, LT(R192G/L211A), enhances human Th17 and Th2 vaccine responses in vitro’
Susannah Leach et al. (University of Gothenburg, Gothenburg, Sweden)

Poster 139
‘Development of a broadly protective mucosal vaccine against uropathogenic *Escherichia coli*’
Harry L.T. Mobley et al.
(University of Michigan, Ann Arbor, Michigan, USA)

Poster 140
‘Th1 and Th17 responses to helicobacter pylori in Bangladeshi children and adults’
Taufiquir Rahman Bhuiyan et al. (ICDDR, Dhaka, Bangladesh)

Poster 141
‘Reverse vaccinology of the *Shigella* pan-genome extended to the NCBI SRA database’
Robert Gormley et al.
(Naval Medical Research Center, Silver Spring, Maryland, USA)

Poster 142
‘The role of an independent entity in equitable access of vaccines in developing countries’
R.L. Ochiai et al. (Trust for Vaccines & Immunization, Karachi, Pakistan)

Poster 143
‘Improvement of a guinea pig rectocolitis infection model for protective efficacy studies against *Shigella*’
Elizabeth B Norton et al.
(Tulane University, New Orleans, Louisiana, USA)

Poster 144
‘Synergistic effects of *Escherichia coli* heat-labile and heat-stable enterotoxins’
Lisa T. Read et al. (Tulane University, New Orleans, Louisiana, USA)

Poster 145
‘Distribution of NSP4 genotypes of group A rotavirus strains circulating in Tunisian children from 2006 to 2008’
A.Trabelsi et al. (Institute Pasteur of Tunis, Tunis, Tunisia)

Poster 146
‘Evidence that mixed infections promotes generation of novel strains through intragenogroup and intergenogroup genome recombination revealed through whole genome characterization of multiple rotavirus strains from a single stool specimen’
Khuzyayo C. Jere et al.
(North-West University, Potchefstroom, South Africa)

Poster 147
‘Heat-labile (LT) and heat-stable (Sta) toxoid fusions (LT r192G–StaPF13P) of human enterotoxigenic *Escherichia coli* elicits neutralizing antitoxin antibodies’
Weiping Zhang et al.
(South Dakota State University, Brookings, South Dakota, USA)

Poster 148
‘PCR-Luminex diagnostic for 28 enteropathogens to guide vaccine development’
Eric Houp et al. (University of Virginia, Charlottesville, Virginia, USA)

Poster 149
‘CD4+ abd CD8+ T cell– and IL–17–mediated protection against Entamoeba histolytica induced by a recombinant vaccine’
Eric Houp et al. (University of Virginia, Charlottesville, Virginia, USA)