

MUCOSAL VACCINES, ADJUVANTS & DELIVERY

25-27 September 2013, Eigtveds Pakhus, Copenhagen, Denmark

FINAL ORAL PROGRAMME & POSTER PROGRAMME MUCOVAD 2013

ADVISORY SCIENTIFIC PANEL

Local Organisers: Dennis Christensen, Peter Anderson and Frank Follmann (*Statens Serum Institut, Copenhagen, Denmark*)

John Clements (*Tulane University, New Orleans, Louisiana, USA*)
Jan Holmgren (*Gothenburg University, Gothenburg, Sweden*)
Edward Lavelle (*Trinity College Dublin, Dublin, Ireland*)
Ted Ross (*University of Pittsburgh, Pittsburgh, Pennsylvania, USA*)
Eric Cox (*University of Ghent, Ghent, Belgium*)
Cecil Czerkinsky (*University of Gothenburg, Gothenburg, Sweden*)

Kees Leenhouts (*Mucosis BV, Groningen, The Netherlands*)
Ali Harandi (*Gothenburg University, Gothenburg, Sweden*)
Dexiang Chen (*PATH, Seattle, Washington, USA*)
Istvan Toth (*University of Queensland, St. Lucia, Queensland, Australia*)
Anna-Karin Maltais (*Eurocine Vaccines AB, Solna, Sweden*)
Rob Lambkin-Williams (*Retroscreen Virology Ltd, London, UK*)



08.00 onwards

Registration

09.00-09.15

Welcome to Copenhagen & Opening Remarks

Peter Andersen (*Statens Serum Institut, Copenhagen, Denmark*)

SESSION 1: OPENING PLENARY SESSION

Moderator: Peter Andersen (*Statens Serum Institut, Copenhagen, Denmark*)

09.15-09.45

'Mucosal immunity by vaccination: Opportunities and challenges'

Ali Harandi (*University of Gothenburg, Gothenburg, Sweden*)

09.45-10.15

'Strategies for achieving effective mucosal immunization of children living in developing countries'

Richard Walker (*PATH, Washington DC, USA*)

10.15-10.45

'A nutritive immune-enhancing delivery system for mucosal and systemic vaccinations'

Michael Vajdy (*EpitoGenesis Inc., Walnut Creek, California, USA*)

10.45-11.05

Coffee Break & Poster Set-Up

SESSION 2: PLENARY II

Moderator: Cecil Czerkinsky (*University of Gothenburg, Gothenburg, Sweden*)

11.05-11.35

'Introduction to mucosal immune defence'

Per Brandtzaeg (*University of Oslo, Oslo, Norway*)

11.35-12.05

'T cells and mucosal immunity'

Shabaana A. Khader
(*Children's Hospital of Pittsburgh of UPMC, Pittsburgh, Pennsylvania, USA*)

12.05-12.35

'Th17 cells: beneficial and pathogenic roles in the immune system'

Birgitta Stockinger
(*MRC National Institute for Medical Research, London, UK*)

12.35-13.05

'From mouse to man – immune correlates'

Robin Shattock (*Imperial College London, London, UK*)

13.05-14.00

Lunch Break & Posters

* This final programme is correct at the time of printing. However the organisers reserve the right to make any alterations that may be required in the interests and integrity of the final programme.

SESSION 3: VACCINES & VACCINATION

Moderator: John Clements (*Tulane University, New Orleans, Louisiana, USA*)

14.00-14.25

'Novel mucosal adjuvant strategies for oral vaccination'

Ed Lavelle (*Trinity College Dublin, Dublin, Ireland*)

14.25-14.50

'Vaccination against the mucosal pathogen *Chlamydia trachomatis*'

Frank R. Follmann (*Statens Serum Institut, Copenhagen, Denmark*)

14.50-15.10

'Challenges of oral vaccination in the young pig: What can we learn?'

Eric Cox (*Ghent University, Ghent, Belgium*)

15.10-15.30

'Self-adjuvanting mucosal Group A *Streptococcus* (GAS) vaccine candidate'

Istvan Toth, M. Zaman, M. Skwarczynski, M.R. Batzloff and M.F. Good
(*The University of Queensland, Brisbane, Queensland, Australia*)

15.30-15.50

'BLP-based mucosal vaccines:

Development of the intranasal RSV F subunit vaccine SynGEM®'

Maarten van Roosmalen, Kees Leenhouts, Bert Jan Haijema, Ivy Widjaja and Alan Rigter (*Mucosis BV, Groningen, The Netherlands*)

15.50-16.10

'Early host-virus interactions in response to low dose SIV challenge in the macaque rectal mucosa: Implications for effective vaccine prevention of sexually transmitted AIDS'

Michael Murphy-Corb (*University of Pittsburgh, Pittsburgh, Pennsylvania, USA*)

16.10-16.30

Tea Break & Posters

SESSION 4: ENTERICS & SUBLINGUAL VACCINATION

Moderator: Ali Harandi (*University of Gothenburg, Gothenburg, Sweden*)

16.30-16.55

'Excellent safety and immunogenicity of an oral, inactivated, multivalent whole cell-B subunit ETEC vaccine tested with and without dmLT adjuvant in a placebo-controlled Phase I study'

A. Lundgren, J. Adamsson, L. Bourgeois, N. Carlin, J. Clements, B. Gustafsson, M. Hartford, J. Holmgren, J. Kaim, S. Koster, M. Lofstrand, M. Petzold, J. Tobias, R. Walker, G. Wiklund and A.-M. Svennerholm
(*Gothenburg University, Gothenburg, Sweden*)

16.55-17.20

'Sublingual vaccination: Preclinical and early stage clinical development'

Cecil Czerkinsky (*University of Gothenburg, Gothenburg, Sweden*)

17.20-17.45

'Thermoresponsive gel formation for sublingual immunization'

Dexiang Chen (*PATH, Seattle, Washington, USA*)

17.45-18.05

'Salivary IgA as a non-invasive readout for intestinal immune response against experimental enterotoxigenic *Escherchia coli* (ETEC) infection'

Audun Aase, Merete Bolstad, Halvor Sommerfelt and Per Brandtzaeg
(*Norwegian Institute of Public Health, Oslo, Norway*)

18.05

MUCOVAD 2013 Welcome Reception

Sponsored by Statens Serum Institut, Copenhagen, Denmark

**SESSION 5:
ADJUVANTS**

Moderator: Jan Holmgren (*Gothenburg University, Gothenburg, Sweden*)

09.00-09.25

'T-cell dependencies for IgA induction by CAF01'

Dennis Christensen (*States Serum Institut, Copenhagen, Denmark*)

09.25-09.50

'Toxin derivatives and other danger signals as mucosal adjuvants'

John Clements (*Tulane University, New Orleans, Louisiana, USA*)

09.50-10.10

'A novel non-toxic cholera toxin mutant adjuvant produced in *Vibrio cholerae*'

Michael Lebens, S. Kallgard, M. Terrinoni, S. Karlsson, E. Ax, M. Blomquist, A. Ekman, T. Gustafsson, M. Larena and J. Holmgren (*University of Gothenburg, Gothenburg, Sweden*)

10.10-10.30

'Adjuvant effects and mechanisms of dmLT and related molecules on human immune cells'

Maximilian Larena, Anna Lundgren, Jan Holmgren and Susannah Leach (*University of Gothenburg, Gothenburg, Sweden*)

10.30-10.50

'Novel candidate adjuvants for tailoring immune responses'

Sebastian Weissmann, Thomas Ebensen, Kai Schulze and Carlos A. Guzman (*Helmholz Centre for Infection Research (HZI), Braunschweig, Germany*)

10.50-11.10

'Improved immunogenicity with DNA-based cytokine and chemokine adjuvants delivered using *in vivo* electroporation'

Kate E. Broderick, Amir S. Khan, Matthew P. Morrow and Niranjay Y. Sardesai (*Inovio Inc., Blue Bell, Pennsylvania, USA*)

11.10-11.40

Coffee Break & Posters

**SESSION 6:
INFLUENZA I**

Moderator: Ted Ross (*Vaccine and Gene Therapy Institute, Port St. Lucie, Florida, USA*)

11.40-12.00

'Immunose™ FLU a nasal influenza vaccine conferring complete protection in influenza naive ferrets'

Anna-Karin Maltais, Jorma Hinkula, Alf Lindberg, Hans Arwidsson, Koert J. Stittelaar and Albert D.M.E. Osterhaus (*Eurocine Vaccines AB, Solna, Sweden*)

12.00-12.20

'Human clinical trials results for an oral adjuvanted adenoviral vaccine for the prevention of seasonal influenza'

Sean Tucker (*Vaxart Inc., San Francisco, California, USA*)

12.20-12.40

'Mucosal adjuvant SF-10, mimicking pulmonary surfactant, for nasal vaccinations of influenza virus and RSV: Safety and efficacy in mice and rhesus macaques'

Hiroshi Kido, Dai Mizuno and Takashi Kimoto (*The University of Tokushima, Tokushima, Japan*)

12.40-13.00

'Comparison of adjuvants for the development of a spray freeze dried whole inactivated virus influenza vaccine for pulmonary administration'

Anke Huckriede, P. Harshad, P. Patil, Senthil Murugappan, Jacqueline de Vries-Idema, Tjarko Meijerhof, Jan Wilschut, Henderik W. Frijlink and Wouter L.J. Hinrichs (*University of Groningen, Groningen, The Netherlands*)

13.00-14.00

Lunch Break & Posters

**SESSION 7:
DELIVERY**

Moderator: Dennis Christensen (*States Serum Institut, Copenhagen, Denmark*)

14.00-14.30

'Mucosal immune responses after I.M. vaccination'

David B. Weiner (*University of Pennsylvania, Philadelphia, Pennsylvania, USA*)

14.30-14.50

'In vivo evaluation of the efficacy of intradermal and intramuscular gene vaccine delivery'

Stefan Petkov, Elizaveta Starodubova, Frank Heuts, Olga Krotova, Athina Kilpelainen, Gunnel Engstrom, Britta Wahren and Maria Isaguliantis (*Karolinska Institutet, Stockholm, Sweden*)

14.50-15.15

'A skin-deep approach to mucosal vaccines'

Anne Moore (*University College Cork, Cork, Ireland*)

15.15-15.35

'Polyelectrolyte microparticles as biometric mucosal delivery vehicles facilitate antigen presentation by dendritic cells'

Bert Devriendt, Kim Baert, Marijke Dierendonck, Herman Favoreel, Jean Paul Remon, Bruno G. de Geest and Eric Cox (*University of Ghent, Ghent, Belgium*)

15.35-15.55

'Sampling and intralymphatic trafficking of inert microparticles by mucosal dendritic cell subsets'

Nicholas J. Mantis, Magdia De Jesus, Gary Ostroff and Stuart M. LeVitz (*Wadsworth Center, Albany, New York, USA*)

15.55-16.15

Tea Break & Posters

**SESSION 8:
MUCOSAL VACCINES**

Moderator: Maarten van Roosmalen (*Mucosis BV, Groningen, The Netherlands*)

16.15-16.35

'Regulatory and CMC challenges for mucosal vaccines'

Brijesh Patel (RegExcel (former MHRA assessor), London, UK)

16.35-17.00

'Respiratory infections: Protection by systemic and/or mucosal immunity?'

Sylvain Fleury (*Mymetics Corporation, Epalinges, Switzerland*)

17.00-17.20

'Expression of bacterial adhesions on the spore coat enhances the immunogenicity of *Bacillus subtilis* endospores as orally-delivered vaccine vectors against the oral pathogen *Streptococcus mutans*'

Milene Batista Tavares, Juliano D. Pაცეზ, Renata D. Souza, Rafael C.M. Cavalcante, Wilson B. Luiz, Rita C.C. Ferreira and Luis C.S. Ferreira (*University of Sao Paulo, Sao Paulo, Brazil*)

17.20-17.40

'ELISpot on enriched IgA+ B-lymphocytes can be used to detect the IgA response following oral immunization with F4 fimbriae of pigs with colostrum F4-specific serum antibodies'

V.U. Nguyen, V. Melkebeek, T. Goetstouwers, M. van Poucke, L. Peelman, B.M. Goddeeris and E. Cox (*Ghent University, Ghent, Belgium*)

**SESSION 9:
INFLUENZA II**

Moderator: Ted Ross (*Vaccine and Gene Therapy Institute, Port St. Lucie, Florida, USA*)

09.00-09.30

'Intranasal administration of TLR agonists for influenza VLP vaccines'

Ted Ross (*Vaccine and Gene Therapy Institute, Port St. Lucie, Florida, USA*)

09.30-10.00

'Manufacture of an intranasal viral flu vaccine'

Matthew Downham (*Medimmune, Liverpool, UK*)

10.00-10.20

'Elaboration of influenza vaccine for mucosal route of immunization'

V.E. Berezin, A.P. Bogoyavlenskiy, A.S.Turmagabetova, P.G. Alexyuk,

I.A. Zaitceva, N.S. Sokolova and M.S. Abitaeva

(*Institute of Microbiology & Virology, Almaty, Kazakhstan*)

10.20-10.40

'Chitosan as an adjuvant for preparation of influenza vaccine'

I. Khalili, M. Fathi Najafi and S. Avagyan

(*Razi Vaccine & Serum Research Institute, Iran*)

10.40-11.10

Coffee Break & Posters

**SESSION 10:
LATE-BREAKER SESSION**

Moderator: To be confirmed

11.10-11.35

'An oral SIV vaccine inducing MCH-Ib/E-restricted regulatory CD8+ T-cells suppresses SIV-positive CD4+ T cells and protects macaques against SIV challenge'

Jean-Marie Andrieu, Wei Lu and Song Chen

(*Universite Montpellier, Montpellier, France*)

11.35-11.55

'A live, attenuated EHEC-based vaccine for *C. difficile*'

Edgar Boedeker, Sudeep Kumar and Wyatt Byrd

(*The University of New Mexico, Albuquerque, New Mexico, USA*)

11.55-12.15

'The Vaxonella® platform for oral delivery of recombinant vaccines'

Rocky Cranenburgh (*Prokarium Ltd, Keele, Staffordshire, UK*)

12.15-13.45

Lunch Break & Poster Breakdown

**SESSION 11:
VIRAL & CHARACTERIZATION TECHNOLOGY**

Moderator: To be confirmed

13.45-14.05

'Viruses characterization and quantification using tunable resistive pulse sensing'

Dimitri Aubert (*Izon Science Ltd, Oxford, UK*)

14.05-14.25

'Nanoparticle Tracking Analysis (NTA): A novel characterization technique for nanoparticles and virus like particles'

Ben Owen, Patrick Hole, Jonathan Smith, Agnieszka Siupa and Bob Carr

(*NanoSight Ltd, Amesbury, Wiltshire, UK*)

14.25-14.55

'Objective, qualitative and quantitative characterization of viruses and nanoparticles'

Musa Sani (*Vironova, Stockholm, Sweden*)

14.55-15.10

Tea Break

**SESSION 12:
CLOSING PLENARY SESSION**

Moderator: Peter Andersen (*Statens Serum Institut, Copenhagen, Denmark*)

15.10-15.40

Closing Keynote: 'Mucosal vaccines and adjuvants: What have we learnt and what remains?'

Jan Holmgren (*Gothenburg University, Gothenburg, Sweden*)

15.40

Closing Remarks & Departure

POSTER SESSION

Poster 101

'Immunogenicity of a DNA vaccine candidate in mice is predetermined by the efficacy of intradermal gene electrotransfer'

Stefan Petkov et al. (*Karolinska Institutet, Stockholm, Sweden*)

Poster 102

'cAMP-activating adjuvants (LT, mLT-R192G, dmLT-R192G/L211A) stimulate Th17 responses through dendritic cells, while direct CD4 T-cell contact produces a T-suppressor phenotype'

Elizabeth B. Norton et al. (*Tulane University School of Medicine, New Orleans, Louisiana, USA*)

Poster 103

'Characterisation and functional specificity of mucosal DC subsets in response to TLR ligands'

Stephanie L. Sanos et al. (*Bavarian Nordic GmbH, Martinsreid, Germany*)

Poster 104

'Evaluation of the mucosal adjuvant Endocine™: Longevity study of humoral immune response and comparison with adjuvants Cholera toxin and Alum'

Tina Falkeborn et al. (*Eurocine Vaccines AB, Solna, Sweden*)

Poster 105

'Immunose™ FLU a nasal influenza vaccine conferring complete protection in influenza naive ferrets'

Anna-Karin Maltais et al. (*Eurocine Vaccines AB, Solna, Sweden*)

Poster 106

'pH-sensitive coating of silicon microneedle arrays for pH triggered dermal protein delivery'

Romain Lebourg et al. (*Leiden University, Leiden, The Netherlands*)

Poster 107

'Am80 formulated in cationic liposomes acts as a cofactor to promote mucosal IgA secretion in mice after parenteral immunization'

Pascal Chauv et al. (*Sanofi Pasteur, Marcy l'Etoile, France*)

Poster 108

'Swine plasma immunoglobulins for prevention and treatment of post-weaning diarrhea: Optimizing stability towards gut conditions'

Chris Juul Hedegaard et al. (*Technical University of Denmark, Frederiksberg, Denmark*)

Poster 109

'Nanoparticle conjugation and pulmonary administration of a multistage tuberculosis vaccine candidate'

Daniel Bonner et al. (*EPFL, Lausanne, Switzerland*)

Poster 110

'A potent cytotoxic T cell epitope in the extracellular domain of influenza B virus NB promotes virus clearance'

Kenny Roose et al. (*University of Ghent, Ghent, Belgium*)

Poster 111

'Yeast particles targeted to aminopeptidase N as antigen delivery system to porcine immune cells'

Kim Baert et al. (*University of Ghent, Ghent, Belgium*)

Poster 112

'Lipopeptide structure-activity relationship for the development of a self-adjuvanting, mucosally active group A streptococcus (GAS) vaccine candidate'

Mehfuz Zaman et al. (*The University of Queensland, Brisbane, Queensland, Australia*)

Poster 113

'The expression of M2e peptide of avian influenza virus H5N1 in translational fusion with subunit B of ricin in the transgenic tobacco and duckweed plants'

A.P. Firsov et al. (*Russian Academy of Sciences, Pushchino, Moscow Region, Russia*)