

MODERN VACCINES ADJUVANTS & DELIVERY SYSTEMS

9-11 September 2019, Inselspital, Universitatsspital, Bern, Switzerland

FINAL ORAL & POSTER PROGRAMME MVADS 2019

SCIENTIFIC ADVISORY PANEL

Conference Chairman: Martin Bachmann (*Inselspital, Bern, Switzerland / University of Oxford, Oxford, UK*)

Edmond J. Remarque (*BPRC, Rijswijk, The Netherlands*)

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

Erik Lindblad (*CRODA Denmark, Frederickssund, Denmark*)

Manmohan Singh (*Takeda Vaccines Inc., Cambridge, Massachusetts, USA*)

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Matthew Heath (*Bencard Adjuvant Systems, Worthing, West Sussex, UK*)

Markus Clemenz (*Verapido Medical GmbH, Villingen-Schwenningen, Germany*)

Alessandro Manenti (*VisMederi S.r.l., Siena, Italy*)

Tobias Kamphuis (*Janssen Vaccines, Leiden, The Netherlands*)

Bror Morein (*Swedish Agriculture University, Uppsala, Sweden*)

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

Vivek Shinde (*Novavax Inc., Gaithersburg, Maryland, USA*)



Registration

09.20-09.30

Welcome and Opening Remarks

SESSION 1: OPENING PLENARY SESSION

Moderator: Martin Bachmann

(Inselspital, University of Bern, Bern, Switzerland)

09.30-09.50

'Improved adjuvants and delivery systems: A public health imperative'

Martin Friede

(WHO, Geneva, Switzerland)

09.50-10.20

'Deep learning of vaccine adjuvant by machine and immunology'

Ken Ishii

(IMS/University of Tokyo, Tokyo, Japan)

10.20-10.50

'NHP models for vaccines, adjuvants and delivery systems'

Ed Remarque

(BPRC, Rijswijk, The Netherlands)

10.50-11.20

Coffee Break & Poster Set-Up

SESSION 2: IMMUNOLOGY – I

Moderator: Ken Ishii

(IMS/University of Tokyo, Tokyo, Japan)

11.20-11.50

'Versatile nanoparticle quillaja adjuvant promotes both Th1 and Th2 responses to viral and bacterial antigens'

Bror Morein

(Swedish Agriculture University, Uppsala, Sweden)

11.50-12.20

'An update on CAF01™ and the depot-or-not controversy revisited'

Dennis Christensen

(Statens Serum Institut, Copenhagen, Denmark)

12.20-12.40

'The importance of IgA in protection against norovirus and influenza infections'

Sean Tucker

(Vaxart Inc., South San Francisco, California, USA)

12.40-13.00

'Robust immunogenic response induced by highly transient Salmonella'

Siegfried Hapfelmeier

(University of Bern, Bern, Switzerland)

13.00-14.00

Lunch Break & Posters

SESSION 3: IMMUNOLOGY – II

Moderator: Bror Morein

(Swedish Agriculture University, Uppsala, Sweden)

14.00-14.20

'CAF08b a novel liposomal adjuvant which induces IgG2a class switching by acting directly on B cells'

Gabriel Pedersen

(Statens Serum Institut, Copenhagen, Denmark)

14.20-14.40

'Adjuvants targeting STING and inflammasomes for enhanced cellular immunity'

Edward Lavelle

(Trinity College Dublin, Dublin, Ireland)

14.40-15.00

'Mucosal immunity evaluation for FLU vaccine'

Alessandro Manenti and Emanuele Montomoli

(VisMederi S.r.l., Siena, Italy)

15.00-15.20

'T cell vaccination and immune regulation in cancer patients'

Daniel E. Speiser

(University of Lausanne, Epalinges, Switzerland)

15.20-15.50

Tea Break & Posters

SESSION 4: VACCINES DEVELOPMENTS

Moderator: Edward Lavelle

(Trinity College Dublin, Dublin, Ireland)

15.50-16.20

'Pathogens engineer tolerance: Can immune-engineered vaccines outsmart them?'

Annie S. De Groot

(EpiVax, Providence, Rhode Island, USA)

16.20-16.40

'Can the intranasal NanoVax™ adjuvant platform solve the enigma of suboptimal efficacy observed from intramuscular respiratory vaccines? RSV and flu vaccines revisited'

Ali Fattom

(BlueWillow Biologics, Ann Arbor, Michigan, USA)

16.40-17.00

'Development of a vaccine against Type II diabetes'

Elisa Rösti

(Inselspital, University of Bern, Bern, Switzerland)

17.00-17.20

'Developing adjuvants for animal vaccines: What do we have to consider?'

Jishu Shi

(Kansas State University, Manhattan, Kansas, USA)

SESSION 5: TECHNOLOGY, PLATFORMS & DELIVERY

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

09.00-09.30

'Reprogramming the adjuvant properties of aluminum oxyhydroxide with nanoparticle technology'

Mark T. Orr^{1,2}, Amit P. Khandhar¹ and Christopher B. Fox^{1,2}

(¹ *Infectious Disease Research Institute, Seattle, Washington, USA*; ² *University of Washington, Seattle, Washington, USA*)

09.30-09.50

'Tailor-made vaccine delivery using self-assembling protein nanoparticles (SAPNs)'

Peter Burkhard (*Alpha-O Peptides AG, Riehen, Switzerland*)

09.50-10.10

'Glycosylation of VLPs: A platform for glycoconjugate vaccine production'

Timothy G. Keys¹, Michael Wetter¹, Chia-wei Lin², Hanne L.P. Tytgat¹, Christoph Rutschmann¹, Martin Bachmann³, Emma Slack-Wetter⁴ and Markus Aebi¹

(¹ *Institute of Microbiology, ETHZ, Zurich, Switzerland*; ² *Functional Genomics Center Zurich (FGCZ), Switzerland*; ³ *Department of Immunology, Inselspital, Bern, Switzerland*; ⁴ *Institute of Food, Nutrition and Health Science, ETH Zurich, Switzerland*)

10.10-10.30

'Adjuvanted virosome VLP as flexible and potent universal vaccine platform for induction of systemic and mucosal immunity'

Mario Amacker, Toon Stegmann and Sylvain Fleury

(*Mymetics SA, Epalinges, Switzerland*; *Mymetics B.V., Leiden, The Netherlands*)

10.30-10.45

'SEC meets TRPS, automated isolation and high precision analysis for EVs and nanoparticles'

Camille Roesch (*IZON Science Ltd, Oxford, UK*)

10.45-11.00

Coffee Break & Posters

SESSION 6: SKIN IMMUNIZATION

Moderator: To be confirmed

11.00-11.30

'Efficacy of an alpha-D-glucan nanoparticle adjuvant for intradermal immunization'

Harm HogenEsch, Juan Hernandez, Fangjia Lu and Yung-Yi Mosley

(*College of Veterinary Medicine, Purdue University, West Lafayette, Indiana, USA*)

11.30-11.50

'Adjuvanted dissolvable microneedle patches'

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

11.50-12.10

'Shallow and standardized *ex vivo* human skin injections of large single volumes of tissue dye with Dermaject® intradermal injection device'

Markus Clemenz^{1,4}, Sandra Schulz^{1,4}, Nadine Landler-Gärtner^{1,4}, Claudia Hummel², Steffen Baumeister³, Jörg Kalla², Roland Zengerle¹ and Alfons Dehé¹

(¹ *Hahn-Schickard Gesellschaft, Villingen-Schwenningen, Germany*; ² *Schwarzwald-Baar Klinikum, Villingen-Schwenningen, Germany*; ³ *Praxis für Plastische und Ästhetische Chirurgie, Villingen-Schwenningen, Germany*; ⁴ *Verapido Medical GmbH, Villingen-Schwenningen, Germany*)

12.10-12.30

'Skin vaccination with 1/6 standard dose of inactivated split influenza vaccine using the Vaxxas high-density microarray patch (HD-MAP) results in comparable immune responses to conventional full-dose intramuscular injection: Results from a phase I clinical study'

Germain J. Fernando

(*Vaxxas Pty Ltd, Translational Research Institute, Brisbane, Queensland, Australia*)

12.30-13.30

Lunch Break & Posters

SESSION 7: ADJUVANTS I

Moderator: Ed Remarque (*BPRC, Rijswijk, The Netherlands*)

13.30-14.00

'Adjuvant systems production process: Current situation and technological perspective'

Véronique Henderickx (*GSK Vaccines, Rixensart, Belgium*)

14.00-14.20

'Mycrocrystalline tyrosine: A potent adjuvant for cancer vaccine'

Mona Mohsen (*Inselspital University of Bern, Bern, Switzerland*)

14.20-14.40

'Bencard adjuvant systems: Shaping modern vaccines'

Matthew Heath (*Bencard Adjuvant Systems, Worthing, West Sussex, UK*)

14.40-15.00

'A new form of aluminium phosphate adjuvant with enhanced protein adsorption: Adju-Phos ZP®'

Laurent Duroux (*CRODA Denmark, Frederikssund, Denmark*)

15.00-15.20

'Property-activity analysis of engineered aluminum-based vaccine adjuvants and adjuvant-antigen complexes'

Bingbing Sun

(*Department of Chemical Engineering, Dalian University of Technology, China*)

15.20-15.50

Tea Break & Posters

SESSION 8: VACCINES DESIGN

Moderator: Mark Orr (*IDRI, Seattle, Washington, USA*)

15.50-16.20

'Age-specific adjuvants for precision vaccinology'

Ofer Levy

(*Boston Children's Hospital/Harvard Medical School, Boston, Massachusetts, USA*)

16.20-16.40

'Designing VLP-based vaccines for the treatment of peanut-allergy'

Martin Bachmann (*Inselspital, University of Bern, Bern, Switzerland*)

16.40-17.00

'Application of RNA technology for vaccine design'

Christine Rueckert (*CureVac AG, Tuebingen, Germany*)

17.00-17.20

'Bacterial evolution: Friend or foe in vaccine design'

Emma Marie Caroline Slack (*ETHZ, Zurich, Switzerland*)

17.20-17.40

'Mucosal delivery with an outer membrane vesicle pertussis vaccine confers enhanced protection'

Gaurav Kanojia (*IntraVacc, Bilthoven, The Netherlands*)

**SESSION 9:
ADJUVANTS II**

Moderator: Erik Lindblad

(CRODA Denmark, Frederickssund, Denmark)

09.00-09.30

'Matrix-M1 adjuvant (administered in combination with our influenza nanoparticle vaccine) in stimulating potent antigen specific CD4+ T cell responses'

Vivek Shinde

(Novavax Inc., Gaithersburg, Maryland, USA)

09.30-09.50

'Adjuvant selection and characterization for a lipoprotein antigen-containing vaccine candidate'

Marie Garinot

(Sanofi Pasteur, Lyon, France)

09.50-10.10

'Quillaja Clonal Variants: A new source of highly purified QS-21'

Damian Hiley

(Desert King International, San Diego, California, USA)

10.10-10.30

'Characteristics of Montanide ISA 51 VG adjuvants designed for therapeutic vaccines, mechanisms of action and review of advanced clinical projects with the adjuvant'

Aude Puget and Maria Lazaro

(SEPPIC, Paris La Défense, Paris, France)

10.30-10.50

'Biodistribution of the vaccine adjuvant alhydrogel using ¹¹¹/¹¹⁵In-doped aluminum oxyhydroxide'

Tullio V. F. Esposito^{1,2}, Jacqueline C.Y. Lai^{3,4}, Patrick D. Hopkins³, Rahel Schneider¹, Cristina Rodriguez-Rodriguez^{1,5,6}, Camilla Foged², Jan P. Dutz², Katayoun Saatchi¹ and Urs O. Hafeli^{1,2*}

(¹ University of British Columbia, Canada; ² Department of Pharmacy, Faculty of Health and Medical Sciences, University of Copenhagen, Denmark; ³ Department of Dermatology and Skin Science, Faculty of Medicine, University of British Columbia, Canada; ⁴ Department of Physiology, Institute of Neuroscience and Physiology, University of Gothenburg, Sweden; ⁵ Department of Physics and Astronomy, Faculty of Science, University of British Columbia, Canada; ⁶ Centre for Comparative Medicine, University of British Columbia, Canada)

10.50-11.10

Coffee Break & Posters

**SESSION 10:
LATEBREAKERS SESSION**

Moderator: To be confirmed

11.20-11.40

'Immunogenicity and safety of the army liposome formulations containing QS-21 (ALFQ) in non-human primates'

Zoltan Beck^{1,2}, Gary R. Matyas¹, David E. Lanar³, Amritha Ramakrishnan⁴, Evelina Angov³, Renee M. Laird^{2,5} and Sheetij Dutta³

(¹ U.S. Military HIV Research Program, Laboratory of Adjuvant and Antigen Research, Walter Reed Army Institute of Research, Silver Spring, Maryland, USA; ² Henry M. Jackson Foundation for the Advancement of Military Medicine, Bethesda, Maryland, USA; ³ Malaria Vaccine Branch, Walter Reed Army Institute of Research, Silver Spring, Maryland, USA; ⁴ Naval Medical Research Unit Six, Lima, Peru; ⁵ Department of Enteric Diseases, Naval Medical Research Center, Silver Spring, Maryland, USA)

11.40-12.00

'HIV-1 Env V1V2-specific immune responses Induced by Immunization with self-assembling protein nanoparticles'

Christopher P. Karch^{1,2}, Peter Burkhard³, Gary R. Matyas² and Zoltan Beck^{1,2,*}

(¹ U.S. Military HIV Research Program, Henry M. Jackson Foundation for Military Medicine, Bethesda, Maryland, USA; ² Laboratory of Adjuvant and Antigen Research, U.S. Military HIV Research Program, Walter Reed Army Institute of Research, Silver Spring, Maryland, USA; ³ Alpha-O Peptides, Riehen, Switzerland)

12.00-12.30

'Combining automated vaccine formulation with data rich experimentation'

Patrick L. Ahl¹, YingKai Liang², William J. Smith¹, Marie L. Dowd¹ and Jeffrey T. Blue¹

(¹ Vaccine Drug Product Development; ² Pharmaceutical Discovery, Merck & Co., Inc., West Point, Pennsylvania, USA)

12.30

Closing Remarks

Lunch & Departure

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

Poster 101

'Novel recombinant BCG recruited M1 macrophage in mice infect mycobacteria H37Ra model: Implication for TB vaccine development'

Shiu-Ju Yang¹, Yih-Yuan Chen², Chih-Hao Hsu¹, Jia-Ru Chang¹ and Horng-Yunn Dou¹

(¹ National Institute of Infectious Diseases and Vaccinology, National Health Research Institutes, Zhunan, Miaoli, Taiwan; ² Department of Biochemical Science and Technology, National Chiayi University, Chia-Yi, Taiwan)

Poster 102

'Characterization of early immune events in the skin following transfollicular vaccination'

Simon Delandre¹, Kai Schulze¹, Andreas Müller², Claus-Michael Lehr³ and Carlos A. Guzmán¹

(¹ Helmholtz-Zentrum für Infektionsforschung, Braunschweig, Germany; ² Institute of Molecular and Clinical Immunology (IMKI), Magdeburg, Germany; ³ Helmholtz-Institute for Pharmaceutical Research Saarland (HIPS), Saarbrücken, Germany)

Poster 103

'Evaluation of genotoxic and cytogenetic effects of papilomavirus L1 protein associated with saponins obtained from Agave sisalana Perrine (sisal)'

Roberta Fiusa Magnelli¹, Rita de Cássia Stocco¹, Pedro Ismael da Silva Junior² and Ronaldo Zucatelli Mendonça³

(¹ Laboratory of Genética, ² Special Laboratory of Applied Toxinology, ³ Laboratory of Parasitology, Butantan Institute, Sao Paulo, Brazil)

Poster 104

'GMMA platform for the development of effective multicomponent vaccines'

M.G. Aruta, R. Alfini, R. Di Benedetto, M. Carducci, O. Koeberling, A. Saul, F. Necchi and F. Micoli

(GSK Vaccines Institute for Global Health, Siena, Italy)

Poster 105

'Toll like receptor 7/8 agonist-loaded nanoemulsion vaccine adjuvants for the enhanced cancer immunotherapy'

Sohyun Kim, Hong Sik Shin, Sun-Young Kim and Yong Taik Lim

(SKKU Advanced Institute of Nanotechnology (SAINT), Department of Nano Engineering, and School of Chemical Engineering, Sungkyunkwan University, Suwon, Gyeonggi-do, Republic of Korea)

Poster 106

'Detecting vaccine-induced antibodies binding to different forms of amyloid beta'

Delphine Knittel, Emma Fiorini, Valérie Giriens, Nathalie Chuard, Raket Carpintero, Chiara Babolin, Andrea Pfeifer, Marie Kosco-Vilbois and Marija Vukicevic (AC Immune SA, EPFL Innovation Park, Lausanne, Switzerland)

Poster 107

'The development and characterization of EcML; MPL from recombinant E.coli, as a new vaccine adjuvant'

Da Hui Ha¹, Choon Geun Lee¹, Ye Ram Lee¹, Jeong-Yoon Lee¹, Chan Kyu Lee¹, Seuk Keun Choi¹, Seok Kyu Kim¹ and Yeong Ok Baik¹, Jihyun Yang², Quyen Thi Nguyen², Eunjin Kim² and Haryoung Poo², Yu Hyun Ji^{3,4} and Hak Suk Chung³

(¹ Eubiologics Co., Ltd., Republic of Korea; ² Korea Research Institute of Bioscience and Biotechnology (KRIBB), Republic of Korea; ³ Korea Institute of Science and Technology (KIST), Republic of Korea; ⁴ School of Life Sciences and Biotechnology, Korea University, Republic of Korea)

Poster 108

'The combination of DAMP-inducing and PAMP adjuvants parallelly induces protective type-2 and type-1 immune responses to influenza split vaccination'

Tomoya Hayashi^{1,2,3}, Masatoshi Momota², Takato Kusakabe², Etsushi Kuroda², Risako Onodera³, Taishi Higashi³, Keiichi Motoyama³, Hidetoshi Arima⁴ and Ken Ishii^{1,2}

(¹ Division of Vaccine Science, Department of Microbiology and Immunology, The Institute of Medical Science, The University of Tokyo, Tokyo, Japan; ² Center for Vaccine and Adjuvant Research, National Institutes of Biomedical Innovation, Health and Nutrition, Japan; ³ Department of Physical Pharmaceutics, Graduate School of Pharmaceutical Science, Kumamoto University, Japan; ⁴ Laboratory of Evidence-based Pharmacotherapy, Daiichi University of Pharmacy, Daiichi, Japan)

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