



**The 2<sup>nd</sup> Conference of**  
**[The International Society for Plant Molecular Farming](#)**

**Organised by VIB-UGent**  
**Gent, Belgium**  
**25-27 May, 2016**

**Organising committee:** Ann Depicker, Vikram Viridi, Paloma Juarez,  
Veronique Boudolf, Sylvie De Buck and Annick Bleys

**Venue:** Technologiepark 927, Gent-Zwijnaarde

**Wednesday May 25<sup>th</sup>, 2016**

**09.00 – 09.50 Registration / Coffee**

09.50 – 10.00 **Welcome by Ann Depicker**

**Session 1: Plant, animal and Pichia production platforms**  
**Chairs: Pascal Drake & Vikram Viridi**

**Invited speakers**

10.00 – 10.30 **Andy Hiatt**, *MaPP Biopharmaceuticals Inc., USA*  
“Ebola antibodies and clinical trials”

10.30 – 11.00 **Luc Kupers**, *Genzyme, Belgium*  
“Animal cell technology for the manufacturing of biopharmaceuticals”

11.00 – 11.30 **Willem Van de Velde**, *Ablynx, Belgium*  
“Double digit-titers and highly cost/quality-effective production of nanobodies® via *Pichia pastoris*”

**11.30 – 12.00 Coffee break**

12.00 – 12.20 **Markus Sack**, *Fraunhofer Institute, Aachen, Germany*  
“Of products and processes”

12.20 – 12.40 **Andreas Schaaf**, *Greenovation Biotech GmbH, Germany*  
“Bryotechnology: technology update and clinical pipeline of moss-based manufacturing”

12.40 – 13.00 **Estelle Nisse**, *Université de Lorraine – INRA, France*  
“Carnivorous plants as alternative models for the production of plant recombinant proteins”

**13.00 – 13.50 Lunch**





## Session 2: Greenhouse to market: translational aspects

Chair: Sylvie De Buck

### Invited speakers

- 13.50 – 14.00 **Marc Van Montagu**, *International Plant Biotechnology Outreach, Belgium*  
“Discover, Innovate, Communicate”
- 14.00 – 14.20 **Lars von Borcke**, *Plant Bioscience Limited, UK*  
“Progress and opportunities in molecular pharming”
- 14.20 – 14.40 **Els Beirnaert**, *VIB, Belgium*  
“VIB new ventures: translating scientific excellence into economic value”
- 14.40 – 15.00 **Joachim Schiemann**, *Julius Kühn-Institut, Germany*  
“Plant genome editing: application, risk assessment and regulation”

## Session 3: Plant-made vaccines

Chairs: George Lomonosoff & Eva Stöger

### Invited speakers

- 15.00 – 15.30 **Xavier Saelens**, *Medical Biotechnology, VIB, UGent, Belgium*  
“Prevention and treatment of respiratory viral infections: plants come to the rescue”

### 15.30 – 16.00 Group picture and coffee break

- 16.00 – 16.20 **Inga Hitzeroth**, *University of Cape Town, South Africa*  
“Development of a plant-made recombinant virus-like particle (VLP) vaccine against African horse sickness”
- 16.20 – 16.40 **Rima Menassa**, *Agriculture and Agri-Food Canada, Canada*  
“Veterinary vaccines for enterohemorrhagic *E. coli* - Improving accumulation of type 3 secretion proteins in plants”

### Selected short talks

- 16.40 – 16.50 **Renate Lamprecht** (I. Hitzeroth), *University of Cape Town, South Africa*  
“Production of Human papillomavirus pseudovirions in plants and their use in pseudovirion-based neutralisation assays in mammalian cells”
- 16.50 – 17.00 **Hoang Trong Phan** (U. Conrad), *IPK Gatersleben, Germany*  
“Multimerization strategy to create avian flu vaccines in plants”
- 17.10 – 17.20 **Johanna Marsian** (G. Lomonosoff), *John Innes Centre, Norwich, UK*  
“Developing a synthetic polio vaccine using two plant-based expression systems”
- 17.20 – 17.30 **Zayn Khamis\*** (R. Menassa), *Agriculture and Agri-Food Canada, Canada*  
“Porcine Epidemic Diarrhea virus: Producing the membrane protein as a subunit vaccine, and producing virus-like particles”
- 17.30 – 17.40 **Eva Thuenemann** (G. Lomonosoff), *John Innes Centre, Norwich, UK*  
“Developing plant-expressed bluetongue virus particles as a delivery system for foreign proteins”
- 17.40 – 17.50 **Keith Saunders** (G. Lomonosoff), *John Innes Centre, Norwich, UK*  
“The generation of modified plant virus-like particles by transient expression for potential bionanotechnological applications”
- 17.50 – 18.00 **Matilde Merlin** (L. Avesani), *University of Verona, Italy*  
“GAD65-based edible vaccine: a new autoimmune diabetes perspective”

\* received an ISPMF bursary

2-min poster presentations for ISPMF bursaries: Adam Chin-Fatt and Cornelius J. Gunter

### 18.00 – 21.30 Poster walk with Mediterranean buffet

Busses have been arranged to bring everybody back to the Gent Sint-Pieters railway station.





Thursday May 26<sup>th</sup>, 2016

Free morning or [Knowledge for Growth](#) or Visit to [Food Pilot](#) at ILVO

12.30 – 13.30 ISPMF annual general meeting

**Session 4: Innovative expression strategies and applications**

**Chairs: Alexandra Castilho & Inga Hitzeroth**

**Invited speakers**

- 14.00 – 14.30 **Yuri Gleba**, *Nomad Bioscience GmbH, Germany*  
“Antimicrobials made in plants”
- 14.30 – 14.50 **Udo Conrad**, *IPK Gatersleben, Germany*  
“Nanobodies in and from plants: production of nanobody multimers and selected protein degradation in planta by nanobody-F-Box fusions”
- 14.50 – 15.10 **Diego Orzaez**, *CSIC-UPV, Spain*  
“Consistent production of plant-made recombinant polyclonal antibodies against snake venoms”
- 15.10 – 15.30 **Ann Meyers**, *University of Cape Town, South Africa*  
“Functional HRP-fused anti-rabbit IgG scFvs produced in plants”

**Selected short talks**

- 15.30 – 15.40 **Nicola Weichert** (U. Conrad), *IPK Gatersleben, Germany*  
“Seeds are capable to produce non-cytotoxic synthetic spider silk biopolymers”
- 15.40 – 15.50 **Roberta Zampieri** (L. Avesani), *University of Verona, Italy*  
“Modified plant-viruses nanoparticles for the Sjogren’s syndrome diagnosis”
- 15.50 – 16.00 **Axel Masloboy\*** (I. Broer), *Department of Agrobiotechnology, Rostock, Germany*  
“Spaying with the aid of plant-made vaccines”
- 16.00 – 16.10 **Henrik Nausch\*** (I. Broer), *Department of Agrobiotechnology, Rostock, Germany*  
“Regulated degradation of plant-derived Cyanophycin to release dipeptides as feed additives”
- 16.10 – 16.20 **Shruti Bakshi** (A. Depicker), *Ghent University/VIB, Belgium*  
“Engineering chimeric antibodies aimed for passive mucosal immunization against HRSV”
- 16.20 – 16.30 **Jorge Palaci** (A. Depicker), *Ghent University/VIB, Belgium*  
“Stability evaluation of orally given plant-made antibodies by faecal analysis”

\* received an ISPMF bursary

**2-min poster presentations for ISPMF bursaries:** Reza Saberianfar, J. Hendrik Els and Ahmad Ibrahim

16.30 – 17.00 Coffee break



**Session 5: Boosting expression levels and optimizing processing**  
**Chairs: Inge Broer & Markus Sack**

**Invited speakers**

- 17.00 – 17.20 **Renier van der Hoorn**, *University of Oxford, UK*  
“The extracellular protease complement of agroinfiltrated *Nicotiana benthamiana*”
- 17.20 – 17.40 **Eva Stöger**, *University of Natural Resources and Life Sciences, Austria*  
“Utilizing endogenous and ectopic protein storage organelles to boost recombinant protein performance”
- 17.40 – 18.00 **Jussi Joensuu**, *VTT, Finland*  
“Plant-based production of bi-functional fusion proteins with hydrophobin fusion library”
- 18.00 – 18.20 **Johannes Felix Buyel**, *Fraunhofer Institute for Molecular Biology and Applied Ecology, Germany*  
“Heat precipitation of tobacco host cell proteins facilitates target protein recovery and purification, which can be implemented into an automated large-scale manufacturing process”

**Selected short talks**

- 18.20 – 18.30 **Philippe Jutras** (D. Michaud), *Université Laval, Québec, Canada*  
“The multiple uses of tomato cystatin SICYS8 as a co-expression partner in plant protein biofactories”
- 18.30 – 18.40 **Kouki Matsuo** (T. Matsunura), *National Institute of Advanced Industrial Science and Technology (AIST) Japan*  
“Dicer-Like 2/4 suppressed tobacco plants for high expression of recombinant proteins”
- 18.40 – 18.50 **Lotte Westerhof** (A. Schots), *Plant Science Group, Wageningen University, The Netherlands*  
“Codon use and mRNA structure analyses across kingdoms indicates selection on both mRNA stability and translatability”
- 18.50 – 19.00 **Noriho Fukuzawa** (T. Matsumura), *National Institute of Advanced Industrial Science and Technology, Sapporo, Japan*  
“CMV-Agroinfection triggers plant defense mechanism suppressing gene expression”
- 19.00 – 19.10 **Hamideh Ofoghi\*** (P. Ehsani), *Biotechnology Dept., IROST, Tehran, Iran*  
“Production of Human Nerve Growth Factor in *Nicotiana benthamiana*”
- 19.10 – 19.20 **Luis Matías Hernández** (R. Aiese Cigliano), *Parc Científic Barcelona (PCB), Spain*  
“TrichoPharming and OrtoPharming by Sequentia: trichomes as natural factories and bioinformatics tools to ease plant molecular pharming research”

\* received an ISPMF bursary

2-min poster presentations for ISPMF bursaries: Mahsid Amiri

**19.20 – 21.30 Poster walk with Belgian buffet with beer**

Busses have been arranged to bring everybody back to the Gent Sint-Pieters railway station.





Friday May 27<sup>th</sup>, 2016

**Session 6: Plant glycan-engineering**

**Chairs: Veronique Boudolf & Eva Decker**

**Invited speakers**

- 09.00 – 09.30 **Francis Santens**, *Medical Biotechnology, VIB, UGent, Belgium*  
“Using GlycoDelete for pharming of proteins without plant-specific N-glycan modification”
- 09.30 – 10.00 **Richard Strasser**, *BOKU, Austria*  
“O-glycan engineering in *Nicotiana benthamiana*”
- 10.00 – 10.20 **Svend Dam**, *Carbohydrate Recognition & Signaling, University of Aarhus, Denmark*  
“Engineering the N- and O-glycosylation pathways in plants for mammalian-like glycoprotein farming”
- 10.20 – 10.40 **Alexandra Castillo**, *BOKU, Austria*  
“Complex sialylation of plant-derived recombinant proteins”

**10.40 – 11.00 Coffee break**

**Selected short talks**

- 11.00 – 11.10 **Szymon Stelter** (J. Ma), *St George's, University of London*  
“Plant antibodies in mediating FcγR functions and engaging neonatal Fc receptor”
- 11.10 – 11.20 **Sunghwa Choe**, *Seoul National University, Korea*  
“Optimization of protein glycosylation pattern in host plants through CRISPR/Cas9-mediated genome editing for production of edible influenza vaccines”
- 11.20 – 11.30 **Chiara Lonoce** (M. Donini), *Laboratory of Biotechnology ENEA Research Center, Casaccia 00123 Rome, Italy*  
“Production of tumour targeting antibodies”
- 11.30 – 11.40 **Catherine Navarre** (M. Boutry), *Institute of Life Sciences, Université de Louvain, Belgium*  
“Towards humanization of glycoproteins secreted in *Nicotiana tabacum* BY-2 cells”
- 11.40 – 11.50 **Ruud Wilbers** (A. Schots), *Wageningen University and Research Centre, The Netherlands*  
“Engineering of plants for the expression of helminth glycoproteins with their native N-glycan structures”
- 11.50 – 12.00 **Kim van Noort** (A. Schots), *Wageningen University and Research Centre, The Netherlands*  
“Characterization of *Schistosoma mansoni* fucosyltransferases for glyco-engineering of ‘native’ helminth N-glycan structures in planta”
- 12.00 – 12.10 **Sébastien Mercx** (M. Boutry), *Institute of Life Sciences, Université de Louvain, Belgium*  
“Gene inactivation by CRISPR-Cas9 in *Nicotiana tabacum* BY-2 suspension cells”



**Session 7: Secondary metabolite farming**  
**Chairs: Diego Orzaez & Renier van der Hoorn**

**Selected short talks**

- 12.10 – 12.20 **Moran Oliva** (G. Galili), *Plant Sciences, Weizmann Institute of Science, Rehovot, Israel*  
“Enhancing levels of aromatic amino acids in whole plants and cell cultures. A case study in flowering plants and grape derived cell culture”
- 12.20 – 12.30 **Suvi T. Häkkinen** (H. Rischer), *VTT Technical Research Centre of Finland*  
“Plant-based production of natural flavours – case raspberry ketone”

**12.30 - 13.30 Lunch**

**Invited speakers**

- 13.30 – 14.00 **Gilbert Gorr**, *Phyton Biotech GmbH, Germany*  
“Plant cell culture as a highly controllable tool for the sustainable production of anticancer products”
- 14.00 – 14.30 **David Craik**, *Institute for Molecular Bioscience, University of Queensland, Australia*  
“Design and plant-based production of therapeutic cyclic peptides”
- 14.30 – 15.00 **Alain Goossens**, *Plant Systems Biology, VIB, UGent, Belgium*  
“How jasmonates provide the key to harness plant chemistry”
- 15.00 – 15.20 **Heribert Warzecha**, *Technische Universität Darmstadt, Germany*  
“Production of halogenated indigoid precursors in metabolically engineered tobacco plants”

**15.20 – 15.40 Closing remarks by Julian Ma**

**15.40 – 16.30 Farewell drink**