

EUROPNEUMO 2007

8th European Meeting on the
Molecular Biology of the Pneumococcus



Deiras, Portugal

April 14–17, 2007

PROGRAMME

PROGRAMME AT A GLANCE

Time	Saturday	Sunday	Monday	Tuesday	Wednesday
	April, 14	April, 15	April, 16	April, 17	April, 18
08:15 09:45		Oral Session A Changing Genetic Portraits of <i>Streptococcus pneumoniae</i> : Genome Level Variation	Oral Session D Cell Division, PBPs and Antibiotic Resistance	Oral Session G Host Defense: Vaccine Targets	Satellite Symposium: PREVIS Symposium
09:45 10:15		Coffee	Coffee	Coffee	
10:15 12:15		Oral Session B Gene Expression, Virulence Factors and Different Modalities of Growth – In Vivo	Oral Session E Biosynthesis and Control of Surface Polysaccharides	Oral Session H Host Defense: Vaccine Candidates	
12:15 13:00		Lunch	Lunch	Lunch	
13:00 15:00		Poster Sessions and Coffee	Poster Sessions and Coffee	Excursion to Sintra	
15:00 17:00	Registration (15:00-18:00)	Oral Session C Molecular Epidemiology	Oral Session F Genetics, Competence, DNA Release		
18:00 19:00	Inauguration and Opening Lecture	Free	Free		
19:30	Welcome Dinner			Farewell Dinner	

DETAILED PROGRAMME

Saturday - April, 14 - 2007

15:00

Praia Mar Hotel

Registration

Inauguration and Opening Lecture

18:00-19:00 Competence and genetic transformation (parasexuality), cromosomal repair or nutrition? The almost eight-year old pneumococcal model provides some clues

Jean Pierre Claverys

19:30h

Welcome Dinner

Sunday - April, 15 - 2007

Oral Session A

Changing Genetic Portraits of *Streptococcus pneumoniae*: Genome Level Variation

Chairs: Birgitta Henriques-Normark and Matthew Holden

08:15/09:45 h

ITQB Auditorium

08:15 - 08:30 Friendly and not so friendly: a genomic comparison between *Streptococcus pneumoniae* and *Streptococcus mitis* **A-01**

Reinhold Brückner, Dalia Denaipaitė, Bernhard Henrich, Patrick Maurer, Peter Reichmann, Michael Nuhn, Peter Selbmann, Wolfgang Zimmermann, Rolf Wambutt, and Regine Hakenbeck

08:30 - 08:45 Assembly and annotation of the genome of *Streptococcus pneumoniae* serotype 19F strain G54 **A-02**

Laura Mulas, Francesco Iannelli, Tanja Davidsen, Raffaella Brandi, Claudia Trappetti, Gianni Pozzi, Herve Tettelin, and Marco Rinaldo Oggioni

08:45 - 09:00 Genetic analysis and molecular determination of the differences between two *Streptococcus pneumoniae* serotype 15B/C isolates of Multilocus Sequence Type 199 **A-03**

Clare E. Blue, Kate Gould, Jackson Hinds, and Tim J. Mitchell

09:00 - 09:15 Identification of pneumococcal genes essential for infection by genomic array footprinting **A-04**

Hester J. Bootsma, Peter Burghout, Jetta J.E. Bijlsma, Tomas G. Kloosterman, Oscar P. Kuipers, and Peter W.M. Hermans

DETAILED PROGRAMME

Sunday - April, 15 - 2007

09:15 - 09:30 **Comparative genomics of pneumococcal clonal types with different invasive disease potential** A-05
Christel Blomberg, Jessica Dagerhamn, Eva Morfeldt, Karin Sjöström, Sarah Browall, Staffan Normark, and Birgitta Henriques Normark

09:30 - 09:45 **Identification of potential virulence enhancing genes in *Streptococcus pneumoniae* type 1 isolates** A-06
Richard Harvey, Uwe H. Stroehler, Abiodun David Ogunniyi, Amanda Leach, and James C. Paton

09:45 - 10:15 **Coffee break**

Oral Session B

Gene expression, Virulence Factors and Different Modalities of Growth - in Vivo

Chairs: Tim Mitchell and Kathrin Mühlemann

10:15/12:15 h

ITQB Auditorium

10:15 - 10:30 **Genetic analysis of pneumococcal colony opacity phase variation** B-01
Uwe H. Stroehler and James C. Paton

10:30 - 10:45 **A common regulatory mechanism couples both capsule synthesis and choline utilization to glycolysis in *Streptococcus pneumoniae*** B-02
Julien Storaï, Bernard Martin, Marie-France Planard, Jean-Pierre Claverys, and Nicolas D. Lindley

10:45 - 11:00 **Pneumococcal virulence-associated genes are differentially expressed during progression of disease** B-03
Abiodun D. Ogunniyi, Kim S. LeMessurier, Layla K. Mahdi, and James C. Paton

11:00 - 11:15 **Pneumococcal pathogenesis is characterised by a biofilm in acute pneumonia and meningitis and by planktonic growth in bacteremia without primary focus** B-04
Claudia Trappetti, Aras Kadioglu, Francesco Iannelli, Susanna Ricci, Peter W. Andrew, Gianni Pozzi, and Marco R. Oggioni

11:15 - 11:30 **Biofilm formation by *Streptococcus pneumoniae*: role of choline, extracellular DNA, and capsular polysaccharide in microbial accretion** B-05
Miriam Moscoso, Ernesto Garcia, and Ruben Lopez

DETAILED PROGRAMME

Sunday - April, 15 - 2007

11:30 - 11:45 **Fibronectin-binding protein PavA is required for pneumococcal colonization of the upper respiratory tract** B-06

Aras Kadioglu, Jane L. Brittan, Peter W. Andrew, Sven Hammerschmidt, and Howard F. Jenkinson

11:45-12:00 **Essential role of choline for pneumococcal virulence in an experimental model of meningitis** B-07

Florian Gehre, Stephen L. Leib, Denis Grandgirard, Jürg Kummer, Arun S. Kharat, Martin G. Täuber, and Alexander Tomasz

12:00 - 12:15 **Interaction of pneumococcal surface structures with microglia** B-08

Susanna Ricci, Massimo Messino, Velia Braione, Bruna Colombari, Margherita de Santi, Elisa Beghetto, Giovanna Tuscano, Giuliana Fabio, Francesco Iannelli, Marcella Cintonino, Franco Felici, Marco R. Oggioni, Elisabetta Blasi, Gianni Pozzi, and Samuele Peppoloni

12:15 - 13:00 **Lunch**

13:00 - 15:00 **Poster Sessions & Coffee**

Oral Session C

Molecular Epidemiology

Chairs: Peter Hermans and Raquel Sá-Leão

15:00/17:00h

ITQB Auditorium

15:00 - 15:15 **Assembling an ontology-driven laboratory information management system (LIMS) for molecular epidemiology using S3DB** C-01

Helena F Deus, Marta Aires de Sousa, João Carrico, Herminia de Lencastre, and Jonas S. Almeida

15:15 - 15:30 **Emergence of high-level penicillin-resistant pneumococcus-like strains among colonization samples from healthy children** C-02

Raquel Sá-Leão, Alexandra S. Simões, and Hermínia de Lencastre

15:30 - 15:45 **Fluidity of the genetic structure of the pneumococcal population prior to the introduction of the pneumococcal conjugate vaccine in England and Wales** C-03

Bruno Pichon, Mary Slack, Androulla Efstratiou, and Robert George

DETAILED PROGRAMME

Sunday - April, 15 - 2007

- 15:45 - 16:00** **The competitive cost of fluoroquinolone resistance in *Streptococcus pneumoniae*** **C-04**
Luz Balsalobre and Adela G. de la Campa
- 16:00 - 16:15** **PspA diversity in invasive isolates of *Streptococcus pneumoniae*** **C-05**
Ewa Sadowy and Waleria Hryniewicz
- 16:15 - 16:30** **Serotype and antibiotic resistance profiles of newly emerging pneumococcal populations in Indigenous and non-Indigenous Australian children** **C-06**
Heidi Smith-Vaughan, Kim K. Hare, Hamish Cameron, Mandy Kennedy, Cate Wilson, Gabrielle Mellon, Jemima Beissbarth, Peter S. Morris, and Amanda J. Leach
- 16:30 - 16:45** **Quantitative correspondence between *Streptococcus pneumoniae* typing methods results: how similar are serotyping, Multi-Locus Sequence Typing and Pulsed-Field Gel Electrophoresis type assignments?** **C-07**
João A. Carriço, Francisco R. Pinto, V. Jakubu, Helena Žemlicková, Sónia Nunes, Nelson Frazão, Raquel Sá-Leão, Hermínia de Lencastre, Jonas S. Almeida, Sandra Aguiar, Isa Serrano, José Melo-Cristino, and Mário Ramirez
- 16:45 - 17:00** **Clonal expansion and diversification of the major invasive pneumococcal serotype 19A in the post conjugate vaccine era** **C-08**
Robert E. Gertz, Robyn Woodbury, Genny Gallagher, Lesley McGee, Matthew Moore, Cynthia G. Whitney, and Bernard Beall, for the Active Bacterial Core Surveillance Team

Monday - April, 16 - 2007

Oral Session D

Cell Division, PBPs and Antibiotic Resistance

Chairs: Regine Hackenbeck and Mário Ramirez

- 08:15/09:45 h** **ITQB Auditorium**
- 08:15 - 08:30** **The transition from rod to cocci: loss of morphogenetic genes and dispersion of the *dcw* cluster in the lactic-acid bacteria** **D-01**
Orietta Massidda, Michael B. Whalen, Javier Tamames, Daniela Fadda, and Miguel Vicente
- 08:30 - 08:45** **Crystal structure of a new pneumococcal choline-binding protein** **D-02**
Rafael Molina, Ana González, Pedro García, Martín Martínez-Ripoll, José L. García, and Juan A. Hermoso

DETAILED PROGRAMME

Monday - April, 16 - 2007

- 08:45 - 09:00 **Disruption of the bacterial peptidoglycan biosynthetic machinery by non-beta-lactam antibiotics** D-03
Pauline Macheboeuf, Delphine Fischer, Thomas Brown, Astrid Zervosen, Bernard Joris, Otto Dideberg, Christopher Schofield, and Andrea Dessen
- 09:00 - 09:15 **Common alterations in PBP1a from resistant *Streptococcus pneumoniae* decrease the reactivity towards β -lactams** D-04
Viviana Job, Raphaël Carapito, Thiery Vernet, Otto Dideberg, Andréa Dessen, and André Zapun
- 09:15 - 09:30 **Structural study of a complex of three proteins of the pneumococcus division** D-05
Soizic Masson, Audrey LeGouellec, Philip Callow, André Zapun, Thierry Vernet
- 09:30 - 09:45 **The role of DivIVA in *Streptococcus pneumoniae* cell division** D-06
Daniela Fadda, Antonella Santona, Valeria D'Ulisse, Patrizia Ghelardini, Maria Grazia Ennas, Michael B. Whalen, and Orietta Massidda
- 09:45 - 10:15 **Coffee break**

Oral Session E

Biosynthesis and Control of Surface Polysaccharides

Chairs: Ernesto Garcia and Oscar Kuipers

- 10:15/12:15 h ITQB Auditorium
- 10:15 - 10:30 **Identification of the genes directly controlled by the two component regulatory system CiaRH in *Streptococcus pneumoniae*: five out of fourteen promoters drive expression of small noncoding RNAs** E-01
Reinhold Brückner, Alexander Halfmann, Martá Kovács, and Regine Hakenbeck
- 10:30 - 10:45 **Expression of *cpsA* in response to various carbon sources** E-02
Jetta J. E. Bijlsma, Tomas G. Kloosterman, and Oscar P. Kuipers
- 10:45 - 11:00 **Probing sugar metabolism non-invasively by NMR in *Streptococcus pneumoniae*** E-03
Sandra Carvalho, Rute Castro, Oscar Kuipers, Helena Santos, and Ana Rute Neves

DETAILED PROGRAMME

Monday - April, 16 - 2007

- 11:00 - 11:15 **Pneumococcal choline-binding proteins as targets for new antimicrobials** E-04
Beatriz Maestro, Ana González, Pedro García, and Jesús M. Sanz
- 11:15 - 11:30 **Identification of teichoic acid biosynthesis genes in *Streptococcus pneumoniae*** E-05
Stefanie Baur, Marlen Damjanovic, and Waldemar Vollmer
- 11:30 - 11:45 **Biogenesis of crosslinking dipeptides in the pneumococcal cell wall** E-06
Adrian J. Lloyd, Andrea M. Gilbey, Anne M. Blewett, Gianfranco de Pascale, Christopher G. Dowson, David I. Roper, and Timothy D.H. Bugg
- 11:45 - 12:00 **Characterization of pneumococcal glucosaminidase LytB** E-07
Begoña Monterroso, Jose Luis Sáiz, Jose Luis García, Pedro García, and Margarita Menéndez
- 12:00 - 12:15 **Contributions of amino acid substitutions to the conversion process, dimerization and activity of the *Streptococcus pneumoniae* autolysin, LytA** E-08
Patricia Romero, Ruben Lopez, and Ernesto Garcia

12:15 - 13:00

Lunch

13:00 - 15:00

Poster Sessions & Coffee

Oral Session F

Genetics, Competence, DNA release

Chairs: Jean Pierre Claverys and Hermínia de Lencastre

15:00/17:00 h

ITQB Auditorium

- 15:00 - 15:15 **Twenty years of promiscuity: what we have learnt from plasmid pMV158** F-01
Gloria del Solar, José A. Ruiz Masó, Fabián Lorenzo-Díaz, Celeste López-Aguilar, and Manuel Espinosa
- 15:15 - 15:30 **Identification of genes essential for pneumococcal transformation by genomic array footprinting** F-02
Peter Burghout, Hester J. Bootsma, Tomas G. Kloosterman, Jetta J. E. Bijlsma, Christa E. de Jongh, Oscar P. Kuipers, and Peter W.M. Hermans

DETAILED PROGRAMME

Monday - April, 16 - 2007

- 15:30 - 15:45 **Pneumococcal competence for genetic transformation: regulation of expression of the putative anti-protease, ComW** F-03
Andrew Piotrowski and Donald A. Morrison
- 15:45 - 16:00 **Competence regulation, by oxygen in the oral pathogen *Streptococcus pneumoniae* involves the NADH oxidase NOX and signal transduction** F-04
José Echenique, Sabine Chapuy-Regaud, Isabelle Auzat, Makoto Osaki, Jean-Renaud Garel, and Marie-Claude Trombe
- 16:00 - 16:15 **The relative contributions of the murein hydrolases CbpD, LytA and LytC to competence induced cell lysis** F-05
Ola Johnsborg, Kristine Haugen, and Leiv Sigve Håvarstein
- 16:15 - 16:30 **Role of pneumococcal *spxB* gene in DNA release** F-06
Patrick Bättig and Kathrin Mühlemann
- 16:15 - 16:30 **The *yefM-yoeB* Toxin-Antitoxin system of *Streptococcus pneumoniae*** F-07
Concha Nieto, Izhack Cherny, Seok Kooi Khoo, Mario Garcia de Lacoba, Wai Ting Chan, Chew Chieng Yeo, Edhud Gazit, and Manuel Espinosa
- 16:30 - 16:45 **Identification of a late *com* gene product required to shut off expression of early *com* genes in *Streptococcus pneumoniae*** F-08
Nicolas Mirouze, Chantal Granadel, Mathieu Bergé, Philippe Noirot, Bernard Martin and Jean-Pierre Claverys

Tuesday - April, 17 - 2007

Oral Session G

Host Defense: Vaccine Targets

Chairs: Sven Hammerschmidt and Alexander Tomasz

08:15/09:45 h

ITQB Auditorium

- 08:15 - 08:30 **The endonuclease EndA and its role in virulence and vaccination** G-01
Florian Wartha, Katharina Beiter, Arturo Zychlinsky, Staffan Normark, and Birgitta Henriques-Normark

DETAILED PROGRAMME

Tuesday - April, 17 - 2007

- 08:30 - 08:45 **Factor H interacts via two contact sites with PspC and mediates adhesion of pneumococci to host cells** G-02
Sven Hammerschmidt, Anja Kunert, Vaibhav Agarwal, Christine Skerka, and Peter F. Zipfel
- 08:45 - 09:00 **Inhibition of IL2 driven CD4(+) T cell proliferation significantly increases pneumococcal numbers in lungs and blood following intranasal infection** G-03
Aras Kadioglu, Clare Lawrence, Ai-Li Yang, William Coward, and Sek Chow
- 09:00 - 09:15 **CD4 T cell immunity to pneumolysin and CbpA and association with pneumococcal carriage in children** G-04
Qibo Zhang, Linda Bagraade, Ed Clarke, James C. Paton, Tim J. Mitchell, and Adam Finn
- 09:15 - 09:30 **The virulence factor PavA of *Streptococcus pneumoniae* affects phagocytosis and inflammatory immune responses by human dendritic cells** G-05
Nadja Noske, Ulrike Kämmerer, and Sven Hammerschmidt
- 09:30 - 09:45 **Krüppel-like factor 4 as a regulator of *S. pneumoniae*-related cytokine expression** G-06
Janine Zahlten, Robert Steinicke, Andreas C. Hocke, Phillipe Dje N'Guessan, Simone Rosseau, Martin Witzentrath, Sven Hammerschmidt, Norbert Suttorp, and Stefan Hippenstiel

09:45 - 10:15

Coffee break

Oral Session H

Host Defense: Vaccine Candidates

Chairs: Staffan Normark and Adam Finn

10:15/12:15 h

ITQB Auditorium

- 10:15 - 10:30 **Short chain oligosaccharide conjugated nano particles as experimental pneumococcal vaccine** H-01
Harm Snippe, Dodi Safari, Bertie Dekker, Martina Lahmann, Adriana Carvalho de Souza, Roberto Adamo, and Johann P. Kamerling
- 10:30 - 10:45 **Vaccination responses to recombinant Sp0149 and Sp0749, lipoprotein components of two *S. pneumoniae* ABC transporters required for full virulence** H-02
Shilpa Basavanna, Jose Yuste, Suneeta Khandavilli, and Jeremy S. Brown

DETAILED PROGRAMME

Tuesday - April, 17 - 2007

- 10:45 - 11:00 **Antibodies directed to the branched tetrasaccharides repeating unit of capsular polysaccharide type 14 are the key to prevent infections caused by *Streptococcus pneumoniae* type 14** H-03
Dodi Safari, Berite Dekker, Martina Lahmann, Adriana Carvalho de Souza, Roberto Adamo, Johannis P. Kamerling, and Harm Snippe
- 11:00 - 11:15 **Mucosal *Lactococcus*-based vaccine protects against pneumococcal pneumonia** H-04
Saskia van Selm, Sandrine Audouy, Jarmila Šmisterova, Maarten van Roosmalen, Silvia Estevão, Liesbeth de Vries, Rolf Kanninga, Eduard E. S. Nieuwenhuis, Peter W. M. Hermans, and Kees Leenhouts
- 11:15 - 11:30 **Novel adjuvant properties of pneumolysin, a toxin produced by *Streptococcus pneumoniae*** H-05
Kirsty Ross, Gill Douce, Jiang Ma, Ruth Wale, and Tim J. Mitchell
- 11:30 - 11:45 **Structural and functional characterization of purified pili of *Streptococcus pneumoniae*** H-06
Markus Hilleringmann, Ilaria Ferlenghi, Fabiola Giusti, Davide Mercati, Claudia Gianfaldoni, Paulo Ruggiero, Barbara Baudner, Orso Lucherini, Ugo D'Oro, Michèle Barocchi, Nicola Pacchiani, Vega Massignani, Rino Rappuoli, and Antonetto Covacci
- 11:45 - 12:00 **Differential regulation of memory and primary T and B cell responses to pneumococcal antigens in children by TLR agonist BLP** H-07
Qibo Zhang, Linda Bagraade, Ed Clarke, James C. Paton, Tim J. Mitchell, and Adam Finn
- 12:00 - 12:15 **Large scale identification of molecular interactions between pneumococcal surface-exposed proteins and human components** H-08
Cécile Frolet, Cécile Attali, Claire Durmort, Marjolaine Noirclerc-Savoye, Benoît Gallet, Thierry Vernet, and Anne Marie Di Guilmi

DETAILED PROGRAMME

Poster Session A

Changing Genetic Portraits of *Streptococcus pneumoniae*: Genome Level Variation

Crossing the barrier: evolution and spread of a major class of mosaic *pbp2x* in *Streptococcus pneumoniae*, *Streptococcus mitis* and *Streptococcus oralis* A-P1

Fang Chi, Oliver Nolte, Carina Bergmann, Margaret Ip, Cristina Latorre, Josefina Linares, and Regine Hakenbeck

Sequence variation in a putative glycosylation locus from *Streptococcus pneumoniae* A-P2

Alison M. Saville, Donald Inverarity, Stephen D. Bentley, and Tim J. Mitchell

Poster Session B

Gene expression, Virulence Factors and Different Modalities of Growth - in Vivo

psrP-secY2A2 is required for *Streptococcus pneumoniae* virulence and biofilm formation B-P1

Ernesto Hinojosa, Magee Allegrucci, Karin Sauer, and Carlos J. Orihuela

Vitronectin promotes adherence and invasion of pneumococci via $\alpha V\beta 3$ integrins B-P2

Simone Bergmann, Anke Lang, Claudia Rennemeier, Klaus T. Preissner, and Sven Hammerschmidt

Neuraminidase modulates pneumococcal adherence to host receptors B-P3

Jane L. Brittan, Timothy J. Buckeridge, Adam Finn, Peter W. Andrew, Aras Kadioglu and Howard F. Jenkinson

Pneumolysin-mediated lung damage in experimental murine pneumonia B-P4

María del Mar García-Suárez, Noelia Flórez, Aurora Astudillo, Fernando Vázquez Roberto Villaverde, and Francisco J. Méndez

Contribution of GlnR and GlnR-regulated genes to virulence of *Streptococcus pneumoniae* B-P5

Wouter T. Hendriksen, Tomas G. Kloosterman, Silvia Estevão, Hester J. Bootsma, Ronald de Groot, Oscar P. Kuipers, and Peter W.M. Hermans

Role of pneumococcal CodY in gene regulation and its contribution to virulence B-P6

Wouter T. Hendriksen, Hester J. Bootsma, Theo Hoogenboezem, Silvia Estevão, Anne de Jong, Ronald de Groot, Oscar P. Kuipers, and Peter W.M. Hermans

DETAILED PROGRAMME

***Streptococcus pneumoniae* may utilize mucin as an in vivo source of energy** B-P7

Hasan Yesilkaya and Peter W. Andrew

PpmA is involved in pneumococcal adherence B-P8

Lorelei E. Cron, Hester J. Bootsma, Peter V. Adrian, Silvia Estevão, Sven Hammerschmidt, and Peter W.M. Hermans

Presence of non-haemolytic pneumolysin in serotypes of *Streptococcus pneumoniae* associated with disease outbreaks B-P9

Calum Johnston, Johanna Jefferies, Lea-Ann Kirkham, Graeme Cowan, Andrew Smith, Stuart Clarke, Angela Brueggemann, Robert George, Bruno Pichon, Gerd Pluschke, and Tim J. Mitchell

Lipoprotein signal peptidase contributes to *Streptococcus pneumoniae* virulence B-P10

Suneeta Khandavilli, Jose Yuste, Shilpa Basavanna, Tim J. Mitchell, and Jeremy S. Brown

Patch clamping defines multiple conductance pores formed by the pneumococcal toxin pneumolysin in the membrane of nucleated cells B-P11

Rana G. El-Rachkidy, Noel W. Davies, and Peter W. Andrew

Capsule and D-alanylated lipoteichoic acids protect *Streptococcus pneumoniae* from neutrophil extracellular traps B-P12

Katharina Beiter, Florian Wartha, Arturo Zychlinsky, Staffan Normark, and Birgitta Henriques-Normark

Poster Session C

Molecular Epidemiology

Rapid and reproducible molecular typing of *Streptococcus pneumoniae* using the Agilent 2100 bioanalyzer C-P1

Lucy J. Hathaway, Silvio Brugger, Alina Martynova, Suzanne Aebi, and Kathrin Mühlemann

The invasive disease potential of *Streptococcus pneumoniae* among children in the Czech Republic C-P2

Helena Zemlickova, Vaclava Adamkova, Vladislav Jakubu, Pavla Urbaskova, Jitka Motlova and Martin Musilek

Characterisation of danish penicillin non-susceptible invasive *Streptococcus pneumoniae* isolates C-P3

Lotte M. Lambertsen, Mette Brendstrup, Helene H. Friis, and Jens J. Christensen

DETAILED PROGRAMME

***Streptococcus pneumoniae* serotype 3 (Spn-S3): Identification of two major clones in a Spanish Hospital** C-P4

Carmen Ardanuy, Fe Tubau, María Angeles Domínguez, Román Pallarés, Rogelio Martín and Josefina Liñares

Optochin sensitive, bile soluble, non-pneumococcal streptococci in HIV-seropositive patients diagnostic and therapeutic challenges caused by increased resistance to antibiotics C-P5

Truls M. Leegaard, Dominique A. Caugant, Turid Mansåker, Leif O. Frøholm, Ernest A. Høiby, and Peter Gaustad

Characterisation of serotype 3 and 11A pneumococci from the indigenous australian population C-P6

Lauren J. McAllister, Abiodun D. Ogunniyi, Uwe H. Stroehrer, Amanda J. Leach, and James C. Paton

Distribution of serotypes, clones and mechanisms of resistance among erythromycin resistant *Streptococcus pneumoniae* (EryR-Spn) isolates collected from adult patients in Barcelona, Spain (1999-2005) C-P7

Laura Calatayud, Carmen Ardanuy, María Angeles Domínguez, Fe Tubau, Román Pallarés, Rogelio Martín, and Josefina Liñares

Carriage of *Streptococcus pneumoniae*, *Staphylococcus aureus*, *Haemophilus influenzae* and *Moraxella catarrhalis* in young children C-P8

Joost A. M. Labout, Liesbeth Duijts, Vincent W. V. Jaddoe, Albert Hofman, Ronald De Groot, Henry A. Verbrugh, Peter W. M. Hermans, and Henriette A. Moll

Discrepancy between tetracycline susceptibility and presence of the *tetM* gene in *Streptococcus pneumoniae* C-P9

Patrick Grohs, Emmanuelle Varon, Isabelle Podglajen, Claire Poyart, Patrick Trieu-Cuot, and Laurent Gutmann

Resistance determinants and genetic elements in the international Taiwan19F-14 clonal complex CC271 C-P10

Maria Del Grosso, Jonh G.E. Northwood, David J. Farrell, and Annalisa Pantosti

A new genetic element carrying the resistance determinant erm (TR) in *Streptococcus pneumoniae* C-P11

Romina Camilli, Maria Del Grosso, Francesco Iannelli, and Annalisa Pantosti

Molecular trends of invasive *Streptococcus pneumoniae* serotype 1 from Brazil: a three decade survey (1977-2005) C-P12

Ana C. Chiou, Maria C. C. Brandileone, Samanta C. G. Almeida, Ana L. S.S. Andrade, Soraya S. Andrade, and Rosemeire C. Zanella

DETAILED PROGRAMME

Antibiotic-resistant non-vaccine serotype pneumococcal clones in Italy in the pre-vaccine era C-P13

Giovanni Gherardi, Monica Monaco, Romina Camilli, Fabio D'Ambrosio, Paolo D'Ancona, Riccardo Manganeli, Giordano Dicuonzo, and Annalisa Pantosti

Detection of *piaA* and *rlrA* islet and characterization of the *dexB-aliA* region in non-typeable *Streptococcus pneumoniae* C-P14

Alexandra S. Simões, Raquel Sá-Leão, and Hermínia de Lencastre

Pilot study on the evolution of *Streptococcus pneumoniae* expressing non vaccine serotypes after 7-valent pneumococcal conjugate vaccine (Prevenar) usage at day-care centers in Lisbon, Portugal C-P15

Nelson Frazão, Raquel Sá-Leão, Sónia Nunes, Natacha G. Sousa, and Hermínia de Lencastre

Increase of optochin-resistant *Streptococcus pneumoniae* causing infections in Portugal C-P16

Sandra Aguiar, Maria João Frias, Letícia Santos, José Melo-Cristino, Mário Ramirez and the Portuguese Surveillance Group for the Study of Respiratory Pathogens

Molecular characterization of penicillin-resistant invasive *Streptococcus pneumoniae* isolated in Brazil from 1997 to 2004 C-P17

Samanta Almeida, Maria C. C. Brandileone, Rosemeire C. Zanella, Maria L. L. S. Guerra, Angela P. Brandão, and Ana C. Chiou

Molecular characterisation of invasive paediatric *Streptococcus pneumoniae* isolates collected during a 9-valent pneumococcal conjugate vaccine trial in The Gambia C-P18

Antonio Martin, Ishrat Hakeem, Hannah Dada-Adegbola, Felicity Cutts, and Richard Adegbola

Poster Session D

Cell Division, PBPs and Antibiotic Resistance

In vitro bactericidal activity of the antiprotozoal drug miltefosine against *Streptococcus pneumoniae* and other pathogenic streptococci D-P1

Daniel Llull, Luis Rivas, and Ernesto García

Transcriptome analysis of the *Streptococcus pneumoniae* D39 response to the human antimicrobial peptide LL-37 D-P2

Joanna Majchrzykiewicz, Jetta J. E. Bijlsma, and Oscar P. Kuipers

Mutational analysis of *Streptococcus pneumoniae* PBP2x: impact on function and phenotype of different mutations in the active site D-P3

Ilka Zerfass, Regine Hakenbeck, Patrick Maurer, and Dalia Denapaite

DETAILED PROGRAMME

Killing *Streptococcus pneumoniae* with phage weapons. Cpl-1 structural analysis by X-ray crystallography D-P4

Inmaculada Pérez-Dorado, Nuria Campillo, Begoña Monterroso, Juan A. Páez, Pedro García, Martín Martínez-Ripoll, José Luis García, Margarita Menéndez, and Juan A. Hermoso

Structural and functional analysis of AdcAll, a pneumococcal lipoprotein involved in Zn regulation D-P5

Elodie Loisel, Laurence Serre, Julien Offant, Thierry Vernet, Anne Marie Di Guilmi, and Claire Durmort

Signal recognition particle of *Streptococcus pneumoniae* - mutagenesis approaches for evolution of its importance D-P6

Elsa S. L. C. Pinto, Peter W. Andrew and M. Leonor Faleiro

Poster Session E

Biosynthesis and Control of Surface Polysaccharides

Peculiarities of CbpF, a pneumococcal choline binding protein E-P1

Ana Gonzalez, Daniel Llull, Jose L. Garcia, and Pedro Garcia

PBP3 deletion mutant of *Streptococcus pneumoniae* reveals an essentiality feature of the D,D-carboxipeptidase E-P2

Maria Inês Crisóstomo and Alexander Tomasz

Effect of hydrogen peroxide production and the fenton reaction on membrane composition of *Streptococcus pneumoniae* E-P3

Rachel Benisty, Stella Pesakhov, Noga Sikron, Zvi Cohen, Pavel Gomelsky, Inna Khozin-Goldberg, Ron Dagan, and Nurith Porat

Mechanisms of pneumococcal growth on human glycoproteins E-P4

Amanda M. Burnaugh, Laura Frantz, Julie Sladek, Dominique Limoli, and Samantha J. King

Poster Session F

Genetics, Competence, DNA release

Conjugative mobilization of the streptococcal plasmid pMV158: Interactions between MobM protein and its DNA target F-P1

Fabián Lorenzo-Díaz, Alicia Bravo, Maria Teresa Alda, Rudi Lurz, and Manuel Espinosa

DETAILED PROGRAMME

- Post-conjugative lagging strand synthesis of the promiscuous plasmid pMV158 in *Streptococcus pneumoniae* and *Enterococcus faecalis*** F-P2
Fabián Lorenzo-Díaz, and Manuel Espinosa
- The single strand DNA-binding proteins of *Streptococcus pneumoniae* and the processing of transforming DNA** F-P3
Laetitia Attaiech, Isabelle Mortier-Barrière, Patrice Polard, Bernard Martin, and Jean-Pierre Claverys
- The alarmone (p)ppGpp and the induction of the X-state (competence) in *Streptococcus pneumoniae*** F-P4
Stéphanie Caymaris, Marc Prudhomme, and Jean-Pierre Claverys
- The novel transcriptional regulator SczA mediates protection against Zn²⁺-stress by activation of the Zn²⁺-efflux pump gene *czcD* in *Streptococcus pneumoniae*** F-P5
Tomas G. Kloosterman, Magdalena M. Pol, Jetta J. E. Bijlsma, and Oscar P. Kuipers
- StkP/PhpP signaling in *Streptococcus pneumoniae*, functional characterisation** F-P6
Makoto Osaki and Marie-Claude Trombe
- The Major Protein Component of the Pneumococcal Eclipse Complex is SsbB** F-P7
Donald A. Morrison, Isabelle Mortier-Barrière, Patrice Polard, and Jean-Pierre Claverys
- Functional coupling of the gyrase subunit-A and sortase-A of *Streptococcus pneumoniae*** F-P8
Arun S. Kharat and Alexander Tomasz
- The site-specific recombinase genes of Tn1207.3 are involved in circular forms formation and in conjugal transfer of the element** F-P9
Francesco Iannelli, Francesco Santoro, Slavica Arsenijevic, Maria Santagati, Marco Rinaldo Oggioni, Stefania Stefani, and Gianni Pozzi
- Naturally occurring *Streptococcus pneumoniae* strains with increased mutation rate to optochin and hyperproduction of H₂O₂** F-P10
Patrick Bättig and Kathrin Mühlemann
- A new bacteriophage identified in a clinical isolate of *Streptococcus pneumoniae*** F-P11
Patricia Romero, Stephen D. Bentley, and Tim J. Mitchell

DETAILED PROGRAMME

Poster Session G

Host Defense: Vaccine Targets

Naturally-acquired cellular immunity to *Streptococcus pneumoniae* in the Gambia G-P1

Marianne Mureithi, Victoria Davenport, Qibo Zhang, Martin Ota, Neil Williams, Richard Adegbola, Robert Heyderman, and Adam Finn

Serum amyloid P component assists classical pathway mediated immunity to *Streptococcus pneumoniae* infection G-P2

Jose Yuste, Marina Botto, and Jeremy S. Brown

The classical pathway is the most important complement pathway for phagocytosis of *Streptococcus pneumoniae* in humans G-P3

Jose Yuste and Jeremy S. Brown

TLR9 acts at an early stage in host defence against pneumococcal infection G-P4

Barbara Albiger, Sofia Dahlberg, Andreas Sandgren, Katharina Beiter, Florian Wartha, Hiroaki Katsuragi, Shizuo Akira, Staffan Normark, and Birgitta Henriques Normark

Protective specific immune response profile to *Streptococcus pneumoniae* in the mouse model G-P5

Daniel Kafka, Amit Lilo, Amir Talias, Ditzza Levin, Rosa Azhari, Angel Porgador, Ron Dagan, and Yaffa Mizrahi-Nebenzahl

Elongation factor-Tu is not accessible for antibody binding on live pneumococci and meningococci as analysed by flow cytometry G-P6

Jan Kolberg, Sven Hammerschmidt, Ronald Frank, Jirí Jonák, and Audun Aase

Developing of recombinant antibodies anti-pneumolysin and their use in ELISA assays G-P7

Roberto Villaverde, Maria del Mar García-Suárez, and Francisco J. Méndez

Poster Session H

Host Defense: Vaccine Candidates

Protective efficacy of *Streptococcus pneumoniae* pilus subunits in mice H-P1

Claudia Gianfaldoni, Stefano Censini, Markus Hilleringmann, Monica Moschioni, Claudia Facciotti, Werner Pansegrau, Vega Massignani, Antonello Covacci, Rino Rappuoli, Michèle A. Barocchi, and Paolo Ruggiero

DETAILED PROGRAMME

Two highly conserved pneumococcal proteins that are essential for in vivo survival and virulence are potential vaccine candidates H-P2

Carmen Giefing, Markus Hanner, Alexander von Gabain, and Eszter Nagy

Cellular responses to a candidate pneumococcal whole cell vaccine in human nasopharyngeal tonsils H-P3

Linda Bagrade, Qibo Zhang, Rick Malley, and Adam Finn