**Lung Science Conference**

**Development of chronic lung diseases:**
from life-spanning mechanisms to preventive therapy

14-17 March 2024

Estoril, Portugal

The conference is granted with 16 CME credits by the European Board for Accreditation on Pneumology (EBAP)

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**Thursday 14 March 2024**

**Opening session**

Chair: Silke Meiners

18:00-18:15  
*Welcome and Introduction*  
Silke Meiners, ERS Conferences and Seminars Director

18:15-19:00  
*Opening Lecture*  
What do we know about the development of chronic lung diseases across the life span?  
Alvar Agusti (Spain)

19:00-19:15  
Discussion

19:30-21:00  
*Poster session 1 and networking*

**Group A**

Chairs: Stijn Verleden and Stefan Hadzic

PS101 - Unravelling susceptibility to COPD: insights from a novel in vitro model to potential therapeutic targets – Cheng-Yu Wu (Germany)

PS106 - A single-cell atlas of the airway wall in patients with asthma reveals novel cellular mechanisms of disease. – Martijn C. Nawijn (Netherlands)

PS111 - IL-13 results in short term epithelial dedifferentiation and long term goblet cell expansion in PBECs from patients with asthma – Jelmer Vlasma (Netherlands)

PS116 - Distinguishing B cell maturation subsets in lymph node aspirates and peripheral blood in patients with lung cancer and sarcoidosis – Iwona Kwiecień (Poland)

PS121 - Inflammatory imbalance in tracheal aspirate of very preterm newborns is associated with lung function deficiencies at school-age – Ellen Tufvesson (Sweden)

PS126 - Developmental origin of sex differences in lung-resident immunity upon prenatal adversities – Ioannis Belios (Germany)

**Group B**

Chairs: Michael Cho and Charikleia Ntenti

PS102 - HMGN5, a chromatin remodeling protein drives COPD susceptibility – Thomas Conlon (Germany)

PS107 - microRNA-Based Approaches Targeting Alveolar Epithelial Cells as Pro-Regenerative Treatment in Idiopathic Pulmonary Fibrosis – Maria Concetta Volpe (Italy)

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All timings are in Western European Time (WET)
PS117 - Exploring micro(nano)plastic presence and effects in human airways: in vitro and clinical findings – Agne Vaillionyte (Lithuania)

PS122 - Pro-fibrotic macrophages escape redox associated cell death by upregulation of anti-ferroptotic metabolic pathways – Julia Sauer (Germany)

PS127 - Air pollution and blood inflammatory phenotypes of asthma – Marine Savouré (France)

**Group C**

Chairs: Thomas Conlon and Anja Schweikert

PS103 - Primary ciliary dyskinesia patient-specific model to study and treat ciliary dysfunction. – Bahar Yetkin-Arik (Netherlands)

PS108 - Epigenetic age acceleration and severity of airflow limitation on blood and lung tissue of COPD – Julieta Viglino (Sapin)

PS113 - Impact of chronic Pseudomonas aeruginosa infection on the inflammatory response during virus-associated exacerbations of cystic fibrosis – Carla Bellinghausen (Germany)

PS118 - Dissecting the role of microRNAs and cellular aging in the pathophysiology of Idiopathic Pulmonary Fibrosis – Giulia Zandomenego (Italy)

PS128 - IGF2BP3 modulates type 2 immunity in severe asthma: A novel regulator of IL-4/IL-13 signalling – Paniz Khooshemehri (United Kingdom)

**Group D**

Chair: Toren Finkel and Michael Ammeter

PS104 - The lung microvasculature promotes alveolar type 2 cell differentiation via secreted SPARCL1 – Paolo Panza (Germany)

PS109 - Cigarette smoke acts via c-Src to decrease CXCL11 levels and deter lung Treg responses in HIV-related COPD – Robert Foronjy (United States)

PS114 - Preconception paternal and maternal smoking alters gene expression in the early murine embryo and offspring lung function – Sheikh Anika Rahman (Germany)

PS119 - Deciphering the paradoxical immunoregulatory roles of ADAM metallopeptidase with thrombospondin type 1 motif-4 (ADAMTS4) in lung inflammation – Mohamed Ghonim (United States)

PS124 - Automatic cell type harmonization and integration across human lung disease data sets – Kerstin Meyer (United Kingdom)

PS129 - The Role of IFNL2 in wheeze and asthma control across age – Nicole Maison (Germany)

**Group E**

Chairs: Harry Karmouty-Quintana and Nicole van der Burg

PS105 - Early life exposure to cigarette smoke primes lung response to later life exposure in a mouse model – Meaghan Jones (Canada)

PS110 - Arrested Development: spatial exploration of divergent paths of alveolar regeneration in the bleomycin mouse model versus human lung fibrosis – Martina Olsson Lindvall (Sweden)

PS120 - Physical activity and body mass related to zFEV1 catch-up lung function growth in childhood: a population-based accelerated cohort study – Maria Llopis Cidad (Sapin)

PS125 - Brake wear particles induce pseudohypoxic HIF pathway activation in a copper-dependent manner in alveolar epithelial cells – James Parkin (United Kingdom)

PS130 - Farm dust primes macrophages to protect against allergic asthma – Markus Klotz (Germany)

All timings are in Western European Time (WET)
Friday 15 March 2024

**Keynote lecture**

Chairs: Gerard H. Koppelman and Namrata Kewalramani

08:30-08:50  **Keynote lecture**  
*Genetic determinants of chronic lung diseases*  
Michael Cho (United States)

08:50-09:05  Discussion

**Session 1: Life-spanning lung environmental interactions in chronic lung diseases**

Chairs: Gerard H. Koppelman and Namrata Kewalramani

09:05-09:25  **How air pollution and climate change affect allergic rhinitis and asthma?**  
Barbara Hoffmann (Germany)

09:25-09:40  Discussion

09:40-09:55  **OP01 - Maternal diet mitigates the effects of prenatal air pollution exposure on DNA methylation of immune-relevant genes in cord blood**  
Meaghan Jones (Canada)

09:55-10:15  **COPD, biomarkers and lung function trajectories**  
Rosa Faner (Spain)

10:15-10:30  Discussion

10:30-10:45  **OP02 - Epigenetic deregulation in AT2 cells impairs alveolar regeneration in COPD**  
Renata Jurkowska (United Kingdom)

10:45-11:00  Coffee break

**Session 2: Aging pathways involved in chronic lung diseases (part 1)**

Chairs: Mauricio Rojas and Dimitra Zazara

11:00-11:20  **The many faces of senescence**  
Toren Finkel (United States)

11:20-11:35  Discussion

11:35-11:50  **OP03 - Aging Alters Alveolar Niche Crosstalk and Impairs Alveolar Type II Cell Progenitor Function in a Murine Model of Pulmonary Fibrosis**  
Luis Rodriguez (United States)

11:50-12:10  **Aging and metabolic pathways in lung fibrosis**  
Ana Mora (United States)

12:10-12:25  Discussion

12:30-14:30  Lunch for all delegates and mentorship lunch discussion for bursary recipients and their mentors

All timings are in Western European Time (WET)
Session 2: Aging pathways involved in chronic lung diseases (part 2)
Chairs: Mareike Lehmann and Antonella Dost

14:30-14:50    DNA-methylation: Marker of lung disease, environment, and age
                Gerard H. Koppelman (Netherlands)
14:50-15:05    Discussion
15:05-15:20    OP04 - Novel SASP factor mediates fibroblast reprogramming in aging-associated pulmonary fibrosis
                Maria Camila Melo Narvaez (Germany)
15:20-15:40    Coffee break

Session 3: Developmental pathways and the microbiome in chronic lung diseases
Chairs: Melanie Königshoff and Paolo Panza

15:40-16:00    Developmental pathways in chronic lung diseases
                Rory Morty (Germany)
16:00-16:15    Discussion
16:15-16:30    OP05 - Delayed airway epithelial repair is correlated with airway obstruction in young adults born very preterm.
                Denby Evans (Australia)
16:30-16:50    The microbiota in respiratory tract infections: from association to intervention
                Alison Morris (Unites States)
16:50-17:05    Discussion
17:15-18:45    Poster Session 2

Group A
Chairs: Melanie Königshoff and Iwona Kwiecień

PS201 - Pulmonary extracellular vesicles drive alveolar macrophage dysfunction in Acute Respiratory Distress Syndrome – Katie Spencer (United Kingdom)
PS206 - Modelling Approaches for Inferring Lung Function Trajectories across Diverse Data Characteristics: A Technical Proof-of-Concept for CADSET – Núria Olvera Ocaña (Spain)
PS211 - Acute lung injury model in human Precision Cut Lung Slices. – Namrata Kewalramani (Switzerland)
PS226 - Cellular Senescence Affects ECM Regulation in COPD Lung Tissue – Roy R. Woldhuis (Netherlands)

Group B
Chairs: Gerard Koppelman and Engi Ahmed

PS202 - Mucin overexpression in (pre-)COPD lung tissue correlates with degree of emphysema – Hanne Voet (Belgium)
PS207 - Identification of senescent-like cells in airway organoids using single cell sequencing – Michelle Brand (Germany)
PS212 - Crystal-mediated inflammation in alveolar macrophages of a mouse model of lung fibrosis – Sonia Giambelluca (Germany)

All timings are in Western European Time (WET)
PS217 - How can gene editing of human pluripotent stem cells help understand the effect of genetics on respiratory diseases? – Sara Cuevas Ocaña (United Kingdom)

PS227 - Short-chain fatty acids, as key metabolites of gut microbiota, improve inflamm-aging and lung injury in old mice – Christina Brandenberger (Germany)

**Group C**

Chairs: Mareike Lehmann and Maria Concetta Volpe

PS203 - Decoding the genetic predisposition to asthma using epigenomics – L Trap (Netherlands)

PS208 - One size does not fit all: Respiratory phenotypes within the extremes of extreme prematurity – Prue Pereira-Fantini (Australia)

PS213 - Alveolus lung-chip for studying alveolar niche and lung repair – Wioletta Skronska-Wasek (Germany)

PS223 - The lung-bone marrow axis: myelosuppressive effects of e-cigarette aerosol exposures in mice – Matthew McGraw (United States)

PS219 - Engineering dynamically tunable 3D co-culture models of human pulmonary fibrosis – Alicia Tanneberger (United States)

**Group D**

Chairs: Alison Morris and Mohamed Ghonim

PS204 - COVID-19 pneumonia hospitalizations across the omicron period: patient characteristics, clinical management and outcomes – Sofia Caetano (United States)

PS209 - Targeting mucus hyperproduction in COPD using a novel siRNA therapy to silence SPDEF – Isabelle Dupin (France)

PS214 - Plasma profiling of extremely preterm infants identifies the proteoms and processes that shape BPD initiation in the first days of life – Prue Pereira-Fantini (Australia)

PS219 - Engineering dynamically tunable 3D co-culture models of human pulmonary fibrosis – Alicia Tanneberger (United States)

PS224 - Eosinophil Subtypes-specific miRNA Expression Changes and Their Impact on Target Genes in Asthma – Egle Vasyle (Lithuania)

PS229 - CCL28 as a modulator of human acute respiratory distress syndrome – Andre Gomes (Portugal)

**Group E**

Chairs: Rosa Faner and Julieta Viglino

PS205 - Longitudinal pulmonary function in severe paediatric asthma and factors influencing decline – Ali Hakizimana (United Kingdom)

PS210 - Advancing lung science with primary adult alveolar organoids: Regeneration, disease modeling, and the inflammatory niche – Antonella Dost (Netherlands)

PS215 - Local autoimmunity development in a silicosis-RA mouse model – Lisa M F Janssen (Belgium)

PS225 - Ventilation-induced airspace acidification via NHE1 increased susceptibility to Pseudomonas aeruginosa pneumonia – Matthias Felten (Germany)

*From 19:00 Dinner for all delegates*

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**Saturday 16 March 2024**

All timings are in Western European Time (WET)
Session 4: How can we achieve early detection of chronic lung disease? (part 1)
Chairs: Rosa Faner and Regis Joulia

09:00-09:20  Epidemiological prediction of the incidence of chronic lung diseases
Shyamali Dharmage (Australia)
09:20-09:35  Discussion
09:35-09:50  OP06 - Fetal lung growth as a tool to predict the risk for respiratory infections and asthma early in life
Dimitra Zazara (Germany)
09:50-10:10  Early image-based detection of chronic lung diseases
Stijn Verleden (Belgium)
10:10-10:25  Discussion
10:25-10:40  OP07 - Deciphering the spatial heterogeneity of interstitial lung disease by integrative radiomics and single-nucleus transcriptomics
Michael Ammeter (Switzerland)
10:40-11:10  Group Picture and Coffee Break

Session 4: How can we achieve early detection of chronic lung disease? (part 2)
Chairs: David Drummond and Maria Camila Melo Narvaez

11:10-11:30  Digital twins to personalize medicine
Liesbet Geris (Belgium)
11:30-11:45  Discussion
11:45-12:00  OP08 - Advancements in early airway disease detection using vowel phonation with smartphone
Dat Ngo (United Kingdom)

12:00-13:15  Lunch

Young Investigator Session – The William MacNee Award
Chair: Ana Mora and Cheng-Yu Wu

13:15-13:30  YI01 - Multiplex protein quantification per cell type in bronchoalveolar lavage cytospin cells of patients with asthma and healthy individuals
Nicole van der Burg (Sweden)
13:30-13:45  YI02 - Developmental fibroblast growth factor 10 in pathogenesis and reversion of emphysema and PH in COPD
Stefan Hadzic (Germany)
13:45-14:00  YI03 - Modeling trajectories of severe early-onset COPD using human induced pluripotent stem cells (iPSC).
Engi Ahmed (France)
14:00-14:15  YI04 - Multi-omic immune signatures of early life cystic fibrosis lung disease and their modification by CFTR modulators
Melanie Neeland (Australia)

All timings are in Western European Time (WET)
14:15-14:30  YI05 - Investigation into the lung vasculature transcriptional signature during asthma using spatial transcriptomic
Regis Joulia (United Kingdom)

14:45-16:15  Poster Session 3

**Group A**
Chairs: Mauricio Rojas and Denby Evans

PS301 - Sulfatase modifying factor-1 common polymorphisms are associated with response to inhaled corticosteroids in COPD – Charikleia Ntenti (Germany)

PS306 - Substrates of ADAM17 sheddase in airway and blood samples of patients with asthma and healthy individuals – Carin Larsson (Sweden)

PS311 - Investigating the role of sex hormones in pulmonary fibrosis using alveolar epithelial type 2 cells generated from pluripotent stem cells – Anja Schweikert (Ireland)

PS316 - Body mass index trajectories from birth to early adulthood and lung function development – Gang Wang (Sweden)

PS321 - Multipotent adult progenitor cells protect the preterm lung against perinatal inflammatory stress – Sophie Neuen (Netherlands)

PS326 - Treatment of ILD with local administration of different imatinib formulations: analysis of toxicity on lung cells and PCLS model – Sara Bozzini (Italy)

**Group B**
Chair: Erik Melén and Lianne Trap

PS302 - Oxygen Therapy as a Driver of Endothelial-to-Mesenchymal Transition via p53-Signaling in Lung Fibrosis – Aakruti Nayak (Germany)

PS307 - Benefits of bronchial epithelial repair by iPSCs in COPD – Marion Nadaud (France)

PS312 - Using Nkx2.5 to interfere with profibrotic mechanotransduction signaling to prevent further fibrotic progression in IPF – Alexander Noble (Canada)

PS322 - Increased circulating PD-1+CD4+ memory T cell and PD-1+ regulatory T cell proportions associate with prednisone efficacy in sarcoidosis – Lieke de Jong (Netherlands)

PS327 - Exploring the role of circular RNAs in alveolar epithelial damage in pulmonary fibrosis – Kanwal Irshad (Ireland)

PS317 - Effect of fibrobronchoscopic alveolar lavage combined with vibration expectoration on children with mycoplasma pneumonia - 译 崔 (China)

**Group C**
Chair: Rory Morty

PS303 - Sigma-1 receptor agonist mitigates bleomycin-induced pulmonary fibrosis in mice – Adam Hosszu (Hungary)

PS313 - Role of breathing and respiratory support in initiating preterm lung injury at birth – Prue Pereira-Fantini (Australia)

PS318 - Influence of recurrent viral respiratory tract infections on lung function trajectories – Abdulkadir Kalender (Germany)

All timings are in Western European Time (WET)
PS323 - The p70-S6K inhibitor LY2584702 reverses oxidative stress-induced senescence in small airway epithelial cells. – Faye Shrosbery (United Kingdom)

**Group D**

Chairs: Janette Burgess and Bahar Yetkin-Arik

PS304 - Low CD4 and high CD8 percentages prior to lung transplantation are linked to significantly decreased survival in the first post-transplant year – Miray Guney (Czech Republic)

PS309 - Anti-fibrotic effect of a FGF ligands trap in pulmonary fibrosis – Célia Scribe (France)

PS314 - MTF1 plays a key role in protection against vanadium-induced stress in alveolar epithelial cells – Lareb S.N. Dean (United Kingdom)

PS319 - Do human and rat alveolar macrophages share common responses to lung particle overload? – Laeticia Perez (Belgium)

PS324 - E-cigarette exposure reduces spontaneous NETosis in healthy older adults and COPD patients. – Robyn Halston (United Kingdom)

PS329 - Effects of spray cryotherapy on cough receptors and airway microenvironment in a canine model of chronic bronchitis – long liang (China)

**Group E**

Chairs: Ana Mora and Sonia Giambelluca

PS305 - Alternative Polyadenylation and beta-adrenergic therapy in Group 3 Pulmonary Hypertension – Harry Karmouty-Quintana (United States)

PS310 - Biomarkers of gut permeability are elevated in difficult to control asthma patients – Neil Williams (United Kingdom)

PS315 - Sex differences in lung-resident immunity are modulated by androgen-dependent pathways – Ioannis Belios (Germany)

PS320 - Maternal Cigarette Smoke Exposure in mice induces a Th2-biased immune response in Offspring – Ali Dehghani (Netherlands)

PS325 - HHIP polymorphisms involved in emphysema and early onset COPD - Mohamed Zakaria LAHMAR (France)

PS330 - Assessing the oral bacterial lysate OM-85 to prevent viral respiratory infection following irradiation and bone marrow transplantation – Anne Vaslin Chessex (Switzerland)

*From 15:00 coffee will be served in the poster area*

**Early-Career delegates session: The power of collaboration**

Chairs: Sara Cuevas Ocaña and Lareb S.N. Dean

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>17:00-17:05</td>
<td>Introduction</td>
<td>Sara Cuevas Ocaña (United Kingdom)</td>
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<tr>
<td>17:05-17:15</td>
<td>Academic collaboration with worldwide leaders</td>
<td>Melanie Königshoff (United States)</td>
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<tr>
<td>17:15-17:20</td>
<td>Discussion</td>
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<td>17:20-17:30</td>
<td>Collaboration with industrial partners</td>
<td>Maria Belvisi (Sweden)</td>
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All timings are in Western European Time (WET)
17:30-17:35  Discussion

17:35-17:45  **Early career collaboration with respiratory peers**  
Mareike Lehmann (Germany)
17:45-17:50  Discussion

17:50-18:00  **When/where/how to get started in the collaboration cycle?**  
Harry Karmouty-Quintana (United States)

18:05-18:15  **Remarks: where successful collaborations are a must and how ERS can help you accessing these opportunities**  
Sara Cuevas Ocaña (United Kingdom)

18:15-19:30  **Round table**  

**Evening Pre-dinner talk**  
Chair: Rory Morty

19:30-19:50  **Birth cohort for low- and middle-income settings**  
Heather Zar (South Africa)
19:50-20:05  Discussion

20:05  **Award Ceremony**

*From 20:30 Dinner for all delegates*

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**Sunday 17 March 2024**

**Session 5: Preventive and regenerative strategies for chronic lung diseases?**  
Chairs: Alvar Agusti and Matthias Felten

08:45-09:05  **Lung growth trajectories: catch up and growth failure**  
Erik Mélen (Sweden)
09:05-09:20  Discussion

09:20-09:40  **Novel regenerative approaches to lung injury**  
Thomas Conlon (Germany)
09:40-09:55  Discussion

09:55-10:15  **Coffee break**

10:15-11:45  **Panel Discussion**  
**Trajectories to early diagnosis and future therapies of chronic lung diseases**  
Moderator: Alvar Agusti (Spain)  
Panelists: Silke Meiners, Rosa Faner, Rory Morty, Melanie Königshoff and Mauricio Rojas

11:45-12:00  **Conclusion**  
Silke Meiners, ERS Conferences and Seminars Director

All timings are in Western European Time (WET)
12:00  Lunch and departure

All timings are in Western European Time (WET)