**Lung Science Conference**

*Mathmetabolic alterations in lung ageing and disease*

*05-08 March 2020 – Estoril, Portugal*

*Scientific programme as of 23.01.2020*

*Chairs invited but not yet confirmed*

*The conference is granted 13 European CME credits by the European Accreditation Council for Continuing Medical Education (EACCME) and by the European Board for Accreditation in Pneumology (EBAP)*

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**Thursday 05 March 2020**

**Opening Session**

Chair: Reinoud Gosens

18:00-18:15 **Welcome and Introduction**

Reinoud Gosens, ERS Conferences and Seminars Director

18:15-18:45 **Opening Lecture**

“The mitochondrion revisited: an overview of its role in lung inflammation and lung ageing” – Phil Hansbro (Newcastle, Australia)

18:45-19:00 **Discussion**

19:00-19:30 **Welcome “cheese and wine” cocktail**

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**Friday 06 March 2020**

**Session 1: Immunometabolism and inflammageing**

Chairs: Sam Janes and Niki Ubags

08:45-09:05 **Metabolic profiling of severe asthma: implications for phenotyping and treatment**

Craig Wheelock (Stockholm, Sweden)

09:05-09:20 **Discussion**

09:20-09:35 **OP01 – Long non-coding RNA ADPGK-AS1 controls anti-tumor immunity in macrophages through metabolic modulation**

Annika Karger (Bad Nauheim, Germany)

09:35-09:55 **Metabolic reprogramming of tumor associated macrophages and its impact on lung cancer progression**

Rajkumar Savai (Bad Nauheim, Germany)

09:55-10:10 **Discussion**

10:10-10:25 **OP02 – Single Cell RNA-seq Reveals Zinc Metabolism Defect of Alveolar Type II Cells with Aging in IPF**

Carol Liang (Los Angeles, USA)

10:25-10:50 **Coffee break**
Session 2: Mitochondrial dysfunction in lung ageing and disease
Chairs: Patrick Berger and Alen Faiz

Matt Whiteman (Exeter, United Kingdom)

11:05-11:25 Mitochondrial in airway smooth muscle as a driver of airway hyperresponsiveness in asthma
Thomas Trian (Bordeaux, France)

11:25-11:40 Discussion

11:40-11:55 OP04 – Mitochondrial metabolism regulates cellular proteostasis
Thomas Meul (Munich, Germany)

11:55-14:00 Lunch for all delegates and mentorship lunch for bursary recipients and their mentors

14:00-14:20 Mitochondrial iron in the susceptibility, pathogenesis and progression of COPD
Suzanne Cloonan (Dublin, Ireland)

14:20-14:35 Discussion

14:35-14:50 OP05 – Cigarette smoke exposure disrupts the molecular regulation of mitochondrial metabolism in human bronchial and alveolar epithelial cells
Christy B.M. Tulen (Maastricht, Netherlands)

14:50-15:10 Senotherapies for chronic lung disease
Peter Barnes (London, United Kingdom)

15:10-15:25 Discussion

15:25-15:40 OP06 – Air space distension precedes spontaneous fibrotic remodeling and impaired cholesterol metabolism in the absence of surfactant protein C
Elena Lopez Rodriguez (Berlin, Germany)

15:40-16:00 Coffee break

16:00-18:00 Poster Session 1

Group A - Chairs: Chris Brightling and Marco Buscetta

PP101 – Extracellular vesicles produced by bronchial epithelial cells in response to oxidative stress contain micro-RNAs associated with senescence – Justine Devulder, United Kingdom

PP102 – Eosinophilic inflammation promotes CCL-6-dependent metastatic tumor growth – Songmin Ying, China

PP103 – Association of extracellular Hsp70 with the severity of chronic obstructive pulmonary disease - Iva Hlapčić, Croatia
PP104 – Histologic hallmarks of smoking in the Gauting lung adenocarcinoma donors cohort - Anne-Sophie Lamort, Germany

PP105 – Diesel Exhaust Particles-induced Dysfunctional Responses in Lung Epithelial Progenitors is mediated by oxidative stress - Xinhui Wu, Netherlands

PP106 – Comprehensive characterization of the immune landscape within different molecular subtypes of small cell lung cancer (SCLC) - Angel Nuñez Buiza, Spain

PP107 – COPD-derived fibroblasts secrete higher levels of senescence associated secretory phenotype (SASP) proteins - Roy R. Woldhuis, Australia

PP108 – Regulation of lung autophagy by proteinase-activated receptor 2 activation - Kirsty Mccallum, United Kingdom

PP109 – Biomarkers of inflammation and auto-Abs in asthma with obesity - Anna Konishcheva, Russian Fed.

**PP110 – Empyema Thoracis: A Comparative analysis of Tuberculous and Non Tuberculous etiology and their Outcomes** - Prapulla Chandra Davuluri, India (TBC)

*Group B - Chairs: Ahn Tuan Dinh-Xuan and Anna Freeman*

PP111 – Transfer of mitochondria between COPD airway smooth muscle cells - Julia Frankenberg Garcia, United Kingdom

PP112 – Rewiring polyunsaturated fatty acid metabolism renders the anti-tumor phenotype to tumor-associated macrophages in lung cancer - Siavash Mansouri, Germany

PP113 – Evaluation of lung miRNA expression and selected metabolic parameters in rat model of asthma - Wojciech Langwiński, Poland

PP114 – IGF1R deficiency attenuates acute lung injury by regulating epigenetics, cell senescence and mitochondrial homeostasis - Jose G. Pichel, Spain

PP115 – Altered metabolic activity and redox balance are associated with a proliferative phenotype in COPD airway smooth muscle cells - Charalambos Michaeloudes, United Kingdom

PP116 – MicroRNA profiling in bronchial biopsies of asthma patients - Mirjam P. Roffel, Belgium

PP117 – Vitamin E metabolites prevent allergen sensitization in the mouse - Ida Cerqua, Italy

PP118 – Could the overweight influence bronchiectasis (B) exacerbations frequency (EF)? - Kseniia Suska, Ukraine

**PP119 – The role of ZFP36L1 and ZFP36L2 in genome-wide post-transcriptional dysregulation of glucocorticoid non-responsive asthma** – Jennifer Rynne, United Kingdom (TBC)

*Group C - Chairs: Ayşe Arzu Yorgancioğlu and Itsaso Garcia Arcos*

PP120 – Clinical potential of sputum hyaluronan measurement in the diagnosis and prognosis of patients with NSCLC - Vanessa De Sa, Brazil

PP121 – Identification of single senescent cells from precision cut lung slices ex vivo - Qianjiang Hu, Germany

PP122 – Asthmatic eosinophils promote migration of ASM and MRC-5 cells via increased expression of ECM proteins and contractility – Ieva Janulaityte, Lithuania
PP123 – Immunotherapy response prediction in non-small cell lung cancer based on molecular and immune features - Javier Ramos Paradas, Spain

PP124 – Transfer of mitochondria from mesenchymal stromal cells through extracellular vesicles improves alveolar epithelial-capillary barrier in ARDS - Johnatas Silva, United Kingdom

PP125 – 3D mapping of blood vessel networks and cells in COPD and non-COPD lung tissue samples using micro-computed tomography and immunofluorescence - Mathew Lawson, United Kingdom

PP126 – Mitochondrial dysfunction in the aged lung and COPD: A role for mitochondrial calcium? - Salil Srivastava, USA

PP127 – Airway inflammation and oxidative stress in biomass fuel smoke exposed women as assessed by exhaled Carbon monoxide levels - Gihani Jayaweera, Sri Lanka

PP128 – The protein-profile of the lining fluid from small airways is changing with age - Anna-Carin Olin, Sweden

PP129 – Mitochondrial dysfunction induce immunoproteasome and MHC class I responses in lung aging - Xinyuan Wang, Germany (TBC)

Group D - Chairs: Patrick Berger and Delphine Guillotin

PP130 – Endoplasmic reticulum stress implication in fibroblast senescence in COPD - Eva Delbrel, United Kingdom

PP131 – Metabolomics of lung tissue and plasma reveal human disease-relevant differences between young and old mice in the bleomycin model - Sorif Uddin, Germany

PP132 – Cigarette smoking is associated with metabolic inflexibility and glucose intolerance in mice - Stanley Chan, Australia

PP133 – Evidence of nutritional abnormalities in Chronic Obstructive Pulmonary Disease - Fatmaalzahra Abdalrazik, Egypt

PP134 – Implication of mitochondrial metabolism in smooth muscle remodeling in asthma - Pauline Esteves, France

PP135 – Streptococcus pneumoniae induces broad alterations in mitochondrial functions in human airway epithelial cells - Mahyar Aghapour, Germany

PP136 – Comparison of metabolic profile in endothelial cells of chronic thromboembolic pulmonary hypertension and pulmonary arterial hypertension - Cristina Rodriguez, Spain

PP137 – Influenza infection of mice results in defective de novo phospholipid synthesis and impaired oxidative phosphorylation in ATII cells - Ian Davis, USA

PP138 – Endothelial dysfunction in asthma: enos, inos and ace polymorphisms - Margarida Cortez e Castro, Portugal

PP139 – Oxidative stress drives cellular senescence and iron uptake in airway epithelial cells - Jonathan R. Baker, United Kingdom

Dinner for all delegates
**Saturday 07 March 2020**

**Session 3: Cellular senescence**  
Chairs: Peter Barnes and Justine Devulder

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<th>Time</th>
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<tbody>
<tr>
<td>08:45-09:05</td>
<td>Heme oxygenase-1 regulation of cell senescence in COPD</td>
<td>Maylis Dagouassat (Paris, France)</td>
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<td>09:05-09:20</td>
<td>Discussion</td>
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<tr>
<td>09:20-09:40</td>
<td>Respiratory muscle senescence during chronic lung disease and ageing</td>
<td>Joaquim Gea (Barcelona, Spain)</td>
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<td>09:40-09:55</td>
<td>Discussion</td>
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<td>09:55-10:10</td>
<td>OP07 – Aging causes alveolar epithelial type II cell dysfunction in acute lung injury</td>
<td>Christina Brandenberger (Hannover, Germany)</td>
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<td>10:10-10:25</td>
<td>OP08 – Versatile workflow for storage, characterization and cell-type resolved transcriptional and epigenetic profiling of human lung samples</td>
<td>Renata Jurkowska (Heidelberg, Germany)</td>
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<td>10:25-10:45</td>
<td>An atlas of the aging lung mapped by single cell transcriptomics and deep tissue proteomics</td>
<td>Herbert Schiller (Munich, Germany)</td>
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<td>10:45-11:00</td>
<td>Discussion</td>
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**GROUP PICTURE**

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<tr>
<th>Time</th>
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<tr>
<td>11:15-13:45</td>
<td>Poster Session 2 and Lunch</td>
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<td>Lunch will be served from 12:15</td>
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<td><strong>Group E - Chairs: Phil Hansbro and Iva Hlapčić</strong></td>
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<td>PP201 –</td>
<td>pSTAT5-SOCS1 signalling as a novel pathway in macrophage metabolic reprogramming by Mesenchymal Stromal Cells (MSCs) in ARDS</td>
<td>Yue Su, United Kingdom</td>
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<td>PP202 –</td>
<td>Fluticasone propionate inhibits rhinovirus-induced mucin production via multiple mechanisms in differentiated airway epithelial cells</td>
<td>Ying Wang, Netherlands</td>
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<td>PP203 –</td>
<td>The metabolic response of human macrophages to Mycobacterium tuberculosis infection</td>
<td>Claudio Bussi, United Kingdom</td>
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<td>PP204 –</td>
<td>GCN2 signalling is dysregulated in pulmonary fibrosis</td>
<td>Diana Santos Ribeiro, Belgium</td>
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<td>PP205 –</td>
<td>Investigating the effect of Z alpha-1 antitrypsin expression on mitochondrial injury</td>
<td>Arlene Glasgow, Ireland</td>
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<td>PP206 –</td>
<td>Epithelial-mesenchymal transition induced by cigarette smoke in lung epithelial cells is associated with metabolic reprogramming and senescence</td>
<td>Serena Di Vincenzo, Italy</td>
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PP207 – Transcriptome signatures of tobacco carcinogens hint the alteration of TAF6 as a specific feature in smokers lung cancer - Mario Pepe, Germany
PP208 – Prognostic significance of pre-operative body composition in early stage NSCLC patients - Marcin Skrzypski, United Kingdom
PP209 – Validation of a new strategy to maintain functional mitochondrial metabolism in conserved murine heart and lung tissues - Muriel Pichavant, France
PP210 – Direct effects of cigarette smoke in pulmonary arterial cells: Implications in arterial remodeling and vascular tone maintenance - María Jose Calzada, Spain

Group F - Chairs: Anna Krasnodembskaya and Charalambos Michaeloudes

PP211 – Fluorescence-activated cell sorting of senescent fibroblasts - Catherine Wrench, United Kingdom
PP212 – Longitudinal single-cell transcriptomics of gamma herpesvirus infection in mouse lungs - Ilias Angelidis, Germany
PP213 – Transcriptomic and proteomic analyses reveal age-related extracellular matrix changes in the lung - Maunick Lefin Koloko Ngassie, Netherlands
PP214 – Impact on pulmonary, intestinal and metabolic compartments of chronic smoking exposure and unhealthy diet: a functional and multi-omic approach - Elodie Picard, France
PP215 – The lung DNA methylation profile of patients with COPD: relationship with smoking and airflow limitation severity - Sandra Casas Recasens, Spain
PP216 – Alveolar type 2 cell LDL receptor associated protein 1 regulates surfactant homeostasis and pulmonary function - Itsaso Garcia Arcos, USA
PP217 – Modulation of dysregulated lipid metabolism by stem cell secretome in lung fibrosis - Amiq Gazdhar, Switzerland
PP218 – IRF5 regulates airway macrophage metabolic responses to viral challenge - Gesa Albers, United Kingdom
PP219 – Unravelling the genetic landscape of early-onset emphysema by whole exome sequencing - Susana Seixas, Portugal

Group G - Chairs: Reinoud Gosenens and Kseniia Suska

PP221 – The respiratory microbiome and metabolome in chronic hypersensitivity pneumonitis - Rachele Invernizzi, United Kingdom
PP222 – Involvement of the kinase-dependent functions of RIPK1 in COPD - Hannelore Van Eeckhoutte, Belgium
PP223 – The effect of smoking on the distribution of adipose and skeletal muscle tissue in patients with COPD - Olha Boiko, Ukraine
PP224 – Glutathione-S-transferase P promotes Interleukin-1β-induced inflammation and metabolic reprogramming in mice with allergic airways disease - Cheryl van de Wetering, USA
PP225 – Characterizing lung resident mesenchymal stem cells in idiopathic pulmonary fibrosis patients - Aina Martin, Spain
PP226 – Toll-like receptor signaling regulates the differentiation of 3D bronchospheres - Felix Ritzmann, Germany

PP227 – Prolonged WNT/β-catenin signaling induces cellular senescence in aging and pulmonary fibrosis - Mareike Lehmann, Germany

PP228 – Effect of cigarette smoke on mitochondrial metabolic response to Mycobacterium tuberculosis (Mtbc) infection - Amit Agarwal, India

PP229 – The transcriptome of IPF fibrotic foci identifies the fatty acid metabolism as a critical pathway in fibrogenesis - Delphine Guillotin, United Kingdom

PP230 – MIF as a potential biomarker to monitor therapeutic response to glucocorticoid in patients with allergic asthma exacerbations - Hui-Yuan Zhu, China

Group H - Chairs: Darcy Wagner and Yan Hui Giam

PP231 – Study of the activation energy of thiourea transport in mesothelial cells using a calcein fluorescence quenching based method - Maria Kuzovleva, Russian Fed.

PP232 – Protein glycopatterns in bronchoalveolar lavage fluid as potential biomarkers for diagnosis of lung cancer - Lina Liu, China

PP233 – Immunological profiling of Chronic Obstructive Airways Disease and Idiopathic Pulmonary Fibrosis - Nuria Mendoza, Spain

PP234 – Single cell profiling reveals diversity of mouse and human lung mesenchymal cell types and their distinct activation states in fibrogenesis - Christoph H. Mayr, Germany

PP235 – Protein truncating mutations in ATP13A3 promote pulmonary arterial hypertension in mice - Ekaterina Legchenko, United Kingdom

PP236 – Diesel exhaust particles alter mitochondrial bioenergetics in human bronchial epithelial cells - Isabella Cattani-Cavalieri, Brazil

PP237 – Longitudinal effect of smoking cessation on transcriptomics and epigenetics in the airways of COPD patients and asymptomatic controls - Alen Faiz, Australia


PP239 – Early postnatal metabolism in the lung of premature infants characterized by amino acid depletion - Alida Kindt-Dunjko, Netherlands

PP240 – Interval Exercise Training Improves Asthma Symptoms Through Modulation of T2 Inflammation - Anna Freeman, United Kingdom
Young Investigator Session – The William MacNee Award
Chairs: Suzanne Cloonan and Silke Meiners

13:45-14:00 YI01 – Caspase-1 activation by cigarette smoke occurs via TLR4/TRIF/caspase-8 axis leading to metabolic alterations in human macrophages
Marco Buscetta (Palermo, Italy)

14:00-14:15 YI02 – The role of the COPD susceptibility gene FAM13A in barrier function and pro-inflammatory responses of human airway epithelial cells
Qing Chen (Groningen, Netherlands)

14:15-14:30 YI03 – Validation of AMP-activated protein kinase as a therapeutic target in bronchiectasis
Yan Hui Giam (Dundee, United Kingdom)

14:30-14:45 YI04 – Itaconate drives the resolution of pulmonary fibrosis
Patricia Ogger (London, United Kingdom)

14:45-15:00 YI05 – MiR-320d as a regulator of airway inflammation in COPD
Mirjam P. Roffel (Groningen, Netherlands)

15:00-17:00 Early-Career delegates session – Strategically and successfully funding of your future
Chairs: Louise Donnelly and Sabine Bartel

15:00-15:20 How to write a convincing research grant
Reinoud Gosens (Groningen, Netherlands)

15:20-15:40 Obtaining a grant to organize an ERS Research Seminar
Rachel Chambers (London, United Kingdom)

15:40-16:00 Your first personal research grant within the ERS fellowship programme
Louise Donnelly (London, United Kingdom)

16:00-16:20 Funding possibilities from the European Union (EU)/European Research Council (ERC)
Nadia El Mjyad (Brussels, Belgium)

16:20-17:00 Panel discussion with all speakers and networking event

17:00 Coffee Break

19:25-19:55 Evening Pre-dinner talk
Chair: Phil Hansbro
“Metabolic reprogramming in innate immunity and inflammation” – Luke O’Neill (Dublin, Ireland)

From 20:00 Gala Dinner and Award Ceremony
### Session 4: The ageing lung under stress
**Chairs:** Catherine Greene and Elena Lopez Rodriguez

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<tr>
<td>08:45-09:05</td>
<td>Linking proteostasis to immune activation in the ageing lung</td>
<td>Silke Meiners (Munich, Germany)</td>
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<td>09:05-09:20</td>
<td>Discussion</td>
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<td>09:20-09:40</td>
<td>Protein oxidation as a driver of disease and gateway to novel therapies for lung fibrosis</td>
<td>Martina Korfei (Giessen, Germany)</td>
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<td>09:40-09:55</td>
<td>Discussion</td>
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<td>09:55-10:05</td>
<td>Coffee break</td>
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### Session 5: Therapeutics targeting metabolic alterations in disease
**Chairs:** Jonathan Grigg and Serena Di Vincenzo

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<tr>
<td>10:05-10:25</td>
<td>Metabolic reprogramming by mesenchymal stem cells as a strategy for lung repair</td>
<td>Anna Krasnodembskaya (Belfast, United Kingdom)</td>
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<td>10:25-10:40</td>
<td>Discussion</td>
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<td>10:40-11:00</td>
<td>Nutritional modulation to correct metabolic alterations in chronic lung disease</td>
<td>Annemie Schols (Maastricht, Netherlands)</td>
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<td>11:00-11:15</td>
<td>Discussion</td>
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<td>11:15-11:35</td>
<td>The promise of mTOR signaling as a therapeutic target for IPF</td>
<td>Rachel Chambers (London, United Kingdom)</td>
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<td>11:35-11:50</td>
<td>Discussion</td>
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<td>11:50-12:10</td>
<td>Conclusion by Reinoud Gosens, ERS Conferences and Seminars Director</td>
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