ERS Research Seminar

**Innovative 3D models for understanding mechanisms underlying lung diseases: powerful tools for translational research**

7-8 April 2022
Lisbon, Portugal

Thursday, 07th April 2022

08.00 – 08.30 Arrival and registration
*Coffee and networking*

08.30 – 08.40 Welcome and opening – Janette Burgess, Ramon Farre

**Opening Session – Keynote lecture**
*Chairs: Janette Burgess (Netherlands) and Ramon Farre (Spain)*

08.40 – 09.20 What is the need and why is it the time for innovative models for understanding human lung diseases – Daniel Weiss (USA)

09.20 – 09.30 General discussion

**Session I – Technological advances for developing translational lung models**
*Chairs: Anna Krasnodembskaya (UK) and Anne van der Does (Netherlands)*

09.30 – 10.00 Developing a lung on a chip model – Arunima Sengupta (Switzerland)

10.00 – 10.30 Precision cut lung slices going beyond airway responses – Jane Bourke (Australia)

10.30 – 10.45 Abstract oral presentation 1: Development of a lung-on-chip model to study immune cell extravasation in lung infection – Lisette van Os (Switzerland)

10.45 – 11.15 General discussion

11.15 – 11.45 **Coffee break**

**Session II – Harnessing the lung for developing translational 3D models**
*Chairs: Cian O’Leary (Ireland) and Sara Cuevas Ocana (UK)*

11.45 – 12.15 Human lung ECM derived hydrogels – Janette Burgess (Netherlands)

12.15 – 12.45 3D printing the human lung using hydrogels – Darcy Wagner (Sweden)

12.45 – 13.00 Abstract oral presentation 2: Modelling fibrotic lung biomechanics in vitro using native extracellular matrix-derived hydrogels without altering the composition – Mehmet Nizamoglu (Netherlands)

13.00 – 13.30 General discussion
13.30 – 14.15  

**Lunch break**

14.15 – 15.15  

**POSTER SESSION**

**Session III – The challenge of mechanical parameters in the 3D environment**  
**Chairs:** Ian Adcock (UK) and Rebecca Heise (USA)

15.15 – 15.45  
3D imaging in biomaterials – Apeksha Shapeti (Belgium)

15.45 – 16.15  
Advanced measurements of 3D cell/ECM mechanics – Nuria Gavara (Spain)

16.15 – 16.30  
**Abstract oral presentation 3: 3D image analysis of the alveolar shape in human lungs**  
– Alex Reimelt (Germany)

16.30 – 16.45  
General discussion

16.45 – 17.15  
**Coffee break**

17.15 – 18.45  
3 Breakout groups to discuss current challenges and needs:

**Group 1:** The need for standardization of procedures/models

**Group 2:** What diseases/dysfunctions most require 3D models for translational research

**Group 3:** Discuss a potential doctoral network proposal related to advancing 3D models for understanding lung diseases

20.00  
**Dinner**

**Friday, 08th April 2022**

08.30 – 09.30  
Report back from break out groups and identification of goals for newly established networks  
**Chairs:** Janette Burgess (Netherlands) and Ramon Farre (Spain)

Discussion of research seminar’s outcomes  
Preparation of outputs

09.30 – 10.00  
**Coffee break**

**Session IV – Harnessing 3D models of the lung for translational outcomes**  
**Chairs:** Reinoud Gosens (Netherlands) and Markus Weckmann (Germany)

10.00 – 10.30  
Mechanopharmacology of the lung – Alastair Stewart (Australia)

10.30 – 11.00  
3D organoids informing lung regeneration – Rob Hynds (UK)

11.00 – 11.30  
Using tissue mimetic models to understand lung cancer – Dania Movia (Ireland)

11.30 – 11.45  
**Abstract oral presentation 4: 3D lung-organoid platform for the identification of pharmaceutical compounds targeting senescence and inflammation**  
– Christoph Beisswenger (Germany)

11.45 – 12.15  
General discussion

12.15 – 13.15  
Closing remarks – Janette Burgess, Ramon Farre

13.15 – 14.00  
Lunch on departure