Welcome to the 20th Annual Retreat

of the

International Graduate Programme

Molecular Biology and Medicine of the Lung

Rauischholzhausen, Germany
June 26-28, 2024

MBML Molecular Biology & Medicine of the Lung

DZL Deutsches Zentrum für Lungenforschung

CARDIO PULMONARY INSTITUTE

UGMLC Universities of Giessen & Marburg Lung Center

WEDNESDAY, 26.06.2024

Up to 09:30
Arrival at Rauischholzhausen Castle, Registration

09:30 - 09:45
Welcome and Introduction: Elie El Agha and Werner Seeger

09:45 - 10:45
The Opening Lecture
STEVEN M. CORSELLO
Stanford Cancer Center, Stanford, CA, U.S.A.
"Genome-inspired drug repurposing"

10:45 - 12:00
Student Presentations – Block A
PULMONARY HYPERTENSION AND RIGHT HEART FAILURE

12:00 -13:30
Room check-in, followed by lunch

13:30 - 14:30
The Editor's Lecture
LARISSA A. SHIMODA
Editor-In-Chief, *American Journal of Physiology-Lung Cellular and Molecular Physiology*
Johns Hopkins University, Baltimore, MD, U.S.A.
"Non-canonical roles for channels and transporters in pulmonary hypertension: An editor's journey"

14:30 - 15:30
Student Presentations – Block B
HYPOXIA AND OXYGEN SENSING

15:30 - 15:45
Group photograph (all *Annual Retreat* participants)

15:45 - 17:00
Poster session, with coffee and snacks

17:00 - 18:00
JOSEPH A. LASKY
Tulane University School of Medicine, New Orleans, LA, U.S.A.
"TBA"

18:00 - 19:15
Student Presentations - Block C
LUNG FIBROSIS

19:15 – end
Dinner and open bar

THURSDAY, 27.06.2024

07:30 - 09:00
Breakfast

09:00 - 10:00
MATTHEW J. THOMAS
Boehringer Ingelheim Pharma GmbH & Co. KG, Biberach, Germany
"Advances in pulmonary fibrosis drug discovery: What does good look like?"

10:00 - 11:15
Student Presentations - Block D
LUNG PROGENITOR CELLS AND REGENERATION

11:15 - 11:45
Coffee and snacks

11:45 - 12:45
PAUL G. THOMAS
St. Jude Children's Research Hospital, Memphis, TN, U.S.A.
"Stromal and immune interactions in the generation and resolution of lung pathology"

12:45 - 13:45
Lunch

13:45 - 15:00
Student Presentations – Block E
ACUTE RESPIRATORY DISTRESS SYNDROME

15:15 – 16:45
Coffee pick-up leading to the "Meet-the-Expert" sessions

16:45 - 17:45
DARCY E. WAGNER
Wallenberg Centre for Molecular Medicine, Lund University, Lund, Sweden
"TBA"

17:45 - 19:00
Student Presentations – Block F
LUNG DEVELOPMENT AND BRONCHOPULMONARY DYSPLASIA

19:00 – 19:15
Breather

19:15 – 20:15
The Nobel Lecture
MELISSA PARKE
Executive Director of International Campaign to Abolish Nuclear Weapons, Geneva, Switzerland
"Nuclear risks are health risks"

20:15 – end
Dinner, open bar and entertainment

FRIDAY, 28.06.2024

07:30 - 09:00
Breakfast

09:00 – 10:00
CHARLES A. POWELL
Icahn School of Medicine at Mount Sinai, New York, NY, U.S.A.
"TBA"

10:00 - 11:00
Student Presentations - Block G
LUNG CANCER

11:00 - 11:30
Coffee and snacks

11:30 - 12:15
Student Presentations – Block H
CHRONIC OBSTRUCTIVE PULMONARY DISEASE

12:15 - 12:45
Presentation of MBML coursework certificates and poster prizes
Formal closing of the Retreat: Elie El Agha and Werner Seeger

12:45 - 15:00
Room check-out (until 14:00) and lunch

15:00
Bus Departure from Rauischholzhausen to Giessen
Meeting Point: Parking Lot of the Castle (14:50)

A) PULMONARY HYPERTENSION AND RIGHT HEART FAILURE

Wednesday, June 26th, at 10:45

Chairs: Daniel Kalina and Zahraa Msheik

10:45 - 11:00: Vanessa Kleinhenn (PI: Norbert Weissmann)
"Role of RBPJ in *Acta2*-specific cells in pulmonary hypertension"

11:00 - 11:15: Samuel Olapoju (PI: Soni Savai Pullamsetti)
"Therapeutic modulation of MST1/2 kinases reverses pulmonary hypertension via RhoA/actin cytoskeleton dysregulation"

11:15 - 11:30: Leila Sotoodeh Atefi (PI: Saverio Bellusci)
"Identification of the origin of PH-associated ACTA2-positive vascular smooth muscle cells"

11:30 - 11:45: Sailun Wang (PI: Ralph T. Schermuly & Baktybek Kojonazarov)
"Metabolic signaling pathways in adaptive/maladaptive right ventricle remodeling"

11:45 - 12:00: Daniel Zedler (PI: Manuel Richter & Khodr Tello)
"Clinical relevance of right atrial functional response to treatment in pulmonary arterial hypertension"

B) HYPOXIA AND OXYGEN SENSING

Wednesday, June 26th, at 14:30

Chairs: Isabell Valerie Burhorst and Ali Khadim

14:30 - 14:45: Anis Čilić (PI: Norbert Weissmann)
"The role of adenylate kinase 4 in pulmonary hypertension"

14:45 - 15:00: Muchen Li (PI: Norbert Weissmann & Natascha Sommer)
"The role of Uqcrh in acute and chronic oxygen sensing in pulmonary vasculature"

15:00 - 15:15: Zahraa Msheik (PI: Soni Savai Pullamsetti)
"Micropeptide forming lncRNA16 & lncRNA19 - Major regulators of cellular responses to hypoxia in the lung"

15:15 - 15:30: Ornella Yamdjeu Tchokondu (PI: Norbert Weissmann)
"O2-sensing in hypoxic pulmonary vasoconstriction - Deciphering the molecular mechanisms with focus on voltage-dependent K+ channels"

C) LUNG FIBROSIS

Wednesday, June 26th, at 18:00

Chairs: Alejandro Egea Zorrilla and Vinita Sharma

18:00 - 18:15: Natalie Baumann (PI: Markus Weckmann, *DZL ARCN Campus* Borstel)
"Serum high sensitivity C-reactive protein in evaluating cystic fibrosis lung disease progression and lung inflammation"

18:15 - 18:30: Bhavika B. Katariya (PI: Poornima Mahavadi)
"Novel roles of RNA binding proteins in idiopathic pulmonary fibrosis"

18:30 - 18:45: Dongzhu Li (PI: Ana Pardo-Saganta)
"Implication of clonal hematopoiesis of indeterminate potential to the pathophysiology of idiopathic pulmonary fibrosis"

18:45 - 19:00: Khaled Abdulrahim Talal Mahmoud (PI: Eveline Baumgart-Vogt)
"Influence of peroxisomes in macrophages on inflammatory and pro-fibrotic processes in the lung"

19:00 - 19:15: Mahsa Zabihi (PI: Elie El Agha)
"Role of lipofibroblasts in the development and resolution of pulmonary fibrosis"

D) LUNG PROGENITOR CELLS AND REGENERATION

Thursday, June 27th, at 10:00

Chairs: Spyridoula Barmpoutsi and Sandipan Jash

10:00 - 10:15: Alejandro Egea Zorrilla (PI: Ana Pardo-Saganta)
"A profibrotic Notch signal derived from alveolar epithelial cells is essential for the development of pulmonary fibrosis"

10:15 - 10:30: Ali Khadim (PI: Elie El Agha)
"Mesenchymal cells in lung development and repair"

10:30 - 10:45: Afshin Noori (PI: Saverio Bellusci)
"Precision cut lung slices: An in vitro model of acute lung injury? Evidence from epithelial changes"

10:45 - 11:00: Mahtab Shahriari Felordi (PI: Elie El Agha)
"Tracing the origin of RSMCs in airway epithelial regeneration"

11:00 - 11:15: Esmeralda Vásquez Pacheco (PI: Saverio Bellusci)
"Highlighting fibroblast plasticity in lung fibrosis: the WI-38 cell line as a model for investigating the myofibroblast and lipofibroblast switch"

E) ACUTE RESPIRATORY DISTRESS SYNDROME

Thursday, June 27th, at 13:45

Chairs: Vidya Lakshmi and Efthymios Fousekis-Papakonstantinou

13:45 - 14:00: Deepesh Dhakad (PI: Ali Önder Yildirim, *DZL CPC-M Campus* Munich)
"Macrophage dependent susceptibility to Chronic Lung Disease(s) post SARS-CoV-2 infection"

14:00 - 14:15: Mohammad Estiri (PI: Susanne Herold & Ulrich Matt)
"Impact of diffusible signals at human cell-microbe interfaces: Influence of EVs in organoids and in in-vivo models"

14:15 - 14:30: Georgios Kiliaris (PI: Elie El Agha)
"Mobilization of mesenchymal niches in influenza virus-induced lung injury"

14:30 - 14:45: Peter Pennitz (PI: Martin Witzenrath, *DZL-Associated site Charité* Berlin)
"Neural network-assisted humanization of COVID-19 hamster transcriptomic data reveals matching severity states in human disease"

14:45 - 15:00: Edith Plucinski (PI: Lavinia Neubert & Jan C. Kamp, *DZL BREATH Campus* Hannover)
"Understanding the impact of macrophages on lung transplant outcomes"

F) LUNG DEVELOPMENT AND BRONCHOPULMONARY DYSPLASIA

Thursday, June 27th, at 17:45

Chairs: Edma Loku and Mahtab Shahriari Felordi

17:45 - 18:00: Mohammad Amin Mahjoub (PI: Miguel A. Alejandre Alcázar)
"Investigating the role of notch signaling pathway in experimental BPD"

18:00 - 18:15: Ophelia Aubert (*Guest speaker, University Hospital Leipzig*)
"Fetal tracheal occlusion normalizes NF-κB and YAP signaling and restores epithelial differentiation in congenital diaphragmatic hernia"

18:15 - 18:30: Eleni Bouloukou (PI: Christos Samakovlis)
"Conversion of basal cells to the neuroendocrine trajectory"

18:30 - 18:45: Martha Candoni (PI: Norbert Weissmann & Natascha Sommer)
"The role of iNOS in normal and aberrant lung development"

18:45 - 19:00: Stephanie Stephan (PI: Miguel A. Alejandre Alcázar)
"Investigating the macrophage-alveolar epithelial type II cells interplay in hyperoxia-induced neonatal lung injury"

G) LUNG CANCER

Friday, June 28th, at 10:00

Chairs: Afaq Mushtaq and Henrike Treis

10:00 - 10:15: Philipp Friedrich Arndt (PI: Rajkumar Savai)
"Metabolic reprogramming of tumor-associated macrophages and its impact on lung cancer progression"

10:15 - 10:30: Spyridoula Barmpoutsi (PI: Rajkumar Savai)
""Do not eat me'' LILRB4 signaling as a novel macrophage immunotherapy in lung cancer"

10:30 - 10:45: Dario Frey (PI: Ursula Klingmüller, *DZL TLRC Campus* Heidelberg)
"Targeting the EGFR-MET axis in NSCLC: From cell signaling dynamics to therapeutic strategies"

10:45 - 11:00: Ayoson Joshua (PI: Rajkumar Savai)
"CD8 T cell subpopulation 'Tc17' induces a metabolic enriched microenvironment enabling lung cancer progression"

H) CHRONIC OBSTRUCTIVE PULMONARY DISEASE

Friday, June 28th, at 11:30

Chairs: Aysan Ezaddoustdar and Esmeralda Vásquez Pacheco

11:30 - 11:45: Vidya Lakshmi (PI: Norbert Weissmann & Natascha Sommer)
"Mitochondrial cytochrome c oxidase subunit 4 isoform 2 regulates T-cell activation and hyperinflammation during virus-induced exacerbation following smoke exposure"

11:45 - 12:00: Edma Loku (PI: Norbert Weissmann & Stefan Hadzic)
"Developmental fibroblast growth factor 10 in pathogenesis and reversion of emphysema and PH in COPD"

12:00 - 12:15: Vinita Sharma (PI: Norbert Weissmann)
"Exploring the role of macrophage recruitment in COPD-associated pulmonary hypertension"

Speaker Introductions and Speaker Session Chairs

STEVEN M. CORSELLO by Vanessa Kleinhenn

JOSEPH A. LASKY by Bhavika B. Katariya

MELISSA PARKE by Alejandro Egea Zorrilla

CHARLES A. POWELL by Philipp Friedrich Arndt

LARISSA A. SHIMODA by Ornella Yamdjeu Tchokondu

DARCY E. WAGNER by Stephanie Stephan

PAUL G. THOMAS by Ali Khadim

MATTHEW J. THOMAS by Daniel Kalina

Poster Presentations

Students: Please hang posters during lunch (12:00-13:30) prior to the poster session.

Poster board number	Presenter (Wednesday, 26th June 2024, 15:45-17:00)
1	**Gowtham Boosarpu** (PI: Bernd Schmeck & Mareike Lehmann) "Studying exacerbation of pneumonia due to COPD using organoids and PCLS"
2	**Isabell Valerie Burhorst** (PI: Bernd Schmeck & Anna Lena Jung) "Extracellular vesicles in pneumogenic ARDS"
3	**Amine Chahin** (PI: Mareike Lehmann) "Lung aging in COPD and IPF"
4	**Aysan Ezaddoustdar** (PI: Malgorzata Wygrecka) "The role of epiregulin in lung fibrosis"
5	**Efthymios Fousekis-Papakonstantinou** (PI: Mareike Lehmann) "Role of extracellular vesicles in aging-associated chronic lung diseases"
6	**Sandipan Jash** (PI: Natascha Sommer) "Cause and consequences of cytochrome c oxidase (COX) remodelling in lung disease"
7	**Daniel Kalina** (PI: Malgorzata Wygrecka) "Characterization of the bleomycin-induced pulmonary fibrosis model in rats"
8	**Afaq Mushtaq** (PI: Margarida M. Barroso & Susanne Herold) "Stem cell research and pulmonary infectious diseases"
9	**Jamal Nabhanizadeh** (PI: Rajkumar Savai & Norbert Weissmann) "Navigating the spatiotemporal molecular landscape of lung tumor progression through multiomics analysis"
10	**Victoria Kehinde Ogungbemi-Alt** (PI: Ulrich Matt & Susanne Herold) "Controlling plasticity of alveolar macrophages for cell-based therapy in lung injury"
11	**Henrike Treis** (PI: Norbert Weissmann & Stefan Hadzic) "Heme oxygenase-1: Bridging antioxidant defence & anti-inflammation in COPD"

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