DBMR Research Conference

Langhans Auditorium, Pathology
Murtenstrasse 31, 3008 Bern

Date: **Monday, March 6, 2023, 5 pm – 6 pm**

Title: **Making sense of senescence in aging**

Speaker: **Prof. Mauricio Rojas, MD, Associate Vice-Chair of Research, Department of Internal Medicine, the Ohio State University**

Bio: Prof. Mauricio Rojas is a medical doctor in immunology and molecular virology. His main focus of interest is in determination of age-related mechanism that contribute to increased susceptibility to lung fibrosis, with an emphasis on the exhaustion of mesenchymal stem cells and mechanisms of persistence senescencent lung fibroblasts. After completing his M.D. at the National University of Colombia in 1987, he moved to Immunology and Molecular Virology at the International Center for Genetic Engineering and Biotechnology (India) until 1989. Then, he has done his research fellow in Colombia and at the Department of Microbiology and Immunology, University of Vanderbilt, Nashville (US). At the University of Pittsburgh, he promoted research inside the Division of Pulmonary, Allergy and Critical care as the scientific director of the Dorothy P. & Richard P. Simmons Center for ILD. Currently, he is appointed as a Professor in the Division of Pulmonary, Critical Care and Sleep Medicine and as the Associate Vice-Chair for Research in the Department of Internal Medicine and Director of the Surgical Biorepository of the Department of Internal Medicine at Ohio State University. He is the PI leader of a U01 consortium grant program focused on developing molecular maps of lung aging and a member of the Human Cell Atlas Lung Network. Current ongoing projects in his laboratory include investigating: 1) the role of senescent fibroblast in the development of chronic lung diseases like IPF; 2) the senescence-associated secretome of age and IPF fibroblasts; 3) the response of lung fibroblasts to different triggers like bleomycin, rotenone and proliferative senescence. These synergistic projects have provided insight into the molecular mechanisms of the age-related decrease in resilience in the lung and the higher susceptibility to lung fibrosis.

Abstract: Janus, the old Roman mythological god of transitions and duality, was represented by two distinct faces: youth and aging, or, alternatively, as the beginning and the end. Senescence has been described as an essential mechanism of cell differentiation and organ formation during embryogenesis and organ repair in younger individuals. However, with age, we observe an accumulation of senescent cells in different organs, including the lung. This increases the susceptibility for developing chronic lung diseases, such as chronic obstructive pulmonary disease and idiopathic pulmonary fibrosis (IPF), and also increases the risk of frailty and death as a final consequence. In summary, evidence suggests that young cell senescence and senescence surveillance are essential components of organ development, repair, and antitumor defense. Accumulation of senescent cells may promote fibrosis in aged organisms by secreting soluble factors, senescence-associated secretory phenotypes, that contribute to the onset of senescence in neighboring cells through paracrine transmission, and by altering the surrounding environment by the secretion of extracellular matrix proteins. We anticipate that strategies targeting apoptosis of dedifferentiated senescent lung fibroblasts holds great promise for improving the prevention of and therapy for fibrosis.

Prof. Mauricio Rojas, MD has been invited by PD Amiq Gazdhar, MD-PhD, MAS, Lung Precision Medicine, Department for BioMedical Research, University of Bern.

The DBMR Research Conference takes place from 5 pm – 6 pm and will be followed by an apéro.

Next DBMR Research Conference

Monday, April 3, 2023, 5 pm – 6 pm
Prof. Chantal Pauli, MD, Department of Pathology and Molecular Pathology, University Hospital Zurich and Medical Faculty, University of Zurich (CH)
Title: "Patient – derived Ex Vivo Models for Functional Tumor Profiling"