Category
ME Medicine

Session Number
ME-1

Session Title
Human Adaptation to High Altitude

Session Description
Living at and travelling to high altitude including Antarctica is a physiological challenge. While lowlanders have to acclimatize to reduced oxygen supply (and cold) by increasing red blood cell production, highlanders living in different regions of the world have developed various adaptive mechanisms to cope with these harsh conditions. The physiological response to hypoxia requires the availability of iron for numerous processes including oxygen sensing and erythropoiesis. Moreover, hyperventilation may induce depletion of bicarbonates reserve and development of chronic alkalosis potentially impairing tissue regeneration. Exposure to hypoxia may also persistently reduce the level of peripheral blood endothelial progenitor cells and impair endothelium function ultimately leading to increased risk for cardiovascular diseases. We expect the participants to present cutting edge data on the crosstalk of oxygen and iron metabolism, the acclimatization processes of lowlanders to high altitude (in rest or during exercise) as well as the genetic adaptation in Tibetans, Andeans and other populations living at high altitude.

Keywords: high altitude, acclimatization, adaptation, erythropoiesis, iron, endothelial cells, respiration

Lead Convener: Max Gassmann
Email: maxg@access.uzh.ch
Affiliation lead-convener: University of Zurich

Co-convener 1: Simone Porcelli
Email: simone.porcelli@ibfm.cnr.it
Affiliation: Consiglio die Bioimmagini e Fisiologia Molecolare

Co-convener 2: Martina Muckenthaler
Email: Martina.Muckenthaler@med.uni-heidelberg.de
Affiliation: University of Heidelberg