



Seminar/Talk

Molecular oxygen can be an awkward demand of us absolutely aerobic organisms

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Host: Shigemoto Group

A strict demand for molecular oxygen (O₂) is imposed on us absolutely aerobic organisms to maintain metabolic activity through mitochondrial ATP production, while depletion of O₂ (hypoxia) promptly endangers our survival. Although this recognition concerning biological significance of O₂ may appear obligatory and undeniable, it is in fact malleable and ambiguous from the perspective of in vivo significance of O₂ in multicellular organisms. Recently, evidence has accumulated that hypoxia underlies various physiological responses in cells and organs. In addition, within the body, O₂ has been shown to be endogenously converted to the reactive molecular species responsible for oxidative stress that influences and often dysregulates downstream cellular signals. In this lecture, it is highlighted that a Ca²⁺-permeable cation channel TRPA1 constitutes the sensors of O₂ and its related derivatives to activate downstream electrical/chemical signals in the peripheral and central nervous system. Also, by discussing how the TRPA1-mediated mechanism contributes to the setting of hypoxic level of O₂, I will attempt to robustify and conceptualize physiological aspects of hypoxia as physioxia.

Monday, July 15, 2024 04:00pm - 05:00pm

Moonstone Bldg / Ground floor / Seminar Room G (I24.EG.030g)



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