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**Title:** Defect of HDAC7 causes impaired VEGF expression in response to hypoxia in COPD

Dr. Masako 1054 To m-to@dokkyomed.ac.jp MD [1], Dr. Akihiro 1055 Hitani hitani@dokkyomed.ac.jp MD [1], Mrs. Ichino 1056 Kano m_ikano@nitobebunka.ac.jp [1], Dr. Kazuhiro 1057 Ito k.ito@imperial.ac.uk [2] and Dr. Kosuke 1058 Haruki kos-h@dokkyomed.ac.jp MD [1]. [1] Department of Laboratory Medicine, Dokkyo Medical University Koshigaya Hospital, Koshigaya, Saitama, Japan, 3438555 and [2] Airway Disease Section, National Heart and Lung Institute, Imperial College, London, United Kingdom .

**Body:** [Backgrounds] Hypoxia inducible factor (HIF)-1α is induced by hypoxia and plays important roles in cellular adaptation to low oxygen availability via induction of several genes, such as vascular-endothelial growth factor (VEGF). We have reported HIF-1α in nuclei was lower in COPD compared with smokers without COPD due to HDAC7 reduction, suggesting poor adaptation to hypoxia in COPD (To M et al. CHEST, 2012). The aim of this study is to investigate cytokine profiles resulted from poor nuclear translocation of HIF-1α, caused by HDAC7 reduction. [Methods and Results]A549 cells were cultured in hypoxia ($O_2$ 1%, $CO_2$ 5%) for 24h. HDAC7 in cytoplasm was decreased to 74%, and that in nuclei showed 1.5-fold increase by hypoxia treatment. Short interference RNA of HDAC7 (siHDAC7) or control (siNeg) was transfected to A549 cells, and then cells were incubated under hypoxia for 24h. HDAC7 mRNA expression were knocked down by 78% by RNA interference. As reported, HIF-1α protein in nuclei of HDAC7 KD A549 cells was significantly lower than that in wild type (WT) A549 cells. Hypoxia increased VEGF mRNA expression in WT A549 cells (hypoxia/nornoxia: 2.2±0.2 fold), but the increase was suppressed in HDAC7 KD cells (hypoxia/nornoxia: 1.2±0.2 fold, $p<0.05$ compared to WT). In contrast, hypoxia-induced increase of MMP-9 and CXCL8 mRNA expression were not suppressed in HDAC7KD A549 cells compared to WT cells (hypoxia/nornoxia: MMP-9; 3.1±0.3 fold in WT and 2.4±1.6 fold in HDAC7 KD, CXCL8; 2.2±0.7 fold in WT and 1.6±0.2 fold in HDAC7 KD). [Conclusion]HDAC7 reduction selectively reduced hypoxia-induced VEGF expression over MMP-9 and CXCL8. The cytokine profiles caused by HDAC7 reduction might involve in pathogenesis of COPD.