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PHD2 silencing cooperates with $BRaf^{V600E}$ to induce melanoma formation

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Abstract

This lecture will address the role of PHD2, a master oxygen sensor, during melanoma pathogenesis. It will include discussion of: function of PHD2 in cellular response to hypoxia, PHD2 mutations in cancers, the cooperation of PHD2 deletion and BRAF mutation in a mouse model of melanoma. HIF-1α is a key transcription factor involved in the induction of the hypoxia specific gene transcription program. HIF-1alpha protein expression is tightly regulated by oxygen levels. PHD2 regulates the hypoxia induced gene transcription program by controlling the stability of HIF-α through prolyl hydroxylation of the latter. Missense mutations in the human PHD2 gene have been identified in various tumors, including paraganglioma and more recent in melanoma. The function of PHD2 in cancer cells has yet to be fully understood. Our data support a tumor suppressor role of PHD2 in cancer development.

Biography

Dr. Xu has studied melanoma biology and pathology for 15 years, during which time he has authored more than 100 peer-reviewed reports. He has served on the editorial boards for the Human Pathology, International Journal of Clinical and Experimental Pathology, Current signal transduction therapy, Dermatology Research and Practice and he is an Associate Editor for Lever's Histopathology of Skin. Dr. Xu is a member of the Scientific Merit Review Board, Department of Veterans Affairs, and he has served on a number of review committees for the NIH, Scottish Chief Scientist Office, Chinese Natural Science Foundation and Melanoma Research Foundation.