Yinling Hu et al., J Stem Cell Res Ther 2014, 4:9
http://dx.doi.org/10.4172/2157-7633.S1.009

OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference and Exhibition on
Cell & Gene Therapy
October 27-29, 2014 Embassy Suites Las Vegas, USA

A new lung cancer mouse model

Yinling Hu[1], Zouxiang Xiao[1], Qun Jiang[1], Jami Willette-Brown[1], Sichuan Xi[1], Feng Zhu[1], Sandra Burkett[1], Timothy Back[1], Na-Young Song[1], Mahesh Datla[1], Zhonghe Sun[2], Romina Goldszmid[1], Fanching Lin[1], Travis Cohoon[3], Kristen Pike[2], Xiaolin Wu[2], David S Schrump[1], Kwok-Kin Wong[3], Howard A Young[1], Giorgio Trinchieri[1] and **Robert H Wiltrout[1]**

[1]National Cancer Institute, USA
[2]SAIC-Frederick, Inc., USA
[3]Dana-Farber Cancer Institute, USA

Lung cancer is the leading cause of cancer mortality worldwide. Lung squamous cell carcinoma (SCC), a major type of human lung cancer, has not well been recapitulatedin mice. Here, we report that kinase-dead IKKα knock-in mice develop spontaneous lung SCCs associated with IKKα downregulation and marked pulmonary inflammation. In an epigenetic manner, IKKα reduction upregulated the expression of p63, Trim29, and keratin 5 (K5), which serve as diagnostic markers for human lung SCCs. $IKK\alpha^{low}K5^{+}p63^{hi}$ cell expansion and SCC formation were accompanied by inflammation-associated deregulation of oncogenes, tumor suppressors, and stem cell regulators. Reintroducing transgenic K5.IKKα, depleting macrophages, and reconstituting irradiated mutant animals with WT bone marrow (BM) prevented SCC development, suggesting that BM-derived IKKα-mutant macrophages promote the transition of $IKK\alpha^{low}K5+p63^{hi}$ cells to tumor cells. This mouse model resembles human lung SCCs, sheds light on the mechanisms underlying lung malignancy development, and identifies targets for therapy of lung SCCs.

Biography

Yinling Hu did her undergraduate degree in Chinese Academy of Medical Science and received PhD from University of Melbourne at Australia. She was a Postdoctoral fellow in Michael Karins laboratory, University of California at San Diego from 1996 to 2001. She began to establish her laboratory as an Assistant Professor at Science Park Research Division, M.D. Anderson Cancer Center in November 2001 and came to NCI-Frederick as a Principal Investigator in September 2008..

Huy2@mail.nih.gov