



Oxygen sensing by T cells facilitates the establishment of cancer metastasis in the lung

Dr. Nicholas Restifo's group at the National Cancer Institute's Center for Cancer Research have discovered that oxygen-sensing proteins, called prolyl hydroxylase domain (PHD) proteins, act within T cells to prevent overly strong immune responses to harmless particles that frequently enter the lung. These PHD proteins promote the development of regulatory T cells and limit the development of inflammatory T cells.

The authors hypothesized that this protective mechanism may also allow circulating cancer cells to get a foothold in the lung. To test this, the researchers used PHD-knock-out mice. These PHD-knock-out mice, as well as normal mice, were injected with melanoma cells. Strikingly, whereas normal mice showed large amounts of cancerous melanoma cells in the lungs, the mice whose T cells lacked PHD proteins showed almost no evidence of melanoma in the lungs.

To accomplish this research, the authors used Bio X Cell's anti-mouse IFN γ (clone XMG1.2) antibody to neutralize IFN γ -mediated anti-tumor immunity and confirm that PHD proteins limit IFN γ -mediated tumor clearance in the lung. Additionally, the authors used Bio X Cell's anti-mouse IL-4 (clone 11B11) antibody to neutralize IL-4 and induce Th1 and Th17 cell differentiation *in vitro*.

See the article in Cell: [http://www.cell.com/cell/abstract/S0092-8674\(16\)30982-5](http://www.cell.com/cell/abstract/S0092-8674(16)30982-5)