

**Presentation:**

Hypoxia-Adenosinergic Regulation of Immune Response and Control of Inflammatory Tissue Damage

**Speaker:**

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**Abstract:**

The discovery of the critical and non-redundant role of A2A adenosine receptors (A2AR) as negative regulators of T cell-dependent acute inflammation (Ohta and Sitkovsky, *Nature* (2001) 414, 916) suggested that A2AR also protects cancerous tissues by inhibiting incoming anti-tumor T lymphocytes. Indeed, the genetic deletion of A2AR resulted in rejection of established tumors in ~60% of mice with no rejection observed in control WT type mice. The A2 receptor antagonists or targeting by siRNA pretreatment improved the inhibition of tumor growth, destruction of metastases and prevented the neovascularization by both endogenous and adoptively transferred anti-tumor T cells in a T cell autonomous manner. The targeting the adenosinergic pathway represents novel immunotherapy strategy where the adenosine --> A2AR pathway antagonists are expected to improve the anti-tumor immunity, while recruiting this pathway by selective A2AR agonists may attenuate the autoimmune tissue damage.