ISTITUTO PASTEUR ITALIA
SEMINAR

Lunedì 8 Aprile 2024, ore 14:00

SSAS, Edificio D, AULA 101 (1 Piano)

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Università Cattolica del Sacro Cuore

IFN-I and epigenetics behind tumor immunology

Immunogenic- and immune-therapies have become hot spots in the treatment of cancer. Although promising, these strategies are frequently associated with innate or acquired resistance, calling for combined targeting of immune inhibitory signals. Type I interferons (IFN-I) are emerging as crucial factors able to mold the state and fate of cancer and immune cells in the tumor microenvironment through epigenetic dysregulations. In this setting, epigenetic therapy is attracting unprecedented attention as a combination partner for immunogenic- and immune-therapies to convey therapeutic benefit with significant breakthroughs on patients' quality of life.

Suboptimal induction of cancer cell death by immunogenic chemotherapy triggers an acute IFN-I response that fails to elicit anticancer immunity and instead drives stemness, therapeutic-resistance and immune-evasion through the IFN-I-stimulated gene lysine demethylase 1B (KDM1B). KDM1B is an epigenetic regulator which erases mono- and dy-methyls on histone H3 at lysine 4 (H3K4me1 and H3K4me2) in both residual cancer cells and tumor-infiltrating immune cells.

Results from our study will shed light on detrimental nuclear reprogramming downstream of IFN-I as a novel mechanism of acquired resistance and cancer immunoediting and will guide the development of personalized precision combined epigenetic/immune-based therapies to counteract cancer immune escape and impede tumor progression/recurrence.

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