REGIONAL CENTRE FOR BIOTECHNOLOGY
Seminar series

Therapeutic Implications of Targeting OAS/RNase L System against Cancer and Viral Infections

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Seminar Room

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Abstract

Degrading RNA is a fundamental host response for controlling viral infections. In higher vertebrates, this process is often regulated by interferons (IFNs). Type I IFNs produced by virus-infected cells, induces expression of hundreds interferon-stimulated genes, whose products cooperate to induce an antiviral state. One of the most important IFN induced antiviral activity is the activation of 2',5'-oligoadenylate synthetase-ribonuclease L (OAS-RNase L) system. The viral pathogen associated molecular pattern dsRNA binds and activates OAS which synthesize unusual 2' to 5' linked oligo(rA) called 2-5A from cellular ATP. The 2-5A binds and activates the ubiquitous cellular endoribonuclease RNase L causing cleavages of single stranded regions of both viral and cellular RNA thus inhibiting viral replication and protein synthesis. I will be discussing the mechanism of the inhibition of OAS-RNase L system by various viral and cellular factors and its therapeutic implications for cancer and viral infection.