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Therapeutic intervention of Hantavirus disease

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Hantaviruses, members of the Bunyaviridae family cause severe illness in humans with high Mortality rates. There is no cure for Hantavirus disease at present. An evolutionarily conserved Sequence at the 5' terminus of hantaviral genomic RNA plays an important role in viral transcription initiation and packaging of the viral genome into viral nucleocapsids. Interaction of viral nucleocapsid protein (N) with this conserved sequence facilitates mRNA translation by a unique N-mediated translation strategy. Whereas this evolutionarily conserved sequence Facilitates virus replication with the assistance of N in eukaryotic hosts having multifaceted Antiviral defence, we demonstrate its interaction with N presents a novel target for therapeutic Intervention of hantavirus disease. Using a high throughput screening approach, we identified Three lead inhibitors that bind and induce structural perturbations in N. The inhibitors interrupt NRNA interaction and abrogate both viral genomic RNA synthesis and N-mediated translation strategy without affecting the canonical translation machinery of the host cell. The inhibitors are well tolerated by cells and inhibit hantavirus replication with the same potency as ribavirin, a Commercially available antiviral. We report the identification of a unique chemical scaffold that Disrupts a critical RNA-protein interaction in Hantaviruses and holds promise for the development Of the first anti-hantaviral therapeutic with broad spectrum antiviral activity.

Biography

Mohammad Mir is working As an Associate Professor-Virology, College of Veterinary Medicine in the Western University of Health Sciences, Pomona, California and I am a multidisciplinary virologist interested in molecular mechanism of virus replication and therapeutic intervention of viral diseases. I am enthusiastic to train next generation of virologists with a background in veterinary sciences at the College of veterinary medicine, Western University of Health Sciences. The veterinarians with research experiences in cutting edge virology will serve as specialized lead work force in the frontier areas of infectious disease.

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