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The Antimicrobial Compound, K21, Inhibits Replication of Enveloped and Non-Enveloped DNA and RNA Viruses

The K-21 derivative of Quaternary Ammonium Compound as formulated by Dr. Kimmerling in 2011 shows antimicrobial and antifungal activity with minor toxicity. We tested K-21 at different concentrations in different solvents on HSV-1 and HHV-6 and Influenza-A, Strain H1N1. HSV-1 replication and similarly HHV-6 were significantly inhibited as measured by cytopathic effects (CPE), qPCR and inhibition of viral proteins by western blots with a concentration of 0.025%. Influenza A and two un-enveloped RNA viruses (Phage MS2, a surrogate of polio virus and feline norovirus) were also inhibited by K-21 solution within 10 minutes contact. Influenza A was significantly inhibited by lower concentrations of K-21. The two un-enveloped viruses, however, were inhibited by <55%. Higher concentrations of K-21 (0.1%) were required to significantly inhibited feline virus (>98%). While concentrations of 0.025% K-21 were not toxic, the 0.1% K-21 concentration showed some toxicity yet was tested at only one dilution. K-21 anti-viral effects on HIV-1 strains are currently explored. K-21 is a unique antiviral, antibacterial and antifungal agent, which is potent germicidal topical application against various infections. Further studies are in progress for *in vivo* applications as a spray or as a hand gel and in other forms for human use.

Biography

Dharam V Ablashi is a Microbiologist. He has published over 300 articles on Herpesviruses and HIV. His major interests are assessing pathogenic roles of viruses in diseases, and in developing antivirals as therapeutic reagents. He has a BSc, and a DMV from Panjab University India, a Dip. Bact. from I.V.R.I, and MS in Virology from the University of R.I., USA. He worked for 23 years at NIH. In 1986, he co-discovered human herpesvirus-6 (HHV-6), a highly neurotropic and immune suppressive virus. He was as an adjunct Professor at Georgetown University School of Medicine, Washington, DC, and Director of Herpesvirus Research in a diagnostic company. Currently, the Scientific Director of the HHV-6 Foundation, and the Senior Technology Adviser at KHG fiteBac Technology in Marietta, Georgia.

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