IN BRIEF

COVID-19

Defective viral genomes can protect against SARS-CoV-2 variants and other respiratory viruses

Based on the unexpected observation that the Sabin Poliovirus vaccine not only protects against polio but also against other viruses, Andino and colleagues explored whether virus-like entities can be used as broad-spectrum antivirals to stimulate innate immune defences. They generated a liposome-encapsulated poliovirus-derived defective viral genome (eTIP1) that was administered intranasally to mice infected with different respiratory viruses, including influenza, SARS-CoV-2 and its Alpha, Delta and Epsilon variants. eTIP1 reduced viral loads, facilitated adaptive immune responses and prevented lethal infections when given up to 48 hours before to 24 hours after viral exposure. Protection was dependent on eTIP1 being replication competent. The authors hypothesize that, by mimicking natural infection, eTIP1 recruits different arms of immunity, providing a potentially powerful broad-spectrum prophylactic and therapeutic weapon.

ORIGINAl ARTICLE Xiao, Y. et al. A defective viral genome strategy elicits broad protective immunity against respiratory viruses. Cell https://doi.org/10.1016/j.cell.2021.11.023 (2021)