Development of nasal spray formulated with antiviral drug against influenza virus

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Influenza pandemics, including the 1917–18 Spanish flu, have historically killed millions of people worldwide. Despite advances in vaccinology and antiviral drug development, the world remains vulnerable against future pandemics. Current available antiviral drugs against influenza target virus structures and proteins of viruses, and may be rendered ineffective by constant mutations at these sites at the genetic level. To bypass the problem of drug resistance, novel approaches which specifically stimulate the host's innate immunity to provide broad antiviral responses are becoming hot areas in antiviral drug development. Toward this end, Defence R&D Canada (DRDC) has pioneered the preclinical development of liposome-encapsulated Poly ICLC (LE Poly ICLC), a potent antiviral agent that activates the toll-like receptor-3 (TLR-3) signaling pathway which in turn results in the induction of protective antiviral immunity in the host. DRDC aims to champion the advance development of a nasal spray formulated with LE Poly ICLC, potentially able to protect Canadian Forces, first responders and civilians against influenza pandemics. In a study conducted in an experimental ferret model, we have demonstrated that the nasal spray represents a safe, effective and needle free means for delivering LE Poly ICLC for protection against influenza A/PR/8/34 (H1N1) virus. When fully developed, it will enhance our ability to defend against deadly, regardless of whether they are natural in origin, bioengineered, or resistant to conventional antiviral drugs.

Biography

Captain Kabore is a Bioscience Officer in the Canadian Forces, at 1 Field Ambulance Detachment Suffield. He is currently assigned to DRDC Military Support Unit Suffield, Biotechnology Section. Currently, Captain Kabore takes on responsibilities as the program manager for the Antiviral Program (AVP).

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