1: Virology 1997 Jun 23;233(1):185-92

Growth of lion and puma lentiviruses in domestic cat cells and comparisons with FIV.

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Feline immunodeficiency virus (FIV-Fca) is a lentivirus that causes gradual immunological deterioration in domestic cats. Lentiviruses related to FIV have been detected in several nondomestic feline species; the biologic significance of these viruses remains to be defined. To examine the in vitro cell tropism of these nondomestic cat lentiviruses, prototypical puma and lion lentiviruses (FIV-Pco and FIV-Ple) were cultured in a variety of feline cell cultures. A domestic cat T lymphoma cell line, 3201, best supported the replication of both FIV-Pco and FIV-Ple. Moreover, FIV-Ple was lytic for these cells. RT-PCR amplification of a conserved pol gene region demonstrated species-specific primer homology. Sequence and phylogenetic analyses of this amplification product confirmed the identity of the replicating viruses and classified two previously uncharacterized viruses within predictable lion and puma clades. Sequence analysis of a conserved pol region demonstrated homology with previously characterized FIV-Ple and FIV-Pco. Western blot analysis using domestic cat anti-FIV-Fca sera showed that both FIV-Pco and FIV-Ple were antigenically related, to differing degrees, to three serotypes of FIV-Fca. These studies demonstrate that though nondomestic cat lentiviruses differ significantly from FIV-Fca and that a viral-specific protocol may be necessary for sensitive viral detection, these viruses can replicate in cells of domestic cats. suggesting the potential for cross-species transmission.

PMID: 9201228 [PubMed - indexed for MEDLINE]

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