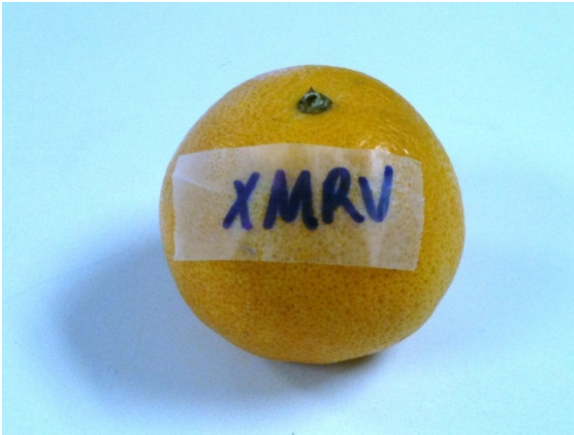


A Pictorial Essay to Describe XMRV, MLVs and Gammaretroviruses



This clementine represents xenotropic murine leukemia virus-related virus (XMRV). In this pictorial essay, orange-colored citrus fruits represent all murine leukemia-related viruses (MLVs). XMRV is a clementine; it is also an orange-colored citrus fruit or MLV.

MLVs (orange citrus fruits) likely have mouse origins. What makes XMRV different from other MLVs is its ability to infect other non-mouse species – that’s why it’s called “xenotropic.” MLVs that only infect mice are called “ecotropic” MLVs. If they can infect both mice and other non-mouse species, they are called “polytropic” MLVs.



In the *PNAS* paper, the authors show figures called “phylogenetic trees” that describe how four of the types of MLV they found compare to other known MLVs. Relationships are determined by the specific sequence of proteins that make up the viruses. These four slightly different orange-colored citrus fruits represent the variants of MLVs identified by Lo et al. in 24 of the samples from CFS patients and three healthy blood donors who tested positive for MLVs. 18 of the 24 CFS patients had

“type 1” MLV; two CFS patients had “type 2” MLV; one had “type 3” MLV. Types 1 and 2 were very closely related. Two of the blood donors fit into a larger group that included types 1, 2 and 3. XMRV would also fit in this group. The type of MLV found in the third blood donor was quite different from the others (and from XMRV) and represents a “type 4” MLV. The authors state that it is unclear whether the different types of MLV have any significance in the pathogenesis or disease course that the individuals might have.



This group of orange-colored citrus fruits represents MLVs. There are many, many known MLVs, which include mouse-derived viruses that are used to research a wide variety of human diseases.

Imagine these items placed on a bigger fruit stand, where different types of apples represent porcine (pig) leukemia viruses, grapes represent avian (bird) leukemia viruses, etc. All the fruit on the fruit stand represent the family of gammaretroviruses.