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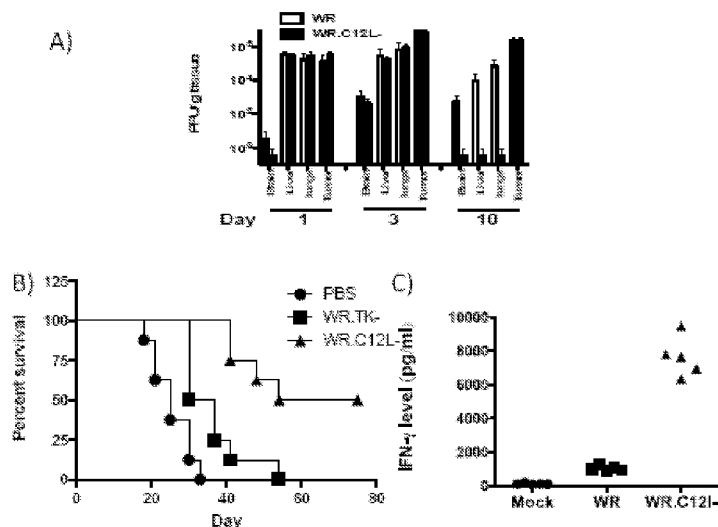


FIGURE 1 A-C

(57) **Abstract:** The present invention relates to oncolytic vaccinia viruses which have been modified to promote anti-tumor immunity and/or reduce host immunity and/or antibody response against the virus. It is based, at least in part, on the discovery that oncolytic vaccinia virus (i) bearing a genome deletion of a gene that reduces T cell immunity (interleukin-18 binding protein); (ii) treated with a sialidase enzyme which is believed to reduce TLR2 activation and therefore the antibody response; (iii) carrying a gene that enhances cytotoxic T lymphocyte induction (e.g., TRIF) and/or (iv) reduces tumor myeloid-derived suppressor cells by reducing prostaglandin E2 reduces tumor growth. Accordingly, the present invention provides for immuno-oncolytic vaccinia viruses and methods of using them in the treatment of cancers.