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A novel oncolytic modified measles virus is a promising candidate for cancer therapy

Oncolytic virus therapy is a promising therapy for various tumor types. We previously reported that a wild-type measles virus (MV) efficiently infects and shows high oncolytic activity to breast cancer cells. Since wild type MV infects immune cells using signaling lymphocyte activation molecule (SLAM) as a receptor, and causes its pathogenicity in host animals, we generated a recombinant MV selectively unable to use SLAM (rMV-SLAMblind). The rMV-SLAM blind lost infectivity to lymphoid cells, but maintained its infectivity to breast cancer cells using another receptor of MV, PVRL4 (poliovirus receptor related-4)/Nectin-4. Nectin-4 is hardly expressed in other tissues except placenta in healthy adults. Recent studies reported that Nectin-4 expression is up-regulated in various types of tumor cells, including breast cancer and non-small-cell lung cancer, which is the leading cause of cancer-related death. We examined the efficacy of rMV-SLAMblind on various cell lines derived from refractory cancers, in which Nectin-4/PVRL4 was expressed. The virus showed high oncolytic activity against them and also effectively suppressed tumor mass growth in xenotransplanted immunodeficient mice. Thus, rMV-SLAMblind should be a promising candidate of a novel therapeutic agent for caner treatment.

Biography

Chieko Kai is a full Professor and Director of Animal Research Center, Institute of Medical Science, the University of Tokyo since 1999, and is also a Professor of International Research Center for Infectious Diseases, in the same institute. She is a member of Science Council of Japan. Her major interests are mechanisms of pathogenisity of RNA viruses, and to control viral diseases. Her current research focus is on developing a novel cancer therapy using oncolytic viruses by genetic engineering.

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