Abstract:

THE K TYPE HUMAN ENDOGENOUS RETROVIRAL ELEMENT ENCODES FUSOGENIC ACTIVITY IN MELANOMA CELLS

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Nuclear atypia with features of multinuclei have been detected in human melanoma specimens. We found that the K-type human endogenous retroviral element (HERV-K) is expressed in such cells. Since cellular syncytia can form when cells are infected with retroviruses, we hypothesized that HERV-K, which is expressed in melanoma cells and may play a role in melanomagenesis, contributes to the formation of multinuclear cells in melanoma. We specifically inhibited HERV-K using RNAi and monoclonal antibodies and observed dramatic reduction of intercellular fusion of cultured melanoma cells. Importantly, we identified loss of heterozygosity (LOH) of D19S433 in a cell clone that survived and proliferated after cell fusion. Our results support the notion that proteins encoded by HERV-K can mediate intercellular fusion of melanoma cells, which may generate multinuclear cells and drive the evolution of genetic changes that provide growth and survival advantages.