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Creation of a heterogeneous cell system capable of increasing the genetic variety of the viral population

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One of the approaches used in creation of viral strains suitable for tumor therapy is enhancement of the specificity of oncolytic viruses for tumor cells as well as widening the spectrum of the tissues that could be infected by the virus. However development of cell systems that support viral replication is also important as production of viral strains with a broadened tissue tropism takes more than 5-6 mutations that appear after 2-3 cycles of replication culminating in the appearance of the genetically stable mutant which inevitably leads to a decrease in tropism for various receptors on tumor cells. To address that issue we produced a stable cell line from malignant tumors of the brain (GlioMD7) by co-culturing 5 different primary cell lines. All primary cell lines were obtained from tumor samples undergoing secondary growth and that were treated by multiple courses of chemotherapy. Cloning of the population revealed more than 11 different subpopulations with drastically different expression profiles of marker genes. To produce a cell line that would support replication of nonpathogenic enteroviruses we introduced a plasmid STAT1 p84/p91 CRISPR/Cas9 Knock-out (sc-400086, Santa-Cruz, USA) that resulted in a cell line with a switched off gene STAT1 (responsible for creation of antiviral immunity). Further study revealed that after 3,6,12 passages the obtained cell line hadn't lost its heterogeneity while maintain a constantly low expression of STAT1. That line was subsequently cryopreserved. Acknowledgements:Our research was supported by Russian Ministry of Education grant RFMEFI60714X0067

Biography

Lipatova Anastasia is a PhD-student in Engelhardt Institute of Molecular Biology. She has published more than 10 research papers in molecular biology and virology

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