

Targeting cancer stem cell by oncolytic viruses

Faris Farassati

Midwest Biomedical Research Foundation, USA


According to the recent models for tumor development, a fraction of cells within tumors play the role of stem cells (i.e. cancer stem cells or CSC) and are in charge of giving rise to all other kinds of cells needed to maintain tumor integrity. An effective therapy must be able to destroy CSCs. Lack of such feature in our current chemotherapy agents leads to the eventual tumor relapse. There are no pharmacological agents currently available for specific targeting of CSCs. In this talk, we present our data on targeting CSCs from both preventive and therapeutic points of view. This is accomplished by developing Oncolytic Viruses that can target CSCs in a cell specific manner. Oncolytic viruses are novel tools for targeting human malignancies that are capable of infecting cancer cells while sparing normal cells. With the FDA approval of the first member of this family in 2015 for treatment of melanoma, we are entering a new phase in the use of these agents in clinical practice. A range of oncolytic viruses are used for this purpose such as

genetically engineered viruses (e.g. Herpes and Adenoviral models) or viruses that are used in their natural form (e.g. Reovirus). Other than killing cancer cells by infection (the signature effect of an oncolytic virus), an important anti-cancer mechanism of these agents is their stimulatory effects on anti-tumoral immunity. This is caused by release of a host of viral elements as well as cancer associated antigens. One of the focus areas of Dr. Farassati's team is to develop oncolytic viruses that can target and destroy CSCs which will be reviewed in this presentation.

Speaker Biography

Faris Farassati is a Translational Cancer Scientist whose research is focused on development of novel anti-cancer therapeutics. His research team focuses on intervention with pro-oncogenic cell signaling machinery in order to treat human malignancies. Therapeutic targets which are identified to be "Cancer-Specific" are pursued by both gene and drug therapy strategies. Transcriptional targeting of Oncolytic Viruses is a major focus of research of his group.

e: ffarassati@gmail.com

 Notes: