Researchers at the University of South Florida have developed a novel lung cancer therapy that delivers a cancer-fighting virus to tumors via stem cells.

Lung cancer remains the leading cause worldwide of cancer-related mortality in both men and women. Despite progress in surgery, chemotherapy, radiation therapy, and immune therapies, advanced lung cancer remains difficult to treat. This is largely due to the development of resistance in cancer cells to classical chemo and radiation therapies. These challenges have led some researchers to develop therapies based on an “oncolytic virus,” or a virus that preferentially infects and kills cancer cells. One such virus that may be potent at fighting lung cancer is the Respiratory Syncytial Virus (RSV). However, the virus alone cannot sufficiently target all cancer cells.

USF researchers have combined RSV with cancer-fighting stem cells to create a more potent therapy to treat lung cancer. These stem cells are already known to target tumors, thus the researchers reasoned that RSV infected stem cells might be even more potent against cancer. The researchers successfully infected stem cells with RSV, and demonstrated that the stem cells were still able to migrate to tumor sites. The treatment specifically targets and kills tumor cells, while leaving surrounding healthy tissue unharmed.

This novel lung cancer therapy overcomes the challenges of local delivery of anti-cancer virus to the tumor cells. The development adds to the ever growing arsenal of cancer fighting strategies and will lead to enhanced cancer therapies.

**ADVANTAGES:**
- Combines two cancer fighting agents
- Targets virus specifically to tumor
- Leaves healthy tissue unharmed
- Overcomes cancer’s resistance towards classical therapies

**Targeting Tumor Cells with Selective and Effective Oncolytic Viruses**

“Hot Spots” Show that Stem Cells Loaded with RSV Migrated to Lungs with Tumors

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