

Inhibition of STAT3 Signal Transduction for Human Cancer Therapy

Researchers at the University of South Florida have developed a novel peptide composition which disrupts the STAT3 signaling pathway and induces apoptosis in human carcinogenic cells.

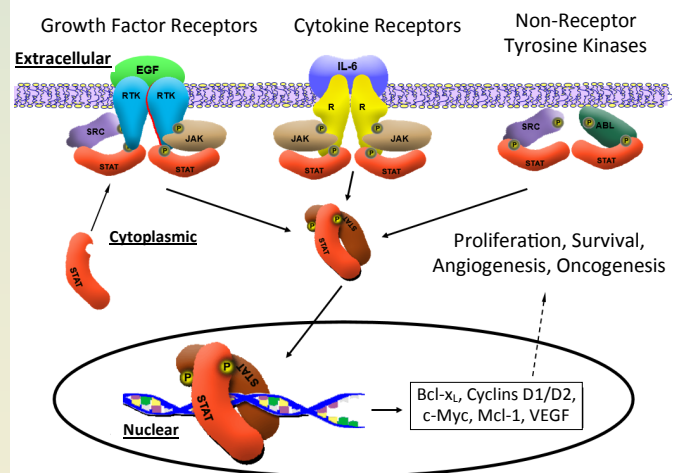
In the United States annually, over one million people will be diagnosed with cancer and more than half a million will die from the disease. Researchers continue to search for innovative ways to treat this illness. The disruption of certain cellular signaling pathways presents great promise in cancer treatment research. Signal Transducer and Activator of Transcription (STAT) proteins play a fundamental role in cell signaling and are necessary for the normal functioning of healthy cells. However, cancer cells have been found to manipulate various STAT proteins such as STAT3 to promote cell proliferation, tumor cell survival, tumor angiogenesis and immune evasion. STAT3 activation can also reduce sensitivity to chemotherapeutic agents, making typical cancer treatment methods less effective. Therefore, the administration of effective STAT3 inhibitors exhibit tremendous potential as a cancer prevention and treatment method.

USF researchers have developed a novel peptide composition and administration approach via a pharmaceutically acceptable carrier to inhibit STAT3 signaling. This STAT3 inhibition method has been shown to suppress tumor growth by a variety of mechanisms including induction of apoptosis, inhibition of angiogenesis, stimulation of anti-tumor immune responses and increase chemotherapeutic sensitivity.

ADVANTAGES:

- **STAT3 signaling inhibition**
- **Induces apoptosis in tumor cells**
- **Increases chemotherapeutic sensitivity**
- **Applicable for many cancer types**

Novel Peptides for Cellular Signaling Inhibition to Treat Cancer



STAT Signaling Pathways Involved in Cell Growth, Apoptosis and Angiogenesis