

# Peptidomimetic Inhibitors of Stat3 for Cancer Therapy

**R**esearchers at the University of South Florida have developed a new group of small molecule agents capable of inhibiting the growth and function of tumor cells, thereby inducing programmed cell death (apoptosis).

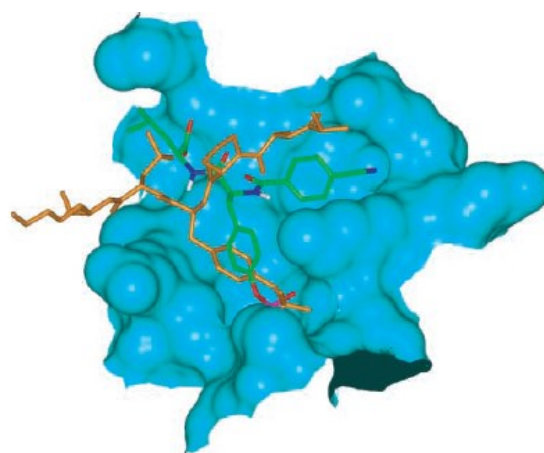
Chemotherapy is a very widely used anti-cancer treatment option, but is generally accompanied by a number of harsh side effects. Many of these side effects are due to non-specific killing of healthy cells in the patient. Current research is focused on developing anti-cancer therapies with the ability to distinguish between cell types and specifically target tumor cells. This treatment option would eliminate cancerous cells without producing the many negative side-effects caused by chemotherapy.

USF researchers have developed a novel method to block tumor growth and induce tumor cell death. This method utilizes a group of peptidomimetic inhibitors which inhibit STAT function. Peptidomimetic inhibitors are small molecule agents with the ability to specifically target tumor cells and inhibit signal transduction and activation of transcription 3 (Stat3). Stat3 is a pro-survival protein that is active in a wide variety of tumor cells. The lead peptidomimetic inhibitor decreased the growth and function of human breast and lung cancer cells and induced apoptosis. Furthermore, normal cells are not affected by the treatment. Additional development of these agents for anti-cancer therapy may provide a new means of treating a wide variety of cancers without the harsh side-effects seen with typical chemotherapy treatment.

## ADVANTAGES:

- Potential treatment for multiple tumor types
- Reduced side effects
- Healthy cells are unaffected

*A Novel Composition and Method to Induce Tumor-Specific Cell Death by Disrupting Stat3 Activation and Function*



*A Computer Model of a Stat3 Peptidomimetic Inhibitor Bound to a Portion of the Stat3 Molecule*

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