

STAT3 Antagonists and Their use as Vaccines Against Cancer

Researchers at the University of South Florida have developed a new anti-cancer vaccine for treatment of a wide range of cancers.

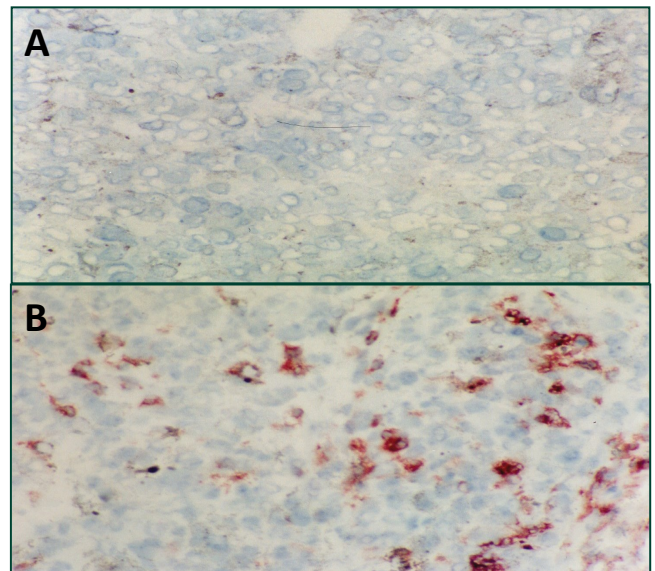
Currently, the primary means of treating cancer is the use of chemotherapeutic drugs. These drugs can cause harsh side effects and can limit the quality of life of a cancer patient. As an alternative, an anti-cancer vaccine uses the patient's own immune system to combat cancer cells, reducing the potential for side effects caused by chemotherapeutic drugs. It is known that the signal transducers and activators of transcription (STAT) proteins regulate many aspects of cell growth, survival and differentiation. Moreover, STAT proteins have been found to play a key role in the regulation of gene expression. The dysregulation of the STAT3 protein pathway is frequently observed in many tumors and allows the tumors to develop enhanced survival mechanisms. This highlights the need for an effective method to decrease STAT3 expression in the subject in need of treatment and/or prevention.

Our researchers have developed a method for the treatment and prevention of cancer. This method comprises decreasing STAT3 expression in tumor cell *ex-vivo* and using them to activate T-cells *in-vitro*. The activated T-cells are subsequently used as a vaccine to treat or prevent a cancer. STAT3 activity is high in a variety of tumor cells, so this technology has great potential as a therapeutic anti-cancer vaccine for a range of cancer types, including, but not limited to colon, breast, bladder, prostate, and lung cancers. Hence this technology is effective for the prevention/treatment of cancer.

ADVANTAGES:

- Allows treatment of a wide range of cancers
- Uses immune response for treatment
- No harsh side effects

Novel Vaccine for Wide Range of Cancers



*A-Tumor Without STAT3 Inhibition
B-STAT Interrupted Tumor shows
Infiltration of the Tumor by Macrophages*

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