USF Available Technologies

Technology Transfer Office

POP2 NF-kB Inhibiting Polypeptides, Nucleic Acids and Method of Use

Researchers at the University of South Florida have developed a method of inhibiting NF-kB activity in a cell using a naturally occurring human gene termed POP2 (pyrin-only protein-2).

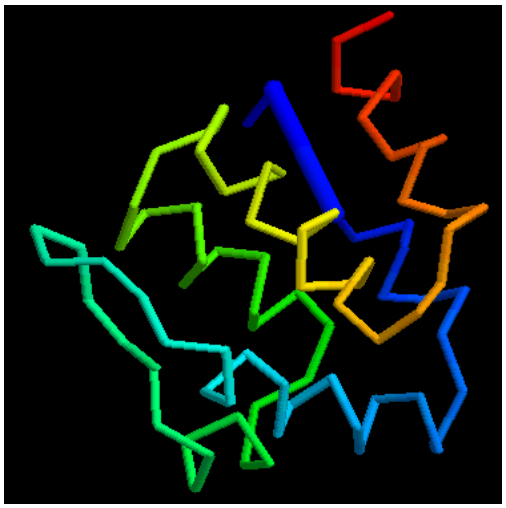
Biological growth is regulated by a plethora of processes including cell growth, cell death and various cell signaling mechanisms. Further, NF-kB is an important regulatory protein complex with control over many functions including cell growth, cell-cycle regulation, and cell survival. However, mutations, chromosomal rearrangements and chronic inflammation can erroneously activate NF-kB. Cancer cells, which are known for their infinite replication abilities and malicious growth rates, typically report high NF-kB activity. Currently, many widely used chemotherapy agents unintentionally activate NF-kB, thus lessening the effectiveness of the agent as well as desensitizing the tumor. Studies have shown that combining a chemotherapy agent with an NF-kB inhibitor can remove this unintentional effect and restore the agent's efficacy. This highlights the need for a drug that can halt NF-kB activity in compromised cells to stop disease progression.

USF researchers have identified a naturally occurring POP2 protein which inhibits NF-kB activity. Also claimed are polypeptides and nucleic acids which encode POP2, and methods for their production and use. POP2 is expected to have a greater efficacy and exhibit fewer side effects than current NF-kB protein modulating drugs because it is a naturally occurring NF-kB inhibitor. This technology is useful in the treatment of cancer, as well as for autoimmune and inflammatory diseases.

ADVANTAGES:

- **Specific inhibition of NF-kB**
- **Improved chemotherapy effectiveness**
- **Potential lessening of side effects**
- **Applicable for the treatment of many diseases**

A Naturally Occurring Protein that Inhibits NF-kB Activity in a Cell



A Computer Generated Model of the POP2 Protein

Tech ID # 05A026 **Patent #: 9,163,071**

University of South Florida | Technology Transfer Office
813.974.0994 (office) | 813.974.8490 (fax)
patents@research.usf.edu
http://www.usf.edu/research-innovation/pl/