

# Acylsulfonamides and Processes for Producing the Same

**R**esearchers at the University of South Florida have developed promising new anti-cancer drugs that specifically target the anti-apoptotic function of the B-cell lymphoma-2 (Bcl-2) family of proteins.

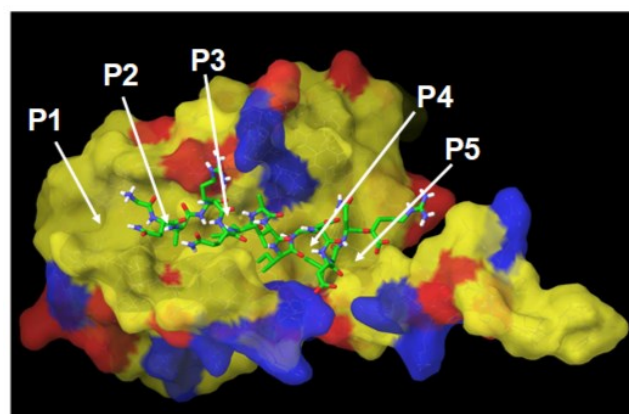
Today, most cancer patients are treated with some combination of surgery, chemotherapy and radiation. Unfortunately, such therapies destroy healthy as well as malignant cells resulting in severe side effects. One of the most promising new approaches in modern cancer treatment is the use of apoptosis modulating drugs. This approach is intended to enhance the body's natural tendency to defend itself against malignant tumors without damaging healthy tissue. Similar agents have been available for many years. However, their mechanisms of action have been flawed, in that they initially act nonspecifically by either damaging DNA or disrupting the cytoskeleton, and do so in both tumor and normal cells. Thus, newer targeted approaches for the treatment of cancers are needed.

USF scientists have designed a novel compound class that shows promise to specifically target the anti-apoptotic Bcl-2 family of proteins, particularly Bcl-xL, without damaging healthy cells. The majority of human cancers over-express Bcl-xL and Bcl-2. These proteins not only contribute to cancer progression, but render cancer cells resistant to cancer treatment. Our scientists have designed sulfonamide based compounds which have been successful in disrupting Bcl-xL-protein interactions. This novel approach could change the face of standard cancer-care.

### ADVANTAGES:

- Selective triggering of apoptotic pathway in cancer cells
- Enhances the body's natural defense against tumors
- Decreased damage to healthy cells and tissues

### *Tumor Selective Apoptosis Inducing Agents*



*Natural Protein Bak (green) Binds to Target Protein Bcl-xL (yellow). Lead Compounds Disrupt the Bcl-xL-Bak Interactions and Trigger Apoptosis in Cancer Cells.*

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**Patent #: [8,524,947](#)**