



UNIVERSITY OF TENNESSEE RESEARCH FOUNDATION

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A Novel Tylophorine Analogue, A Potent Anti-Tumor Agent

The Technology

Pancreatic cancer is the fourth leading cause of death in cancer patients in the U.S. and is a global cancer treatment problem. Even with treatment, the outcome is dismal, with a 1- and 5-year survival rate of 15% and 5% respectively. Chemoresistance of tumor cells is the major cause of treatment failure. Novel anti-tumor chemotherapeutic drugs with unique modes of action are needed, especially for patients with refractory to current chemotherapy.

Tylophorines are naturally occurring plant extracts that have been shown to exhibit potent growth-inhibiting activity against human-derived tumor cells. In an effort to increase their potency, researchers at the University of Tennessee have synthesized several novel analogues of tylophorines. Through research collaboration with Yale University, one such analogue, DCB-3503, has been shown to be highly potent against a large number of human derived tumors both in vitro and in vivo. Further, DCB-3503 exerts its growth inhibition by modulating the cell cycle regulatory proteins and modulating the NF- κ B activity and thus would circumvent the most common resistance pathways.

Related Publications:

- Inhibition of cell growth and nuclear factor-kappaB activity in pancreatic cancer cell lines by a tylophorine analogue, DCB-3503. *Mol Cancer Ther.* 2006 Oct; 5(10):2484-93.
- Novel mode of action of tylophorine analogs as antitumor compounds. *Cancer Res.* 2004 Jan 15; 64(2):678-88.
- Effects of a novel tylophorine analog on collagen-induced arthritis through inhibition of the innate immune response. *Arthritis Rheum.* 2006 Mar; 54(3):877-86.
- Abrogation of skin disease in LUPUS-prone MRL/FASlpr mice by means of a novel tylophorine analog. *Arthritis Rheum.* 2006 Oct; 54(10):3277-83.

Partner

UTRF is looking for a partner to develop and commercialize this novel anti-tumor compound. This compound could be developed as a stand-alone treatment for pancreatic and other hard to treat cancers. It is expected that this technology will be licensed under an exclusive license, including sub-licensing rights.

Benefits

- Potentially can create a new market for treatment of pancreatic cancers.
- Ability to treat tumors that are typically drug resistant.
- Provides competitive alternatives for treatment of multiple cancer types.

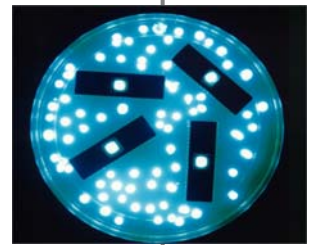
Identifying, managing and licensing intellectual property from The University of Tennessee

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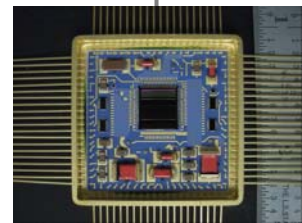
AGRICULTURE



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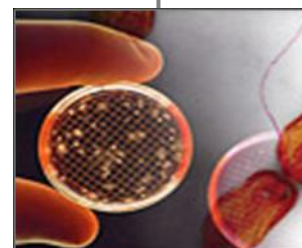
ENGINEERING



MATERIALS



MEDICINE





The Inventors

Dr. David C. Baker is a Professor in the Department of Chemistry at the University of Tennessee, Knoxville. Dr. Baker's group is principally centered on the chemistry of carbohydrates, nucleosides, cyclitols and heterocyclic compounds as they relate to bioorganic and medicinal chemistry. They work in the area of design and synthesis of enzyme inhibitors, antiviral and anticancer compounds. Working closely with biological collaborators, Dr. Baker is involved in both the design and evaluation of potential drug candidates.

Dr. Yung-chi Cheng is a Henry Bronson Professor in the Department of Pharmacology at Yale University, School of Medicine. Dr. Cheng's group focuses on cancer and viral chemotherapy. Drug resistance is a critical issue in cancer chemotherapy and Dr. Cheng is interested in exploring the mechanisms of drug resistance development and has focused on the NF- κ B pathway for overcoming this resistance.

Patents

- US/20050222418/application. Novel tyloindicines and related processes, pharmaceutical compositions and methods.
- WO/2003/070166/application. Novel tyloindicines and related processes, pharmaceutical compositions and methods.

Contact

The University of Tennessee Research Foundation (UTRF) is a non-profit corporation responsible for commercializing University of Tennessee technologies and for supporting University research. UTRF is presently seeking parties interested in learning more about this technology and in exploring possible research and/or commercialization arrangements.

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