Polymer-Drug Conjugates for the Co-delivery of Synergistic Chemotherapy Drugs

Tech ID: 24982 / UC Case 2015-339-0

BRIEF DESCRIPTION

A method of making and using pharmaceutical compositions comprising two or more anticancer agents.

BACKGROUND

Topoisomerases I and II are nuclear enzymes that are involved in DNA replication, thus making them targets for anticancer therapy. Many efforts have been made to identify safe and effective combinations of Topoisomerase I and II inhibitors. Some combination therapies have shown inhibition of *in vitro* cancer cell growth, however, clinical studies have not progressed beyond phase II stages. This is due to either little or no improvement in therapeutic effects of the combination, or augmented toxicity compared to single drug use. One alternative method for delivering chemotherapy agents is through polymer-drug conjugates, which can have greater benefits compared to administering the drug by itself. Conjugating drugs to polymers can improve efficacy by active or passive targeting as well as reduction of off-target effects.

DESCRIPTION

Researchers at UC Santa Barbara have developed a method of making and using pharmaceutical compositions comprising two or more anticancer agents. The components are conjugated to a biocompatible polymer at a molar ratio that creates a synergistic effect. Because the multiple agents are covalently coupled to the polymer, they can be delivered to areas in need of treatment, such as tumors in cancer patients. The polymer is preferably a water-soluble, biocompatible polymer, and the compositions can be created for administration via a variety of pathways. These include parenteral, oral and intranasal administration techniques.

ADVANTAGES

· Synergistic effect created when using multiple agents in combination

· Targeted drug delivery to areas in need of treatment

· Can administer using parenteral, oral or intranasal methods

APPLICATIONS

· Anticancer treatment

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OTHER INFORMATION

KEYWORDS

indbiotech, cancer, polymer-drug, chemotherapy, indpharma

CATEGORIZED AS

- **Medical**
  - Disease: Cancer
  - Therapeutics

RELATED CASES

2015-339-0

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,197,932	12/14/2021	2015-339
United States Of America	Issued Patent	10,653,789	05/19/2020	2015-339
United States Of America	Published Application	20220096645	03/31/2022	2015-339

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Synthetic Platelets (SynPlats) to Treat Internal & External Bleeding
- Multiple Nanoemulsions and Complex Nanoparticles for Encapsulation and Release
- Soft Tissue Augmentation by Needle-Free Injection
- Systems, Methods and Devices for Rapid Tissue-Based Diagnosis
- Mucoadhesive Devices for Oral Delivery of Various Active Agents

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