

pH-"Tunable" Nano-Particle Drug Delivery System

Tech ID: 19435 / UC Case 2006-140-0

BACKGROUND

Target-selective drug delivery remains a challenge for various therapeutic applications and particularly for cancer. Current targeting strategies include formulation and encapsulation for preferential release in the acidic tumor environment as well as covalent conjugation via linkers sensitive to pH, to oxygen levels, or to disease-specific enzymes. These approaches have been limited by:

- ▶ Stringent requirements on linkable drugs and carriers.
- ▶ Inflexible rates of release.
- ▶ Insufficient target/tumor-specificity of relevant enzymes.

TECHNOLOGY DESCRIPTION

A new class of linkers has been developed to address these limitations. These linkers:

- ▶ Undergo controlled hydrolysis at physiological temperature and in mild aqueous, acidic environments.
- ▶ Can be tuned to hydrolyze with half-lives from thirty minutes to greater than nine months.
- ▶ Accommodate a wide range of biocompatible drug carriers.
- ▶ Flexibly conjugate to a wide variety of drugs (via alcohol, amine, or imidazole).

APPLICATIONS

These features should prove extremely relevant for clinical applications, from cancer to ophthalmology, where increased efficacy and reduce drug toxicity can enhance the therapeutic profile and/or extend patient life for promising and useful drugs.

INTELLECTUAL PROPERTY INFO

See issued patent, below.

RELATED MATERIALS

- ▶ [Yang Research](#)
- ▶ [Bioconjugate Chemistry 2007, 18, 293-29](#)

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,575,359	11/05/2013	2006-140

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Lead Compounds for Diagnosis and Therapy of Alzheimer's Disease](#)
- ▶ [Fluorescent Amyloid Binding Agents for Diagnosis of Alzheimer's Disease](#)
- ▶ [Ultrasensitive, Ion Channel-Based Sensors](#)

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OTHER INFORMATION

KEYWORDS

tumor, selective delivery, targeted, targeted delivery, carrier, linker, cancer, ophthalmology, macular degeneration, retinopathy, sustained release, controlled release

CATEGORIZED AS

- ▶ **Medical**
 - ▶ Delivery Systems
 - ▶ Disease: Autoimmune and Inflammation
 - ▶ Disease: Cancer
 - ▶ Disease: Ophthalmology and Optometry
- ▶ **Nanotechnology**
 - ▶ Other

RELATED CASES

2006-140-0

