The Bio-Superior HEPylation® Drug Delivery System

Fact Sheet

Overview

Many powerful drugs are:

- Difficult to administer (peaks & troughs in dosing)
- Painful during administration
- Highly reactive with the immune system making them unsuitable for use in native form

The PEG molecule addresses these problems, BUT it has inherent limitations/functional issues:

- Toxicity
- Accumulation in the liver, kidney and brain
- Potential immunogenicity
- Problematic synthesis at high molecular weights
- Patents which are tightly controlled
- Restrictive/expensive licensing rights

Advantages

The HEPylation® Drug Delivery System (patent pending) is the process of conjugating a naturally occurring sugar molecule, heparosan, to a drug. It has many advantages over PEG and other delivery systems.

- "bio-stealthy".
- "bio-compatible".
- "more water soluble than PEG".

The HEPylation® System is bio-superior to PEG:

- No known toxic effects based on intravenous rat model
- Longer residence time of the drug in the body for similar polymer size
- More water soluble and quick dissolving
- Good rheological properties (low viscosity) for injection
- Safe absorption/excretion
- A range of therapeutic dosing profiles
- Adaptable to many drugs or delivery agents
- New and novel intellectual property

Preliminary Studies

- Pharmacokinetic (PK) studies in small animals with several polymer sizes:
  - 16-72 hour plasma half-life in rats after IV, IM, and IP injection (Can tune plasma half life by altering the size of monodisperse heparosan molecule
  - Does not accumulate in organs including liver, kidney, heart, lungs, brain, or testes
- Can be coupled to protein drugs in mild conditions (similar to PEG technologies)
- Produces cytokine conjugates with biological activity

Contact Caisson Biotech, LLC:

Commercial Contact:
John Hoopingarner, President
11412 Bee Caves Road, Ste 300 I Austin, TX USA 78738
+1 512 697-8205
jhoopingarner@etibio.com

Technical Contact:
Dr. Paul DeAngelis, Chief Scientist
655 Research Parkway, Ste 525 I Oklahoma City, OK USA 73104
+1 405 271-2227 x 61210
paul-deangelis@ouhsc.edu

www.caissonbiotech.com