

Hemoglobin Carrying PEG Microspheres As Artificial Red Blood Cells

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BRIEF DESCRIPTION

Researchers at the University of California, Irvine have developed artificial red blood cells consisting of hemoglobin that is tethered to polyethylene glycol (PEG) molecules and formed into microspheres.

SUGGESTED USES

- This invention acts as a blood substitute when red blood cells are not available as a therapeutic option

FEATURES/BENEFITS

- Safety: the size of the invention prevents extravasation and damage to the kidneys. In addition, nitrogen oxide is not sequestered, which can lead to a variety of cardiovascular issues; harmful degradation products are also avoided.

FULL DESCRIPTION

As free hemoglobin is dangerous, approaches to blood substitutes have included chemical modifications to the hemoglobin, encapsulating the molecules, or a combination of both. These approaches have disadvantages such as being filtered by and damaging the kidneys, as well as the sequestration of nitrogen oxide.

The researchers at the University of California, Irvine, created a way to tether hemoglobin to PEG molecules, which subsequently forms microspheres. The PEG microspheres degrades over time and evenly release hemoglobin. This invention can be tailored to prevent loss by glomerular filtration and degradation rate.

STATE OF DEVELOPMENT

The invention is in the concept stage; inventors intend to test it in vivo.

PATENT STATUS

Patent Pending

CONTACT

Richard Y. Tun
tunr@uci.edu
tel: 949-824-3586.



OTHER INFORMATION

CATEGORIZED AS

- » **Medical**
- » Delivery Systems
- » Devices
- » Disease: Blood and Lymphatic System

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5270 California Avenue / Irvine, CA
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