



Inventors

- Howard E. Gendelman
- Alexander Kabanov
- Xinming Liu

UNeMed currently offers a variety of licensing options and collaborative development opportunities with the University of Nebraska Medical Center

Contact Information:

Matthew Boehm
Licensing Specialist
E: mboehm@unmc.edu

Technology Fields: Research Tools - Imaging

Technology ID: 0

Summary

Recent advances in nanomedicine have generated platforms that contain imaging and therapeutic agents allowing for a seamless integration of disease detection, therapy, and monitoring. These functional nanoparticles may serve as contrast agents in MRI-based imaging for disease detection and simultaneous delivery of therapeutics for a wide range of diseases. Researchers at the University of Nebraska Medical Center have developed novel tunable and stable M-USPIO particles coated with bisphosphonate polymers. The coating of bisphosphonate polymers on USPIO is stable at a wide range of pH, tunable with a wide range of weight ratio, has rapid formulation, is efficient with a 100% coating, and is nontoxic. The tunable M-USPIO particles are available for existing commercialized magnetic particles, such as magnetite and quantum dots, in order to develop targeted, stable, non-toxic, and readily manufactured magnetic particles for a broad range of biomedical applications. Potential applications include, but are not limited to, improved imaging for cancer and disease-associated inflammation, as well as anti-microbial (tagged antiretroviral drugs), hyperthermia for cancer, noninvasive real-time assessment of pharmacokinetic and pharmacodynamic profiles to improve clinical efficacy and image-guided drug delivery platforms.

Market Value

These tunable M-USPIO particles are available for use as a vector for drug and for existing commercialized magnetic particles in order to develop targeted, stable, non-toxic, and readily manufactured particles for image-guided drug delivery and other broad range of biomedical applications

Features and Benefits

- The advantages of this research tool include its ease to manufacture, broad applications, stability, reproducibility, and is nontoxic
- Enhanced chemical stability and pharmacokinetics, tunable with a wide range of weight ratio, and controllable drug loading
- In vitro diagnostic to visualize inflammation, and cancerous or infected cells or tracking delivery and effectiveness of drug treatment
- The stable bisphosphonate polymer materials can be used as a vector for drugs to promote targeted delivery

UNEMED:

986099 Nebraska Medical Center
Omaha, Nebraska 68198-6099
P 402.559.2468 F 402.559.2182
unemed.com