



## Coacervate Microparticles Useful for the Sustained Release of Therapeutic Agents

### Summary (1024-character limit)

Researchers at the National Institute on Aging (NIA) have discovered novel microparticles that are formed using a coacervation process; the biodegradable microbead or microparticle is useful for the sustained localized delivery of biologically active proteins or other molecules of pharmaceutical interest. The microparticles have a matrix structure comprised of the reaction product of at least one cationic polymer, at least one anionic polymer, and a binding component (e.g. gelatin, chondroitin sulfate, avidin).

### NIH Reference Number

E-116-2004

### Product Type

- Therapeutics

### Keywords

- Formulation
- Microparticle
- Sustained release
- Microbead
- Drug delivery
- National Institute on Aging
- NIA

### Collaboration Opportunity

This invention is available for licensing and co-development.

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### Description of Technology

Polymer matrix-based sustained-release formulations have gained significant interest in recent years for both parenteral and delivery of small molecules as well as proteins and other biological molecules. Compared to conventional dosage forms, these delivery systems offer improved efficacy, reduced toxicity, convenience and improved patient compliance. Colloidal carriers such as microparticles are

considered a promising approach for targeting drugs to specific organs that could permit the sustained release at the target site and reduce potential side effects.

Matrix-structured microparticles that are formed by coacervation are desirable since they permit therapeutic agents to become incorporated into the microparticles under mild conditions (e.g. delivery of nucleic acids).

Researchers at the National Institute on Aging (NIA) have discovered novel microparticles that are formed using a coacervation process, methods of forming the microparticles (with enhanced efficiency for microparticle sustained release compositions), and methods of using the microparticles for the sustained release administration of therapeutic agents (coacervate microparticles can be standardized and employed for the delivery of a variety of therapeutic agents).

### **Potential Commercial Applications**

- Hematology and oncology opportunities to develop sustained release or extended release formulations of chemotherapeutic drugs
- Pain management

### **Competitive Advantages**

- Enhanced efficacy of therapeutic agents
- Reduced toxicity of therapeutic agents
- Improved patient compliance

### **Inventor(s)**

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### **Development Stage**

- Basic (Target Identification)

### **Patent Status**

- **U.S. Patent Issued:** U.S. Patent Number 8728526, Issued 20 May 2014

### **Therapeutic Area**

- Cancer/Neoplasm
- Immune System and Inflammation