

Cross-Linked Ionic Core Micelles for Efficient Delivery of Therapeutics

Technology Fields: Therapeutics - Drug Delivery

Technology ID: 28

Patent Status: Issued [\[7,332,527\]](#)

Summary

Micelles are often used for drug delivery, however, there is a need for improved compositions. Researchers at The University of Nebraska Medical Center have developed novel micelles by creating amphiphilic block co-polymers that have a large solubility difference between the hydrophilic and hydrophobic blocks that assemble in aqueous solutions into polymer micelles of nanoscale size. The micelles can be used to encapsulate drugs or biological agents for improved delivery of the therapeutic agent. The novel micelle composition combines several structural features which improve the micelle's capacity for drug delivery as compared to existing polymer micelle drug delivery compositions.

Market Value

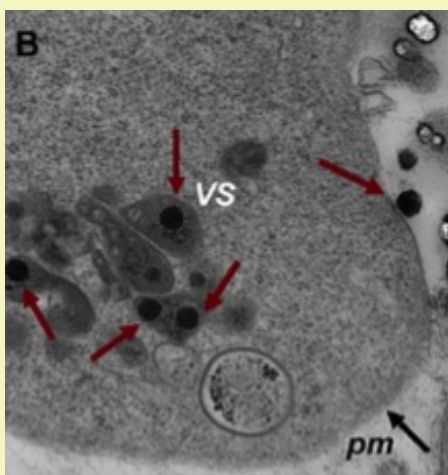
This technology can be used primarily in the pharmaceutical drug industry to improve the effectiveness of drug treatments, particularly in cancer treatment or diagnosis.

Features and Benefits

- Improved Therapeutic Index
- Increased Stability and Solubility
- Wide Range of Deliverable Biological Agents
- Permeable to Membranes and Biological Barriers

Publications

- Solomatin SV, Bronich TK, Eisenberg A, Kabanov VA, Kabanov AV. Fluorescence anisotropy study of aqueous dispersions of block ionomer complexes. *J Phys Chem B*. 2005 Mar 17;109(10):4303-8. [Link](#)
- Bontha S, Kabanov AV, Bronich TK. Polymer micelles with cross-linked ionic cores for delivery of anticancer drugs. *J Control Release*. 2006 Aug 28;114(2):163-74. Epub 2006 Jun 17. [Link](#)
- Alakhov VY, Kabanov AV. Block copolymeric biotransport carriers as versatile vehicles for drug delivery. *Expert Opin Investig Drugs*. 1998 Sep;7(9):1453-73. [Link](#)



TEM image of intracellular localization of cisplatin-loaded polymicelles (arrows) in a cell (pm: plasma membrane; VS: vesicular compartments)



Inventors

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

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