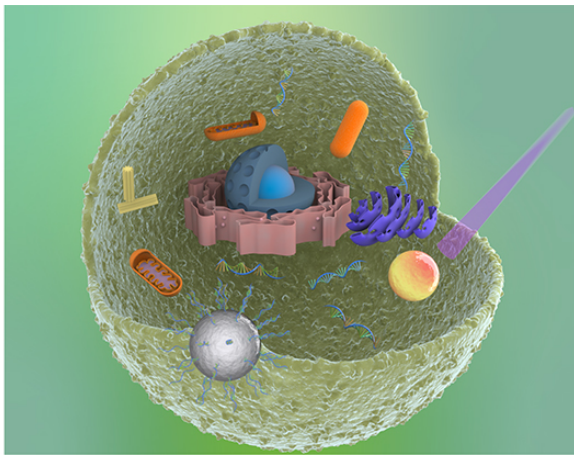


Family of Nanocarriers for Controlled Release of Therapeutics

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Nickel ferrite nanoparticles

Technology Summary

Techniques for the stimuli-responsive delivery of therapeutics have been of increasing interest in recent years; however, realizing control of drug delivery remains a significant challenge. This technology is directed towards compositions and methods for targeted delivery of therapeutics by using a nanoparticle, a therapeutic of choice, and a thermally cleavable linker joining the two. By applying an electromagnetic field (EMF) at the appropriate time and location to cause local heating around the nanoparticle, a reaction can be initiated to release the therapeutic. In some cases, a metal nanoparticle can be employed, and visible light at the plasmon resonant frequency can be used to heat the nanoparticle. In other cases, a magnetic nanoparticle can be employed and an alternating magnetic field used to heat the nanoparticle.

Application & Market Utility

By using metal nanoparticles with light or magnetic nanoparticles with RF induction to modulate release, therapeutics can be delivered within superficial tissues (e.g., skin, GI tract, etc.) or to deeper tissues, respectively. By using different linkers and/or different nanoparticles, this technology allows for multiplexed delivery of one or more therapeutics at the same time and/or at different times. This technology could be used to deliver multiple types of therapeutic species, including small molecules, nucleic acids, peptides, proteins, and cell-based therapeutics.

Next Steps

Seeking research collaboration and licensing opportunities.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Investment | Licensing | Research

Keywords

- targeted drug delivery
- thermally cleavable linker
- siRNA
- gene delivery
- gene silencing

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