NANOPARTICLES FOR TARGETED NON-SURGICAL SPAYING AND NEUTERING

ABSTRACT

Nanoparticles and formulations for non-surgical sterilization are disclosed herein. The nanoparticles for non-surgical sterilization contains a cage, such as a zeolitic imidazolate framework ("ZIF"), a surface modifying agent, a targeting ligand, and an active agent. The surface modifying agent is attached to the outer surface of the cage and the targeting ligand is exposed to the surrounding environment. The active agent is encapsulated in the cage. The targeting ligand binds to a reproductive hormone or a receptor of a reproductive hormone. The active agents can be a ribosome inactivating protein, an apoptosis inducer, a hormone, a receptor ligand, or a nucleic acid, or a combination thereof, that inactivates the ovaries or testes. Uses for the nanoparticles and formulations incorporating the nanoparticles for sterilizing a subject in need thereof are also disclosed.

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