



## Ph-Responsive Silica Metal Organic Framework Nanoparticles For Delivery Of Bioactive Molecules

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### The Invention

Provided herein are silica metal organic framework (SMOF) nanoparticles that are pH-responsive for delivery of bioactive molecules. The nanoparticles include a organosilica network comprising a plurality of imidazolyl and/or carboxyl groups; a metal organic framework component comprising a transition metal coordinated to a coordinating ligand, wherein the transition metal is selected from the group consisting of zinc, iron, zirconium, copper, and cobalt, and the coordinating ligand is selected from an imidazolate ligand or a carboxylate ligand; a bioactive payload selected from the group consisting of a hydrophilic drug, a polynucleic acid, a protein and a protein-polynucleic acid complex; and a surface-modifying polymer conjugated to the same or a different organosilica network and forming at least part of an exterior surface of the nanoparticle, wherein the surface-modifying polymer is selected from polyethylene glycol and/or a polyzwitterion; and wherein the zinc also coordinates the imidazolyl or carboxyl group of the organosilica network.

### Additional Information

#### For More Information About the Inventors

- [Shaoqin Gong](#)

#### Tech Fields

- [Drug Delivery : Other drug delivery technologies](#)

For current licensing status, please contact Rafael Diaz at [rdiaz@warf.org](mailto:rdiaz@warf.org) or 608-960-9847