

# Porous Silicon Based Nanomedicines

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Over the last decade, there has been a flurry of research, demonstrating porous silicon (pSi) as a powerful tool for interfacing with biological systems, owing to this nanomaterial's unique and tuneable properties which will be reviewed here.

Porous silicon nanoparticles (pSiNPs) have been widely utilised as drug carriers due to their excellent biocompatibility, large surface area, high drug loading and versatile surface chemistry. Also considering the favorable safety profile compared to other inorganic delivery platforms, pSiNPs are attractive candidates nanocarriers for small molecule therapeutics, siRNA and protein-based drugs.

In this presentation, I will give examples how we have engineered the surface chemistry on these nanoparticles to generate differentially functionalised internal and external surface functionalities and how we can leverage stimulus-cleavable linker systems to precisely tune drug release.

And I will provide examples of how pSi nanoparticles can be integrated and exploited in the context of preclinical models as nanomedicines for targeted therapies of cancer, autoimmune disease, wound healing and thrombosis.

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