

## Functionalization of mesoporous silica particles for drug delivery

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Mesoporous silica particles with different morphology and functional groups were prepared using the tetraethylorthosilicate (TEOS) as precursor and the cetyltrimethylammonium bromide (CTAB) and poly(ethylene glycol)-poly(propylene glycol)-poly(ethylene glycol) as templates. The surface of the synthesized particles was functionalized using different functional groups, i.e., 3-aminopropyltriethoxysilane (APTES), N-[3-(trimethoxysilyl)propyl]-ethylenediamine, 2-(4-chlorosulfonylphenyl)-ethyltrimethoxysilane, and acetic acid. These particles were characterized by scanning electron microscopy (SEM), transmission electron microscopy (TEM), and nitrogen sorption method.

To test these particles as carriers for drug delivery, ibuprofen was loaded onto each particles modified with different functional groups. The release of ibuprofen from different mesoporous particles in phosphate buffer solution (PBS) was monitored using the UV-vis. spectroscopy. The results provide the understanding on the interaction between the drug and carrier particles.