

## Mesoporous silica as a carrier in the drug delivery system

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Mesoporous silica particles with different size and morphology 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 with the amine group using the 3-aminopropyltriethoxysilane (APTES). These particles were characterized by scanning electron microscopy (SEM), transmission electron microscopy (TEM), nitrogen sorption, thermogravimetric analysis (TGA), and X-ray diffraction (XRD).

To test these particles as carriers for drug delivery, ibuprofen was loaded onto both the unmodified and modified particles. The release of ibuprofen from different mesoporous particles in phosphate buffer solution (PBS) or stimulated body fluid (SBF) was monitored using the UV-vis. spectroscopy. The results will provide the understanding on the interaction between the drug and carrier particles.