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### Killer carriers for malignant cells

*Nature Materials*, April 18, 2011

A drug-delivery nanocarrier with high capacity that specifically targets human liver carcinoma cells is reported online in *Nature Materials* this week. The highly efficient carriers have the potential to significantly increase the effectiveness of conventional chemotherapy and decrease its side effects. The carriers synthesized by Carlee Ashley, C. Jeffrey Brinker and colleagues are porous silica nanoparticles wrapped with a lipid membrane that is functionalized with targeting peptides, fusogenic peptides and the polymer polyethylene glycol. The team reports that polyethylene glycol enhances the carrier's stability whereas the peptides give the nanoparticles high binding affinity to malignant cells. The peptides also induce the cancer cells to engulf the nanoparticles, allowing them to release their cargo in the cytosol. Compared with liposomes, the hybrid nanocarriers improve on capacity, selectivity and stability. "The nanocarriers are so potent that on average a single particle is sufficient to kill a model hepatic carcinoma cell", says Darrell Irvine in an accompanying News & Views.



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