

# Nano Seminar

## Enzyme-Responsive Polymeric Nanocarriers

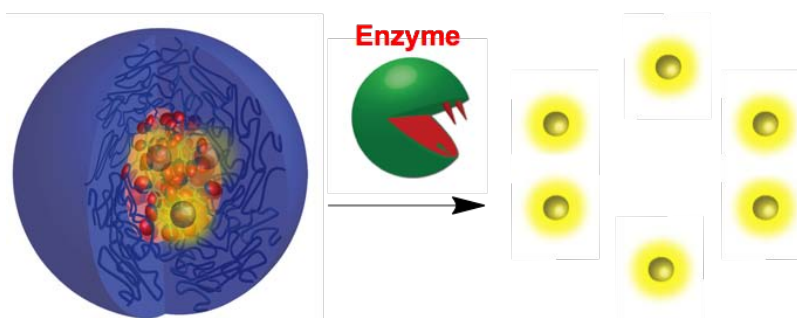
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### Abstract:

The increasing demand for smart drug delivery systems that can release their molecular payload selectively at the target tissue has motivated the development of stimuli-responsive polymeric nanocarriers. Among the various types of stimuli, such as pH, temperature and light, enzymes offer great potential due to the often-observed over-expression of specific disease-associated enzymes, which could potentially be utilized to trigger the release of drugs only at the target site. In this talk I will report a highly modular design of amphiphilic block copolymers based on a linear hydrophilic polyethylene glycol (PEG) and an enzyme-responsive dendron bearing enzymatically cleavable lipophilic end-groups as the hydrophobic block. These PEG-Dendron hybrids can be synthesized in high yields by accelerated divergent approach, utilizing a combination of amidation and thiol-yne reactions.

The obtained amphiphilic hybrids self-assembled in water into smart micelles that could disassemble and released the encapsulated molecular cargo upon enzymatic activation. Based on these



hybrids, we designed the next generation of smart polymers that can report their assembly and disassembly by changing their spectral properties in parallel with the enzymatically induced structural change. These self-reporting hybrids open the way for advanced diagnostic and therapeutic systems that can report their location and degree of activation.

### Gathering & Refreshments at 10:50

Please contact Liron Dover at 6584919 if you are interested in meeting the lecturer.

**Sunday, Jan 3<sup>rd</sup> 2015, 11:00 at the Seminar Hall**  
Los Angeles Building, entrance floor.