

Drug Carriers based on HPMA Nanoparticles: Molar Mass and Buffer Type

Tuesday, 16 June 2015 16:40 (0 minutes)

A promising way to achieve site-specific delivery of anticancer agents is to use the enhanced permeation and retention (EPR) effect of N-(2-hydroxypropyl) methacrylamide (HPMA) nanoparticles containing the drug doxorubicin (Dox) [1]. The present research in this field focuses on exploration of the particle structure and tuning of their properties. A low critical micelle concentration (CMC) and particle sizes in the range of 1-100 nm are of importance.

The aim of the present study is to investigate the influence of molar mass of the HPMA backbone with randomly distributed cholesterol moieties. Moreover, diblock copolymers from pure HPMA and HPMA with cholesterol are investigated with a focus on their CMC. Using fluorescence correlation spectroscopy (FCS) and small-angle neutron scattering (SANS), the CMC as well as the size and structure of the nanoparticles are determined in a phosphate buffer.

[1] Filippov, S.K. et al., Biomacromolecules 14, 4061 (2013).

Primary author: NIEBUUR, Bart-Jan (TUM Physik-Department E13)

Co-authors: Prof. PAPANAKIS, Christine (Technische Universität München, Physik-Department, Fachgebiet Physik weicher Materie); LOMKOVA, E (Institute of Macromolecular Chemistry, Prague, Czech Republic); Ms VISHNEVETSKAYA, Natalya (PhD); Dr CHYTIL, P (Institute of Macromolecular Chemistry, Prague, Czech Republic); Dr FILIPPOV, S.K. (Institute of Macromolecular Chemistry, Prague, Czech Republic)

Presenter: NIEBUUR, Bart-Jan (TUM Physik-Department E13)

Session Classification: Poster Session