FAKULTÄT FÜR CHEMIE

universität wien

Einladung zum Vortrag von

Prof. Dr. Mika Linden
Universität Ulm, Institut für Anorganische Chemie

„Mesoporous silica nanoparticles for cell-directed drug delivery"

Mesoporous silica nanoparticles (MSNs) have attracted immense interest as drug carriers over the last years, and successful targeted drug delivery has been demonstrated in vitro and occasionally *in vivo* in small animal models. The flexibility in terms of particle size, shape, and surface chemistry makes it possible to fine-tune the physical and chemical properties to correspond to the requirements of a specific administration route. Furthermore, their high surface area and pore volumes allow high drug loadings to be achieved, which also lower the nanoparticle loadings needed in a therapeutic setting. The particles are biocompatible and biodegradable and are typically renally excreted. The presentation will critically discuss factors influencing cellular specificity upon receptor-mediated targeting of such particles, with special focus on the influence of the protein corona formed on the particles in serum. Results will be shown which challenge the common view that a minimum level of protein adsorption is beneficial for enhanced cellular specificity. In addition, protein adsorption to the particles will also be discussed on a particle level, and it will be shown that results obtained from ensemble analyses do not reflect the large particle-to-particle differences in terms of serum protein adsorption. Furthermore, the biodistribution and factors influencing tumor accumulation of will be discussed based on quantitative PET imaging results. Special focus is laid on the discrimination between factual particle accumulation in organs and particles present in the organ vasculature. Influences of tumor vascularization on particle accumulation will also be discussed, highlighting the urgent need for standardization in order to allow for a better comparison between studies.

Freitag, 31. März 2017, 15:00 Uhr
Seminarraum 2
Währinger Straße 42, 1090 Wien

Wolfgang Kautek – Institut für Physikalische Chemie
Freddy Kleitz – Institut für Anorganische Chemie – funktionelle Materialien

Bernhard Keppler Dekan	Lothar Brecker Vizedekan	Veronika Somoza Vizedekanin