

Prof. Dr. Bruno De Geest
Biopharmaceutical Technology, Ghent University

will give a presentation entitled

**„Synthetic vaccine nanocarriers mimicking structure
and function of pathogens “**

Tuesday, September 30th, 2014, at 17:00h s.t.
in Blg C4 3, Kleiner Hörsaal der Anorganischen Chemie

Host: Prof. Dr. Claus-Michael Lehr

There is opportunity to talk with the speaker before the talk.
There will be a follow-up session (Nachsitzung).

For details and for making appointments please contact:
Stephanie Kallenborn, Tel.: UdS-2964, E-Mail: stephanie.kallenborn@helmholtz-hzi.de

Guests are welcome!

Summary

Micro- and nanoparticulate encapsulation strategies have attracted attention to solve a number of challenges in the biomedical field, e.g. for drug delivery or as building blocks in tissue engineering. We hypothesize that, compared to solid matrix particles such as PLGA microspheres, porous, fully-hydrated particles are hypothesized to have superior properties for several applications. Hydrated particles allow in and outwards diffusion of water as well as reactants and reaction products.

In view of these considerations we are evaluating self-assembly strategies to design nano- and microparticulate systems that target immune cells to delivery vaccine antigens and stimulatory cues that shape the magnitude and type of immune response. Inspired by nature, the systems we design mimic the structure and function of pathogens, thereby simulating natural infection. Here we present the bottom-up approach, using Layer-by-Layer (LbL) self-assembly of polyelectrolytes onto a sacrificial template, that we have followed in our research group the past years starting from simple laboratory bench experiments towards delivery systems that are non-toxic, have excellent performance in *in vivo* models for cancer and viral infection. Finally, our recent advances will be shown how we translate this know-how to design similar carriers that can be produced on an industrial relevant scale.

CV

Prof. Dr. Bruno De Geest graduated as Chemical Engineer in 2003 from Ghent University where he obtained his PhD in pharmaceutical sciences in 2006 on 'Polyelectrolyte Multilayer Capsules for Pharmaceutical Applications'. For his PhD work he was awarded the graduate student award for pharmaceutical technology from the AAPS and the Andreas Deleenheer award from Ghent University. After 2 years of postdoctoral research at Utrecht University (The Netherlands) he returned to Ghent University. From October 2012 onwards he is appointed as professor in Biopharmaceutical Technology.

Bruno De Geest has authored over 80 A1 papers (h factor of 30) and his research group focus on the interface between materials science and life science with a particular interest in polymer chemistry, immunology and anti-cancer therapy.