



PhD Program between the Freie Universität Berlin (FUB) and the China Scholarship Council (CSC)

Open PhD position at FUB for CSC scholarship candidates 2018

Please note: the PhD position is only offered to Chinese PhD candidates for application in the framework of the FUB-CSC PhD Program.

Department/Institute:	Institute of Pharmacy
Subject area:	Pharmaceutical Technology
Name of Supervisor:	Prof. Dr. Roland Bodmeier
Number of open PhD positions:	2
Type of the PhD Study:	Full-Time
Project title:	Formulation of poorly water soluble drugs as nanocrystals with polymer shell

PhD Project description:

The formulation of poorly water soluble drugs as nanocrystals is a promising approach to overcome their low bioavailability, e.g. when applied per-orally or dermally. Since nanocrystals consist of pure drug their drug loading is considered as 100%. Nanocrystal products are already on the market (e.g. Tricor®). However, controlled release is not achievable with nanocrystals in contrast to polymeric nanoparticles. Even though, polymeric nanoparticles are able to control the drug release the success of this formulation approach is limited due to their low drug loading (in general < 1%). Combining both approaches would eliminate their drawbacks, but combining their advantages resulting in a nanocarrier possessing both controlled release properties and a high drug loading. Therefore, the aim of this study is the formulation of nanocrystals having a polymeric shell. Regulatory accepted polymers from the pharmaceutical field will be employed (e.g. enteric polymers such as different types of Eudragit® for pH depended drug targeting or ethyl cellulose for sustained release). Furthermore, experimental polymers recently synthesized from groups from polymer chemistry or pharmaceutical chemistry will be tested underlying the interdisciplinarity of this project. Preparation methods are e.g. bead milling, high pressure homogenization and nano precipitation. Characterizing methods are e.g. PCS, LD, electron- and light microscopy, DSC, XRD and in situ solubility and release experiments. Promising formulations will be further tested in vivo and compared to existing products.

Language requirements:

IELTS: 6,5 oder TOEFL: 95 ibt

Academic requirements:

M.Sc. Pharmaceutical Sciences, M.Sc. Pharmacy, M.Pharm.

Information of the professor or research group leader (website, awards etc.):

www.pharmazie.fu-berlin.de/bodmeier

(for publications see PUBMED etc.)

Please note: In a first step, the complete application must be submitted to the Beijing Office for evaluation by January 4th, 2018. Please do not contact the professor before. He/She will get in contact with you after having received the complete application via the Beijing Office in January.