Course in the 2nd study period (3rd – 5th Semester)

Downstream Processing

Description				
Objective	The lecture provides an overview of methods used in protein downstream processing (DSP) at laboratory and industrial scale with a focus on biopharmaceuticals proteins. Practical aspects of DSP are emphasised.			
Prerequisites	Protein Biochemistry (Lecture)			
Content	1. Overview of multi-stage purification processes 2. Cell harvest, preparation of lysate; centrifugation and microfiltration techniques 3. Chromatography: IEX, SEC, HIC, RPC, AC 4. Ultrafiltration, diafiltration, membrane adsorbers 5. Removal of DNA, viruses, endotoxins and host cell proteins (HCPs) 6. Special purification techniques: extraction using aqueous two-phase systems, crystallisation, radial flow chromatography, monolithic chromatography 7. Design and implementation of PAT (Process Analytical Technologies) and QbD (Quality by Design) 8. Operation and maintenance of the ÄKTA-UPC-100-chromatography system			
Course material	– Lecture presentation – Desai, Mohamed A. [Hrsg.]: Downstream processing of proteins: methods and protocols, Humana Press, 2000; ISBN 0-89603-564-6 – GE Healthcare manuals for protein processing (available via ILIAS as pdf-files) – Special edition BioProcess International March 2008 (available via ILIAS as pdf-files)			
Language	German	☐	English	☒
Media	Presentation	☒	Blackboard	☒
Time schedule	Weekly	☒	Block schedule	☐
Cycle	Each semester	☒	Annually	☐
Status	Compulsory subject	☒	Compulsory optional subject	☐
Last modified	07.10.2013			