



Winter Semester 2014-2015 Lecture / Master

Polymeric and macromolecular therapeutic and diagnostic agents (3 SWS)

Thursdays, 14:00 – 17:00 hs, Room 34.16/17
Course starts on 16.10.2014

Outline

- Basics on drug classes for therapy and diagnostic imaging;
- Basics on pathophysiology: genetic diseases, human viral diseases, cancer.
- Background on pharmacology, active and passive targeting in cancer therapy
- Classes of polymer therapeutics: polymeric drug or sequestrant, polymer-drug conjugates, polymer-protein conjugates.
- Multivalent macromolecular architectures: dendrimers, hyperbranched polymers, dendronized polymers & Multivalency as novel mode of action;
- Polymer based therapeutics such as gels (nanogels, hydrogels), nanospheres, microspheres.
- Self assembled macromolecular/polymeric nanostructures: micelles formed by polymers and dendritic amphiphiles, vesicles made from phospholipids (liposomes), Janus dendrimers (dendrimerosomes) or polymers (polymersomes), and other nanocapsules (LbL).
- Polymers and macromolecules for gene therapy (concept of polyelectrolyte, polyion complex micelles-PIC): dendriplexes, polyplexes.
- Nanotheranostics, biological fate of polymeric particles.
- Clinical approval of polymer therapeutics.

