

Corso di laurea Magistrale in Biotecnologie Farmaceutiche
A.A. 2013 – 2014

PROGRAMMA Teaching Staff
LLP/ERASMUS

Short Course

Winter Semester 2013-2014

Nanobodies or camelid antibody fragments: properties and applications

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Lecture 1, November 28 (2.5 hrs), h 14.30 Hall 5:

- 1- What are Nanobodies? This part will explain how Nanobodies were discovered and give an overview of the unique properties of Nanobodies compare to those of conventional antibody fragments such as Fab, and ScFv.
- 2- How Nanobodies are generated and characterized? This lecture will introduce the different steps involved to generate and select Nanobodies against a given antigen.
- 3- How to measure the affinity of the Nanobodies for their antigen and how to measure their stability? This lecture will present the SPR technology (Surface Plasmon Resonance) and basic studies used to measure the stability of Nanobodies.
- 4- How to improve the properties of Nanobodies? This part will briefly introduce the different strategies available to engineer Nanobodies with increased affinity and/or increased stability.

Lecture 2, November 29 (2.5 hrs), h 14.30 Hall 6:

Therapeutic, diagnostic and biotechnological applications of Nanobodies. We will focus on the possibilities to use Nanobodies as: *in vivo* imaging agents, leads to derive peptide-based drugs, modular building blocks for manifold constructs, etc... Examples of the use of Nanobodies for research on cancer and degenerative diseases will also be addressed.

Final test: multiple choice test

Venue: Dipartimento di Scienze del Farmaco, Università di Padova, via Marzolo 5, Padova

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