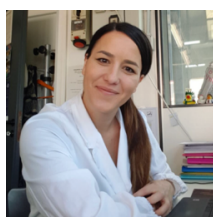


**PhD in
Molecular Medicine and Medical Biotechnology
Advanced courses 2025**

**Title:
Nanotechnologies for precision cancer medicine**



**December 5, 15:00, *Cristina Pagano*
(DMMBM, University Federico II)**
Seminar room, 1st floor Torre Biologica
Application of nanotechnology in the treatment of brain cancer



**December 10, 15:00, *Massimiliano Caiazzo*
(DMMBM, University Federico II)**
Seminar room, 1st floor Torre Biologica
Brain delivery systems



**December 12, 15:00, *Paul M. P. van Bergen en Henegouwen*
(Utrecht University, Department of Biology)**
Seminar room, 1st floor Torre Biologica
Application of nanobodies in molecular diagnostics and
targeted therapy

Topics

Cristina Pagano: Application of nanotechnology in the treatment of brain cancer

- Brain tumors (glioma, medulloblastoma, ependymoma, neuroblastoma, meningioma)
- Brain delivery nanotechnologies (overcoming the blood-brain barrier)
- Synthetic particles to cross the blood-brain barrier (gold nanoparticles, nanofibers, cyclodextrins)
- Brain tumor targeting

Massimiliano Caiazzo: Brain delivery systems

- Neurotropic viruses
- Lipid-based nanocarriers for targeted brain delivery
- Extracellular vesicles for brain delivery
- Antibody-based brain delivery systems
- Receptor mediated transcytosis across the blood-brain barrier
- Physical methods for brain delivery
- Alternative brain delivery routes (nose-to-brain, lymph node-to-brain)

Paul van Bergen en Henegouwen: Application of nanobodies in molecular diagnostics and targeted therapy

- Nanobodies intro
- Nanobodies as biosensors (FRET approaches)
- Nanobodies for diagnostics (PET imaging approaches)
- Nanobodies for therapy: towards nanobody drug-conjugates