BIOMATERIALS, BIOMECHANICS & TISSUE ENGINEERING

https://biomaterials.upc.edu

EEIGM

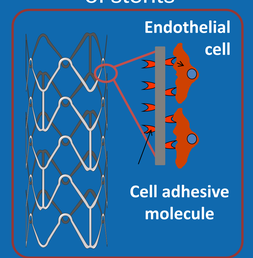
The research of the BBT group focuses on the **development** of **advanced biomaterials** for the **regeneration** and/or **functional repair of damaged organs and tissues**. This challenge is addressed both at a **basic research** level and by means of **technological transfer** to the industry and the healthcare system.

Our mission is to **bioengineer technological solutions** to **clinical problems** to **improve the quality of life of our society**.

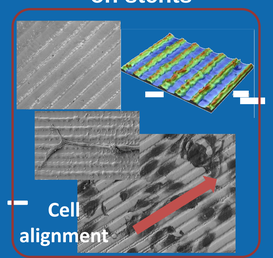
CARDIOVASCULAR APPLICATIONS

Cardiovascular disease (CVD) is the most common cause of death worldwide (up to 30% of deaths)

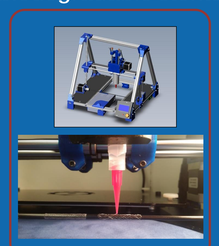
Biofunctionalization of stents



Laser nano-patterning on stents



3D-printing of biodegradable stents



EEIGM TEACHERS / RESEARCHERS INVOLVED

PROF. MARIA-PAU GINEBRA
Expertise: Development of new biomaterials for bone regeneration, bone tissue engineering, controlled drug release and the study of the interactions between biomaterials, cells and tissues.

DR. MONTSERRAT ESPAÑOL
Expertise: Development of new materials for bone regeneration and nanoparticles for cancer treatment, based on calcium phosphates.

DR. MARTA PEGUEROLES
Expertise: Study of the interactions between metallic biomaterials and biological components: metal substrates, surface characterization, protein adhesion , cell gene expression and interactions bio / non - bio.

BONE SUBSTITUTION AND REGENERATION

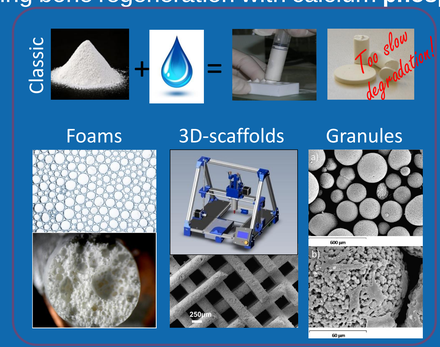
Biomaterials **are** needed to repair large bone defects

Metallic biomaterials to substitute bone

Biomimetic calcium phosphates for bone **regeneration**

Biofunctionalization of implant **materials**

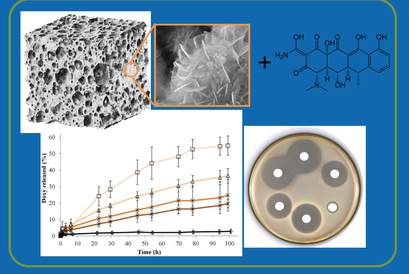
Improving bone regeneration with calcium **phosphates**



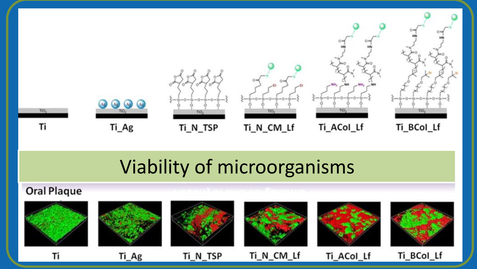
ANTIBACTERIAL SURFACES

Bacterial infections represent one of the main causes of implant failure in dentistry and orthopedics

Foams for antibiotic release

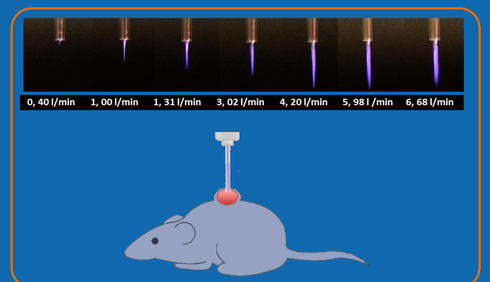


Functionalization of surfaces



CANCER THERAPY AND DRUG DELIVERY

Atmospheric pressure plasma therapy



Doped hydroxyapatite nanoparticles