



mmt-epa.net

## SUCCESS STORIES

# NanoBioAll: Advanced metallic biomaterials, nanostructured, for implantable medical devices

## PROJECT DESCRIPTION

The scientific and technological **specific objectives** of the project are: to obtain a new, advanced innovative type of osteoinductive biomaterial, with high mechanical properties and biocompatibility to assure a significant increasing of implants quality. Industrial application of the resulted technologies in order to obtain medical devices with high added value.

### Project innovative scientific results:

- A new biomaterial/implant realization with osteoconductive/ osteoinductive ability and with superior mechanical properties.
- Development of an adequate procedure to process implant material and surface in order to induce and osteoinductive character (there will be used: Severe Plastic Deformation (SPD) techniques to obtain nanocrystalline structures with exceptional mechanical properties, surface modification procedures using the technology of ions accelerators to modify the material/implant surface through: a re-alloying; an amorphization or a nanostructuring process)
- The execution and testing of ionic treatment installation
- New implant realization procedures
- Data regarding osteoinductive behavior of implants using *in vitro* testing

### Present stages Project activities (at present stage)

- Design and experimenting of the synthesis technology for TiTaX-type metallic biomaterial; Biomaterial obtaining and characterization (chemical, physical, mechanical, structural)
- Biomaterial thermo-mechanical processing and characterization.
- Biomaterial corrosion resistance and biocompatibility testing in thermo-mechanically processed state.

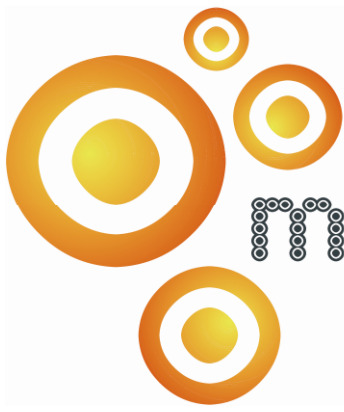
### Project dissemination:

#### Published papers in journals:

D.Raducanu, A.Nocivin, V.D. Cojocaru, I. Cinca, A. Cimpean, E.Vasilescu, P. Drob, C.Vasilescu, **Initial characterization of a new beta titanium alloy**, in print Metalurgia International (ISI)

#### Presented papers in conferences:

I.E. Bertrand, D.M. Gordin, T.Gloriant, **Development of  $\beta$ -type Titanium Alloys for Biomedical Applications**. "22<sup>nd</sup> European Conference on Biomaterials (ESB2009)", September, 2009, Lausanne



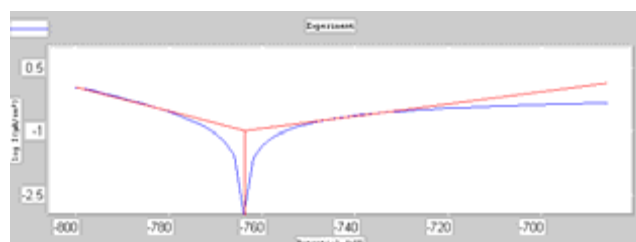
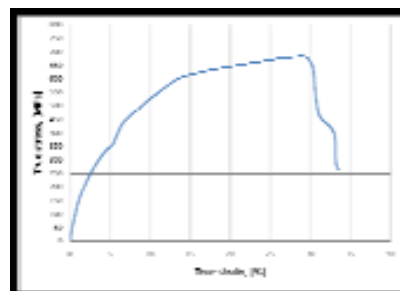
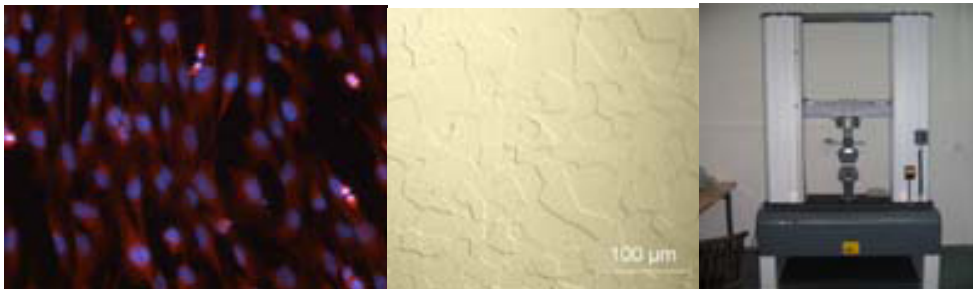
mm-para.net

## SUCCESS STORIES

Meetings organized by project consortium:

25.05.2009 Bucharest, Romania-First ordinary meeting of Project General Assembly at UPB-CEMS:

26.05.2009, Bucharest, Romania: Work visit in UPB-CEMS Laboratories; Work visit in UB-DBBM Laboratories.





## SUCCESS STORIES

---

### PARTNERS

**Project coordinator:** Politehnica University of Bucharest; R&D Consulting and Services, SRL Physical Chemistry Institute "Ilie Murgulescu" Bucharest University, **Romania**

**Project partners:** Metallurgical chemistry Laboratory INSA Rennes, **France**  
Quertech Ingénierie, **France**

### PROJECT DURATION AND TOTAL PROJECT COST:

Duration: 09/2008-09/2011

Cost: 2,134.713 k€

### CONTACT:

Coordinator: Doina Raducanu

E-mail: doina.raducanu@mdef.pub.ro

Tel: +40 21 402.95.31