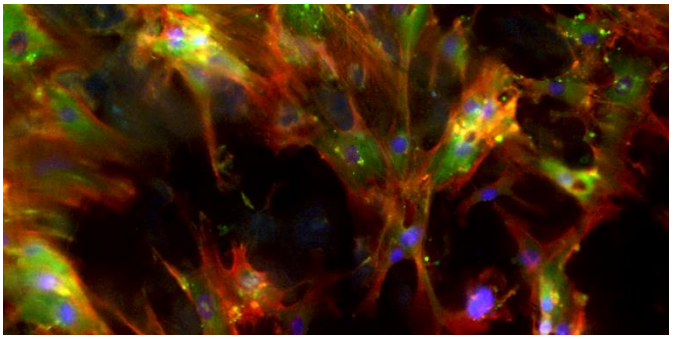
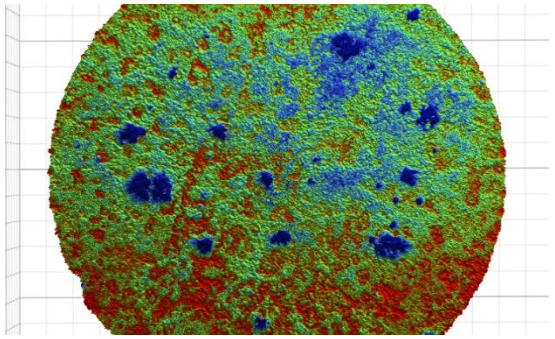
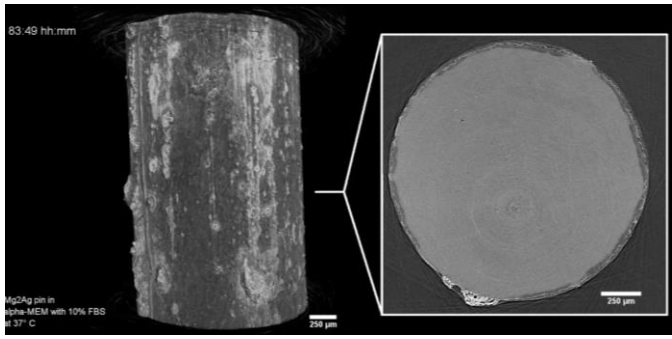
Biological Characterisation

Bérengère LUTHRINGER-FEYERABEND

Helmholtz-Zentrum Geesthacht

Institute of Materials Research – Metallic Biomaterials – Department for Biological Characterisation

Helmholtz-Zentrum Geesthacht
Centre for Materials and Coastal Research

BONE INNOVATION SUMMIT

Lübeck - 13.02.2019

NORTHOPEDICS

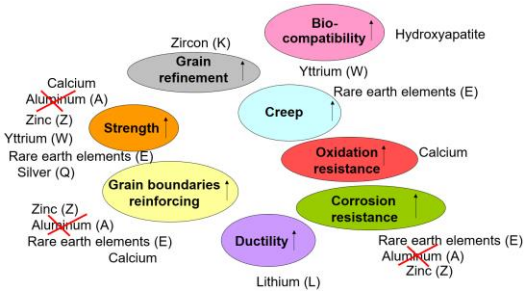
LIFE SCIENCE NORD

- Member of the expert panel
- Working group: Implant-associated Infections

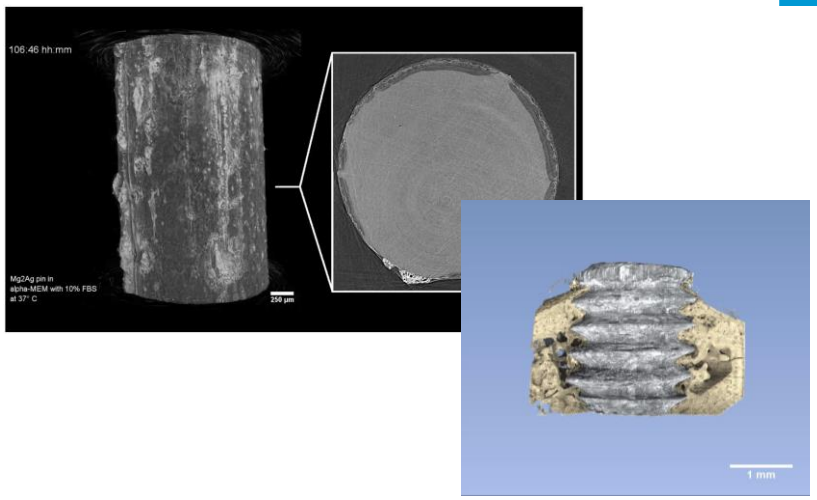
Metallic biomaterials: titanium and **magnesium based**

Multidisciplinary

Material science



Physics



Biology

- Alloy development
- Material properties – characterisation
- Production of prototypes
- …

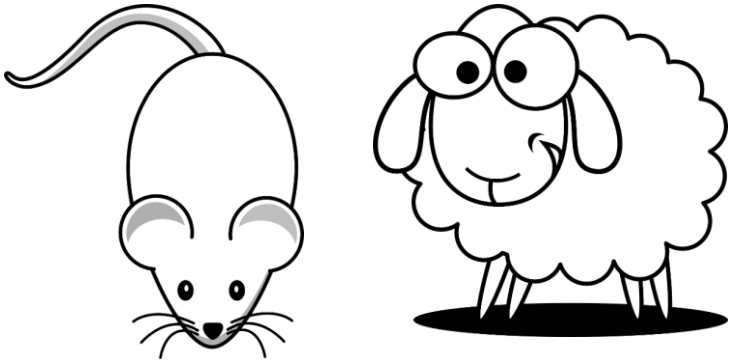
- Degradation in situ (DESY)
- Development of new imaging techniques
- Implant-tissue interface
- …

Metallic biomaterials

Biological Characterisation

In vitro

In vivo



- Department of Trauma, Hand and Reconstructive Surgery, University Medical Center Hamburg-Eppendorf, Hamburg, Germany
- Department of Orthopedics and Orthopedic Surgery, Medical University Graz, Graz, Austria
- ….

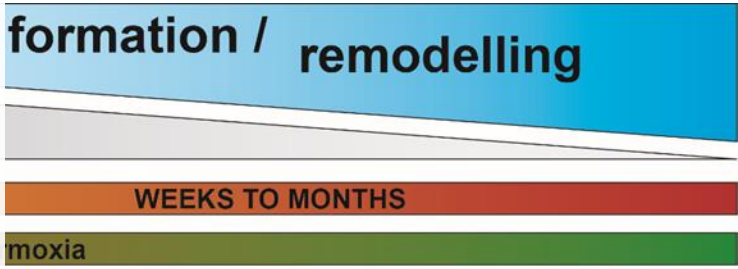
New: outstation at Molecular Imaging North Competence Center (MOIN CC) in Kiel

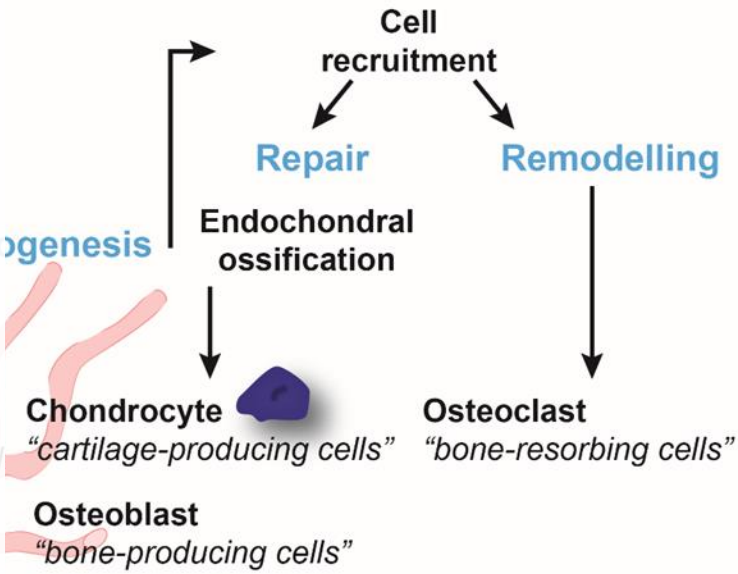
Metallic biomaterials

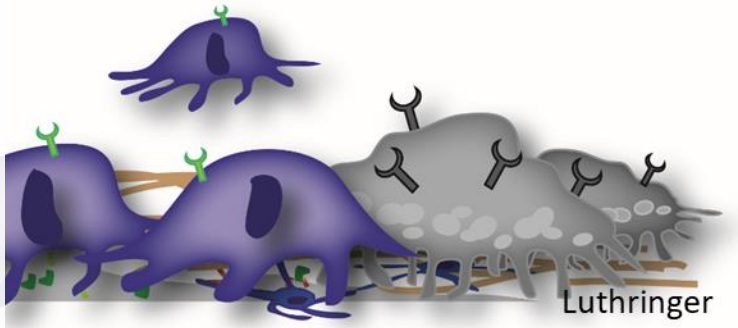
Biological Characterisation

Helmholtz-Zentrum Geesthacht
Centre for Materials and Coastal Research

⇨ **Formation of new tissue**







Metallic biomaterials

Osteoblast-osteoclast coculture

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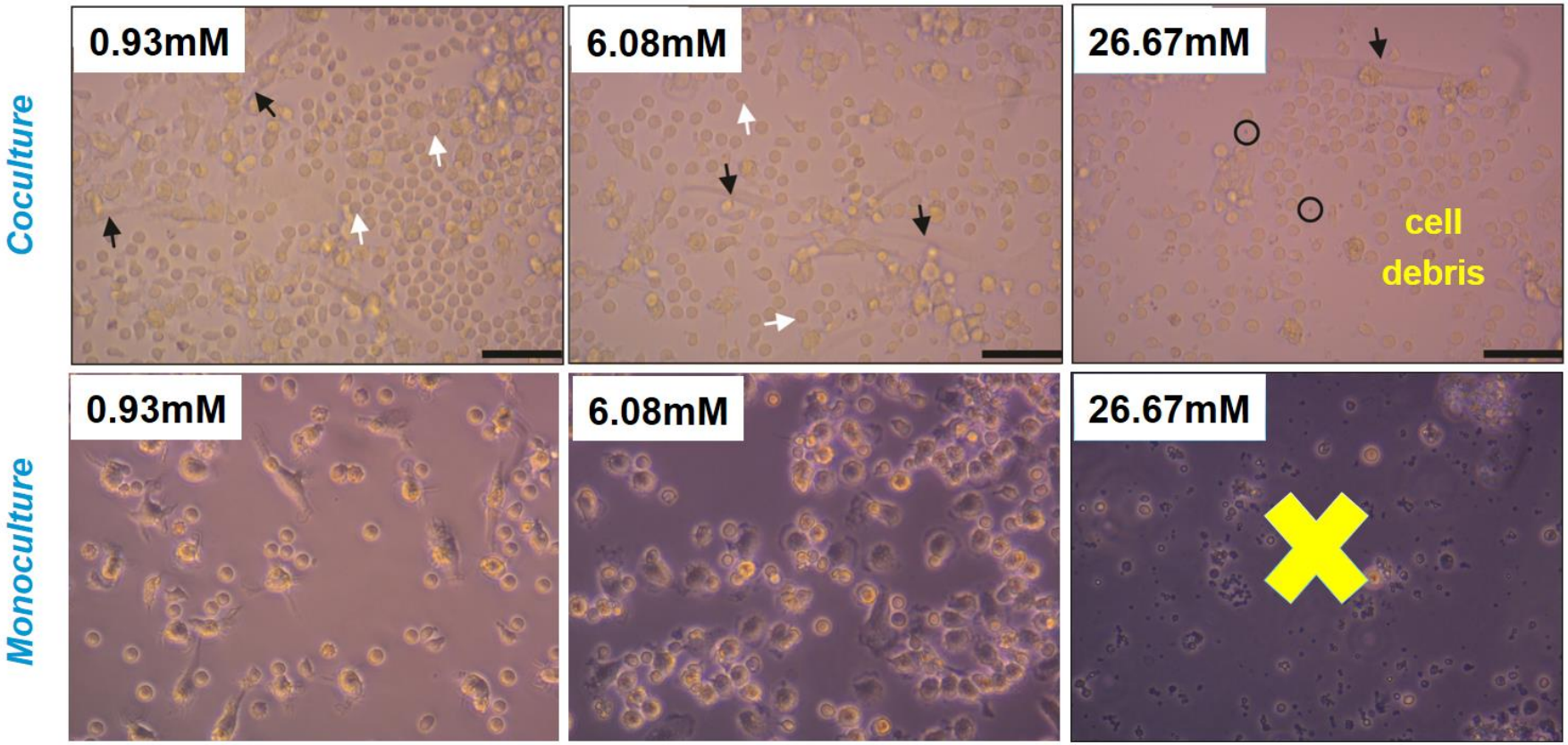
In vitro

Light microscopy at day 6



Acta Biomaterialia, **2014**, *10, 2843*

Acta Biomaterialia, **2015**, *27, 294*

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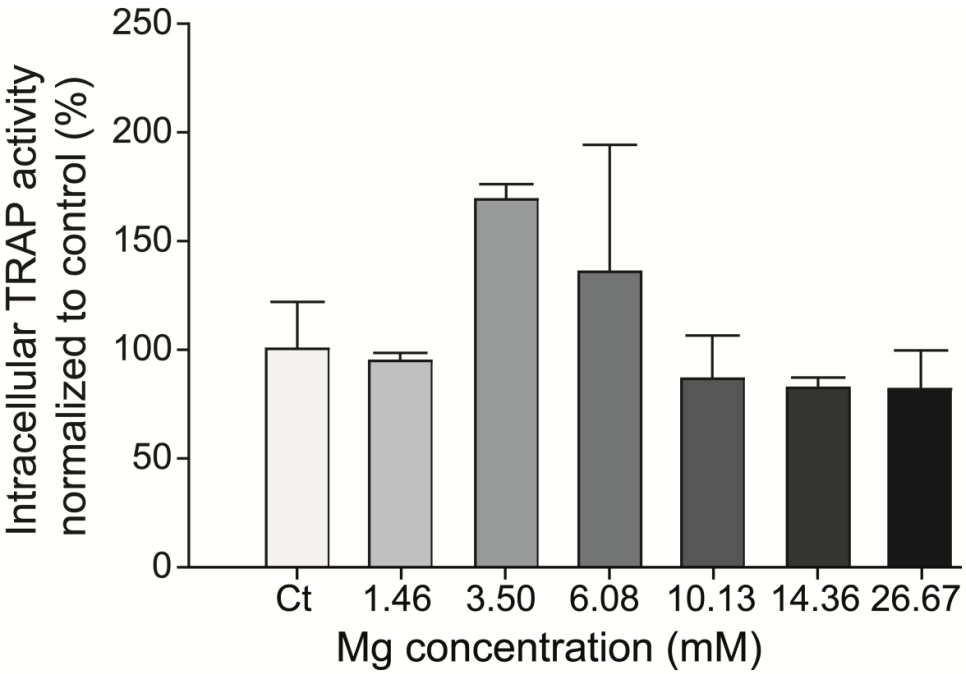
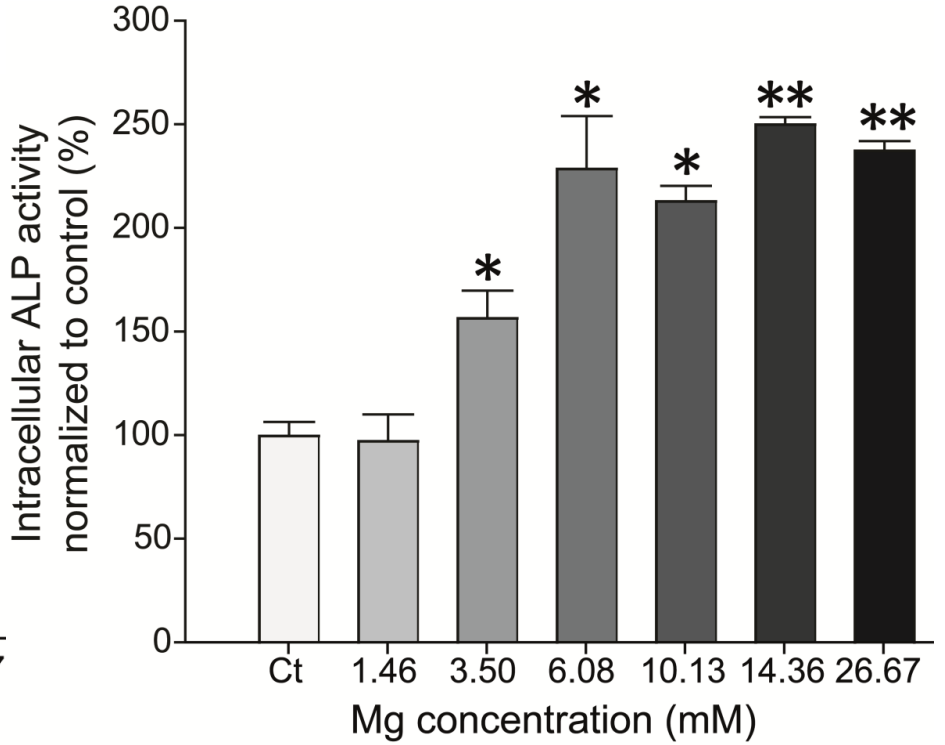
In vitro

Intracellular TRAP at day 28 (osteoclast)



Intracellular ALP at day 28 (osteoblast)



Acta Biomaterialia, **2015**, *27, 294*

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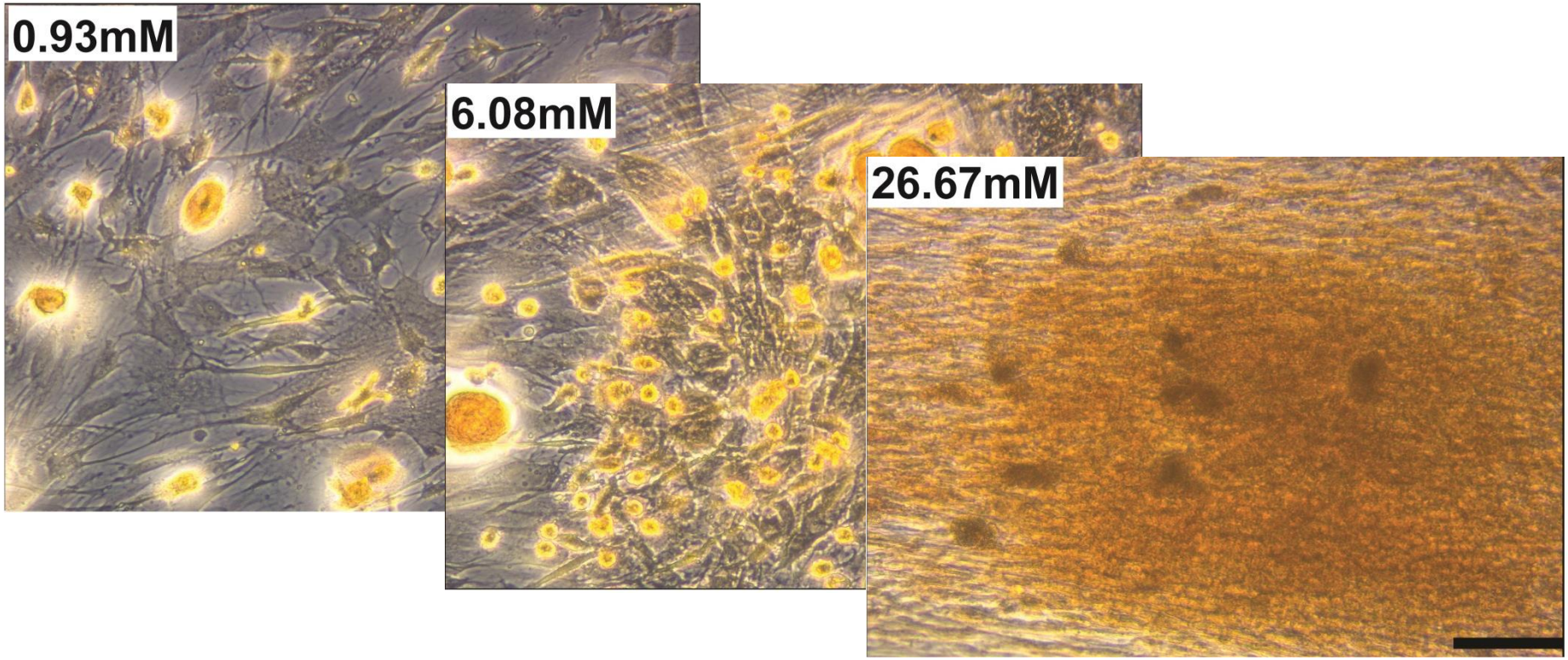
In vitro

Alizarin red staining (ARS) staining at day 28



More osteoblast – more mineralisation

Acta Biomaterialia, **2015**, *27, 294*

Metallic biomaterials

Osteoblast-osteoclast coculture

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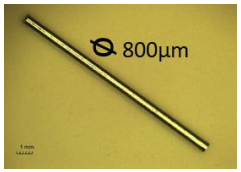
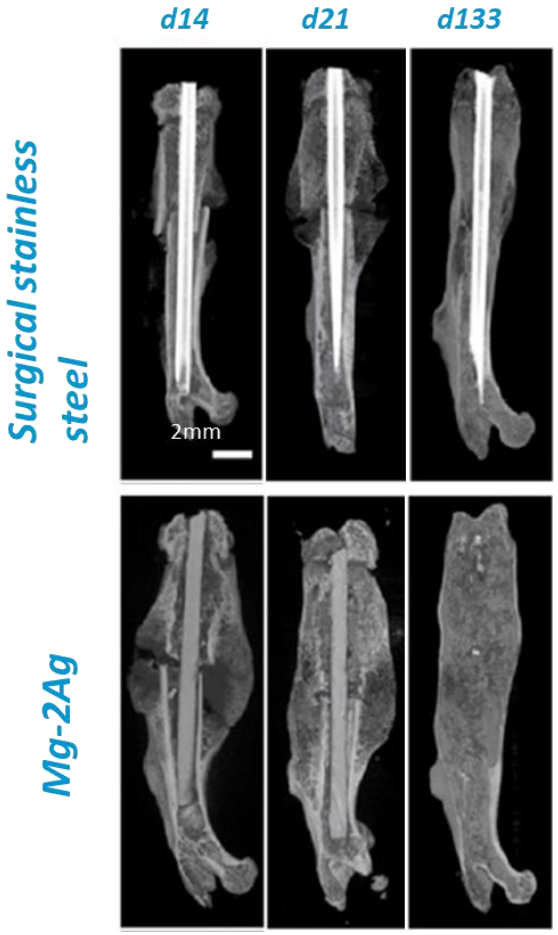
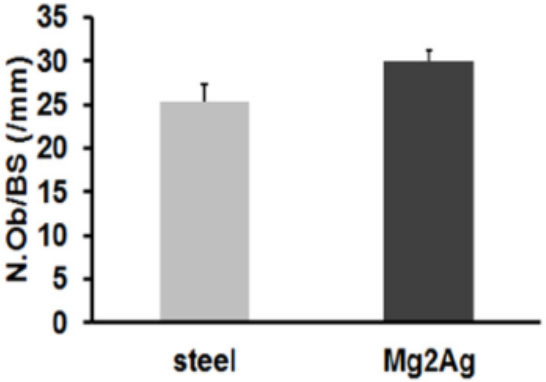
Centre for Materials and Coastal Research

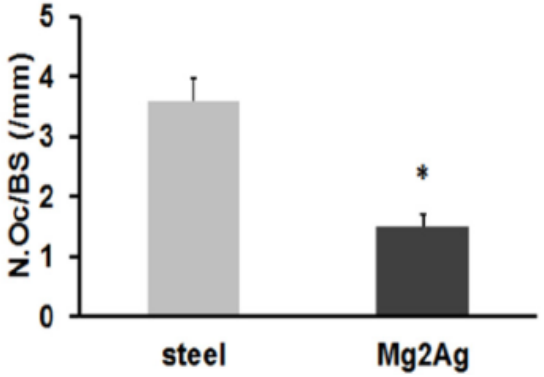
In vivo

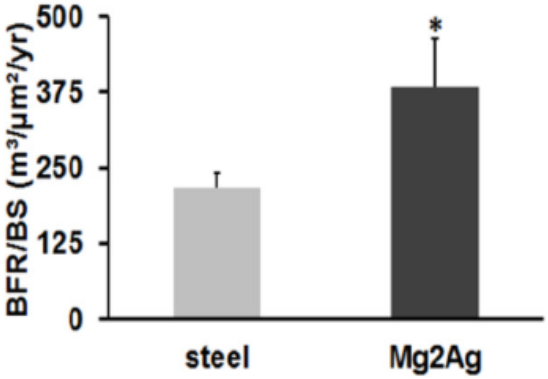
Fractured femora of mice - Intramedullary Mg-2Ag nail











University Medical Center Hamburg-Eppendorf

Acta Biomaterialia, **2016**, *36, 350*

Metallic biomaterials

Biological Characterisation

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