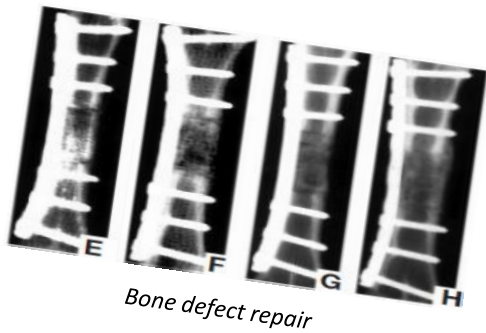


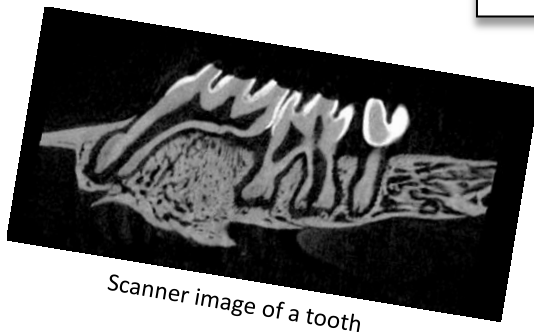
The laboratory of Osteoarticular Biology, Bioengineering and Bioimaging (B3OA) UMR CNRS 7052 INSERM U1271 is affiliated with the CNRS Department of Science for Engineers, with the INSERM, with the Paris Diderot University and with the Ecole Nationale Vétérinaire de Maisons-Alfort. Since its creation in 1977, the laboratory has developed a renowned expertise in repair and imaging of skeletal tissues.



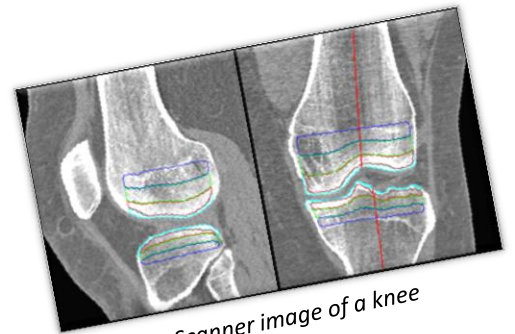
Bone defect repair

**B3OA research activities** focus on:

- Improving bone repair with adult stem cells and growth factors
- Better understanding of type 2 diabetes on maxillofacial bone repair
- Increasing bone integration of orthopaedic prostheses
- Developing new X-ray based imaging techniques for osteoarticular diseases

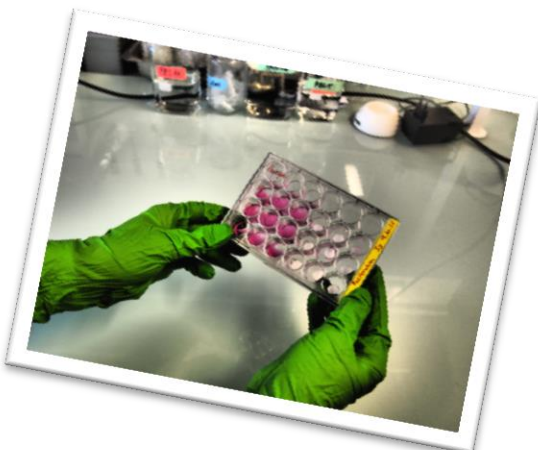


Scanner image of a tooth



Scanner image of a knee

The B3OA's teaching activities are aimed at young engineers, scientists, odontologists, radiologists and orthopaedists. Highly involved in postgraduate teaching, the laboratory also trains future opinion leaders in orthopaedics, dentistry and radiology through research. Finally, the B3OA Lab disseminates to researchers and clinicians the knowledge acquired in order to improve the treatment of pathologies affecting osteo-articular tissues.



Periprosthetic osteolysis underneath a knee prosthesis

The B3OA lab members teach in **France and abroad:**

#### **French Universities**

Paris 5 University  
Paris 6 University  
Paris 7 University  
Paris 11 University  
Paris 12 University  
Paris 13 University  
Caen University  
Cergy-Pontoise University  
Franche-Comté University  
Grenoble University  
Lyon University  
Orléans University

#### **Technical universities and Grandes ecoles**

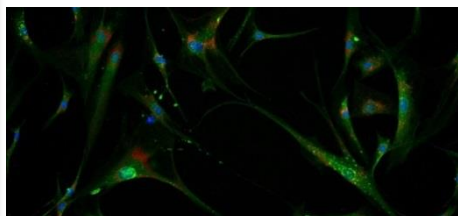
IBSS Créteil  
Paris Tech  
Ecole Centrale Paris  
Ecole Centrale Lyon  
ENS Lyon

#### **International universities**

Tunis University  
Beyrouth University  
Shanghai (Rui-Jin) University



## **Main research projects of the B3OA**



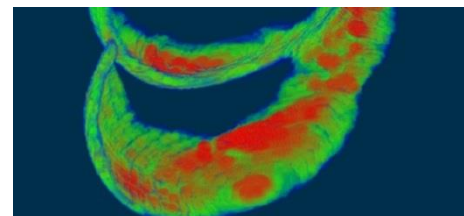
### **Fundamental aspects of osteo- articular repair**

- Evaluation of the influence of diabetes on bone healing
- Understanding and reduction of periprosthetic osteolysis
- Effect of the physical exercise on bone formation
- Cortical bone analysis



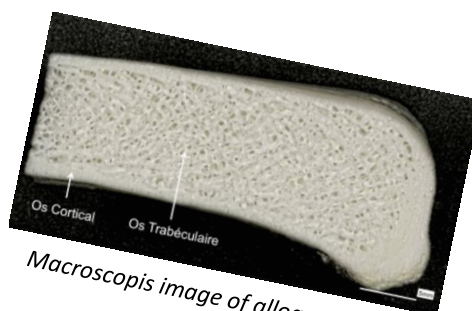
### **Translational aspects of osteo- articular repair**

- Enhancing MSC survival and functions in an ischemic environment
- Stimulating MSC with bone morphogenetic proteins
- Counteracting intervertebral disc degeneration
- Improving ligament substitutes
- Enhancing vertical bone formation for dental implants
- Optimizing MSC culture with mechanical stimulation



### **Clinical research for osteo- articular diseases**

- Tomographic multiscale imaging
- Innovative rehabilitation methods
- Prediction of the osteoporotic fracture



*Macroscopic image of allogenic bone graft*

#### **Laboratoire B3OA**

CNRS – UMR 7052  
INSERM – U1271  
UFR de Médecine - Site Villemin  
10, Avenue de Verdun  
75010 Paris - France  
Tel. +33(0)157 27 85 70  
Fax. +33(0)157 27 85 71  
[www.b3oa.cnrs.fr](http://www.b3oa.cnrs.fr)  
b2oa@univ-paris-diderot.fr