

UMR955

TEAM 10: BIOLOGY OF THE NEUROMUSCULAR SYSTEM
PARIS-CRÉTEIL

GROUP 5: MUSCULO- SKELETAL BIOLOGY AND TISSUE ENGINEERING



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R&D OFFER

- R&D collaborative projects
- Sponsored research agreements
- CIFRE PhD Thesis (French Industrial agreement of training through research)
- Internship in public-private cotutorship (Master, engineer or other students)
- Consulting / Expertise / Training
- Access to Technical platforms
- Access to biological collections and databases (under conditions)

RESEARCH RECOGNITION

- 4 EUROPEAN PROGRAMS: involved in consortiums in MSC BIOLOGY - CASCADE (EC 7TH FP N°233236), and MSC PRODUCTION IN CLINICAL GRADE - REBORNE (EC 7TH FP N°24187), ORTHO UNION (EC H2020 N°733288), MAXIBONE (EC H2020 N°779322).
- 52 PUBLICATIONS (2010-2020)
- 10 PARTICIPATIONS IN INTERNATIONAL CONGRESSES
- 7 PHD STUDENTS, 17 MASTER STUDENTS, 3 POST-DOCTORAL POSITION, 11 MASTER 1 LICENCES, IUT, DUT, SUPBIOTECH
- 5 HDR
- IMRB PLATFORM CERTIFIED ISO9001

MSC = Mesenchymal Stem Cells

RESEARCH AREA & OBJECTIVES

- **Muscle stem cells** in the forefront of myogenesis (expansion and differentiation in **2D & 3D systems**)
- **Interactions of stem cells** with their **environment** and the **immune system**, identification of **mesenchymal stromal cell** biomarkers (before transplant)
- Enhancing **cell and tissue therapy** approaches for **bone and muscles repair**
- Simplify the production, improve survival and potential of stem cells, related to their 3D structure. Research on the production of **vascularised 3D printed bone matrix**
- Molecular & cell mechanisms of inflammation, ageing & cell degeneration: **new targets & strategies for therapy**

KEYWORDS

Mesenchymal stem cells, muscle & bone studies, cell & tissue therapy, 2D & 3D models

DOMAINS OF EXPERTISE

- HEMATOLOGY
- CELL & TISSUE THERAPIES
- STEM CELL INTERACTION WITH THEIR ENVIRONMENT

SKILLS

- 2D & 3D CELL CULTURE (in-vivo & in-vitro, muscle stem cells, purification)
- CELL & TISSUE ENGINEERING
- IMMUNOLOGY (*Macrophages and other inflammatory cells*)
- GENETICS (qPCR, Sequencing, CRISPR-Cas9)
- ANIMAL MODELS (Murine, porcine)
- MOLECULAR BIOLOGY
- PROTEOMICS
- CLINICAL STUDIES

PLATFORMS & TECHNICAL RESSOURCES

- ACCESS TO EFS AND IMRB TECHNICAL PLATFORMS:
 - EP3 physiological experimentation (animal facility)
 - Imaging platform (confocal microscope, fluorescent, histologic)
 - Cell culture labs
 - Genomic platform (sequencing, spectrophotometry...)
 - Bio-informatic platform
 - Culture in hypoxia
 - Tissue engineering platform (GMP-grade cell production)

Access to Biological Collections: healthy donors, patients, and other biological collections – *under conditions*