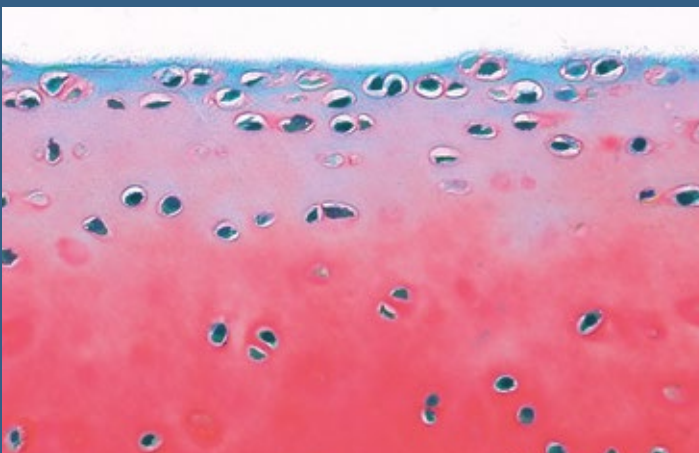
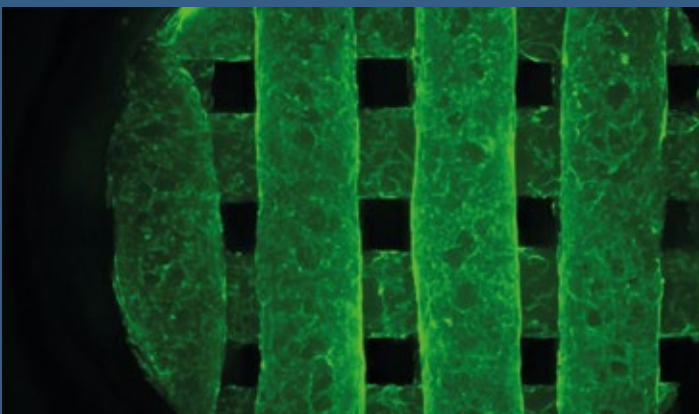
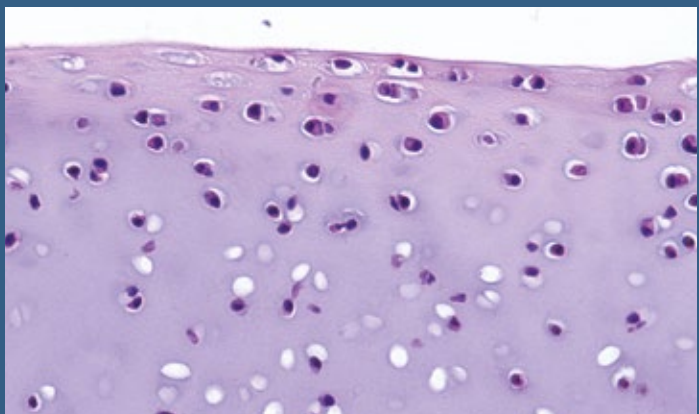


# Musculoskeletal Tissue Engineering Group @ Ri.MED

Our group works to develop new technologies focused on the treatment of traumatic and degenerative diseases of the musculo-skeletal apparatus. Our research relies on the combination of biotechnology, tissue engineering, chemistry, and biology to produce engineered constructs supporting tissue regeneration to restore native functionality.





## FOCUS

- Cartilage and bone pro-regenerative technologies
- Bioactive materials stimuli-responsive
- Tendon/ligament-like scaffolds
- *Ex vivo* tissue culturing
- Reliable musculoskeletal diseases modeling



## AIMS

- Biofabrication of active scaffolds for the cartilage focal lesions repair
- Production of engineered tendon-like constructs supporting the surgical tendon/ligament reconstruction
- Set-up of advanced *in vitro* models of musculoskeletal diseases
- Use of macrofluidic bioreactor for the *ex vivo* culturing of biphasic tissues



## OUTCOME

- Key Innovator prize awarded by the Innovation Radar committee of the European Committee
- Starting-Grant funded by the orthobiologic society ON Foundation (CH)
- Shark-thank price at the TOBI conference held in Hollywood (FL, USA)



## EXPERTISE AND RESOURCES

- Biofabrication through advanced 3D printing and 3D bioprinting technologies
- *Ex vivo* handling and culturing of human and animal tissues
- 3D cell culturing on biocompatible scaffolds
- Fluorescence and confocal microscopy for 3D advanced characterization
- Histology core for native and engineered construct processing



## COLLABORATIONS

- The Mediterranean Institute for Transplantation and Advanced Specialized Therapies (ISMETT), ITA
- University of Pittsburgh Medical Center (UPMC), USA
- University of Bologna (Alma Mater Studiorum), ITA
- Buccheri la Ferla clinic (ITA)
- University of Palermo (UNIPA) (ITA)
- The Children Hospital of Philadelphia (CHOP), USA



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## Musculoskeletal Tissue Engineering Group

c/o The Mediterranean Institute for Transplantation and Advanced Specialized Therapies (ISMETT) - Via Ernesto Tricomi 5 - 90127, Palermo, Italy

Principal Investigator: Roberto Di Gesù, PhD  
[rdigesu@fondazionerimed.com](mailto:rdigesu@fondazionerimed.com)