Il moto è causa d’ogni vita
THE DEPARTMENT

The Research, Innovation & Technology Department (RIT) of the IRCCS Higgin Ortopedico-Rizzoli (IOR) is engaged in biomedical research and part of the Emilia-Romagna High Technology Network. Founded in 1896, IOR is a public research and teaching hospital specializing in the study and care of musculoskeletal conditions. With the aging of the European population, musculoskeletal diseases are becoming a greater burden every year. Musculoskeletal conditions are the second greatest cause of disability and have the 4th greatest impact on the overall health of the world population. RIT is aware of the huge burden of musculoskeletal diseases and is committed to increase knowledge to be translated and effective solutions to improve the care of patients with motor disabilities. The financial support of RIT is secured through public and private funding that sustain the development of technological solutions for healthcare. RIT strongly collaborates with the University of Bologna and the National Council for Research, thereby amplifying its potential through continuous collaboration of know-how, high-tech resources, and manpower. Collaboration with industries is also well-developed through the Emilia-Romagna High Technology Network.

The RIT community includes an interdisciplinary team of staff scientists from different backgrounds: human and veterinary medicine, biology and biotechnologies, biomechanical engineering, chemistry, physics, material science, and computer science supervising an equal number of PhD students and postdocs.

MISSION AND VISION

The vision of RIT is to develop processes and products for the prevention of disabilities and the recovery of motion in patients with musculoskeletal conditions. The Vision of RIT is twofold:

- To increase knowledge on musculoskeletal pathophysiology through high tech tools.
- To transfer such knowledge to healthcare services also in collaboration with industry in order to prevent and treat orthopaedic diseases.

FACILITIES

- Biocompatibility and bioactivity in vitro and in vivo
- Heliospectroscopy, inductive coupling plasma spectrometry, and microspectroscopy
- Optical, fluorescence, confocal (time-lapse, spectral, multilayer, vesicles and sub-cellular) and ultrastructural microscopy
- Biomechanical, kinematic, and tribological assays
- Immunodetection and evaluation of implant devices
- Molecular biology, immunomorphometric, genomic, and proteomic
- Immunophenotying and cell cultures on standard, dynamic, and 3D models (bio-inks and microfluidics)
- Isolation and characterization of exosomes
- Bioprinting, 3D printing
- Computational analyses
- eHealth

THEMES

Models and diagnostics

Therapeutics
Models of cell therapies for regenerative medicine. In-vivo and ex vivo chondral/dermal membrane in vivo assay.

Implant materials and surgical technologies

Computational sciences for healthcare