



Research, know-how, technology and networking groups that serve life science companies.

Located in Italy, in the Modena region



TPM

Innovation and research are at the heart of the Mirandola biomedical district. The Tecnopolo Mario Veronesi Science and Technology Park for Medicine (TPM) is firmly rooted in this district and comprises a multidisciplinary team of outstanding researchers with expertise in all sectors linked to the development, characterization and validation of medical devices.



DEMOCENTER

Responsibility for managing Tecnopolo Mario Veronesi TPM lies with the Democenter-Sipe Foundation for innovation that provides support services to companies in the Research & Development, Innovation and Technology Transfer sectors.



TECNOPOLO
MODENA
EMILIA-ROMAGNA 



UNIMORE
UNIVERSITÀ DEGLI STUDI DI
MODENA E REGGIO EMILIA



COMUNE
DI
MIRANDOLA



FONDAZIONE
CASSA DI RISPARMIO
DI MIRANDOLA



UNIONE EUROPEA
Fondo europeo di sviluppo regionale



 **Regione Emilia-Romagna**



ART-ER
ATTRATTIVITÀ
RICERCA
TERRITORIO

CERTIFICATIONS

ISO 9001

(general quality
management systems)

ISO 13485

(medical devices – quality
management systems)

GLP

(good laboratory practice)

EXPERTISE

01

Feasibility studies and prototypes

For medical devices ranging from disposable components to complex electromechanical systems: in-vitro performance evaluation and usage simulations.

development services testing services evaluation services (pre & post market)

02

Bioprinting and 3D printing

Of biological models and artificial tissues, as well as multimaterial, multicellular or composites. Reproduction in bioreactors of in vitro models for physiological studies of pathological conditions, drug screening or evaluating the cytotoxicity of pharmaceuticals, cosmetics and molecules of interest. Designing bioreactors and developing culture protocols suitable for the needs of three-dimensional cellular models.

development services testing services evaluation services (pre & post market)

03

Materials science

Design and development of new materials for applications in the medical field, morphological studies through optical microscopy and scanning electron microscopy (SEM), surface analysis and chemical characterization of polymer materials. Studies of biocompatibility and hemocompatibility in accordance with ISO 10993 or through ad hoc biological models

development services testing services evaluation services (pre & post market)

04

Sensors and digital health

Technical and technological scouting for new applications. Design, development and characterization of sensors and systems for the monitoring of vital and physiological parameters. Competences and abilities to create demos for POC (Proof Of Concept) studies.

development services testing services evaluation services (pre & post market)

05

Membrane science

Customization of PP hollow fiber via TIPS process.
Catheterization of membranes (morphological, chemical-physical and mechanical characterization)

development services testing services evaluation services (pre & post market)

06

In vitro test

Adapted to the specific needs for assessing the performance of materials for the removal/absorption of specific substances. Simulations of extracorporeal circulation treatments with bovine blood or in vitro with blood from human donors are also possible.

development services testing services evaluation services (pre & post market)

07

Evaluation of antiviral and antibacterial activity

In air purification systems, textile products, materials and surfaces in accordance with ISO 21702, 22196, 18184, 20743, or custom-made with the option of using viruses such as SARS-CoV-2.

development services testing services evaluation services (pre & post market)

08

Advanced cell therapies

Evaluation of efficacy of cell therapies in regenerative medicine, oncology and immuno-pathologies.

development services testing services evaluation services (pre & post market)

09

Chemical characterizations

in accordance with ISO 10993-18 (extractables and leachables analyses) to evaluate the migration of organic chemical substances (non-volatile, volatile and semi-volatile) and inorganic elements that migrate from medical devices during use. These studies can also be conducted as GLPs.

development services testing services evaluation services (pre & post market)

10

Chromatographic and spectroscopic analytical methods

Protocols and activities to support products development and validation.

development services testing services evaluation services (pre & post market)

11

In vivo test

Preparation of documentation for obtaining approval to perform in vivo studies of the effectiveness and biodistribution of pharmaceuticals in pathological models using small rodents. Monitoring by means of in vivo imaging with the IVIS LUMINA III PerkinElmer imaging system is possible. Ad hoc biocompatibility studies for materials can be conducted.

development services testing services evaluation services (pre & post market)

12

Usability

Consultation services to verify the ergonomics of medical devices in accordance with standard IEC 62366.

development services testing services evaluation services (pre & post market)

13

Services

Assistance to companies for:

- Toxicological Risk Assessment (TRA) (ISO 10993-Part 17) and Toxicological Expert Reports, approved by ERT (European Registered Toxicologist)
- Biological Evaluation Plan / Report (BEP / BER)
- Clinical Evaluation Plan / Report (CEP / CER)
- Post Market Clinical Follow-up (PMCF) Plan and Report

development services testing services evaluation services (pre & post market)

**Scientific publications, ethical committees and industrial patents
(available on request)**



INSTRUMENTS

- 3D bioplotter (*Envisiotec*)
- 3D printer for rapid prototyping (*Stratasys*)
- SEM (*Hitachi*)
- AxioZoom V16 optical microscope that combines the properties of stereomicroscopes and confocal microscopes
- Enspire (*PerkinElmer*) multimode microplate reader in fluorescence, luminescence and absorbance, with patented alfaLISA technology, label-free
- IVIS LUMINA III (*PerkinElmer*) for in vivo imaging on rodents using analyses of fluorescence, bioluminescence and X-rays for cell and drug tracking
- UPLC-ESI-HRMS (*Ultra-Performance Liquid Chromatography - Electrospray Ionization High Resolution Mass Spectrometry*)
- GC-EI-MS (*Gas Chromatography - Electron Ionization - Mass Spectrometry*)
- APGC-HRMS (*Atmospheric Pressure Gas Chromatography - High Resolution Mass Spectrometry*)
- HS-GC-EI-MS (*Headspace - Gas Chromatography - Electron Ionization - Mass Spectrometry*)
- SPME-GC-EI-MS (*Solid Phase Micro Extraction - Gas Chromatography - Electron Ionization - Mass Spectrometry*)
- Vetscan HM5 (*Hemocytometer*)
- Hollow fiber pilot line – TIPS technology
- Poroliq-ML (*Liquid-liquid porometer*)
- Porolux (*Gas-liquid porometer*)

LABORATORIES



TOP

Toxicology and Performances for
Regulatory Compliance



MAB

Applied Microscopy and
Cellular Biology



MS2

Measurements, Sensors
and Systems



PoS

Polymer Science Lab



USABILITY



HOW TO FIND US



By **CAR**

A1 Autostrada del Sole:

Modena Nord exit, then take the beltway towards Verona for about 30 km (exit 10, Mirandola - Verona).

A22 Autostrada del Brennero:

Reggiolo Rolo exit, then follow the signs for Mirandola.

By **TRAIN**

Bologna-Verona line, Mirandola station.

By **PLANE**

From the Bologna Marconi airport, take the Marconi Express bus to Stazione Centrale. From the Stazione Centrale train station, take the regional train to Mirandola.





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