TRANSLATIONAL RESEARCH AND OF NEW SURGICAL AND MEDICAL TECHNOLOGIES

THE DEPARTMENT IS STRONGLY INVOLVED IN TEACHING AND RESEARCH BOTH IN BASIC LIFE SCIENCES AND CLINICAL MEDICINE.
DEPARTMENT AT A GLANCE

- Research staff: 128
- Graduate students: 45
- Technical and administrative staff (Research support staff) DAM: 54 (19)
- Studies Programs: 20

Translations Research and of New Surgical and Medical Technologies

- Publications N.18867
  - Arpi 02/04/2019
- Spin off N. 2
  - Sito Unipi 02/04/2019
- Patents N.0
  - Arpi 02/04/2019
## Research Areas

<table>
<thead>
<tr>
<th>Category</th>
<th>Research Areas</th>
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<tbody>
<tr>
<td>Basic and Translational Neurosciences</td>
<td>anatomy, physiology, imaging, neuropharmacology, rehabilitation</td>
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<tr>
<td>Surgery</td>
<td>innovative techniques and approaches, organ transplantation, simulation and</td>
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<td>robotic surgery, new prosthetic materials, rehabilitation</td>
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<tr>
<td>Cancer and non Communicable Diseases</td>
<td>diagnostic methods and pathology, evaluation of new treatments and pathways</td>
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<td>Management</td>
<td>of care, genetics</td>
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<td>Communicable Diseases and Microbiology</td>
<td>diagnostic methods, clinical and applied microbiology, epidemiology and</td>
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<td>prevention of communicable diseases, antimicrobial resistance</td>
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<td>Public Health</td>
<td>preventive medicine, healthcare management, hospital hygiene and surveillance</td>
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<td>and control of healthcare-associated infections, occupational health</td>
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# Research Projects

## Cancer
- Innovative molecular diagnostics in pancreatic cancer (AIRC, ITT)
- Non invasive chemistry imaging in the whole human body (Horizon 2020)
- New imaging biomarkers in prostatic cancer (AIRC)
- Nanotechnology for tumor molecular fingerprinting and early diagnosis (Fondazione Pisa)
- Biomarkers of resistance to anticancer agents (ITT)
- Risk of breast cancer linked to shift and night work (BRIC Inail)

## Surgery
- Augmented reality surgical systems (Horizon 2020)
- Electromagnetic guided in-situ fenestration of endovascular endoprosthesis (Health Ministry)
- Virtual and augmented reality for transcatheter valve implantation (Health Ministry)
- New polymeric aortic valve implantable through mini invasive robotic surgery (Regione Toscana)

## New technologies applied to Medicine
- Early cortical sensory plasticity and adaptability in human adults (ERC advanced grant)
- FOMEMI: Photonics applied to medicine (Regione Toscana)
- TELE_AR : a platform for clinical teleconsultation with augmented reality (Regione Toscana)
- Wearable haptics for humans and robots (European Community)
- Data Intelligence for Social-Health Integration (Regione Toscana)
- Smart wearable negative pressure device for wound monitoring and therapy (European Community)
RESEARCH IMPACT

Local
- Patents and Spin off

Healthcare:
Implementation of innovation – technologies, ICT, management of care, diagnostics, clinical pathways, new knowledge- in patient care

Medical Education:
New approaches to education of healthcare professionals: simulation, virtual reality, distant learning

Health Promotion and Disease Prevention:
Interventions on behavioural factors, occupational health, vaccinology, health literacy