

# LIFE SCIENCES (SDV)

The Department aims to address three challenges in today's society: health and well-being, global food safety and population challenge, lean resource management and adapting to climate change. It brings together all the communities that are developing research projects on the living entity, from viruses to humans, more specially on the living entity's uniqueness, which draws on shared phenomena, reactions, structures and shared or analogous evolutions.

## DEPARTMENT METRICS

- 2 400 researchers (of whom around one third are also lecturers), 4 000 permanent members, 1200 PhD students, 600 postdocs
- 109 labs
- 14 healthcare centers and hospitals
- Almost 200 technical facilities and platforms, unique equipment and expertise
- 3 500 publications per year: more than 17% ranked as "outstanding/exceptional"
- More than 50 projects certified as "Investments for the Future" by the French State

## TECHNOLOGY TRANSFER

- 324 patents filed by 89 teams
- 37 start-ups
- Extensive corporate partnerships



# KEY FOCUS

## Human health and well-being

- Oncology
- Immunology, infectiology, inflammation
- Neurosciences, movement, disability
- Physiology, physiopathology, genetics
- Therapeutic innovation
- Medical imaging
- Physics applied to medicine
- Community health

## Agriscience, ecology, bioeconomics

- Sustainability of agrisystems and land
- Towards an ecosystemic and integrative approach to healthcare
- Bioresource transformation and transfer

## LABEX

BASC, SPS, LERMIT

## EQUIPEX

PLANAQUA, MORPHOSCOPE, Tefor infrastructure, FlowCyTech

## From molecular and cellular mechanisms to living systems

- Genomics
- Molecular and structural biology
- Microbiology
- Cellular and integrative biology
- Quantitative approach to biological systems
- Biotechnologies and synthetic biology

## Quantitative and formal science and life sciences: cognitive issues

- Infra and cellular
- Organisms and communities
- Heterogeneous data
- Vertical integration of living entities, from genes to organisms and communities
- Living entities in their environment

## STRATEGIC RESEARCH INITIATIVES

### • 3D-CHROME

3D chromosomal organization

### • ACE-ICSEN

Adapting to environmental change: a multi-scale, transdisciplinary approach

### • BIOPROBE

Innovative reporters in cell chemistry and signaling, from new probes to clinics

### • BioTherAlliance

Genic therapies and biotherapies

### • BME

Biomedical engineering

### • BRAINSCOPES

Multi-scale imaging of the nervous system's structure and function

### • B2SRI

Systems and synthetic biology for research and innovation

### • NanoTheRad

Cancer treatment: innovative therapeutic strategies, using new sources of irradiation, radiosensitive objects and nano-objects

### • NutriPerso

Food and health: from population-based to customized nutrition

### • PhyChiM3

Multi-scale, temporal, spectral and spatial physical chemistry

### • SysABCD

Analytical systems for biomarkers and sustainable chemistry

# MAJOR THEMES

- Public health
- Sports and movement science, human factors
- Biology, health and therapeutic innovation
- Biodiversity, sustainable agriculture and food, society and the environment

## AREAS OF MAJOR CONCERN

- **Certified for 2017-2020**
  - Genic therapy
  - Human and animal health ("One health")
  - Empowering Life Science with Innovative Technologies (ELICIT)
  - Fractures in porous media science (DIM Poreux)
- **Emerging**
  - Paris regional network on air quality monitoring, its impact on health and technology and policy (QI2)
  - Longevity and ageing
  - Paris regional network on information science (RFSI)

## PLATFORMS

- A unique network of 185 platforms for collaborative work and / or services for public or private partners
- 1/6 certified by IBISA and 1/12 certified by AFNOR
- 15 separate categories (IBISA classification)

