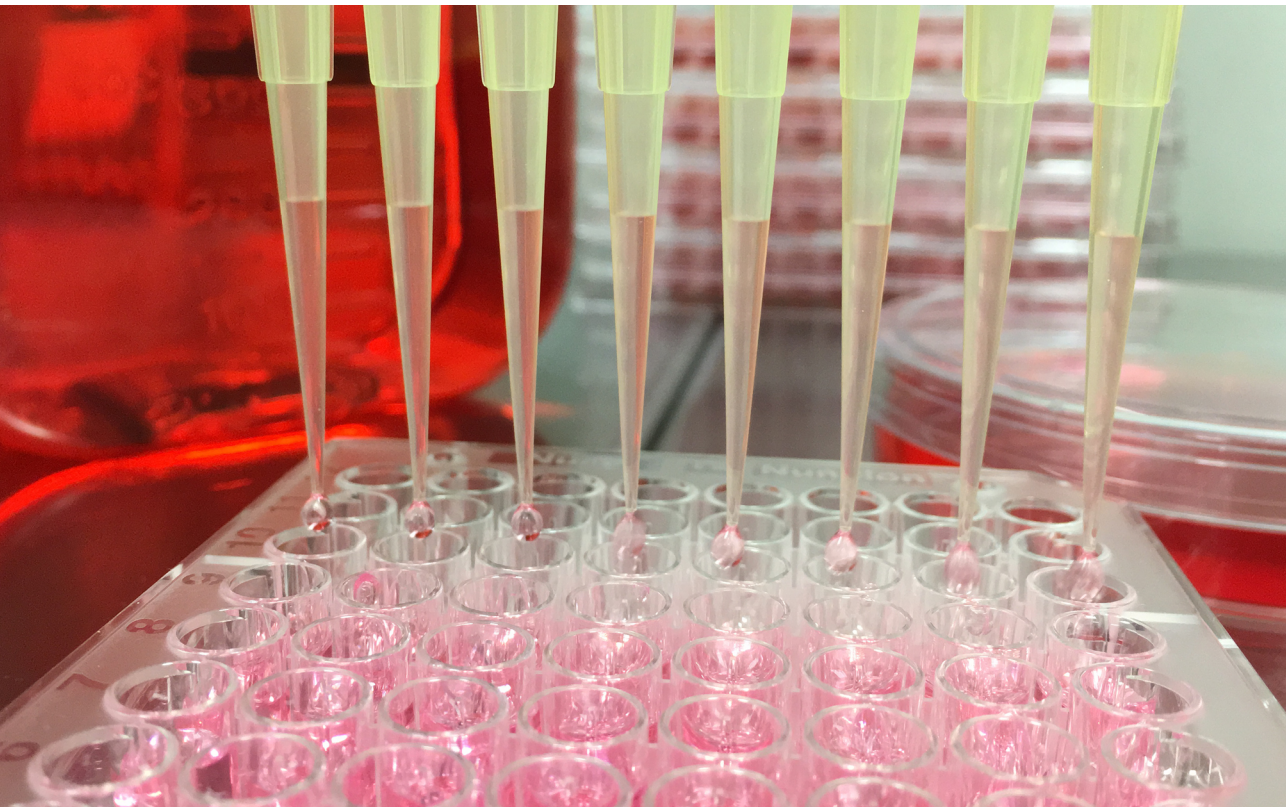


Research support facilities



Research and knowledge transfer support facilities



UAB Scientific and Technical Services

Research support facilities

The UAB has 12 Scientific and technical services and 45 Laboratory Services, which offer services for different areas:

- Biotechnology and Biomedicine
- Animal Production, Health and Food Science
- Environmental Science and Sustainability
- Technology and Experimental Science
- Social Science and Humanities

The UAB Scientific and Technical Services are made up of facilities including infrastructures and large-scale equipments dedicated to offering specialised technical services. Highly qualified technicians receiving continuous training in their field are available to offer tailor-made technical assessment and support.

The laboratories and support services offered by the university are structured to aid sectors in their research, innovation and knowledge transfer.

An important part of these resources goes towards offering support to UAB academic and research activities. Nonetheless, the industrial sector and other external users are also welcomed to use a wide variety of the services available.

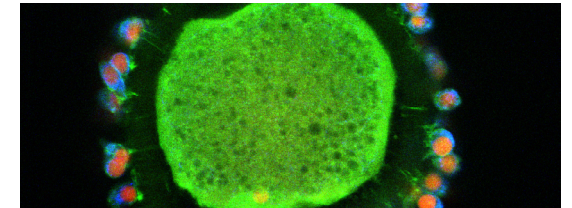
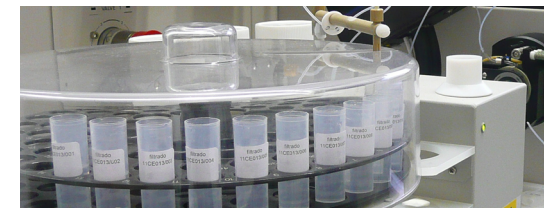
SCIENTIFIC AND TECHNICAL SERVICES

12

LABORATORY SERVICES

45

Biological analysis	Cell Culture, Antibody and cytometry Service (SCAC) Genomics Service (SG) Laboratory of Luminescence and Spectroscopy of Biomolecules (LLEB) Nuclear Magnetic Resonance Service (SeRMN)
Structural analysis	Chemical Analysis Service (SAQ) X-ray Diffraction Service (SDRX) Microscopy Service (SM) Nuclear Magnetic Resonance Service (SeRMN)
Chemical analysis	Chemical Analysis Service (SAQ) Nuclear Magnetic Resonance Service (SeRMN)
Animal experimentation	Animal Facility (SE) Service of Farms and Experimental Fields (SGCE) Nuclear Magnetic Resonance Service (SeRMN)
Food production experimentation	Food Technology pilot plant service (SPTA)
Transversal	Ionizing Radiation Service (SRI) Applied Statistics Service (SEA)



Laboratory of Luminescence and Spectroscopy of Biomolecules (LLEB)

The Laboratory of Luminescence and Spectroscopy of Biomolecules (LLEB) encompasses the equipment and human resources necessary to apply the techniques for the detection, analysis and quantification of nucleic acids or proteins for the study of samples obtained in the field of Biosciences.

Services

- DNA amplification using PCR,
- Genetic expression analysis using quantitative PCR (qPCR) 96 or 384 wells or Droplet Digital PCR (ddPCR)
- Copy number variation studies (CNV) or detection and mutation quantification using droplet digital PCR (ddPCR9)
- Imaging acquisition and analysis of nucleic acids or proteins electrophoretic gels using colorimetric, fluorescent or chemiluminescent markers (western blot).
- Imaging acquisition and analysis of biological samples stained with colorimetric or fluorescent markers.
- Multilabel and multitask plate reader, suitable for fluorescence (both top and bottom reading), luminescence or absorbance kinetics.
- UV and fluorescent spectroscopy studies of samples in solution.
- Fluorescent spectroscopy analysis of solid samples.
- Automated nucleic acid extraction system (DNA and RNA)
- Microfluidic electrophoresis for nucleic acids and proteins.
- Circular Dichroism (CD) spectroscopy analysis.
- PCR, qPCR and ddPCR reagents.
- Specific training courses for PCR, qPCR and ddPCR.

Application areas

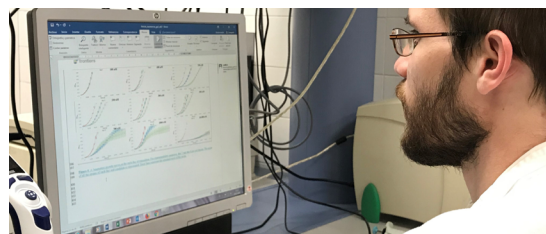
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Chemical Analysis Service (SAQ)

The purpose of the Chemical Analysis Service is to support research by using the analytical instrumentation with which it is equipped. SAQ performs chemical analysis in multitude of materials, both in investigation and in control of raw materials, advices in the resolution of analytical problems, develops and validates specific procedures for the resolution of concrete problems.

Services

- Inorganic elemental analysis by inductively coupled plasma atomic emission spectrometry (ICP-OES), or inductively coupled plasma mass spectrometry (ICP-MS).
- Direct Mercury Analysis.
- Organic elemental analysis C, H, N, S in biological samples, soils, synthesis products, pharmaceuticals, industrial products, waste samples, etc.
- Determination of the composition of mixtures of volatile or semi-volatile substances by gas chromatography with FID detection or mass spectrometry, with direct injection, or ELSD, or mass spectrometry (ion trap, QTOF).
- Determination of the composition of mixtures of non-volatile substances by liquid chromatography, with UV-vis and / or ELSD detection, and / or mass spectrometry (ion trap, QTOF).
- Characterization of optical activity by circular dichroism UV-vis; determination of specific rotation.
- Characterization of functional groups by FT-IR spectrophotometry (ATR).
- Registration of UV-vis spectra and quantitative analysis.
- Mineralization of samples by digestion at high pressure in microwave oven.
- Analytical advice, development of specific methodologies, validation of analytical procedures.
- Self-service scales, optical activity by UV-vis circular dichroism, FT-IR spectrophotometry (ATR) and UV-vis spectrophotometry.

Application areas

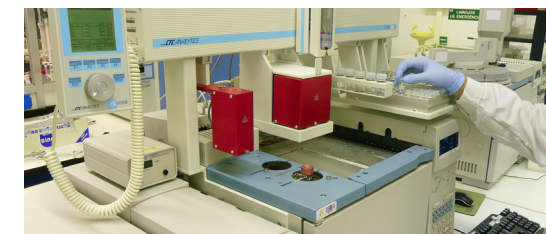
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Cell Culture, Antibody production and Citometry Service (SCAC)

Cell Culture, Antibody Production and Citometry Service (SCAC) provides scientific and technical support in the field of biosciences, using cell culture technology and analyzing and sorting different cell populations by flow cytometry. We are also experts in the production of mono and polyclonal antibodies and in the immunoassays development.

Services

- Establishment of primary culture from different tissues.
- Cell lines immortalization.
- Cell line expansion and banking in liquid nitrogen.
- Detection and elimination of mycoplasma contamination in cell cultures.
- In vitro cell culture assays: proliferation, cytotoxicity and apoptosis.
- Flow cytometry for the multicolor analysis of cell populations and microorganisms, functional studies, viability and apoptosis analysis, and proliferation and cell cycle analysis, among others.
- Cell sorting of heterogeneous populations and single cell cloning by FACS (Fluorescence activated cell sorting).
- Polyclonal and monoclonal antibody production.
- Hybridoma culture for the obtention of purified monoclonal antibodies batches.
- Conjugation of antibodies and / or antigens to enzymes and fluorophores.
- Characterization and validation of monoclonal antibodies.
- Assessment and development of antibody-based immunoassays (ELISA, western blot, ...).
- Scientific and technical support and personalized training.

Application areas

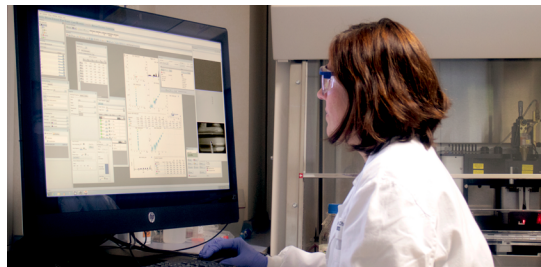
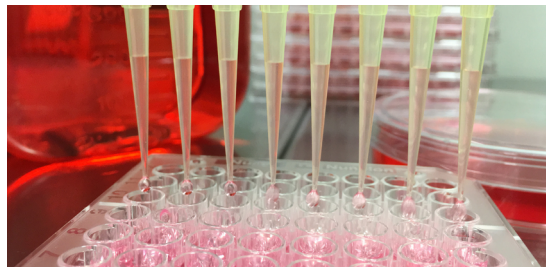
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X-ray Diffraction Service (SRDX)

The Service has the suitable equipment and knowledge for dealing with X-ray diffraction (powder and single crystal techniques). Samples usually come from the fields of Geology, Chemistry, Physics, Biochemistry and Material Science but also from other fields such as Archaeology, Medicine and so on.

Services

- Crystal structure determination: atomic connectivity, molecular geometrical parameters as bond lengths (bond distances and angles, torsion angles and angles and distances in coordination polyhedra).
- Configuration determination (stereochemistry).
- Studies on weak interactions (hydrogen bonds, secondary bonds, pi interactions, etc.).
- Studies on crystalline packing patterns.
- Identification and qualitative characterisation of crystalline phases by powder diffraction.
- Cell determination.
- Quantitative analysis of solid phases.
- Variable temperature diffraction study (both in single crystals and powders) and study of phase transitions.
- Study of polymorphs, solvates and cocrystals.

X-ray powder diffraction studies can be carried out on powdered samples and also on other samples such as specimens, paints, coatings, etc. powdered samples and also on other presentations such as test specimens, paints, coatings, archaeological archaeological pieces, etc.

Application areas

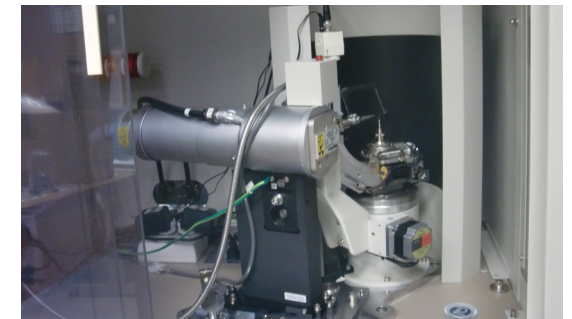
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Rodent animal facility (SE)

The Rodent animal facility (Servei d'Estabulari) of the UAB is dedicated to the generation and housing of animals used in scientific studies. There are boxes to house, both commercially available and genetically modified, rodents (rats, mice and hamsters). The Rodent animal facility allows conducting studies in basic and applied research in fields such as neuropsychology, cancer, physiology, toxicology, psychology, reproduction, clonation and others.

Services

- To buy rodents from external providers.
- In house rodent production.
- Housing of the animals in scientific studies either in conventional conditions or under barrier.
- Technical help in the execution of the studies.
- Veterinary support on animal health.
- Health monitoring of the animals.
- Experimental animal welfare support in the project application process (CEEA and GdC).

Application areas

Biotechnology and Biomedicine
Animal Production, Health and Food Science

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More information: www.uab.cat/serveis-cientifico-tecnics

Applied Statistics Service (SEA)

Applied Statistics Service (SEA) offers statistical consulting and technical advice in data analysis. SEA offers services aimed at the development of research projects and knowledge transfer through specialized consulting, on-demand services, expert reports and technical training in different areas among which we would highlight biostatistics, industrial production, social sciences, finances and risk management.

Services

- Design of experiments: sampling plan, sample size calculations.
- Data processing: validation, transformations, missing data processing.
- Exploratory data analysis: descriptive, univariate, bivariate analysis.
- Statistical modeling: linear, generalized, mixed models, survival analysis, ROC curves, time series, extreme values, Bayesian techniques.
- Predictive modeling: machine learning techniques.
- Segmentation: factorial analysis, principal component analysis (PCA), cluster analysis.
- Training in statistical techniques.

Application areas

Transversal

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Nuclear Magnetic Resonance Service (SeRMN)

The main objective of Nuclear Magnetic Resonance Service is to make and facilitate the acquisition, processing, analysis and Interpretation of spectroscopic and imaging data obtained using Nuclear Magnetic Resonance (NMR) techniques.

Services

- Acquisition of mono- and multidimensional multinuclear NMR spectra of samples in solution conditions for the structural characterization of chemical compounds and resolution of analytical problems. Spectrometers from 300 MHz to 600 MHz.
- Structural and dynamic studies of biomolecules (peptides, proteins, nucleic acids, etc.) in solution. Ligand-protein interaction studies.
- Analysis of complex mixtures. Identification of components. Detection and characterization of impurities. Quantitative analysis.
- Metabolomic studies in the fields of food science and technology, biomedicine and pharmaceutical industry.
- Multinuclear NMR analysis in solid-state conditions (CP-MAS) at 400 MHz.
- Analysis of semi-solid / semi-liquid samples for high resolution techniques under magic-angle spinning conditions (HR-MAS 1H, 13C and 31P) at 400 MHz.
- Characterization of mixtures through the combined use of automated liquid chromatography, NMR and mass spectrometry techniques using a cryoprobe (HPLC-RMN / MS of 1H, 13C and 15N) at 500 MHz.
- Non-invasive analysis of small animals, foods and plants using magnetic resonance imaging (MRI) techniques and 1H, 13C and/or 31P localized NMR spectroscopy at 7T.
- Application of hyperpolarization techniques through dissolution Nuclear Dynamic Polarization (DNP) to increase sensitivity in in-vitro 13C NMR (600 MHz) and In-vivo MRI (7T) studies.
- Advice and / or direct participation in experimental design and in the analysis/ interpretation of NMR data.

Application areas

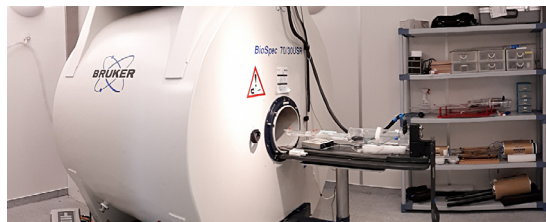
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Genomics Service (SG)

The Genomics and Bioinformatics Service (SGB) aims to provide scientific-technical support in the molecular analysis of nucleic acids (DNA, RNA) as well as in the interpretation of the data generated. The origin of the samples that are analyzed can be human, animal, plant or microbial and specific analyzes or global projects can be carried out.

Services

- DNA and RNA extractions
- Nucleic acids quantifications
- RNA and DNA quality assessment
- DNA Sanger Sequencing with capillary electrophoresis
- Nucleic acids Sequencing with massive parallel sequencing (NGS)
- Nucleic acids amplification with real-time polymerase chain reaction (RT-PCR) techniques
- Advising and training in genomics.

Application areas

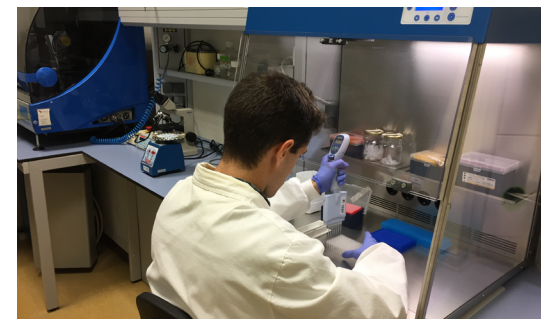
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Experimental Farm and Fields Service (SGCE)

The Experimental Farm and Fields Service dispose of spaces, facilities, material equipment and personnel as to support research requiring the use of animals or plants.

Its functions consist on the maintenance of the animals in a good welfare state, and organizing and developing studies with different farm animal species. All projects are developed with the authorization of the UAB Committee for animal research

Services

- Accommodation and maintenance of animals under standard farm conditions with productivity or teaching objectives of bovine, ovine, caprine, porcine, canine, avian and rabbits.
- Accommodation and maintenance of animals, under experimental conditions of bovine, ovine, caprine, porcine, canine, avian, rabbit and equine.
- Maintenance of animals under convencional or Bio-SafetyLevel 2 (BSL2) conditions during experimental conditions.
- Maintenance of the landscape and agricultural biodiversity of the campus.
- Acquisition of animals of different species from external suppliers.
- Sheep and goat production for experimental procedures.
- Maintenance and management of farmland spaces and fields under experimental conditions.
- Advice on animal welfare and presentation of projects to Ethics Committee.

Application areas

Biotechnology and Biomedicine
Animal Production, Health and Food Science
Environmental Science and Sustainability
Social Science and Humanities

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Core Microscopy Facility (SM)

SM has the infrastructure required for most of the scientific experimental fields that need to use advanced optical and electronic techniques.

Services

- Technical advice in experimental design and in the preparation of both material and biological samples for optical and electron microscopy.
- Preparation of samples for:
 - Optical microscopy: direct labeling and immunofluorescence.
 - Electron microscopy: Biological (ultra-structural studies, negative staining, vitrification and immunodetection) and Materials (embossing, inclusion in resin, metallization, sawing, flat and concave polishing, ionic thinning and vitrification)
- Technologies for the observation of samples:
 - Transmission electron microscopy (TEM): conventional EM, observation of samples under cryogenic conditions (Cryo-TEM) and microanalysis of samples (EDX).
 - Scanning electron microscopy (SEM): observation of samples by secondary electrons (SE), backscattered (BS), electron backscatter diffraction (EBSD) and microanalysis of samples (EDX).
 - Confocal scanning laser microscopy (CLSM): observation of fluorescent samples with multiple capture options such as XYZ, time-lapse, analysis of emission spectra, mosaics, etc.
 - Advanced optical microscopy: FLIM, FRET, FLIM-FRET, FCS, Anisotropy, FRAP, photoactivation and photoconversion, multiphoton, TIRFM.
 - Conventional and stereoscopic optical microscopy by bright field, differential contrast (DIC) and epifluorescence.
 - Mechanical and optical profilometry
- Image processing and analysis using specific image processing programs: IMARIS, Huygens, LAS AF, ZenBlue/Black, DigitalMicrograph and ImageJ/Fiji.

Application areas

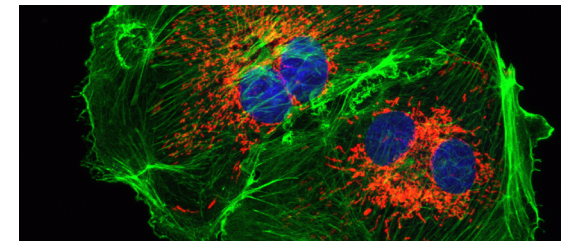
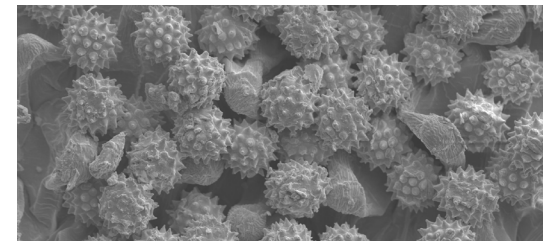
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Food Technology pilot plant service (SPTA)

The food technology pilot plant service (SPTA) provides consulting services, assistance and technical training to the scientific and business community in the field of food processing in R&D, as well as support to the teaching staff in the realization of practical lessons with the equipment and food processing facilities of the Pilot plant.

Services

- Food preparation with standard and / or modified processes or formulations for study and evolution (possibility of aseptic packaging).
- Defect detection, modification, adjustment and improvement of food processes
- Preparation of small food productions to carry out “consumer tests” and life studies.
- Assessment of “New Technologies” for food processing and preservation.
- Study and application of transversal technologies (food, emulsions, solutions, ingredients, cosmetics, pharmaceuticals, chemicals, packaging, new materials, energy consumption,...).
- Transversal processes (pasteurization, UHT sterilization, autoclave, homogenization, UHPH, high HHP pressures, UVC light on surfaces and liquids with continuous reactors, N2 freezes, packaging MAP,...).
- Advice on food processes, treatment conditions, adaptation of facilities and experimental design in R&D.
- Rental of equipment, spaces and facilities with or without technicians (according on user's experience and equipment).
- Tailored courses for technical personnel (production, quality, R&D, regulations...) in food processes and technology.

Application areas

Animal Production, Health and Food Science
Food production experimentation

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Ionizing Radiation Service (SRI)

The main functions of the Ionizing Radiation Service (SRI) are to advice, control, measure and certify that a radioactive or radiology facilities within the campus of the Universitat Autònoma de Barcelona complies with the current legislation on radiation protection.

Services

- Preparation of technical-legal documents and procedures for the Redaction of annual reports and request for authorization or modification of the facilities.
- Security studies
- Irradiation of biological samples.
- Radiological risk assessment and staff dose estimation.
- Controls of radiation and pollution levels of facilities.
- Calculations of declassification of radioactive waste.
- Procedures for the optimization of radioactive waste management
- Advice on legislation on radiation protection.

Application areas

Transversal

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Laboratory Services

	Biotechnology and Biomedicine Food science, animal health and production	Health Sciences	Environmental sciences and sustainability	Social sciences and humanities	Technologies and experimental sciences	Transversal
Adoption, Family and Childhood Services Center (AFIN)		●		●		
Organizational Development Team (EDO)				●		
Laboratory of Stable Isotope Analysis (LAIE)	●		●	●		
Laboratory of Palinological Analysis (LAP)	●	●	●			
Food Biosecurity Laboratory (LBA)	●					
Laboratory of electrical characterization and reliability assessment of materials, electronic devices and circuits (LCE)					●	
Biological Dosing Laboratory (LDB)	●	●				
Chemical Speciation Laboratory (LEQ)	●	●	●		●	
Laboratory of Magnetic and Thermal Measurements (LMT)	●				●	
Laboratory of Electronic Prototype Assembly for Embedded Systems (LaMPES)					●	
Reference Laboratory of Clinical Enzymology (LREC)	●	●				
Lab. of analysis of hormonal, stress, welfare and animal reproduction indicators (LAIHA)	●	●	●	●		
Laboratory of Technologies for Audiovisual Translation (LABTTAV)						●
Infectious Diseases Diagnosis Veterinary Laboratory (LVDMI)		●				
Multi-omics Bioinformatics Core facility (MBC)	●	●			●	
Industrial Biotechnology Platform (IBISBA)					●	
Fermentation Pilot Plant (PPF)	●	●	●			
Protein Production Platform (PPP)	●		●			
Mouse Image Platform (PIR)		●				
Operating Rooms of Experimental Surgery (QC)		●				
Rodent Behavioral Core (RBC)		●	●			
Archaeological Analysis Service (SAA)				●		

	Biotechnology and Biomedicine Food science, animal health and production	Health Sciences	Environmental sciences and sustainability	Social sciences and humanities	Technologies and experimental sciences	Transversal
Chromosomal Fragility Analysis Service (SAFCro)	●	●				
Service of Analysis and Applications of Microbiological (SAIAM)	●	●	●		●	
Mutagen Evaluation Service (SAMut)	●		●			
Veterinary Clinic Biochemistry Service (SBCV)	●	●			●	
Mathematical Consulting Service (MCS)						●
Dating Service for Tritium and Carbonium 14 (SDTC14)					●	
Pathological Fish Diagnosis Service (SDPP)	●	●		●		
Service of Veterinary Pathology Diagnostic (SDPV)		●	●			
Wildlife Ecopathology Service (SEFaS)		●	●	●		
Endocrinology and Radioimmunoanalysis Service (SER)	●		●			
Legal Studies and Legal Service (SELIJ)						●
Service of Inorgànic Geochemistry for Paleoceanography (SIGPO)				●		
Veterinary Clinic Hematology Service (SHCV)		●	●			
Neurobiological Research Service (SIN)	●		●			
Service of Nutrition and Animal Welfare (SNIBA)		●				
Psychology and Speech Therapy Services (SPL)			●		●	
Equine Reproduction Service (SRE)	●	●				
Environmental Forensic Service (ENVIFORENSIC)				●		
Integrated Animal Laboratory Services (SIAL)	●	●	●			
Bacteriology and Mycology Veterinary Service (SVBM)	●	●	●	●		
Molecular Genetics Veterinary Service (SVGGM)		●				
Unit of Murine and compared Pathology (UPMiC)	●		●			
Viral Vector Production Unit (UPV)	●		●		●	

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Departament d'Empresa i Coneixement
Secretaria d'Universitats i Recerca

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