



CIC biomaGUNE

At the frontiers
of Science

CICbiomaGUNE

MEMBER OF BASQUE RESEARCH
& TECHNOLOGY ALLIANCE



HR EXCELLENCE IN RESEARCH

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HR EXCELLENCE IN RESEARCH

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The Center for Cooperative Research in Biomaterials - CIC biomaGUNE, member of the Basque Research and Technology Alliance (BRTA), is a non-profit research organization created to promote scientific research and technological innovation at the highest levels in the Basque Country, following the BioBasque policy in order to create a new business sector based on biosciences.

Prof. José M. Mato is the Director General of CIC biomaGUNE since its definition in 2003. The scientific activity started in December 2006, under the direction of Prof. Manuel Martín-Lomas, who took the responsibility to shape the identity of the Center. After an initial phase during which the first research teams were selected, the Molecular Imaging Facility was built and soon approved as a Singular National Facility by the Spanish Government in 2011. Prof. Luis M. Liz-Marzán took over the Scientific Directorate in January 2013, until December 2021. Since January 2022, Prof. Aitziber L. Cortajarena is the Scientific Director of CIC biomaGUNE.

Located in the Science and Technology Park of Gipuzkoa (Donostia-San Sebastián), CIC biomaGUNE hosts **11 international and dynamic research groups**, working at the interface between chemistry, physics, and biology, with a particular emphasis on the design of nanostructures and biomaterials with defined properties, and their applications in biomedicine.

Our **scientific strategy** is structured around three main research priorities: **Biofunctional Nanomaterials**, **Synthetic Bioengineering**, and **Molecular and Functional Imaging**.

The main research lines focus on the design, preparation, and characterization of biofunctional nanostructures and custom biomaterials and their evaluation in *in vitro* and *in vivo* settings, to understand biological processes and develop biomedical tools. These applications include diagnostic, therapeutic, theranostic, or multimodal imaging, to better understand diseases, and ultimately apply them in clinical diagnosis and therapy.



Aitziber L. Cortajarena
SCIENTIFIC DIRECTOR

José M. Mato
DIRECTOR GENERAL





To carry out this ambitious program of research, the Center counts with a unique research infrastructure, equipped with advanced nanoscience, chemistry, biochemistry, cell biology, and molecular imaging facilities, including fully equipped research laboratories, Technological Platforms and the Molecular Imaging Facility, recognized as a Singular Scientific and Technical Infrastructure (ICTS) by the Spanish Government and one of the most complete preclinical imaging research infrastructures in Europe.

In the course of almost twenty years, with an average critical mass of around 180 people, the Center has obtained national and international recognition as a scientific leader and knowledge builder in the field of biomaterials. Among other achievements, our activity has resulted in the generation of knowledge (publications, patents, PhD theses), the internationalization of research through collaborations with international bodies and institutions, as well as opening our facilities to the scientific community and the industrial sector.

In 2018 CIC biomaGUNE earned the accreditation as a “María de Maeztu Unit of Excellence”, the highest recognition of scientific excellence in Spain awarded by the Spanish State Research Agency (AEI).

The center counts also with the European Seal of Excellence in Human Resources “HR Excellence in Research”, the UNE 166002:2014 standard for RD&I Management and the AAALAC accreditation for the care and use of animals in science.

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CIC biomaGUNE Research program

CICbiomaGUNE

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Cardiac
diseases

Respiratory
diseases

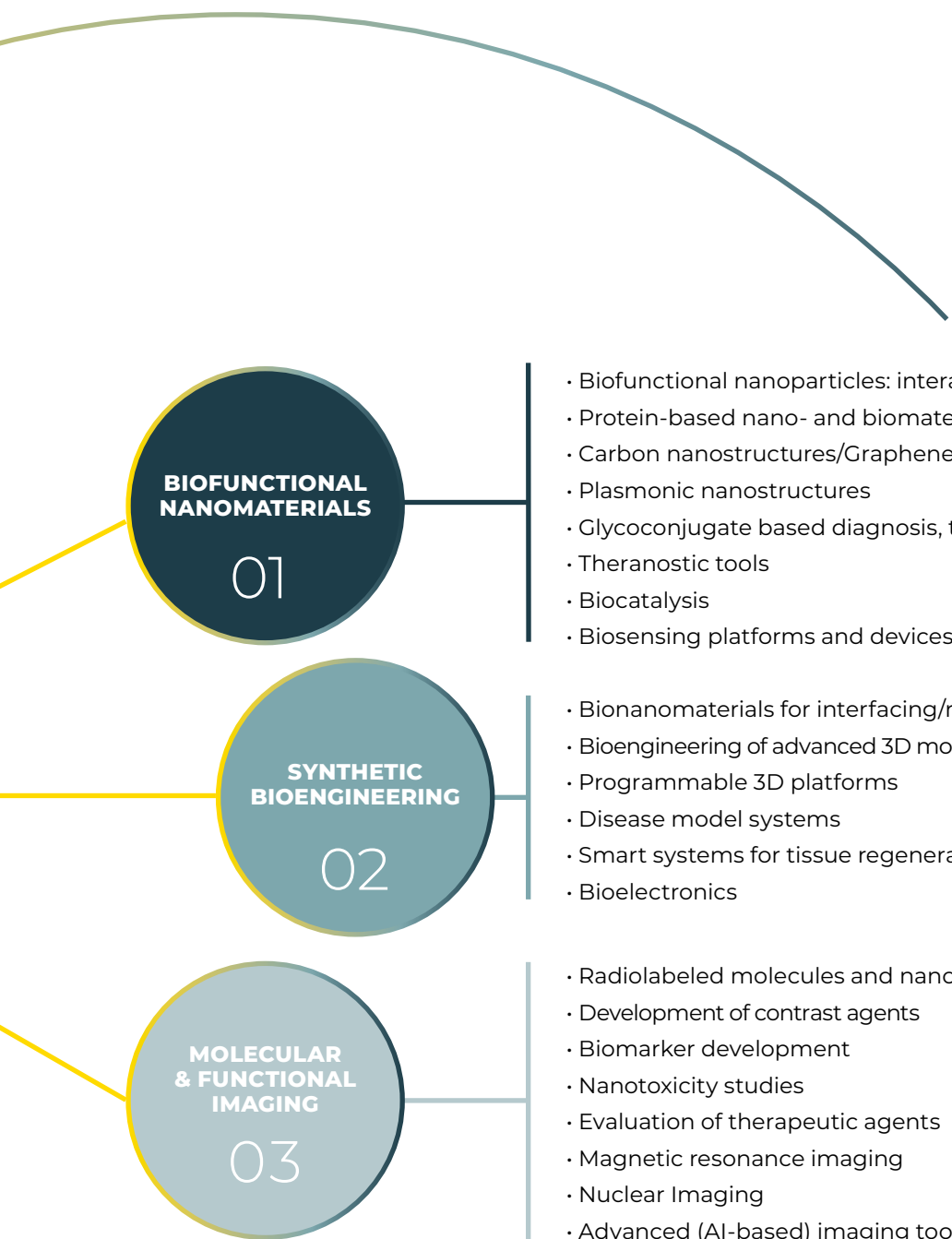
Aging and
regeneration

**CROSS-SECTIONAL
APPLICATIONS
ON DISEASES**

Cancer

Viral
diseases

Neurode-
generative
diseases



BIOFUNCTIONAL NANOMATERIALS

01

- Biofunctional nanoparticles: interaction with biological systems
- Protein-based nano- and biomaterials
- Carbon nanostructures/Graphene
- Plasmonic nanostructures
- Glycoconjugate based diagnosis, therapy, and targeting
- Theranostic tools
- Biocatalysis
- Biosensing platforms and devices, including wearables

SYNTHETIC BIOENGINEERING

02

- Bionanomaterials for interfacing/re-programming biological systems
- Bioengineering of advanced 3D models
- Programmable 3D platforms
- Disease model systems
- Smart systems for tissue regeneration
- Bioelectronics

MOLECULAR & FUNCTIONAL IMAGING

03

- Radiolabeled molecules and nanoparticles
- Development of contrast agents
- Biomarker development
- Nanotoxicity studies
- Evaluation of therapeutic agents
- Magnetic resonance imaging
- Nuclear Imaging
- Advanced (AI-based) imaging tools

Research Groups

The main research lines focus on the design, preparation, and characterization of biofunctional nanostructures and custom biomaterials and their evaluation in *in vitro* and *in vivo* settings, to understand biological processes and develop biomedical tools. These applications include diagnostic, therapeutic, theranostic, or multimodal imaging, to better understand diseases, and ultimately apply them in clinical diagnosis and therapy.



Glycotechnology



Niels Reichardt
PRINCIPAL INVESTIGATOR

nreichardt@cicbiomagune.es

The Glycotechnology Laboratory carries out projects in basic and applied glycoscience, the science and technology of carbohydrates with a large untapped potential to provide innovative solutions to important social challenges such as personalized medicine, pharmaceutical products, food and biomaterials.

The group applies carbohydrate synthesis, materials science and molecular biology to the design of tools, probes and devices to elucidate the role and exploit the potential of sugars for cancer immune therapy, as biomarkers and biomaterials for biomedical applications.

Research lines

Synthesis

- Chemo-enzymatic synthesis of oligosaccharides and glycomimetics
- Natural products isolation and modification
- Glycoengineering of cells and exosomes
- Development of glyconanoparticles as tunable glycan display systems

Drug discovery and screening

- Development of glycomimetics as inhibitors for the treatment of cancer, autoimmune diseases and allergy
- Functional glycomics of C-type lectins in pathogen and self-recognition (microarrays, flow cytometry, functional immune assays)
- HTS enzyme activity assays development

Glycan analysis / Biomarkers

- Absolute quantification of glycans and glycopeptides by mass spectrometry
- Development of lectin-based screening technology
- Development of anti-carbohydrate antibodies
- Glycan and polysaccharide microarrays



Bionanoplasmonics



Luis M. Liz-Marzán

PRINCIPAL INVESTIGATOR
Ikerbasque Research Professor
CIBER-BBN Group Leader
llizmarzan@cicbiomagune.es

The activity of the Bionanoplasmonics Laboratory focuses on the biomedical applications of plasmonic nanomaterials, including new chemical methods for the synthesis of colloidal metal nanoparticles with tailored size, shape and surface chemistry, their directed self-assembly and applications in biosensing, diagnostics and therapy, mainly based on plasmonic effects.

One of the current central topics of the group is the development of platforms that can be used for ultrasensitive detection based on SERS.

The group is interested in the incorporation of such nanostructured substrates within devices for implementation of real detection techniques.

Research lines

Colloidal synthesis and self-assembly

- Morphology control through seeded growth
- Surface modification through ligand exchange and encapsulation
- Colloidal nanocomposites
- Hierarchical nanostructures

Plasmonic sensing

- Surface enhanced Raman scattering
- Plasmonic chirality
- Nanothermometry

Biomedical applications

- Ultrasensitive detection of biomarkers
- Plasmonics-based bioimaging
- Photothermal effects in biological systems



Carbon Bionanotechnology



Niels Reichardt

PRINCIPAL INVESTIGATOR

nreichardt@cicbiomagune.es

The mission of the Carbon Bionanotechnology Laboratory is the design and synthesis of tailored carbon nanostructures for bionanotechnology applications and solar energy conversion through biomimetic approaches.

The group explores new synthetic protocols and new analytical methods, enabling innovative, controlled and reproducible ways toward the designer functionalization of carbon nanostructures, such as fullerenes, carbon nanotubes, graphene and carbon nanodots.

Research lines

Nano-Neurosciences

Evaluation of nanomaterials based on carbon nanotubes and graphene for interaction with nerve cells and spinal cord tissue. This approach shows a high potential for addressing incurable cases of spinal cord lesions.

Nano-catalysis for water splitting

Reduction of oxygen to hydrogen peroxide, reduction of alcohols to hydrogen, reduction of CO₂ to formate.

Carbon Nanodots

Synthesis and applications of carbon nanodots, namely small, fluorescent, quasi-spherical nanoparticles with a high potential in photonics and biology.

Science and technology of 2D materials

Graphene and MoS₂ are among the most promising materials nowadays, with a wide variety of potential applications.



Biomolecular Nanotechnology



Aitziber L. Cortajarena

PRINCIPAL INVESTIGATOR

Ikerbasque Research Professor

Scientific Director

alcortajarena@cicbiomagune.es

The group focuses on protein engineering toward the generation of functional nanostructures and bioinspired materials for applications in nanobiotechnology and nanomedicine.

The research focuses mainly on protein engineering in order to develop versatile platforms for the bottom-up fabrication of protein-based hybrid functional biomaterials. The group is interested in the tailored biofunctionalization of nanomaterials for biomedical applications, from disease treatment to diagnosis.

The group also carries out research aimed at the development of new analytical and bioanalytical techniques, using metal and semiconductor nanoparticles and has also focused on the fabrication of novel biosensors employing different read-out methods, such as UV-visible and fluorescence spectroscopy, quartz crystal microbalance, electrochemistry and photo-electrochemistry.

Research lines

Protein engineering for functional structures and bioinspired materials

- Protein-based photoactive and electroactive materials for bioelectronics
- Proteins as scaffolds for multienzymatic pathways and catalytic materials
- Proteins to template nanomaterials

- Protein-nanocluster hybrids: biosensing and imaging applications
- Designing photoactive proteins
- Designing switchable protein-based structures

Biofunctional nanomaterials and surfaces for biomedical applications

- Functional nanomaterials: diagnosis and therapy
- New iron nanomaterials as contrast agents for MRI
- Functional polymeric materials



Heterogeneous Biocatalysis



Fernando López-Gallego

PRINCIPAL INVESTIGATOR
Ikerbasque Research Professor

flopez@cicbiomagune.es

The Laboratory of Heterogeneous Biocatalysis is applying multi-enzyme systems to synthetic, environmental, medical and analytical chemistries by harnessing the exquisite selectivity of enzymes (biological catalysts) for the development of more sustainable and effective chemical processes.

The group mimicks the spatial organization found inside the living organisms, but using *ex-vivo* systems supported on solid materials.

To address such goal, we are interfacing chemistry and biology utilizing multidisciplinary tools that involve molecular biology, enzymology and materials chemistry.

Research lines

Fabrication of robust and efficient multifunctional heterogeneous biocatalysts

- Discovery and engineering of novel enzyme activities
- Engineering the enzyme orientation
- Tuning enzyme spatial organization in porous materials
- Engineering synthetic scaffolds to assemble biocatalytic cascades into solid materials

Functional and structural characterization of immobilized enzymes

- Spectroscopic methods to in operando characterize immobilized enzymes
- Single-particle methods to better study the apparent kinetics of immobilized enzymes

Application of heterogeneous bio(hybrid)catalysts for chemical manufacturing using renewable raw materials as starting point

- Integration of heterogeneous biocatalysts in flow-systems
- Combination of enzyme and chemical catalysts in one-pot systems



Soft Matter Nanotechnology



Sergio Moya

PRINCIPAL INVESTIGATOR

smoya@cicbiomagune.es

The Soft Matter Nanotechnology Laboratory makes use of elements of soft matter, mainly polyelectrolytes, in nanofabrication and in the development of hybrid materials for biomedical applications.

The group has expertise in several physico-chemical characterization techniques, especially in fluorescence spectroscopy.

The group interests include the synthesis of polyelectrolytes, self-assembly, physical characterization, the development of drug delivery systems, and hybrid materials for tissue engineering.

Research lines

Polyelectrolyte synthesis and self-assembly

- Layer by layer technique
- Polymer brushes
- Polyelectrolyte complexes

Physical chemistry of Polyelectrolytes

- Diffusion studies
- Small-angle X-ray (SAXS) and neutron (SANS) scattering
- Fluorescence spectroscopy
- Quartz Crystal Microbalance

Supramolecular assemblies for drug delivery

- Polyelectrolytes for siRNA delivery
- Metal Organic Frameworks (MOFs)
- Protein nanoparticles

Development of hybrid materials for tissue engineering

- Mesoporous titania
- Bioactive ions

Biological fate of polymer Nanomaterials

- Protein corona studies
- Fluorescence Cross Correlation
- Translocation *in vitro/in vivo*



Hybrid Biofunctional Materials



Dorleta Jiménez de Aberasturi
PRINCIPAL INVESTIGATOR
Ikerbasque Associate Professor

djimenezdeaberasturi@cicbiomagune.es

The Hybrid Biofunctional Materials Laboratory focuses on the design of hybrid biomaterials responsive to specific stimuli, designed to gain a better understanding of cell-material interactions, propose advances in tissue engineering techniques, and seek solutions in the field of translational medicine.

Thanks to the combination of inorganic nanoparticles (NPs) with organic polymeric materials, biological molecules and living cells, complex hybrid biosystems can be created in a highly controlled manner, providing novel solutions for pre-clinical model design and characterization.

The inorganic NPs are designed to provide the physical properties

of interest including responses to externally applied physical changes. The organic compounds contribute with structural support for cell growth, controlled porosity, protection against NP degradation and/or specific responsiveness. The human cells are representative of each tissue model and are essential to understand their behaviour and model evolution.

The group is particularly interested in the development of hybrid biomaterials for the fabrication and characterization of 3D printed models to better understand the causes behind diseases, perform drug screening or be used as grafts.

Research lines

3D *in vitro* model design based on hybrid biofunctional materials

- Fabrication of extracellular matrices
- Bioink design Bioprinting techniques
- Synthesis of colloidal NPs as stimuli actuators
- Incorporation of dynamism through inorganic NP addition
- Stimuli responsive materials
- Cell deposition and proliferation control

Nanostructured contrast agents and/or sensors to characterize 3D models

- Colloidal synthesis of multifunctional nanostructured particles
- Surface modification with active ligands
- Biocompatible coating
- Multimodal imaging techniques
- SERS tag fabrication



Radiochemistry & Nuclear Imaging



Jordi Llop

PRINCIPAL INVESTIGATOR

jllop@cicbiomagune.es

The activity of the Radiochemistry and Nuclear Imaging Laboratory focuses on the development of innovative radiochemistry and the application of positron emission tomography (PET) and single photon emission computed tomography (SPECT) tracers toward the investigation of biological, physiological and pathological processes in the fields of oncology, neurology, pneumology, infection and cardiovascular diseases.

Research lines

Fundamental radiochemistry

- Development of innovative labeling strategies using ^{11}C , ^{13}N and ^{18}F
- Investigation of reaction mechanisms using labeled species

Nanotechnology and nanomedicine

- Development of nanomaterial-based drugs with application in boron neutron capture therapy (BNCT)
- Investigation of the biological fate of nanoparticles using *in vivo* imaging
- Evaluation of nanoparticles as drug carriers in infectious diseases
- Development of nano-immunotherapeutic agents

Translational applications

- Longitudinal investigation of neurodegenerative diseases
- Investigation of pathophysiological aspects of brain ischemia
- Tumor metabolism



Magnetic Resonance Imaging



Pedro Ramos-Cabrer

PRINCIPAL INVESTIGATOR
Ikerbasque Research Professor

pramos@cicbiomagune.es

The Magnetic Resonance Imaging (MRI) Laboratory makes use of nanomaterials and magnetic resonance imaging techniques on animal models.

The group intends to characterize the onset and evolution of diseases of the central nervous system (CNS), from development of early markers to imaging methods that quantify the progression of the pathological processes and their consequences at anatomical and functional levels.

The group additionally develops new therapeutic approaches to treat such diseases, with special emphasis on the penetration through the blood- brain-barrier and monitoring the effective release of drugs in the brain parenchyma.

Research lines

Imaging of demyelination and remyelination processes

- Multi-parametric high resolution imaging of white matter
- *In vitro* and *in vivo* quantification of myelin
- Nanomaterials for theranostics on demyelination processes

Functional imaging of the CNS

- Functional imaging on animal models of disease
- Integration of fMRI with DTI and fiber tracking techniques
- Optogenetics and genetic sensors of neuronal activity

Imaging drug delivery

- Imaging sensors of nanodrugs integrity for imaging delivery
- Responsive nanosystems for activatable drug delivery
- Enhancement and visualization of the crossing of the blood-brain-barrier.



Molecular & Functional Biomarkers



Jesús Ruiz-Cabello

PRINCIPAL INVESTIGATOR
Ikerbasque Research Professor
CIBER-ES Group Leader

jruizcabello@cicbiomagune.es

The Molecular & Functional Biomarkers Laboratory studies cardio-pulmonary and vascular diseases through functional and molecular imaging and system biology approaches.

The group is particularly interested in the potential of new imaging techniques, including nanotechnology-based applications, in early diagnosis of pulmonary and cardiovascular remodelling, the assessment of metabolic changes associated with cell growth, the structure and function of the right ventricle and cardiovascular coupling signals.

Research lines

System and signal biology

- Metabolomics based biomarkers
- Early diagnosis of pulmonary vascular diseases
- System biology data integration with imaging and physiological signals

Nanotechnology

- Hybrid (PET and MRI) nanoparticles for molecular and functional imaging
- Labeled nanovectors for enhanced lung targeting and early diagnosis of pulmonary and vascular diseases

Imaging

- Cardiovascular and pulmonary imaging
- Functional and molecular imaging of pulmonary vascular diseases



Bottom-up cell Biology and Bioengineering



Natalia Baranova

PRINCIPAL INVESTIGATOR
Ikerbasque Research Fellow

nbaranova@cicbiomagune.es

The Bottom-up cell Biology and Bioengineering Lab aims to reverse-engineer molecular assemblies to understand their function. Living assemblies are highly dynamic, continuously reshaping and reorganizing as their molecular building blocks come on- and -off. Our goal is to understand how molecular functions are influenced by their environment, spatial confinement, and the presence of regulatory elements such as cofactors or inhibitors. Although reductionist, the bottom-up reconstitution approach is uniquely positioned to systematically dissect the complexity of molecular interactions and bridge the gap between molecular and cellular organization.

We primarily focus on reconstructing glycan and protein assemblies linked to lipid membranes, utilizing a range of surface-sensitive techniques for their characterization. Where possible, we perform “biochemistry under the microscope” to quantify interaction dynamics, often at the single-molecule level. Our current research focuses on bacterial cell biology and host-pathogen interactions.

Research lines

Peptidoglycan synthesis

We rebuild molecular networks that control peptidoglycan synthesis during bacterial division. By accounting on relevant boundary conditions, we can quantify dynamics of the interactions with a control and precision that remains difficult to achieve in a living cell. Our reconstitution assays can be adapted as high-throughput screening platform for target-based discovery of novel peptidoglycan synthesis inhibitors.

Biofilm matrix

How bacteria react to the change in composition and mechanical remodeling of their own matrix or the matrix produced by another organism remains poorly understood. We aim to rebuild biofilm matrix on a planar surface to investigate molecular interactions and monitor its recognition by bacteria at high spatio-temporal resolution.

Dynamics of cell glycocalyx

The bulky glycocalyx components are osmotically active space

fillers that define the thickness and viscoelastic properties of the cell interface. However, the relation between their ensemble architecture, dynamic reorganization and cell functions remains largely unexplored. We focus on the development of novel approaches to probe physical & biological properties of the glycocalyx in synthetic reconstituted systems and correlate them with the assembly present on a living cell.



Molecular & Functional Imaging Facility

Housed within 900 m², the Molecular and Functional Imaging Facility at CIC biomaGUNE is an integrated bioimaging structure that offers state-of-the-art preclinical imaging instrumentation in Positron Emission Tomography (PET), Single Photon Emission Computed Tomography (SPECT), Computerized Tomography (CT), Magnetic Resonance Imaging (MRI) and complementary equipment including autoradiography and gamma spectrometry.

It includes a fully equipped radiochemistry laboratory with a biomedical cyclotron, advanced microscopy equipment and a dedicated animal housing facility for rodents which holds AAALAC since 2015.

The Facility is currently integrated in the “Distributed Biomedical Imaging Network” (ReDIB, www.redib.net), recognized by the Spanish Government as a Singular Scientific and Technical Infrastructure (ICTS).

The infrastructure has been designed, built and equipped to tackle longitudinal and multimodal pre-clinical projects and to develop applications in the area of Preclinical Molecular and Functional Imaging and Nanomedicine.



01 Radiochemistry

Vanessa Gómez-Vallejo

PLATFORM MANAGER

The Radiochemistry platform is equipped with:

- IBA Cyclone 18/9 cyclotron with targets for the routine production of several positron emitters or direct activation of nanomaterials
- 5 shielded hot cells for the synthesis of [^{11}C] CH_3I / [^{11}C] CH_3OTf from [^{11}C] CO_2 / [^{11}C] CH_4 ; ^{18}F -fluorination; purification of ^{64}Cu and ^{89}Zr
- 2 cells to perform semi-automated syntheses of ^{68}Ga , ^{177}Lu , ^{111}In , ^{131}I ,
- 1 hot cell dedicated to alpha particles (e.g., ^{225}Ac)
- State of the art quality control equipment, including radio-HPLC, radio-GC, radio-MS, radio-TLC and gamma spectrometry
- A fully equipped laboratory for radioactive metabolite analysis in blood and tissue samples and a cell culture lab for *in vitro* studies with radiolabeled ligands

02 Magnetic Resonance Imaging (MRI)

Daniel Padró

PLATFORM MANAGER

The Magnetic Resonance Imaging (MRI) platform is equipped with:

- MRI 11.7T/16 cm (117/16 USR) operating at proton resonance frequency of 500 MHz
- MRI 7T/30 cm (70/30 USR) operating at proton resonance frequency of 300 MHz
- Dedicated RF-coils of different sizes optimized for *in vivo* and *ex vivo* MR imaging on rat and mouse brain, body or heart
- Heteronuclear coils allowing ^{13}C , ^{19}F and ^{31}P acquisitions
- MRI-compatible physiological monitoring systems



03 Nuclear Imaging

Unai Cossío

PLATFORM MANAGER

The platform provides cutting-edge imaging capabilities for Positron Emission Tomography (PET), Single Photon Emission Computerized Tomography (SPECT), Optical Imaging (OI), and Computerized Tomography (CT). It includes a multimodal PET/SPECT/CT/OI system and a modular trimodal system comprising two PET scanners, one SPECT, and a CT. These systems enable in vivo multimodal studies on the same subject, facilitating non-invasive, comprehensive research approaches that capture both functional and anatomical data.

The platform also features three dedicated workstations with multiple licenses for PMOD and Imalytics software, supported by high-capacity data storage systems that enable real-time image reconstruction, advanced data processing, quantitative analysis, and secure archiving.

Additionally, for high-resolution nuclear imaging at the end-point, the platform is equipped with an autoradiography system.

04 Animal Facility

Ainhoa Cano

PLATFORM MANAGER

The Animal Facility can accommodate up to 960 mice and 288 rats and includes an experimental area for longitudinal studies, complemented by microsurgery spaces.

It provides users with the assessment and necessary equipment (preparations and microsurgery rooms) to carry out research on laboratory animals (rodents).

It procures care and ensures the welfare of the animals, ensuring all legal and ethical standards concerning the use of animals for research. The Animal Unit Platform is an AAALAC accredited facility since 2015.



Technological Platforms

Technology platforms, managed by specialized platform managers, provide technical and scientific support to the research activities conducted at CIC biomaGUNE.

The technological platforms are open to external users such as companies, research centers associated with the Basque Network of Science and Technology, as well as to other public or private external users. The platforms offer the following services:



01 Nuclear Magnetic Resonance

Daniel Padró

PLATFORM MANAGER

The Nuclear Magnetic Resonance (NMR) platform enables performing a wide range of experiments with liquid samples. Routine studies include structural analysis, purity evaluation, structural elucidation, metabolic, dynamic and kinetic studies, identification, and quantification of organic compounds, among others. The platform is equipped with:

- 500 MHz NMR spectrometer equipped with a $^1\text{H}/^{19}\text{F}$ BBI 5mm probe and a HRMAS (High Resolution Magic Angle Spinning) 4mm probe interfaced with a 60 sample automation system
- Time-Domain NMR spectrometer (Minispec) working at clinical MRI field (1.5 Tesla) specially designed to study MRI Contrast Agents

02 Electron Microscopy

Marco Möller

PLATFORM MANAGER

The Electron Microscopy platform offers techniques to characterize materials at the micrometer and nanometer scale. Its focus is on the study of composites made of inorganic nanoparticles and biological or soft polymeric materials. It is equipped with:

- Transmission electron microscope (TEM) optimized for ultrahigh resolution and low electron dose studies, equipped with a CMOS camera and STEM (BF & DF) and EDXS systems
- TEM optimized for high contrast studies
- Scanning electron microscope (SEM) equipped with an EDXS system
- Sample Preparation Laboratory for Ultramicrotomy and Cryomicroscopy



03 Mass Spectrometry

Javier Calvo

PLATFORM MANAGER

The platform provides several high quality mass spectrometry techniques for the analysis of small molecules, complex biomolecules or polymers, and for the determination of metal concentration in different media.

It is equipped with modern instrumentation and offers different ionization techniques coupled to high resolution analyzers:

- LC/MS (Acquity UPLC / LCT Premier XE ESI-TOF, Waters)
- NanoESI-QTOF tandem mass spectrometry (Advion Nanomate, LCT Premier Waters)
- MALDI TOF/TOF tandem mass spectrometry (UltrafleXtreme III, Bruker)
- ICP/MS (iCAP-Q, Thermo)

In addition, other techniques such as ImagePrep (Matrix deposition technique for MALDI-imaging, Bruker), HPLC preparative (Delta600, Waters), FPLC (ÄktaPure, GE) and ion chromatography (Dionex) are also available.

04 Surface Analysis & Fabrication

Desiré Di Silvio

PLATFORM MANAGER

The platform offers XPS and AFM measurements as well as thin film deposition. The platform is equipped with:

- X-ray Photoelectron Spectroscopy (XPS)
- ATC 1800 UHV Reactive Magnetron Sputtering
- Edwards Auto 500 thermal evaporator/sputter coater
- Edwards Auto 306 coater
- Atomic force microscopes (AFM): Multimode V AFM and a NanoWizard II AFM installed on a Carl Zeiss Axiovert 200 optical microscope

05 Optical Spectroscopy & Imaging

Irantzu Llarena

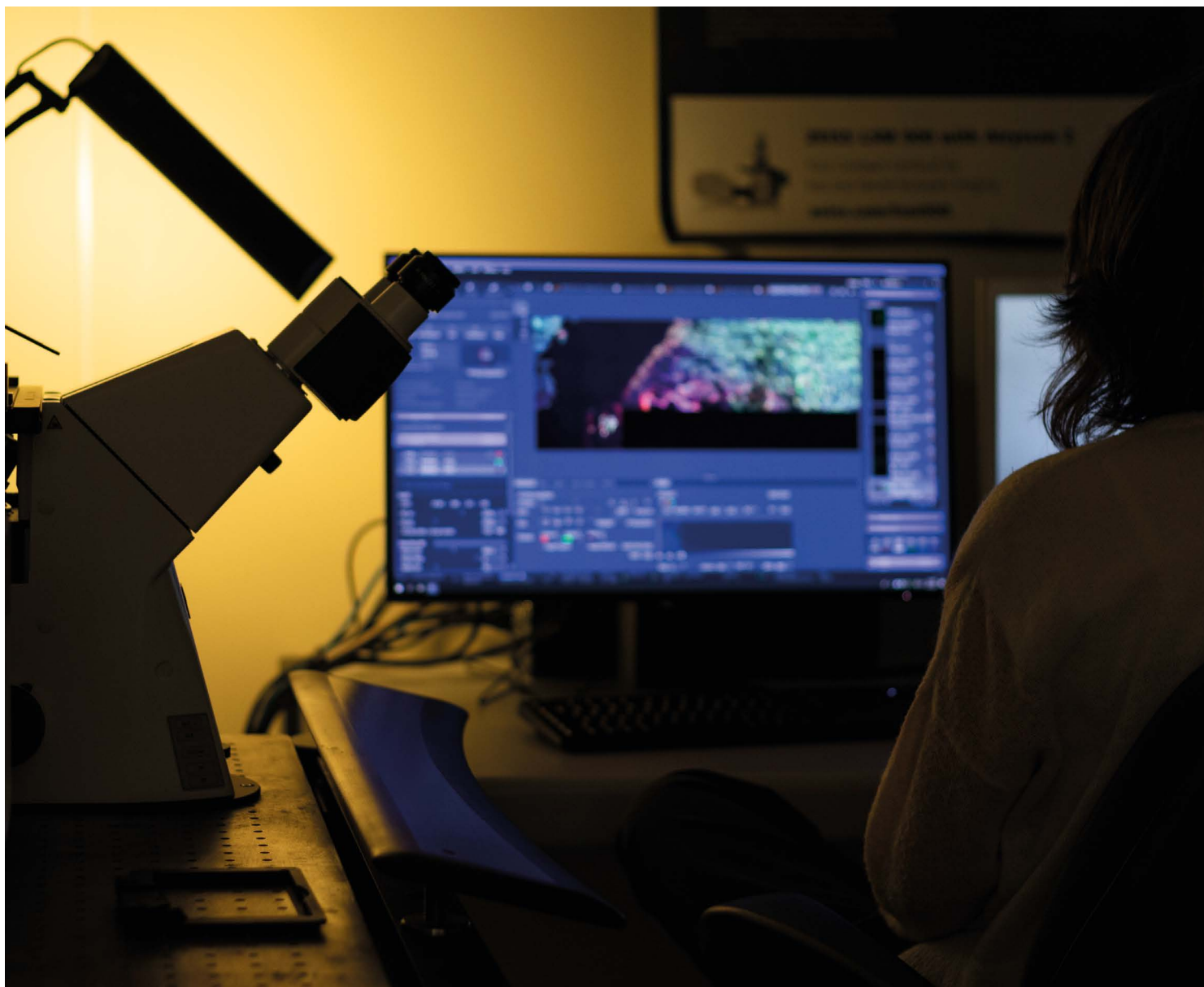
PLATFORM MANAGER

Judith Langer

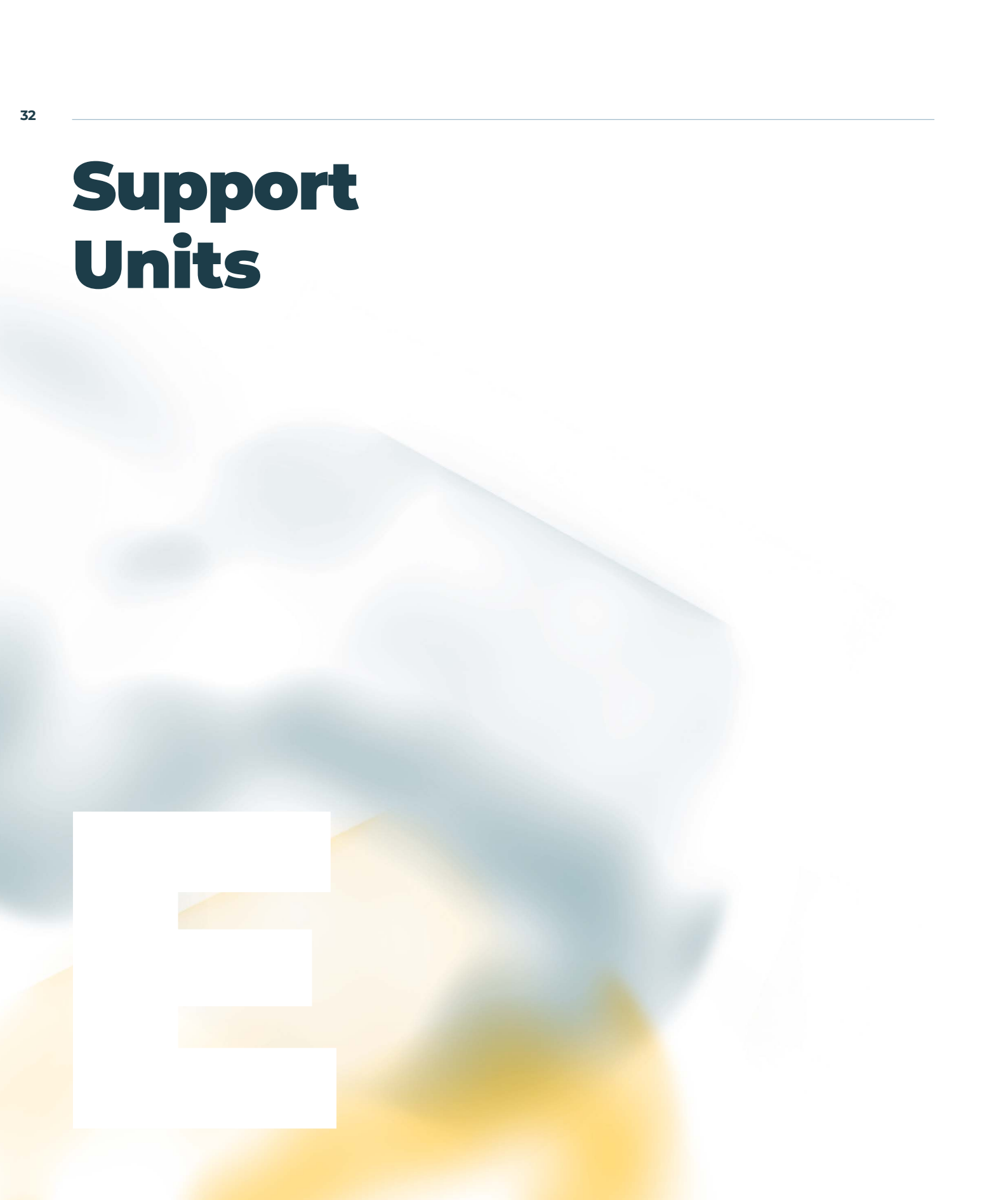
PLATFORM MANAGER

The platform offers a wide range of equipment and techniques to characterize physicochemical properties of biomaterials and biosurfaces. The platform is equipped with:

- Scanning Confocal Fluorescence Microscopes (Zeiss LSM 880 multiphoton laser & 510 Meta)
- Confocal Raman Microscopes (WITec alpha300 & Renishaw)
- Spectrophotometers (UV-Vis, UV-Vis-NIR, RAMAN, and FT-IR) and fluorometers
- Flow Cytometer (BD FACS Cantoll)
- Epifluorescence Microscope (Zeiss Axio Cell observer)
- Circular Dichroism (Jasco J-1500)
- Differential Scanning Calorimeter (DSC)
- Isothermal Titration Calorimeter (VP-ITC)
- Dynamic Light Scattering (Malvern Zsizer Ultra)
- MicroScale Thermophoresis (MST) Binding Affinity



Support Units



E

01 Executive Direction

José M. Mato

GENERAL DIRECTOR

Aitziber L. Cortajarena

SCIENTIFIC DIRECTOR

Designs, defines and coordinates the Center's scientific strategies and activities.

02 General Management

Anna Llanes Pallàs

GENERAL MANAGER

Supervises the management of the Administration, Financial and HR Department, as well as the the Project Office, and the Biosafety&Radioprotection, IT, Communication and Maintenance units of the Center.

03 Administration, Financial & HR Management

Sheyla García Medel

ADMINISTRATION & HR MANAGER

Elizabeth Noguera Olaechea

FINANCE & CONTROL MANAGER

Manages finances, accounting, administration, and human resources of the Center.

04 Projects Office

Nerea Argarate

PROJECT MANAGER

María Villar Vidal

PROJECT MANAGER

Supports and strengthens the capacities of the Center by attracting funding from various Research Programs, in particular international ones, fostering links between academic and industrial environments, and promoting the transfer of research results to society and industry, especially to the biotechnology sector.

05 Technology Transfer

Marcos Simón Soria

TECHNOLOGY TRANSFER MANAGER

Manages intellectual property, facilitating the flow of knowledge from the Center to society and driving business development. It is dedicated to identifying and safeguarding intellectual property, negotiating licensing agreements, and catalyzing the commercialization of research outcomes.

06 Science Communication

Clara García Gorro

SCIENCE COMMUNICATION MANAGER

Develops and implements science communication strategies and promotes public understanding of science.

07 Biosafety & Radioprotection

Paola Ferreira Cabeza

BIOSAFETY & RADIOPROTECTION
MANAGER

Establishes safe working conditions for CIC biomaGUNE's personnel by ensuring good laboratory practices. The service also ensures safe operation of the Center's Radioactive Facility.

08 Information Technology

Mikel Gonzalez Lacunza

IT MANAGER

Supports setting up and maintaining computer-related equipment, software, data storage programming, e-mail servers, and the website of the Center.

09 Maintenance

Álvaro Ruiz Fernández

MAINTENANCE MANAGER

Takes care of the preventive, predictive and corrective maintenance of all facilities at CIC biomaGUNE.

International Scientific Advisory Board (ISAB)

The scientific activity of CIC biomaGUNE is regularly assessed by the International Scientific Advisory Board (ISAB), composed of internationally distinguished scientists, who are active in CIC biomaGUNE’s research fields of interest.

**IT IS CURRENTLY
COMPRISED OF
THE FOLLOWING
MEMBERS:**

Prof. Itamar Willner <i>Institute of Chemistry The Hebrew University of Jerusalem, Israel</i>	Prof. Aránzazu del Campo <i>Division of Dynamic Biomaterials Leibniz Institute for New Materials, Germany</i>	Prof. Patrick Couvreur <i>Laboratoire de Physico-Chi- mie, Pharma- cotechnie et Biopharmacie Université Paris-Sud, France</i>	Prof. Peter Seeberger <i>Biomolecular Systems Max Plank Institute of Colloids and interfaces, Germany</i>	Prof. Monica Olvera de la Cruz <i>Department of Chemistry Northwestern University, USA</i>	Prof. Samuel I. Stupp <i>Institute for BioNanote- chnology in Medicine Northwestern University, USA</i>	Prof. Michal Neeman <i>Weizmann Institute of Science Israel</i>
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Public Administrations

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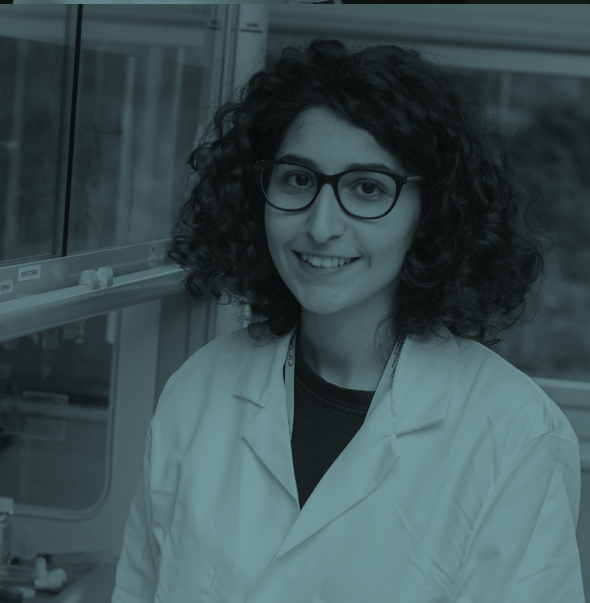
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Accreditations



Funding





CIC biomaGUNE
At the frontiers
of Science



CICbiomaGUNE

MEMBER OF BASQUE RESEARCH
& TECHNOLOGY ALLIANCE

Paseo Miramón 194, 20014
Donostia - San Sebastián
(SPAIN)

www.cicbiomagune.es

