

**Your  
research  
career  
starts here**

**IBEC**

**INTERNATIONAL**

**PhD**

**Programme**

## 1. PRESENTATION

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**The Institute for Bioengineering of Catalonia (IBEC)** is one of the top research institutions named as a Severo Ochoa Research Centre by Ministry of Science and Innovation, which recognizes excellence at the highest international level in terms of research, training, human resources, outreach and technology transfer.

IBEC was established in 2005 by the Ministries of Innovation, Universities and Enterprises and Health of the Generalitat de Catalunya (Autonomous Government of Catalonia), the University of Barcelona (UB) and the Technical University of Catalonia (UPC). Today, IBEC's relationship with the UB and UPC researchers continues to operate under a framework agreement signed in 2008.

With the aim to train the next generation of experts in bioengineering, **IBEC offers in this call the following fellowships:**

- **4 PhD fellowships** are offered, funded by the Spanish Ministry of Science and Innovation.
- **1 PhD fellowship** funded by IBEC.

## 2. ECONOMIC CONDITIONS

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The IBEC International PhD programme fellowships offers a 4-year predoctoral contract with the following gross annual salary:

- 16.250€ for the first two years.
- 17.410€ for the 3<sup>rd</sup> year.
- 21.760€ for the 4<sup>th</sup> year.

Moreover, 6.860€ are also offered for mobility and training during the 4-year period.

PhDs coming from the Spanish Ministry of Science and Innovation fellowship, funded through the “*Ayudas para contratos predoctorales para la formación de doctores 2021*” of the Spanish Ministry of Science and Innovation, who finish and defend their PhD thesis before the start of the month 43 of the fellowship will be able to sign a 1-year postdoctoral contract (POP) with a gross salary of 21.760€. The aim of this contract is to provide an orientation period to consolidate the knowledge acquired during the PhD thesis and start looking for postdoctoral opportunities, including those through other competitive fellowships.

The expected initial date of all the fellowships is May 2022. In order to offer the selected candidates, the possibility to join their IBEC research groups and start their training in the lab in advance, selected candidates will be offered an initial 6 month-contract as Research Assistant with an annual gross salary of 16.422 €. Depending on the availability of candidates, contracts may start from 1<sup>st</sup> November 2021.

### 2.1. General conditions applying to the three types of fellowships

Gross salaries provide full social security coverage, which includes health and accident insurance, pension and unemployment benefits.

Working conditions at IBEC also include:

- ✓ Yearly 23 working days of paid holidays
- ✓ 9 leave days for personal matters
- ✓ Measures to reconcile work and family life, such as:
  - Maternity leave (16 weeks)
  - Paternity leave
  - Leave for breastfeeding
  - Shorter hours for guardianship or leave to care for children and relatives.
- ✓ Flexible schedule working hours

IBEC provides [Training](#) and PhD discussions specially devoted for PhD and early postdocs such workshops to prepare the thesis and presentation skills. IBEC also provides Seminars with top names in bioengineering and nanomedicine from all over the world in order to offer the opportunity to discuss and network the developments. IBEC also offers different courses to give the opportunity to learn new skills such a leadership communication, time management, and language skills. The institute also holds an annual symposium on a different scientific theme, as well as hosting and organizing several other project-based or general scientific meetings and workshops throughout the year.

IBEC is committed to awareness of diversity and gender equality in science and society. This follows our mission to carry out interdisciplinary research at the highest international quality level which, by crating knowledge, helps to improve health and quality of live, and generate wealth.

### 3. ELIGIBILITY

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Highly qualified researchers of all nationalities willing to join a stimulating, interdisciplinary research and high-quality scientific environment are welcome to apply.

The following **requirements** are common to the fellowships available:

- Candidates should be ready to enter an official doctoral programme in October 2021 (under Spanish Law). By this time, they must have obtained a university degree and a master's degree; or must hold an official university qualification from a country of the European Higher Education Area with a minimum of 300 ECTS of official university studies, of which at least 60 are at master's level.
- Candidates are eligible for a period of 2 years following the end of the MSc or 5 years following the end of the BSc at the time of deadline (March 26<sup>th</sup>, 2021).
- Candidates must have a strong commitment to scientific research and an excellent academic record.
- Candidates must have good working knowledge of English.
- Candidates must not yet have been awarded a doctoral degree.
- Candidates must not have held a PhD contract exceeding twelve months in September 2021.
- Candidates must not have held any fellowship from the Spanish Ministry of Economy, Industry and Competitiveness for the development of a PhD thesis at the time of deadline (March 26<sup>th</sup>, 2021).

#### 4. PhD RESEARCH PROJECTS

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In the online application form, candidates will be asked to indicate your preference and priority of **up to three** PhD groups. The topics are orientative, they will be discussed with the group leader:

- **Super-resolution microscopy to track nanoparticles in cells and design novel nanoparticle-based drug-delivery carriers**  
Group: Nanoscopy for nanomedicine  
Group leader: Dr. Lorenzo Albertazzi (lalbertazzi@ibecbarcelona.eu)
- **A mechanistic study of SARS-CoV-2 infectivity: model of entry, tropism, and development of novel antiviral drugs**  
Group: Molecular Bionics  
Group leader: Dr. Giuseppe Battaglia (gbattaglia@ibecbarcelona.eu)
- **Deep Mutagenesis to understand amyloid nucleation in neurodegenerative diseases**  
Group: Protein phase transitions in health and disease  
Group leader: Dr. Benedetta Bolognesi (bbolognesi@ibecbarcelona.eu)
- **Aptamer-based inhibition of vesicle trafficking as a new therapeutic strategy against malaria**  
Group: Nanomalaria  
Group leader: Dr. Xavier Fernández-Busquets (xfernandez@ibecbarcelona.eu)
- **Correlative Electrical and Mechanical Scanning Probe Microscopy for Life Science Applications**  
Group: Nanoscale bioelectrical characterization  
Group leader: Dr. Gabriel Gomila (ggomila@ibecbarcelona.eu)
- **Noninvasive control of brain activity in vivo using photoswitchable drugs**  
Group: Nanoprobes and nanoswitches  
Group leader: Prof. Pau Gorostiza (pgorostiza@ibecbarcelona.eu)
- **Development of Machine Learning based Predictive Models for Metabolomics: correction of instrumental shifts and confounding factors**  
Group: Signal and information processing for sensing systems  
Group leader: Dr. Santiago Marco (smarco@ibecbarcelona.eu)

- **Development of a bioprinted intestinal tube-on-chip for a realistic in vitro model of the gut mucosa to model inflammatory bowel disease (IBD)**  
Group: Biomimetic systems for cell engineering  
Group leader: Dr. Elena Martínez ([emartinez@ibecbarcelona.eu](mailto:emartinez@ibecbarcelona.eu))
- **Engineering human organoids to understand COVID19 disease**  
Group: Pluripotency for organ regeneration  
Group leader: Dr. Nuria Montserrat ([nmontserrat@ibecbarcelona.eu](mailto:nmontserrat@ibecbarcelona.eu))
- **Integrating biomechanics, nanophotonics, and nanomedicine to better understand and treat rare and common lipidosis-related diseases.**  
Group: Targeted therapeutics and nanodevices  
Group leader: Prof. Silvia Muro ([smuro@ibecbarcelona.eu](mailto:smuro@ibecbarcelona.eu))
- **Development of muscle-on-a-chip models to study neurodegenerative diseases**  
Group: Biosensors for bioengineering  
Group leader: Dr. Javier Ramón ([jramon@ibecbarcelona.eu](mailto:jramon@ibecbarcelona.eu))
- **Understanding human tauopathies by using lab on chip devices**  
Group: Molecular and cellular neurobiotechnology  
Group leader: Dr. José Antonio del Río ([jadelrio@ibecbarcelona.eu](mailto:jadelrio@ibecbarcelona.eu))
- **Understanding the role of nuclear mechanotransduction in models of breast cancer**  
Group: Cellular and molecular mechanobiology  
Group leader: Dr. Pere Roca-Cusachs ([proca@ibecbarcelona.eu](mailto:proca@ibecbarcelona.eu))
- **Nanoscale regulation of stem cell-matrix interactions in organoid formation: applications to musculoskeletal tissue**  
Group: Nanobioengineering  
Group leader: Prof. Josep Samitier ([jsamitier@ibecbarcelona.eu](mailto:jsamitier@ibecbarcelona.eu))
- **Hybrid nano-micro and millimeter-scaled robots for biomedical applications**  
Group: Smart nano-bio-devices  
Group leader: Prof. Samuel Sánchez ([ssanchez@ibecbarcelona.eu](mailto:ssanchez@ibecbarcelona.eu))
- **New strategies to combat bacterial biofilms during chronic infections.**  
Group: Bacterial infections: antimicrobial therapies  
Group leader: Dr. Eduard Torrents ([etorrents@ibecbarcelona.eu](mailto:etorrents@ibecbarcelona.eu))

- **Engineering the shape and mechanobiology of intestinal organoids and tumoroids**  
Group: Integrative cell and tissue dynamics  
Group leader: Prof. Xavier Trepats (xtrepats@ibecbarcelona.eu)
- **Decision-making in synthetic autonomous agents**  
Group: Synthetic, Perceptive, Emotive and Cognitive Systems (SPECS)  
Group leader: Prof. Paul Verschure (pverschure@ibecbarcelona.eu)
- **Boosting responses to immunotherapies in lung cancer by reprogramming tumor-associated fibroblasts**  
Associated Researcher: Dr. Jordi Alcaraz (jalcaraz@ibecbarcelona.eu)  
Co-supervisor: Dr. Joan Montero/ Prof. Josep Samitier
- **Single-cell transcriptomic analysis of the early stages of human life**  
Group: Bioengineering in reproductive health  
Group leader: Dr. Samuel Ojosnegros (sojosnegros@ibecbarcelona.eu)

If a candidate is shortlisted for interviews, he/she will have the opportunity to select up to two more PhD project proposals.

## 5. HOW TO APPLY

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From 1<sup>st</sup> February 2021 until 26<sup>th</sup> March 2021, an online application form will be available through the [IBEC International PhD Programme dedicated site](#).

You will be required to provide the following information in your application:

- Personal data and CV
- Cover letter, including motivation for applying
- A scan of your Certified Academic Record, showing grades obtained (degree and masters). If these are not in Catalan, Spanish or English, applicants should attach a translation in one of these languages.<sup>1</sup>
- Education experience: what, when and where you have studied. In order, to standardize the final marks in your application form, we will need that you submit your educational certificate using the relation of scales of foreign grades to the equivalent Spanish grades provided by the General Secretariat of Universities of the Spanish Ministry of Education, Culture and Sport (instructions and template included in the application form) and the ranking of your university according to the [Times Higher Education](#).
- Explanatory document certifying that the candidate is eligible to apply for a doctoral programme when the number of ECTS does not appear in the Certified Academic Record. This explanatory document may be an official description of the country's educational system issued by the university or published on its website, or the admissions requirements to the university's doctoral programme.
- Research experience
- Current Status
- Publications, Presentations in conferences, Awards/fellowships
- 2 letters of recommendation from lecturers or researchers with whom you have studied or worked and who can judge your potential as a PhD student. Only letters with official letterhead and signature will be accepted. Reference letters cannot be provided by IBEC's Group Leaders or associated researchers that will be the future supervisors of the fellow. Please be sure to inform your referees that their letters must be uploaded in the online application tool before the deadline (March 26<sup>th</sup> 2021).

## 6. SELECTION PROCEDURE

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HR EXCELLENCE IN RESEARCH

IBEC is committed to the principles of the European Charter for Researchers and the Code of Conduct for the Recruitment of Researchers (The Charter & Code).

In 2015, IBEC gained the HR Excellence in Research Award in recognition of our ongoing commitment. At the mid-term evaluation in 2017, IBEC was successful in retaining the award.

Our Recruitment and Selection Policy is based on the OTM Strategy (Open, Transparent and Merit-based recruitment) <http://www.ibebarcelona.eu/jobs/> and accept applications without distinction on any grounds. Candidates with disabilities are strongly encouraged to apply. Our commitment to OTM-R principles can also be found in our Gender and Diversity plan.

In line with the principles defined in the OTM-R procedure, selection processes are governed by the following principles:

- Transparency throughout the whole process
- Equal opportunities in the selection and hiring of personnel
- Non-discrimination on grounds of sex, age, ethnic, national or social origin, religion, sexual orientation, language, disability, political opinions or social and economic condition
- Merit based evaluation
- Confidentiality as the cornerstone of the selection process
- Principle of public dissemination of the selection processes, which must also be internationally comparable

Applications will be reviewed by a selection committee made up of IBEC group leaders and administration staff.

Applicants CVs will be reviewed in terms of academic record, research experience and additional merits.

In mid-April, results will be communicated. Shortlisted candidates will be asked to contact their preferred group leaders and get to know their research lines and the PhD project. This will serve to evaluate the knowledge and expertise of the candidate related to the particular research project and his/her adequacy to the corresponding research group.

After the talks with the PIs, candidates will be asked to make a final ranked list of their preferred PhD research projects and supervisors.

In May, online interviews of shortlisted candidates will be held. Interviews with the selection committee will evaluate the following competencies: communication, critical and analytical thinking, team and collaborative working, commitment, proactivity and open mind.

The interview will also be an opportunity for the candidate to expose any personal requirement or clarify doubts.

On June 07<sup>th</sup>–12<sup>th</sup> 2021, the results of the call will be published, and the acceptance letters will be sent to the candidates with the highest scores.

In order of evaluation score, they will be able to choose their final PhD Project and supervisor, taking into account that each PhD research project can only have one fellowship, so if a candidate with a higher score chooses a particular PhD research project, candidates with lower scores will have to choose another one from their list of preferred PhD projects and supervisors.

Applicants who have not been successful but have received a positive evaluation will be put on a waiting list for future positions.

## 7. USEFUL DATES

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- **February 1<sup>st</sup>, 2021:** Launch of the call
- **March 26<sup>th</sup>, 2021:** Deadline for submission of applications
- **March 27<sup>th</sup>– April 15<sup>th</sup>, 2021:** Check of eligibility Criteria
- **April 16<sup>th</sup> – May 7<sup>th</sup>, 2021:** Evaluation of the candidates' CVs
- **May 12<sup>th</sup> – 13<sup>th</sup>, 2021:** Communication of results of the evaluation of the candidates' CVs. Invitation of shortlisted candidates for an online interview.
- **May 14<sup>th</sup> – 27<sup>th</sup>, 2021:** Shortlisted candidates will be asked to contact the IBEC supervisors and get to know their research and PhD project.
- **May 28<sup>th</sup> – 31<sup>st</sup>, 2021:** Shortlisted candidates will present a final ranked list of their preferred PhD research projects and supervisors.
- **June 1<sup>st</sup> – 4<sup>th</sup>, 2021:** Online interviews with the selection committee.
- **June 7<sup>th</sup> – 12<sup>th</sup>, 2021:** Publication of final list of selected candidates. Letter of acceptance to be signed by candidates.**From November 2021:** Start of the research assistant contract
- **May 2022** (to be confirmed, based on the resolution of the call 'Ayudas para contratos predoctorales para la formación de doctores' by the Spanish Ministry of Science and Innovation): Start the of the PhD fellowships.

## 8. CONTACT

If you have any further questions about IBEC Severo International PhD Programme fellowships, or if there are particular issues you'd like to discuss regarding your application, please contact [phd@ibecbarcelona.eu](mailto:phd@ibecbarcelona.eu).

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<sup>i</sup> For the future enrolment in the Doctoral program, Official University only accepts an official translation of educational certificates. The verification of an equivalent level of studies will be made by the university when the **admission to the PhD Programme** procedure starts. Should this verification not be successful, the fellowship would be withdrawn.

Strategic Initiatives, Human Resources and Communications and Outreach Units  
Institute for Bioengineering of Catalonia (IBEC)  
[www.ibecbarcelona.eu/phd](http://www.ibecbarcelona.eu/phd)