Translational medicine: from patient to laboratory, and from laboratory to patient

Welcome to the CEU International Doctoral School

The CEU International Doctoral School (CEINDO) brings together various research groups formed by doctors with accredited research experience. The faculty ensures the suitability of the studies, thoroughness in the application of the tutorial scheme and the quality of the doctoral education.

Training stage researchers registered in the CEINDO will be assigned to the group of already-established researchers, where they will find the right environment for cooperating on the task of renewing knowledge, helping to innovate in specialised fields of knowledge, taking part in transferring the results of their research to the public and establishing relationships with internationally relevant research centres.

Fortunately, clinical activity cannot be conceived without backing from basic science, and vice-versa. To achieve maximum benefits, it is essential to keep communication among the various areas of biomedicine active. This is achieved through a multidisciplinary education which integrates scientific advances – such as, for example, those offered by biotechnology – with clinical application to develop new therapies and clinical procedures leading to prevention, early diagnosis and better treatments. In short, Translational Medicine has become one of the major challenges of our century and has a huge potential to improve people’s quality of life.

The Doctoral Programme in Translational Medicine is taught by specialist professors who are highly respected in the field of biomedicine and covers a wide range of lines of research. Doctoral students may take part in research projects in hospitals and in top research centres, which will help them integrate into a working group right from the start and thus fosters scientific collaboration, one of its objectives. This Doctoral Programme is designed for professionals in the biohealth and similar fields. Its goal is for these students to acquire research training, which is essential for taking the best decisions in their clinical work.

ISABEL GUILLÉN SALAZAR
Translational Medicine Programme Coordinator

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Translational Medicine Programme Secretary

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Translational Medicine Programme Assistant Coordinator

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Translational Medicine Programme Assistant Coordinator
The Programme’s Academic Committee comprises the team responsible for defining it; the Committee must ensure its quality and coordination, and that it is kept up-to-date. The members of the Academic Committee will oversee the progress of the research and of the training of the researchers and will authorise the presentation of doctoral theses.

ADMISSION CRITERIA

The admission of students is the purview of the Academic Committee in accordance with the criteria set out in the Report on the Academic year and current legislation. When the Committee so deems, the researcher must also enrol in – besides the compulsory training activities – supplementary training.

DURATION OF STUDIES

(From admission to the programme to the presentation of the doctoral dissertation)

FULL-TIME STUDENTS:

Three years from the doctoral student’s admission to the PhD programme to the presentation of the doctoral dissertation (the Committee in charge of the programme may authorise a two-year extension of this term should the application to deliver the dissertation not be submitted. This extension may be exceptionally extended for an additional year).

In any event, the defence of the doctoral dissertation may not be done before two years have elapsed from the date of the admission and must always have the express approval of the Academic Committee.

PART-TIME STUDENTS

Five years from the doctoral student’s admission to the PhD programme to the presentation of the doctoral dissertation (the Committee in charge of the programme may authorise a two-year extension of this term should the application to deliver the dissertation not be submitted. This extension may be exceptionally extended for an additional year).

In any event, for part-time students, the defence of the doctoral dissertation may not be done before four years have elapsed from the date of the admission and must always have the express approval of the Academic Committee.

People who work in or carry out professional or work activities that prevent them from being able to study for their doctoral degree full time and others in special circumstances worthy of this in the Committee’s judgement may request part-time studies.

When these circumstances cease to exist, they may, at the prior request of the student, join the full-time studies.

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Line heads:

  » Subline 1.1. Translational medical oncology and haematology. Emiliano Calvo Aller.
  » Subline 1.2. Pediatrical oncology. Ángel Ayuso Sáez.

  » Subline 2.1. Translational neurosciences. José Obeso Inchausti.
  » Subline 2.3. Clinical psychology. Javier López Martínez.

LINE 3. Cardiovascular pathology and Internal Medicine. José María Castellano Vázquez.

LINE 4. Surgical physiopathology of the locomotor system. Francisco Foriol Campos.
  » Subline 4.1. Physiopathology and therapeutics of the locomotor system. Francisco Foriol Campos.

  » Subline 5.3. Physiotherapy. Juan Francisco Lisón Páramo.


Additional researchers: Alicia López Castellano: alopez@uchceu.es

Post-doctoral advisors: Valencia: Isabel Guillén Salazar: iguillen@uchceu.es
LINE 1. Oncology.

Subline 1.1 Translational medical oncology and haematology. Head of subline: Emiliano Calvo Aller.

The Translational Oncology subline will provide the doctoral student with an integrated approach to the knowledge of tumour processes, mainly aimed at the application of clinical concepts on the suitable management of oncology patients. The integration of the different clinical contents with research in Oncology is a unique and identifying feature of this doctoral subline, as reflected in the design of the different courses, activities, locations (Comprehensive Cancer Centre (Centro Integral Oncológico Clara Campal HM CIOC), early and late phase clinical oncology trial programme), and the composition of the faculty of directors, professors and researchers in the field of cancer who make up this programme.

Subline 1.2. Preclinical oncology. Head of subline: Ángel Ayuso Sacido.

Our group of basic and clinical researchers work on studying of the biology of the tumour in relation to its clinical manifestations, identifying new therapeutic targets through the use of in vitro and in vivo models, developing and implementing new technologies to study both the evolution of the tumour as well the real-time response to treatment, and designing new personalised therapies, all with the ultimate aim of improving patients’ quality of life.

LINE 2. Neuroscience.

Subline 2.1. Translational neuroscience. José Obeso Inchausti. Head of subline: José Obeso Inchausti.

The programme’s main objective is to provide the fundamentals of neurobiology, physiopathology and therapeutic basis of the neurodegenerative diseases with special emphasis on those with movement disorders. Students will receive basic and clinical training relevant to the anatomical-functional control of movement, conduct and emotions, as well as the main cognitive alterations that characterise neurodegenerative processes. Students will become familiarised with experimental models of Parkinson’s disease, dyskinesia, learning and reward; they will learn new histologic, neuropathological and neuroimaging methods used in these experimental models. They will also receive clinical training in clinical assessment, semiology and diagnosis of neurodegenerative diseases and therapeutic possibilities. They will become familiar with carrying out neurophysiological studies on control subjects and patients using transcranial magnetic stimulation and magnetoeutectics. They will acquire experience in the indications and methods for deep brain stimulation and focused ultrasound (HIFU) for treating movement disorders and Parkinson’s disease and new therapeutic developments through the focal opening of the Blood-brain barrier. They will do functional magnetic resonance (fMRI) studies and become familiar with the PET-MR technique with 2-FDG and 18-F-dopa for assessing brain metabolism and dopaminergic function. They will also take part in the facility’s weekly meetings, present clinical and bibliographical sessions and they will be charged with doing a review paper and at least one original paper.

Subline 2.2. Neuro-ageing and neuroprotection. Head of subline: José Luis Lavandera.

The main goal of this line of research is the study of the molecular and pathophysiological bases involved in aged-related neurodegenerative diseases, in order to elucidate new mechanisms of action and therapeutic targets that will drive the development of new neuroprotective therapies, either through pharmacological or pharmacogenomic approaches. Doctoral students will receive a solid training in the management of modern Molecular Medicine technologies as well as in the use of those in vitro and in vivo models needed for an efficient development of a Drug-Discovery process with a translational approach.

Subline 2.3. Clinical psychology. Head of the line: Javier López Martínez.

The doctoral subline “Clinical Psychology” provides top-level and highly rigorous training aimed at generating cutting-edge multidisciplinary research. It has excellent teaching professionals and researchers with broad and proven track records in various fields of psychology, thus integrating the various theoretical approaches. The knowledge acquired will make it possible to conceive and carry out high-quality research in the field of psychology.
LINE 3. Cardiovascular pathology and Internal Medicine.
Head of the line: José María Castellano Vázquez
The doctoral programme in cardiovascular and metabolic diseases offers training to students who want to delve deeper into the epidemiology, diagnosis and treatment of the world's number one cause of death: cardiovascular diseases. The programme is based on training the student to carry out transnational clinical investigation of excellence aimed at having an impact on patients' health.

LINE 4. Surgical physiopathology of the locomotor system.
Subline 4.1. Physiopathology and therapy of the locomotor system. Head of subline: Francisco Foriol Campos.
Surgery has entered a new phase: biological or regenerative surgery, which is being called the "the fourth R", after passing through the three phases of firstly resection (or amputation), followed by the reconstruction phase, then followed by replacement (arthroplasty or prosthesis). The regenerative phase requires a thorough basic knowledge by the clinician and the surgeon of the cells, tissues and systems, with a strong dependence on clinical testing methodology to transfer the laboratory research to the patient.

This subline is focused on research in oncology surgery. Comprising: prognostic factors in pancreatic cancer; neoadjuvancy in pancreatic cancer; impact on patient survival of vascular resections in pancreatic cancer; assessment of function and volume of the remaining liver in patients undergoing extreme liver surgery; Prognostic factors in pancreatic neuroendocrine tumours; treatment with stereotactic body radiation therapy (SBRT) as alternative therapy to surgical resection in neuroendocrine tumours; oncological aspects of robotic surgery in digestive tumours; Perfusion of isolated hepatic perfusion in the treatment of irreversible bilobar liver metastases.

Deepening the understanding of the aetiology and factors of prognosis in pathology opens the door to developing new therapeutic strategies that minimise the impact of diseases. In this line of research, the health professional is offered a multidisciplinary vision covering the therapeutic approach from pharmacological therapy to assistive therapy. The doctoral student's training integrates the pharmacological and therapeutic study at the molecular, cellular and physiological levels in relation to inflammatory diseases, chronic pathologies, comorbidity in the elderly, muscular-skeletal diseases, old age, etc. This line also studies pre-emptive factors that predate the therapy with regard to healthy lifestyle habits such as physical and mental exercise, diet, etc.

To achieve these objectives, we collaborate with clinicians who pose real challenges to basic research on a daily basis. With this approach, the doctoral student knows from start to finish the procedure of translational medicine in the context of prevention and therapy.

Subline 5.2. Nursing. Head of subline: Mercedes Martínez Sánchez
This subline is specifically aimed at nurses wishing to carry out research focused on health-related prevention and promotion, innovation for person-centred care and work with at-risk groups, as well as bioethical aspects related to the clinical healthcare practice.

Subline 5.3. Physiotherapy. Head of subline: Juan Francisco Lison Párraga.
Physiotherapy is an area of healthcare that acts on the person holistically to facilitate the maintenance and recovery of health. It offers a therapeutic alternative to pharmacology and helps to prevent disease by assessing the patient's functional condition taking into account physical, psychological and social factors. It is currently a fundamental healthcare tool in many fields of activity, geriatrics, physical and psychological disabilities, and sport.
LINE 6. Experimental and clinical immunopathology.

Head of the line: Dominic Barber Hernandez.
The experimental and clinical immunopathology line will encompass aspects related to:
- Asthma: Biomarkers associated with severe phenotypes.
- Food allergy: Mechanisms involved in the evolution of respiratory allergy to food allergy.
- Predictive biomarkers in the drug treatment of allergic and asthmatic patients.
- Influence of the microbiota on the genesis of the allergy.
- Modulation of the composition of the microbiota in the treatment of the allergy.
- Multiple sclerosis: Animal models and humoral response.

LINE 7. Experimental and clinical dentistry.

Head of the line: Manuel Fernández Domínguez.
The research lines in Dentistry cover all the disciplines and mainly those involved in restorative dentistry, oral surgery, implantology, periodontics, orthodontics, infectious and tumour-related pathologies, dentistry and preventive medicine, history of dentistry, etc. In addition, students may join the specific Research Chairs orientated towards osseoregeneration, peri-implantitis and bone regeneration with biomaterials by carrying out clinical and experimental studies on animal models with histologic and histomorphometric assessments. With all this, at the end of the training period, the student will be able to design research projects aimed at identifying and solving dental problems from the broadest perspective.
1. TUTOR AND DISSERTATION ADVISOR

Each enrolled student will be assigned a tutor – a doctor with accredited research experience linked to the programme – who will be responsible for their training at the beginning of the studies. Within three months, the Academic Committee will designate a doctoral dissertation advisor, who will guide the researcher during their training period to the defence of the dissertation, to ensure the originality, coherence and suitability of their research plan and guide them in planning tasks and activities. The role of tutor and advisor should preferably be filled by the same person. The Committee may authorise the co-direction of the dissertation and the change of director.

2. DOCUMENTARY COMMITMENT

Once enrolled in the Doctoral Programme, the documentary commitment will be signed. It will be signed by the researcher in training, their tutor, dissertation advisor/advisors and, lastly, by the Director of the CEINDO.

The documentary commitment sets out the rights and duties of the researcher in training, the tutor, the dissertation advisor/advisors and the institution, represented by the Director of the CEINDO. This commits all of them to comply with the code of best practices.

3. SUPPLEMENTARY TRAINING

In those cases in which the researcher in training lacks the prior training required to access this doctoral programme, admission may be made subject to successfully completing supplementary training as determined by the Academic Committee on a case-by-case basis.

4. TRAINING ACTIVITIES

All researchers in training must take part in a successfully complete all compulsory training activities planned in the Programme framework as well as any optional courses the student has committed to taking whether of their own initiative or as indicated by their advisor/advisors. The training activities in which the researcher in training takes part will be recorded in the Activities Log. They must be supported by a document attesting to the successful completion of and/or participation in this activity.

5. RESEARCH PLAN

Before the end of the first year, the researchers must develop a research plan, including background, objectives, methodology, bibliography and time planning. This plan must be endorsed by the dissertation advisor/advisors. This plan will be updated annually, including the results obtained during the progress of the research, compliance with the timeline and the time planning of the dissertation project.

6. PREDOCTORAL SEMINAR

At the end of each academic year, a session will be scheduled in which the researchers in training will publicly defend their research plan before Doctoral Programme professors and members of the Academic Committee. After the defence, the members of the Committee and Programme professors present will review the research plan and its fundamental aspects will be analysed.

7. ANNUAL ASSESSMENT

Every year the Academic Committee will assess the activity of the researcher in training. To this end, researchers must send the following documentation to the Committee on the date indicated by their advisors:

- The Activities Log
- The Research Plan
- The dissertation advisors’ report.

Should this be a duly substantiated negative assessment, the work of the researcher in training will be re-assessed within no more than six months. At that time, they must resubmit up-to-date versions of the aforementioned documents. Should the new assessment be negative, the researcher will permanently leave the Programme.
### Training Activities

**1st Year**

- Advanced search techniques and management of documentation applied to research.
- Evaluation and assessment of scientific production.
- Ethical use of scientific literature.
- Applied research statistics.
- Evaluation and assessment of scientific production.
- Ethical use of scientific literature.
- Applied research statistics.

**2nd Year**

- Advanced search techniques and management of documentation applied to research.
- Evaluation and assessment of scientific production.
- Ethical use of scientific literature.
- Applied research statistics.
- Molecular and genetic bases of clinical and experimental pathophysiology. (4 ECTS).
- Methodology for identifying and validating biomarkers and molecular targets of interest in the diagnostic-therapeutic process. (4 ECTS).
- Laboratory and biomedical experimentation technologies and procedures. (4 ECTS).
- Biostatistics and bioinformatics. (4 ECTS).

### Yearly Activities

- Pre-doctoral seminar.
- Working meetings with advisor/advisors.
- The Doctoral Programme’s Academic Committee will determine the supplementary training (courses, research paper) suitable for each case.
- (Compulsory for all students regardless of their study year and part- or full-time status).

### Optional Activities

- Attendance at Annual Scientific Conference at HM-Hospitales specialised care centres in matters related to the Doctoral Programme.
- Seminar on bioethics in translational research.
- Seminars on progress in the research lines of the doctoral programmes.
- Rotating training in laboratory methods for biomedical research.
- Clinical and translational research rotations.
- Internships in national and international biotechnology companies (based on availability).
- Transferencia de resultados de investigación.
- Visitas a empresas o centros de investigación.
- Prácticas en empresas (según disponibilidad).
- Docencia en laboratorios de prácticas.
- Movilidad en centro de investigación internacional.
- Convocatorias de ayudas a la investigación: proyectos competitivos nacionales y europeos.
- Redacción y publicación de un trabajo de revisión o de divulgación científica.
# DOCTORAL DISSERTATION DELIVERY AND DEFENCE

## 1. PREREQUISITES FOR THE DELIVERY APPLICATION

- **POSITIVE report from the dissertation advisor/advisors.**
- Have completed all the compulsory training activities (and supplementary training if required).
- Have completed a minimum one-month research stay, as set out in the Programme Report, in a centre other than the one where the doctoral dissertation is being done. If the intention is to obtain the International Doctorate Mention, there is a three-month minimum stay in a centre abroad during the time enrolled in the Programme.
- Have reached the scientific productivity in terms of scientific publications as set by the relevant Academic Committee.

## 2. APPLICATION FOR DOCTORAL DISSERTATION DELIVERY

- The party concerned must submit the following documentation to the Director of the CEINDO, who will immediately forward it to the Academic Committee:
  a. Request for delivery with the approval of the dissertation advisor/advisors.
  b. Applicant’s CV.
  c. Personalised Activities Log endorsed by the advisor, which must include the stay at a research centre in accordance with that set out in the relevant Programme Report.
  d. A bound copy of the doctoral dissertation and one in electronic form.
  e. A list of the 10 candidates to make up part of the Board of Examiners and their most distinguished achievements.
  f. Copy of the publications resulting from the doctoral dissertation.
  g. If the doctoral student wishes to obtain the International Doctorate Mention, it will also be necessary to submit a list of three international experts in the area and documentation attesting that the candidate meets all the requirements set out in Item 1 of Article 15 of Royal Degree 99/2011.

## 3. DOCTORAL DISSERTATION DEFENCE AND GRADING

- The Academic Committee, within a period of 15 working days, will notify the Director of the CEINDO of the proposal for the Board and the approval of the delivery. The Director will establish the 15-working-day period for the delivery and public exhibition, and will inform the party concerned, the dissertation advisor/advisors and the Board members.
- As soon as they receive the notification, the doctoral student must send each member of the Board:
  - A copy of the dissertation in whatever form they are told.
  - CV.
  - Copy of the publications resulting from the doctoral dissertation.

Once the Board members have received their copies of the dissertation, they must issue a reasoned report within 15 working days that indicates whether the dissertation meets the necessary conditions to be defended.

- The defence session is done publicly and will consist of the doctoral student’s presentation of the preparatory work, the methodology, and the content and conclusions of the dissertation, with particular reference to its original contributions to the topic studied.
- After the defence session, the Board will, after deliberation and voting behind closed doors, award the overall grade of FAIL, PASS, MERIT or DISTINCTION.
FACULTY OF RESEARCH PROFESSORS

Inmaculada Almansa Frias
Luis Fernando Alguacil Merino
Jesús Almendral Garrote
Fernando Alonso Frech
Verónica Alonso Rodríguez
Juan Antonio Ardura Rodriguez
Ángel Ayuso Sacido
Domingo Barber Hernández
José Barberán López
Rima Barhoum
Cristobal Baliña Iniesta
Javier Blesa de los Mozos
Luis Caballero Martínez
Myriam Cabrera Guerra
Mª Aracely Calatayud Pascual
Cristina de la Calle Cabrera
Emiliano Calvo Aller
Pablo Cardinal Fernández
Mª Isabel Carretero Abellán
José María Castellano Vázquez
Encarna Castillo García
Francisco Javier Catón Vázquez
Tomás Chivato Pérez
Amable Cima Muñoz
Ana Collazo Lorduy
Esther Conde Gallego
Antonio Cubbles Gracián
Gabriel Dávalos Picazo
Mª Auxiliadora Dea Ayuela
Alfonso Delgado Rubio
Julián Domínech Fernández
Héctor Jesús Durán Giménez-Pico
Martin Elchammar
Mª Pilar Eguiñero Romero
María Escobedo Alonso
Esther Escudero Lirola
Manuel Fernández Dominguez
Leticia Fernández Freyles
L. Feria Fernández Fernández
Luis Fernández Fernández
Luis Fernández Rosa
Guillermo Foroni
Francisco Foroni Campos
Juan Carlos Frutos Martínez
Inés García del Castillo
Sara García Duque
Mª Ángeles García Espinosa
Francisco García de la Hoz
Laura García Enríquez
Jesús García-Dora
Francisco García-Muro San José
Carmen Gasca Salas
Cristina Gómez Casado
Mª Eugenia González Rosendo
Mª José González Sola
Isabel Guajardo Martínez
Mª Isabel Guarraver Gaspar
Nuno Henriques Gil
Ángel Herrerías de Lucas
Asier Ibarra Andrade
Miquel Jürgen Vilas
José Luis Lavandera Díaz
Juan Francisco Latorre García
Alicia López Castaño
Alejandro López Escobar
Blanca López Ibor
Javier López Martínez
Beatriz López Molinar
Roberto López Pérez
Luis Martínez de Oteiza
Toribio Martínez Pérez
María Moreno Gordo
Mª Pilar Moreno Pardo
Loreto Poyoyo Gregor
José Placido Pardo
José Manuel Ponsa García
Yolanda Quijano Collazo
Miguel Ángel Reina Ponsino
Paula Rivas Calvo
Juan Francisco Rodríguez Moreno
Ana Belén Rodríguez de Gisbert
Jaime Rodríguez Fernández
Ángel Rodríguez Pascual
Miguel Ángel Rodríguez Zambrano
Mariano Ruiz Gallardo
Cristina Ruíz Aguado
Álvaro Sánchez Pérez
Mercedes Sánchez Martínez
Paula Sánchez Thevenot
Isabel Sánchez-Vera Gómez-Trelles
Pilar Santiajía Aguilar
Xavier Santos Hernadero
Salvador Sasoria
Eva Segura Orihuela
Chang Shu
Mª Dolores Scivoli Castillo
Jorge Solís Martín
José Miguel Álvarez López
Inés Trigo Díaz
Luis Urquiaga Vázquez
José Felipe Varona Arche
Lydia Vela Desojo
Verónica Viñas Jiménez
Emilio de Vicente López
Victoria Villagrasa Sebastián
Vicente Villar Aimillo
Alma Villañares Solís
Ivan Zapiquín
Juan Carlos Zurrón Escobar

You can access detailed information on the various doctoral programmes at the CEU International Doctoral School CEINDO on its website: www.escueladoctorado.ceu.es

You can request any type of information at the email address: info.ceindo@ceu.es

• Request for CEINDO information: http://servicios.ceu.es/ceu-Ceindo/Publico/Solicitarinformacion.aspx

• CEINDO admission application: http://servicios.ceu.es/ceu-Ceindo/Publico/SolicitarAdmisión.aspx

APPLICABLE LEGISLATION:

http://www.escueladoctorado.ceu.es/organizacion/normativa.php

http://www.escueladoctorado.ceu.es/organizacion/calidad.php