

PRÁCTICAS ASOCIACIONES CIENTÍFICOS ESPAÑOLES

CONVOCATORIA ERASMUS+ ESTUDIANTES MODALIDAD PRÁCTICAS ABIERTAS

Movilidad Internacional 2024/25



UCLM Universidad de Castilla-La Mancha

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* Destinos CERFA con ayuda económica complementaria en concepto de viaje (400 euros) a través del siguiente enlace: <https://cerfa.de/ayudas-traineeship-cerfa/>

FORMULARIO DE PARTICIPACIÓN
EN DESTINOS PRÁCTICAS ASOCIACIONES DE CIENTÍFICOS ESPAÑOLES 2024

CONVOCATORIA DE PRÁCTICAS INTERNACIONALES CALL FOR INTERNATIONAL INTERNSHIP

DEPARTAMENTO/FACULTAD/INSTITUCIÓN Department/Faculty/Institution

Department of Mechanical Engineering, Biomechanics Division / KU Leuven

TIPO DE ORGANIZACIÓN Organization type EPLUS-EDU-HEI / Universidad

ORGANISMO PUBLICO
Public Body

SI Yes

NO

SIN ANIMO DE LUCRO

SI Yes

NO

Non-Profit

TAMAÑO Size > 250

WEB

<https://feb.kuleuven.be/>

DISPONIBILIDAD PARA EVALUAR INFORMES DE CONVALIDACION DE CREDITOS ECTS

¿Es una prioridad para el supervisor que el estudiante valide los créditos?

Availability to evaluate ECTS credit validation reports

Is it a priority for the supervisor that the student validates ECTS credits?

Available to evaluate credit evaluation report, Not a priority that the student validates credits.

2. DESCRIPCION DEL PROYECTO Project description

FECHAS ORIENTATIVAS DE REALIZACION DEL PROYECTO
Wished/approximate dates for the mobility period

01/06/2024 - 01/10/2024

FLEXIBILIDAD DE FECHAS
Flexibility in dates

SI yes

NO

TÍTULO DEL PROYECTO Project title

Calcium activity characterization in neural tube organoids development

NUMERO DE HORAS DE TRABAJO POR SEMANA Number of working hours per week

PROGRAMA Detailed programme of the traineeship

The laboratory of Bioengineering and Morphogenesis at KU Leuven, headed by Prof. Adrian Ranga, has recently implemented a novel approach to grow neural tube organoids in order to study neural tube morphogenesis. This approach is currently integrated in a project headed by a PhD in the lab, Elena Ramis Bravo.

The trainee will be involved in the generation of these organoids, their characterization by immunohistochemistry (IHC) and confocal live-imaging. We expect that this project will help the trainee gain a better understanding of both the engineering and biological challenges involved in multi-disciplinary bioengineering research.

The students are expected to join the lab activities from Monday to Friday during official working hours. First, the intern will get familiar with the lab research line by reading literature.

Second, the intern will be trained to learn cell culture (hiPSCs) and organoid assembly. Third, the intern will learn how to perform live-imaging in a confocal microscope. Fourth, the intern will learn how to analyze and quantificate the imaging data obtained from the experiments. Finally, the intern will present the outcomes of the internship to the laboratory members in a seminar.

CONOCIMIENTOS, HABILIDADES Y COMPETENCIAS QUE HAN DE ADQUIRIR LOS ESTUDIANTES

Knowledge, skills and competences to be acquired by the end of the traineeship

At the end of the traineeship the students is expected to have acquire **technical skills** such a cell culture and maintenance of hiPSC cells and generation neural tube organoids. Additionally, handling of light microscope, confocal microscope, perform live-imaging experiments and 3D IHC staining.

Last but not least, the student will acquire skills for imaging analysis and quantification.

On the **general skills** side, the student is expected to learn good practices to work in a laboratory. Develop critical thinking and problem solving skills, as well as work independently.

MONITORIZACION Monitoring plan

The student will receive a training for each of the skills detailed before with direct supervision from PhD student. Additionally, the supervisor will be daily supervising the student at the beginning of the internship and the supervision will start to decrease in order to allow the student to gain independence inside of the laboratory. However, the PhD student will be having individual meetings every week or two weeks, depending on the progress of the internship. Furthermore, at least two meetings will be done with PI to also follow up on the progress of the intern.

EVALUACIÓN Evaluation plan

The intern will have a follow-up meeting every week with the PhD student supervisor in order to update the progress of the internship and to solve any doubts that come up during the project. The intern will be asked to present a seminar at the end of the internship to the whole research group in order to share the outcomes of the research internship. The PhD supervisor will review the Erasmus+ internship report written by the intern and provide feedback, if necessary.

ESPECIFICACIONES ADICIONALES EN LA INSTITUCIÓN DE ACOGIDA

Additional specifications of the host institution



OTRA INFORMACIÓN RELEVANTE Other relevant information

Impacts and benefits:

The supervisor host will benefit by improving her teaching and mentorship skills. Also, the results obtained by the student will contribute to advance the project of the supervisor host. Additionally, the laboratory will benefit from the enthusiasm that a new student can provide as well as the student's new ideas and different perspective in the different projects of the team.

The Laboratory of Bioengineering and Morphogenesis is a international and multidisciplinary friendly environment with high research quality practices where the student will be able to develop his research skills related to the field of Bioengineering, Organoids, Developmental Biology and Neuroscience. But also soft skills related to working with people from different nationalities (7) and backgrounds (engineering, biology, biochemistry, bioengineering). Furthermore, it is expected that the student will develop the passion for science and feels encouraged to continue the research path.

3. PERFIL Y REQUISITOS DEL ESTUDIANTE Student profile and requirements

AREA/S DE ESTUDIO Research area/s

Biology, Biochemistry, Mechanical Engineering and Biomedical Engineering

NIVEL DE ESTUDIO Level of studies

Undgraduate or master students are welcome

REQUISITOS PREVIOS DE CONOCIMIENTOS TECNICOS O EXPERIENCIA

Student required expertise and technical knowledge:

Previous experience with cell culture will be taken into account, but all applications are welcome.

IDIOMA Y NIVEL MINIMO RECOMENDADO PARA REALIZAR LAS PRACTICAS

Language and minimum level recommended for internships

English B2

REQUISITOS ADICIONALES DE LA INSTITUCION DE ACOGIDA

Additional requirements set by the host institution

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CONVOCATORIA DE PRÁCTICAS INTERNACIONALES CALL FOR INTERNATIONAL INTERNSHIP

DEPARTAMENTO/FACULTAD/INSTITUCIÓN Department/Faculty/Institution

Department of Chemistry/Royal Military Academy

TIPO DE ORGANIZACIÓN Organization type EPLUS-EDU-HEI

ORGANISMO PUBLICO
Public Body

SI Yes

NO

SIN ANIMO DE LUCRO

SI Yes

NO

Non-Profit

TAMAÑO Size >250

WEB

<http://www.rma.ac.be/en/>

DISPONIBILIDAD PARA EVALUAR INFORMES DE CONVALIDACION DE CREDITOS ECTS

¿Es una prioridad para el supervisor que el estudiante valide los créditos?

Availability to evaluate ECTS credit validation reports

Is it a priority for the supervisor that the student validates ECTS credits?

Available to evaluate credit evaluation report, Not a priority that the student validates credits.

2. DESCRIPCION DEL PROYECTO Project description

FECHAS ORIENTATIVAS DE REALIZACION DEL PROYECTO
Wished/approximate dates for the mobility period

01/09/2024 to 15/12/2024

FLEXIBILIDAD DE FECHAS
Flexibility in dates

SI yes

NO

TÍTULO DEL PROYECTO Project title

Turning humid air into renewable power

NUMERO DE HORAS DE TRABAJO POR SEMANA Number of working hours per week

35

PROGRAMA Detailed programme of the traineeship

Context: This project is aimed at the development of an innovative technology to exploit the atmospheric humidity for direct conversion to electricity, thus gaining a new sustainable source of renewable energy. The conversion principle is based on the fundamental characteristic of the surface of solids to maintain electroneutrality upon the adsorption of molecules from the gas phase. It combines at the micro level a sequence-chain of physicochemical, physical and electrophysical processes that take place on the interface of nanostructured oxide materials when interacting with water molecules from surrounding atmosphere, thus enabling direct humidity adsorption - electrical energy conversion. The proof of concept of this technology has been already delivered and the next step in this investigation is to increase its technology readiness level. More info:

<https://catcherproject.eu/>

Approach: single and cycling water vapour adsorption-desorption experiments in static and dynamic conditions will be performed with different types of samples (mainly with metal oxides, but also metal organic frameworks, nanoporous carbon materials...). These materials will be thoroughly characterized by different techniques (adsorption isotherms, TG-MS, SEMEDX, XPS, XRD...) in order to link the water sorption behaviour with their surface, structural and textural properties. Based on the obtained results, an optimization of the material for this specific application will be performed.

Role of the trainee: the trainee will participate in the activities above described in the frame of an European project (CATCHER, 2022-2026). Besides from the experimental work, the trainee will also participate in the bibliographic search, the interpretation and discussion of the results, and the drafting of reports and/or presentations.

CONOCIMIENTOS, HABILIDADES Y COMPETENCIAS QUE HAN DE ADQUIRIR LOS ESTUDIANTES Knowledge, skills and competences to be acquired by the end of the traineeship

- Learning the principles of water vapour sorption: how to do the tests in static and dynamic conditions, variables involved, calculations (capacity, kinetics)...
- Acquiring expertise in different characterization techniques of materials.
- Gaining knowledge on the interpretation and discussion of scientific results, as well as in the writing of scientific reports.
- Learning how to work in a research laboratory, in team and in the frame of an international on-going project. Interaction and exchange of results with other research groups.
- Improving the communication skills and knowledge of languages (the trainee will have the opportunity to learn French/Flemish).

MONITORIZACION Monitoring plan

The trainee is expected to have permanent contact with the host scientist, especially at the beginning of the traineeship, and periodical meetings (once per week) will be scheduled in order to follow the progress of the work and the needs of the trainee. Moreover, the trainee will be working shoulder to shoulder with other members of the staff (technicians, PhD students...) who will help him/her in the daily work in the lab.

Regarding the experimental part, and since the trainee will be integrated in the routine tasks of an on-going project, the risks of not accomplishing the goals is very limited. In the case of unexpected events influencing the good progress of this particular project, the trainee would then participate in other related projects in the field of water adsorption.

EVALUACIÓN Evaluation plan

- 1) Theoretical knowledge will be given by magistral lessons and supporting bibliographic material. A first evaluation will check if the basic concepts are fixed. Only once this goal is reached, we will proceed to the next step.
- 2) Experimental work: all the techniques and protocols will be explained in detail; then, the trainee will gradually increase his/her participation under supervision until he/she is able to work independently.
- 3) Discussion of results: the trainee will be asked to actively participate in the discussion of the results, this being a proper opportunity to identify additional actions needed to improve the formation.

ESPECIFICACIONES ADICIONALES EN LA INSTITUCIÓN DE ACOGIDA Additional specifications of the host institution

OTRA INFORMACIÓN RELEVANTE Other relevant information

Impacts and benefits:

Giving support, guiding and evaluating the trainee will be a valuable opportunity for the host scientist in order to increase managerial and teaching skills.

This program may also contribute to broad the network of collaborators of the host group. Since the trainee will be formed in order to work independently and in the frame of an on-going project, he/she will be an additional member of the research team during the duration of the traineeship.

It is expected that the trainee will benefit from professional development by:

- acquiring knowledge and expertise in the field of study,
- expanding his/her knowledge on hands-on-work in a lab,
- gaining expertise in the interpretation and discussion of results,
- learning how to work independently, in an international team and in the frame of a project,
- improving the knowledge of languages.

From a personal point of view, an additional goal of the traineeship will be to take advantage of the unique and enriching experience of living abroad.

3. PERFIL Y REQUISITOS DEL ESTUDIANTE Student profile and requirements

AREA/S DE ESTUDIO Research area/s

Chemistry/Chemical Engineering

NIVEL DE ESTUDIO Level of studies

At minimum, the trainee should be in the last year of a bachelor's degree and preferably be enrolled in a Master's program.

REQUISITOS PREVIOS DE CONOCIMIENTOS TECNICOS O EXPERIENCIA

Student required expertise and technical knowledge:

The student may have some experience working in a chemical laboratory, and ideally in gas phase applications. Regarding the theoretical knowledge, formation in chemistry and/or chemical engineering is a must, and notions of fundamentals of adsorption in gas phase will be needed.

IDIOMA Y NIVEL MINIMO RECOMENDADO PARA REALIZAR LAS PRACTICAS

Language and minimum level recommended for internships

English B2

REQUISITOS ADICIONALES DE LA INSTITUCION DE ACOGIDA

Additional requirements set by the host institution

Besides the Learning Agreement, and given the military character of the Academy, the trainee will be asked to pass a security screening.

CONVOCATORIA DE PRÁCTICAS INTERNACIONALES CALL FOR INTERNATIONAL INTERNSHIP

FACULTAD/INSTITUCIÓN Department/Faculty/Institution

AG Gewässerökologie und Naturschutz, IBU, Fakultät V

TIPO DE ORGANIZACIÓN Organization type

EPLUS-EDU-HEI

ORGANISMO PUBLICO
Public Body

SI Yes

NO

SIN ANIMO DE LUCRO

Non-Profit

SI Yes

NO

TAMAÑO Size

>250 employees

WEB

<https://uol.de/en/biology/research->

DISPONIBILIDAD PARA EVALUAR INFORMES DE CONVALIDACION DE CREDITOS ECTS

¿Es una prioridad para el supervisor que el estudiante valide los créditos?

Availability to evaluate ECTS credit validation reports

Is it a priority for the supervisor that the student validates ECTS credits?

si

2. DESCRIPCION DEL PROYECTO Project description

FECHAS ORIENTATIVAS DE REALIZACION DEL PROYECTO

Wished/approximate dates for the mobility period

01/07/2024-30/09/2024

FLEXIBILIDAD DE FECHAS

Flexibility in dates

SI yes

NO

TÍTULO DEL PROYECTO Project title

Effect of predator kairomones on *Culex* sp. mosquitoes

NUMERO DE HORAS DE TRABAJO POR SEMANA Number of working hours per week

35

PROGRAMA Detailed programme of the traineeship

This short project will be developed within a research framework on the ecological factors that influence the population development of mosquitoes, such as the landscape factors or the presence of possible predators and competitors. This can help us understand key ecological concepts of mosquito vector species, providing insights into the development of efficient control and surveillance measures to minimize the risk of mosquito-borne diseases.

The short project has two main aims: (1) to study whether the presence the chemical cues (kairomones) of predators affects the oviposition site choice of *Culex* female mosquitoes and (2) to study whether larval development and behaviour is affected by the presence of predator kairomones. The tasks to be carried out by the trainee will be the following:

- Help prepare and set up the experimental equipment in the lab and in the field.
- Monitor the field and experimental work and collect data on oviposition, larval developmental time, survival, sex ratio, longevity.
- Take samples aquatic predators to collect predator kairomones.
- Body fat content measurements in adult mosquitoes.
- Analyse data, write a scientific report and prepare an oral presentation.

CONOCIMIENTOS, HABILIDADES Y COMPETENCIAS QUE HAN DE ADQUIRIR LOS ESTUDIANTES

Knowledge, skills and competences to be acquired by the end of the traineeship

- Experience in practical research, applying their skills and knowledge acquired during their education into a research project and gaining insight into an academic workplace.
- Learning and understanding methods involved in research in an ecological discipline, both under field and laboratory conditions.
- Development of their scientific writing and communication skills.
- Development of their analytical, scientific thinking and problem-solving skills.
- Improvement of their foreign language skills, as well as intercultural competences.
- Expansion of their professional network.

MONITORIZACION Monitoring plan

- An initial meeting upon arrival will help establish the time and organisational plan.
- Tasks will be fulfilled in cooperation with the host applicant and with a day-to-day communication.
- Weekly discussion of the progress of the tasks and personal learning goals, planning the next phase, and any other issues that may arise during the traineeship.
- Observation and evaluation of the trainee's skills regarding initiative, problem-solving, decision-making, organisation, adaptability, communication, teamwork.



EVALUACIÓN Evaluation plan

At the end of the traineeship, the student will have to write a scientific report about the project (formatted as a proper scientific article) and give an oral presentation (aprox. 15 min) at the working group weekly seminar.

ESPECIFICACIONES ADICIONALES EN LA INSTITUCIÓN DE ACOGIDA

Additional specifications of the host institution

OTRA INFORMACIÓN RELEVANTE Other relevant information

Students will benefit from the “Ayudas Traineeship CERFA” consisting of 400 EUR and a career development course.

3. PERFIL Y REQUISITOS DEL ESTUDIANTE Student profile and requirements

AREA/S DE ESTUDIO Research area/s

Biology, Environmental Sciences

NIVEL DE ESTUDIO Level of studies

Preferably MSc; otherwise BSc.

REQUISITOS PREVIOS DE CONOCIMIENTOS TECNICOS O EXPERIENCIA

Student required expertise and technical knowledge:

- Experience in laboratory work (proper and safe handling of chemicals, capable of using a microscope...) and field practices during their studies.
- Previous experience handling insects/insect samples.
- PC Skills: Word, Excel, PowerPoint.
- Fluent English
- Preferably, basic training in data analysis with R or another statistical programme (but it is not compulsory).

IDIOMA Y NIVEL MINIMO RECOMENDADO PARA REALIZAR LAS PRACTICAS

Language and minimum level recommended for internships

B2 English or German

REQUISITOS ADICIONALES DE LA INSTITUCION DE ACOGIDA

Additional requirements set by the host institution

NA

CONVOCATORIA DE PRÁCTICAS INTERNACIONALES CALL FOR INTERNATIONAL INTERNSHIP

DEPARTAMENTO/FACULTAD/INSTITUCIÓN Department/Faculty/Institution

WW Universitaet Muenster. Uniklinikum Muenster

TIPO DE ORGANIZACIÓN Organization type

EPLUS-EDU-HEI

ORGANISMO PUBLICO
Public Body

SI Yes

NO

SIN ANIMO DE LUCRO
Non-Profit

SI Yes

NO

TAMAÑO Size

>250 employees

WEB

DISPONIBILIDAD PARA EVALUAR INFORMES DE CONVALIDACION DE CREDITOS ECTS

¿Es una prioridad para el supervisor que el estudiante valide los créditos?

Availability to evaluate ECTS credit validation reports

Is it a priority for the supervisor that the student validates ECTS credits?

si

2. DESCRIPCION DEL PROYECTO Project description

FECHAS ORIENTATIVAS DE REALIZACION DEL PROYECTO

Wished/approximate dates for the mobility period

19/06/2024-30/09/2024

FLEXIBILIDAD DE FECHAS

Flexibility in dates

SI yes

NO

TÍTULO DEL PROYECTO Project title

Brain regional activity mapping following fear extinction in the mouse models

NUMERO DE HORAS DE TRABAJO POR SEMANA Number of working hours per week

35

PROGRAMA Detailed programme of the traineeship

The neuropeptide S system, consisting of neuropeptide S (NPS) and its G protein-coupled receptor (NPSR1), is expressed in central nervous systems of humans and rodents in several brain regions e.g. the amygdala, midline thalamic nuclei, olfactory areas, pre- and parasubiculum and cortical regions. Previous studies, using both pharmacological or genetically modified NPSR1-deficient mice approaches, implicate that the NPS system is involved in cognitive and emotional processes such as memory, addiction, social behavior, or anxiety and fear extinction. To study how the NPS system controls fear behavior, we generated a novel mouse model (NPSR1-I107N) by introducing the human-specific SNP into the mouse NPSR1 gene, which differs from the ancestral variant (NPSR1 I107). We demonstrated that fear extinction is enhanced predominantly in N107-expressing female mice and that the efficacy of fear extinction is a function of genotype, sex, and threat salience (Bengoetxea et al., 2021).

Our data indicate differences in fear extinction based on sex, but the neuronal correlates remain elusive. To clarify the brain regional-specific NPS-neuronal activation following fear extinction between males and females, we will perform either a c-Fos protein immunohistochemistry or an in-situ hybridization of the Arc immediate early gene (IEG) mRNA. catFISH is a within-subject technique, which takes advantage of the differential transcriptional time-course and sub-cellular distribution of IEGs mRNA. Thus, by using this technique (RNAScope fluorescent multiplex, ACD Biotechne) we will identify Arc mRNA in nuclei of NPSR1-positive neurons, which will be identified by its expression of tdTomato mRNA. With this information, it is possible to identify neuronal ensembles being active during extinction.

In addition to the work in the lab, the student will be able to participate in the weekly department seminars, in which both local and guest scientists expose and discuss their most recent work.

CONOCIMIENTOS, HABILIDADES Y COMPETENCIAS QUE HAN DE ADQUIRIR LOS ESTUDIANTES

Knowledge, skills and competences to be acquired by the end of the traineeship

At the end of this traineeship, the student should be able to successfully prepare and slice deep-frozen mice brain samples for post-processing. The student will be introduced to the fluorescence immunohistochemistry and or RNAScope technique, to label the immediate early genes c-Fos and Arc protein or RNA in the neuronal nuclei. Once labeled, the student will be introduced to the imaging in the fluorescence confocal microscopy and post-processing of the image for quantification, being able to identify and select regions of interest, recognize NPS labeled cells as well as c-Fos or Arc immunoreactive cells. For this last step, we will use the image software ImageJ.

MONITORIZACION Monitoring plan

The student will work in the laboratories of the Institute of Physiology I, being supervised at all times by both the applicant and the experienced laboratory technicians of the department.



EVALUACIÓN Evaluation plan

At the end of the stay, the presentation of a short report containing the objective of the work, the description of the materials and methods used, results and conclusions of the study will be required.

ESPECIFICACIONES ADICIONALES EN LA INSTITUCIÓN DE ACOGIDA

Additional specifications of the host institution

OTRA INFORMACIÓN RELEVANTE Other relevant information

Students will benefit from the “Ayudas Traineeship CERFA” consisting of 400 EUR and a career development course.

3. PERFIL Y REQUISITOS DEL ESTUDIANTE Student profile and requirements

AREA/S DE ESTUDIO Research area/s

Máster Universitario en Biomedicina Experimental, Máster Universitario en Investigación en Psicología Aplicada, Biology, Biochemistry, Biotechnology, Pharmacy

NIVEL DE ESTUDIO Level of studies

Last course of Bachelor or Master

REQUISITOS PREVIOS DE CONOCIMIENTOS TECNICOS O EXPERIENCIA

Student required expertise and technical knowledge:

Previous lab experience will be favoured.

IDIOMA Y NIVEL MINIMO RECOMENDADO PARA REALIZAR LAS PRACTICAS

Language and minimum level recommended for internships

English B1; German would be an advantage, although is not strictly necessary.

REQUISITOS ADICIONALES DE LA INSTITUCION DE ACOGIDA

Additional requirements set by the host institution

CONVOCATORIA DE PRÁCTICAS INTERNACIONALES CALL FOR INTERNATIONAL INTERNSHIP

DEPARTAMENTO/FACULTAD/INSTITUCIÓN Department/Faculty/Institution

Wilhelm Dyckerhoff Institut (WDI) - Dyckerhoff GmbH-Buzzi Unicem

TIPO DE ORGANIZACIÓN Organization type

EPLUS-EDU-HEI

ORGANISMO PUBLICO
Public Body

SI Yes

NO

SIN ANIMO DE LUCRO
Non-Profit

SI Yes

NO

TAMAÑO Size

>250 employees

WEB

<https://www.dyckerhoff.com/>

DISPONIBILIDAD PARA EVALUAR INFORMES DE CONVALIDACION DE CREDITOS ECTS

¿Es una prioridad para el supervisor que el estudiante valide los créditos?

Availability to evaluate ECTS credit validation reports

Is it a priority for the supervisor that the student validates ECTS credits?

si

2. DESCRIPCION DEL PROYECTO Project description

FECHAS ORIENTATIVAS DE REALIZACION DEL PROYECTO

Wished/approximate dates for the mobility period

26.08.2024 to 26.10.2024

FLEXIBILIDAD DE FECHAS

Flexibility in dates

SI yes

NO

TÍTULO DEL PROYECTO Project title

Contributing to reduce the CO₂ emissions in the cement industry

NUMERO DE HORAS DE TRABAJO POR SEMANA Number of working hours per week

35

PROGRAMA Detailed programme of the traineeship

Cement is one of the most widely used material in the world. In contact with water, it is used to bind other materials and to produce concrete. Basically, cement is made of *clinker* (a mixture of calcium silicates/aluminates from the burning of the raw materials (CaCO_3 , SiO_2 and Al_2O_3)) and gypsum (CaSO_4). Due to the unavoidable decarbonization of the raw materials, CaCO_3 , and the large global clinker consumption the cement industry accounts for up to 8% of the global CO_2 emissions. In our Institute we are focussed on different approaches for **reducing the CO_2 emissions**: **(1) Clinker partial substitution through supplementary cementitious materials (SCMs)**, such as silicates/aluminates of different nature. **(2) CO_2 capturing phases**: We study the possibility to capture the emitted CO_2 and use it to carbonate silicate-based minerals, which will be further used in the industry. **(3) Use of recycled materials**: Some of the constituents of the cement can be partially replaced by materials coming from recycling infrastructures.

During 2 months, we will perform practical experiments of each of these approaches. Our objective is to achieve final mechanical properties as good as that of the traditional cement (Portland cement) or even better, while reducing the global CO_2 emissions. Furthermore, we will investigate the reactions and chemical mechanisms that are taking place.

The following tasks are planned:

- 1) Training in Cement Chemistry and characterization techniques. (2 weeks)
- 2) Use of supplementary cementitious materials: SCMs of different geological and geographic origin will be tested. (2 weeks)
- 3) CO_2 capturing phases: Synthesis of mineral phases which could be carbonated under a CO_2 flux. (1,5 weeks)
- 4) Use of recycled materials: We will investigate the compatibility of certain recycled materials with cement. (1,5 week)
- 5) Evaluation of the results. (1 week)

CONOCIMIENTOS, HABILIDADES Y COMPETENCIAS QUE HAN DE ADQUIRIR LOS ESTUDIANTES Knowledge, skills and competences to be acquired by the end of the traineeship

In the frame of **Material Science and Chemistry**, the student would get a positive experience of being trained in one of the largest cement industries in Germany and Italy. We will support the student to achieve the following:

- 1) Basic knowledge in cement chemistry and cement production.
- 2) Achieve a global view of the current approaches in the cement industry to reduce the CO_2 .
- 3) Understanding the principles of X-ray diffraction, X-ray fluorescence, and thermal analysis, among others.
- 4) Gaining laboratory skills, dealing with cement-based materials, gaining confidence with the lab-equipment and carrying out experiments under supervision.
- 5) Learning how to interpret the results.
- 6) Working in an international environment, improving the use of English at work and learning German.

MONITORIZACION Monitoring plan

The supervision of the student will take place in the following aspects:

- 1) Daily tasks in our Physics laboratory: The student will actively participate in the experiments and in the preparation and characterization of samples. He/She will learn and be supervised in the control of furnaces, mills and performance of chemical reactions, as well as in the sample preparation for the different techniques.
- 2) Active participation in measurements and in the interpretation of the results.
- 3) Visual representation of the results for the preparation of reports.
- 4) Collaboration with other laboratories
- 5) Regular feedback will be given from both sides.

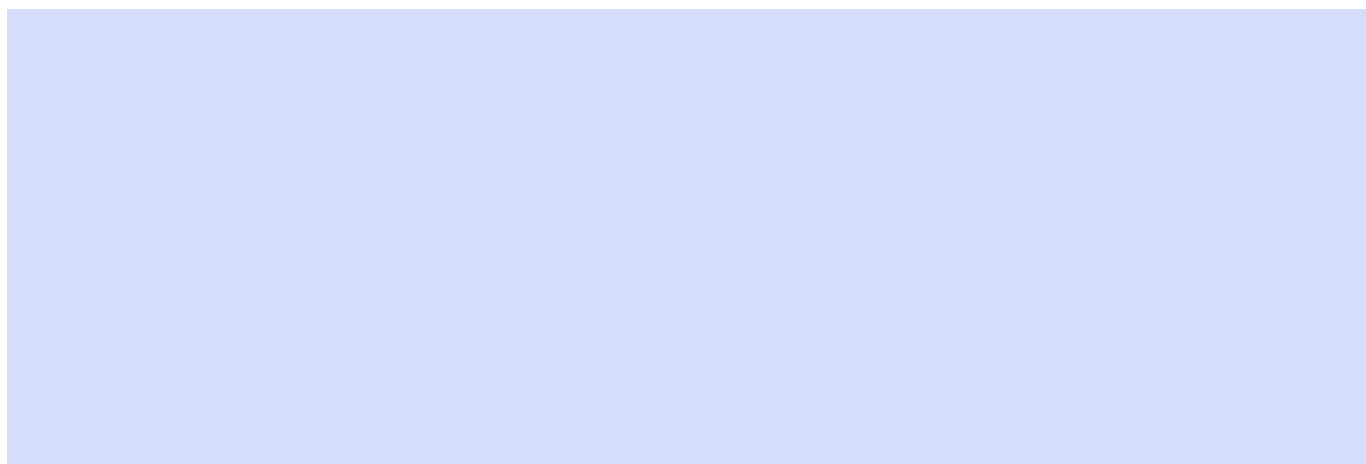
EVALUACIÓN Evaluation plan

Following aspects will be evaluated:

- 1) Comprehension of the basic cement chemistry
- 2) Understanding of the information provided by the characterization techniques.
- 3) Ability to work in a material science laboratory.
- 4) Ability to perform easy tasks independently.
- 5) Questioning the experiments, curiosity.
- 6) Motivation, development of his/her own ideas and suggestions.
- 7) Planning ability, working systematically, rigorously and in an organized way.
- 8) Communication skills: Ability to work in in a team. Maintain open, clear and constructive lines of communication.

ESPECIFICACIONES ADICIONALES EN LA INSTITUCIÓN DE ACOGIDA

Additional specifications of the host institution



OTRA INFORMACIÓN RELEVANTE Other relevant information

Students will benefit from the “Ayudas Traineeship CERFA” consisting of 400 EUR and a career development course.

3. PERFIL Y REQUISITOS DEL ESTUDIANTE Student profile and requirements

AREA/S DE ESTUDIO Research area/s

Chemistry (Grado); Master Universitario en Química; Environmental Science

NIVEL DE ESTUDIO Level of studies

From the second year of university studies or during the Master studies

REQUISITOS PREVIOS DE CONOCIMIENTOS TECNICOS O EXPERIENCIA

Student required expertise and technical knowledge:

Basics in inorganic Chemistry, basic laboratory skills, interest in Material Science, Geology and Mineralogy.

IDIOMA Y NIVEL MINIMO RECOMENDADO PARA REALIZAR LAS PRACTICAS

Language and minimum level recommended for internships

English B1

REQUISITOS ADICIONALES DE LA INSTITUCION DE ACOGIDA

Additional requirements set by the host institution

Contact details, CV and transcript of grades

CONVOCATORIA DE PRÁCTICAS INTERNACIONALES CALL FOR INTERNATIONAL INTERNSHIP

DEPARTAMENTO/FACULTAD/INSTITUCIÓN Department/Faculty/Institution

MKS-Atotech

TIPO DE ORGANIZACIÓN Organization type

EPLUS-EDU-HEI

ORGANISMO PUBLICO

Public Body

SI Yes

NO

SIN ANIMO DE LUCRO

Non-Profit

SI Yes

NO

TAMAÑO Size

>250 employees

WEB

<https://www.atotech.com/>

DISPONIBILIDAD PARA EVALUAR INFORMES DE CONVALIDACION DE CREDITOS ECTS

¿Es una prioridad para el supervisor que el estudiante valide los créditos?

Availability to evaluate ECTS credit validation reports

Is it a priority for the supervisor that the student validates ECTS credits?

si

2. DESCRIPCION DEL PROYECTO Project description

FECHAS ORIENTATIVAS DE REALIZACION DEL PROYECTO

Wished/approximate dates for the mobility period

01/06/2024-31/08/2024

FLEXIBILIDAD DE FECHAS

Flexibility in dates

SI yes

NO

TÍTULO DEL PROYECTO Project title

Detecting and Monitoring Breakdown Products of Additives in Industrial Cu

NUMERO DE HORAS DE TRABAJO POR SEMANA Number of working hours per week

35

PROGRAMA Detailed programme of the traineeship

Cu electrodeposition is a crucial process in the fabrication of electronic and semiconductor devices. Cu is the preferred material for printed circuit boards (PCBs), interconnects (IC), and chip metallization due to its superior electronic and heat conduction properties. To fulfill the needs for the respective device fabrication, the acidic Cu electrolyte consists of inorganic compounds such as H_2SO_4 , chloride ions, and the metal source $CuSO_4$, along with organic additives like inhibitors and accelerators in varying ratios. Achieving Cu electrodepositions that meet the requirements for structuring (vias, holes, liners) and scale (from mm to nm) necessitates a sensitive adjustment of organic molecules ratios. This adjustment must consider different adsorption strengths, co-adsorption kinetics, and the diffusional effects depending on convective conditions. Indeed, the proper performance of a Cu electrolyte, and consequently the plating process, depends more on the synergistic and competitive interaction of co-adsorbed additives than the adsorption mechanism of a single additive.

Many organic additives are unstable under electrolytic conditions and gradually break down via electrochemical and chemical pathways. Therefore, concentration monitoring systems and additive feeding systems are mandatory in industrial processes to maintain the performance of the respective electrolyte. This proposed study aims to develop an electroanalytical method based on cyclic voltammetry and galvanostatic procedures. The method should be applicable to monitor the concentration of the accelerator bis-(sodium sulfopropyl)di-sulfide (SPS) and its low weight breakdown products, such as 3-mercapto-1-propane sulfonate (MPS). Additionally, it should assess their ability to complex with Cu^+ ions, which gradually accumulate in the baths and negatively impact the properties of the Cu deposition. The method's applicability for online analysis should be tested.

CONOCIMIENTOS, HABILIDADES Y COMPETENCIAS QUE HAN DE ADQUIRIR LOS ESTUDIANTES

Knowledge, skills and competences to be acquired by the end of the traineeship

1. Experience to work in an international cross functional team.
2. Participation in scientific discussions about experimental results and next steps.
3. Development of presentation skills, including the use of English.
4. Scientific literature search.
5. Realization of electrochemical experiments combined with optical inspection for metal plating.
6. Familiarization with electrochemical software (Nova from Metrohm): learn how to write and run a Nova script.
7. High throughput screening with an automated measurement system.
8. Development of data management and plotting skills, including the use of Origin software.
9. Learn the health and safety culture of a chemical company.

MONITORIZACION Monitoring plan

The trainee will be under the direct supervision of the host, Carlos Guillén Posteguillo, who will introduce him/her into the work flow of the electrochemistry group and his/her project. She/he will be sitting in the electrochemistry office with the rest of the team for constant communication and support.

The student will present a summary of his/her work during the group meetings every Friday. Besides, he/she will also present in the cross functional Cu plating groups at least once a month, so colleagues from other labs involved in this research area know of his/her activities.

EVALUACIÓN Evaluation plan

The evaluation of the student will be continuous, mainly throughout the presentation of his/her work in different meetings, as previously stated.

At the end of his/her visit, she/he will present for 20 min her/his work to colleagues of the company involved in the field of Cu plating, including activities, results and learning outcomes.

Besides, she/he will write a very brief closing report, as usually done in the electrochemistry group when a project is completed.

And he/she should write the practicum report to obtain the corresponding ECTS credits, getting support from the host.

ESPECIFICACIONES ADICIONALES EN LA INSTITUCIÓN DE ACOGIDA

Additional specifications of the host institution

OTRA INFORMACIÓN RELEVANTE Other relevant information

Students will benefit from the “Ayudas Traineeship CERFA” consisting of 400 EUR and a career development course.

3. PERFIL Y REQUISITOS DEL ESTUDIANTE Student profile and requirements

AREA/S DE ESTUDIO Research area/s

1. Chemical engineering
2. Chemistry

NIVEL DE ESTUDIO Level of studies

At least 180 ECTS completed in the degrees of Chemistry or Chemical Engineering and willing to do a curricular practicum at MKS-Atotech. Preferable a master student who wants to do her/his curricular practicum of 3 months in our company.

REQUISITOS PREVIOS DE CONOCIMIENTOS TECNICOS O EXPERIENCIA

Student required expertise and technical knowledge:

It is recommendable to have completed a course in electrochemistry.

IDIOMA Y NIVEL MINIMO RECOMENDADO PARA REALIZAR LAS PRACTICAS

Language and minimum level recommended for internships

English B2

REQUISITOS ADICIONALES DE LA INSTITUCION DE ACOGIDA

Additional requirements set by the host institution

The student-trainee will have to sign a non-disclosure agreement (NDA).

CONVOCATORIA DE PRÁCTICAS INTERNACIONALES CALL FOR INTERNATIONAL INTERNSHIP

DEPARTAMENTO/FACULTAD/INSTITUCIÓN Department/Faculty/Institution

University Hospital Essen

TIPO DE ORGANIZACIÓN Organization type

EPLUS-EDU-HEI

ORGANISMO PUBLICO

Public Body

SI Yes

NO

SIN ANIMO DE LUCRO

Non-Profit

SI Yes

NO

TAMAÑO Size

>250 employees

WEB

<https://augenlinik.uk-essen.de/ag->

DISPONIBILIDAD PARA EVALUAR INFORMES DE CONVALIDACION DE CREDITOS ECTS

¿Es una prioridad para el supervisor que el estudiante valide los créditos?

Availability to evaluate ECTS credit validation reports

Is it a priority for the supervisor that the student validates ECTS credits?

si

2. DESCRIPCION DEL PROYECTO Project description

FECHAS ORIENTATIVAS DE REALIZACION DEL PROYECTO

Wished/approximate dates for the mobility period

01/06/2024-30/09/2024

FLEXIBILIDAD DE FECHAS

Flexibility in dates

SI yes

NO

TÍTULO DEL PROYECTO Project title

Targeted drug combinations in cancer cell lines

NUMERO DE HORAS DE TRABAJO POR SEMANA Number of working hours per week

35



PROGRAMA Detailed programme of the traineeship

The research group of Translational Genomics revolves around the use of genomics and bioinformatics to get insight into the mechanisms of tumor development and metastasis in renal cell carcinoma and uveal melanoma, and its validation using molecular biology and biochemistry approaches, as well as preclinical models, such as patient-derived organoids, to be able to translate the findings into the clinic.

Renal cell carcinoma and uveal melanoma are characterized by frequent mutations in the epigenetic modifier and tumor suppressor gene *BAP1*, which lead to higher tumor aggressiveness, higher incidence of metastasis and poor patient survival. We have identified several vulnerabilities of tumors with *BAP1* loss and we would like to perform targeted drug combination screens in several cell lines of different cancer entities and patient-derived organoids generated from tumors of renal cell carcinoma and uveal melanoma, obtained in collaboration with surgeons and pathologists in the departments of Urology and Ophthalmology at the University Hospital Essen.

The main aim is to validate the findings of synergism of specific drug combinations using a high-throughput platform in a variety of cancer entities to complete data for a potential patent application.

CONOCIMIENTOS, HABILIDADES Y COMPETENCIAS QUE HAN DE ADQUIRIR LOS ESTUDIANTES

Knowledge, skills and competences to be acquired by the end of the traineeship

Cell culture of mammalian cell lines and patient-derived organoids, cell viability and proliferation (CellTiter-Glo Luminescent assay), drug treatments, high-throughput screening, synergism analysis, cancer genomics, experiment design and data interpretation.

MONITORIZACION Monitoring plan

Daily direct supervision of the trainee until sufficient capacity and independence is achieved to operate with minimal supervision. Thereafter, regular meetings, at least once a week, and whenever necessary to discuss about data analysis, interpretation and problem solving.



EVALUACIÓN Evaluation plan

Evaluation of the progress achieved by the trainee by weekly meetings towards the goals of the project and final evaluation of the whole project.

ESPECIFICACIONES ADICIONALES EN LA INSTITUCIÓN DE ACOGIDA

Additional specifications of the host institution

OTRA INFORMACIÓN RELEVANTE Other relevant information

Students will benefit from the “Ayudas Traineeship CERFA” consisting of 400 EUR and a career development course.

3. PERFIL Y REQUISITOS DEL ESTUDIANTE Student profile and requirements

AREA/S DE ESTUDIO Research area/s

Biochemistry, Pharmacy, Biotechnology, Informatics

NIVEL DE ESTUDIO Level of studies

Bachelor or Master

REQUISITOS PREVIOS DE CONOCIMIENTOS TECNICOS O EXPERIENCIA

Student required expertise and technical knowledge:

Basic laboratory experience is required/desirable

IDIOMA Y NIVEL MINIMO RECOMENDADO PARA REALIZAR LAS PRACTICAS

Language and minimum level recommended for internships

English B2

REQUISITOS ADICIONALES DE LA INSTITUCION DE ACOGIDA

Additional requirements set by the host institution

Enrolment as intern at University Hospital Essen and lab member in the laboratory of Translational Genomics

CONVOCATORIA DE PRÁCTICAS INTERNACIONALES CALL FOR INTERNATIONAL INTERNSHIP

DEPARTAMENTO/FACULTAD/INSTITUCIÓN Department/Faculty/Institution

Flow Cytometry Core Technology. UCD Conway Institute. University College Dublin

TIPO DE ORGANIZACIÓN Organization type Academia

ORGANISMO PUBLICO SI Yes NO ORGANISMO SIN ANIMO DE LUCRO SI Yes NO
Public Body Non-Profit

TAMAÑO Size 50,000 WEB www.ucd.ie

DISPONIBILIDAD PARA EVALUAR INFORMES DE CONVALIDACION DE CREDITOS ECTS

¿Es una prioridad para el supervisor que el estudiante valide los créditos?

Availability to evaluate ECTS credit validation reports

Is it a priority for the supervisor that the student validates ECTS credits?

No

2. DESCRIPCION DEL PROYECTO Project description

FECHAS ORIENTATIVAS DE REALIZACION DEL PROYECTO 01 Sep 2024 – 30 June 2025
Wished/approximate dates for the mobility period

FLEXIBILIDAD DE FECHAS SI yes
Flexibility in dates NO

TÍTULO DEL PROYECTO Project title Citometría de Flujo

NUMERO DE HORAS DE TRABAJO POR SEMANA Number of working hours per week

PROGRAMA Detailed programme of the traineeship

Training in the usage and maintenance of flow cytometers and cell sorters: The trainee will be trained on the usage of multiple instrumentation from different brands, characteristics and complexities. To do so, the trainee will work instrument set up, instrument optimization, data analysis and data interpretation for the multiple applications of the facility. Trainee will be involved in the project, protocol and data discussion and it's expected, by the end of the training period will be able to provide expert advise to novel users.

In order to provide a deeper knowledge of the full process, trainee will be involved in different projects. The trainee will process, prepare and analysis samples of cell culture, tissue and/or whole blood. Participant will be fully involved in the optimization of the method, data analysis, data reanalysis and reporting.

By the end of the traineeship, the trainee will prepare a summary report and present her job.

CONOCIMIENTOS, HABILIDADES Y COMPETENCIAS QUE HAN DE ADQUIRIR LOS ESTUDIANTES

Knowledge, skills and competences to be acquired by the end of the traineeship

The trainee will be familiar with the full cytometry technology and methodology, from sample collection, establishment of protocols, instrument optimization and maintenance, data acquisition, data analysis and reporting.

The trainee will be familiar with the full process of sample analysis by flow cytometry as will be highly exposed to multiple applications from several groups that are using the core facility, so he/she will increase communication and interpersonal skills.

The trainee will be working supervised, but must learn also to work alone, so it's expected he/she will increase his/her capabilities of teamwork and self-supervision.

The trainee will be working with state-of-the-art instrumentation: the trainee might need to read, interpret, criticise, and take some responsibilities on board. Timing is crucial in these experiments, so the trainee will increase his/her ability to organise working plans and experiments.

MONITORIZACION Monitoring plan

The trainee will be working mostly of the time side by side with Dr. Blanco as well as users of the UCD Flow Cytometry Core Technology.

EVALUACIÓN Evaluation plan

It will be a continued evaluation process. The generation of good data and capabilities of reproducibility of certain patterns will be the best way to evaluate trainee's progression and knowledge.

ESPECIFICACIONES ADICIONALES EN LA INSTITUCIÓN DE ACOGIDA Additional specifications of the host institution

OTRA INFORMACIÓN RELEVANTE Other relevant information

N/A

3. PERFIL Y REQUISITOS DEL ESTUDIANTE Student profile and requirements

AREA/S DE ESTUDIO Research area/s

Biología, Biotecnología, Veterinaria, Medicina, Biología Marina/Ciencias del Mar

NIVEL DE ESTUDIO Level of studies

Licenciatura en Biología, Biotecnología, Veterinaria, Medicina, Biología Marina/Ciencias del Mar o áreas relacionadas

REQUISITOS PREVIOS DE CONOCIMIENTOS TECNICOS O EXPERIENCIA

Student required expertise and technical knowledge:

No necesariamente.

IDIOMA Y NIVEL MINIMO RECOMENDADO PARA REALIZAR LAS PRACTICAS

Language and minimum level recommended for internships

Inglés básico para sobrevivir en Irlanda

REQUISITOS ADICIONALES DE LA INSTITUCION DE ACOGIDA

Additional requirements set by the host institution

El estudiante debe estar asegurado

CONVOCATORIA DE PRÁCTICAS INTERNACIONALES CALL FOR INTERNATIONAL INTERNSHIP

DEPARTAMENTO/FACULTAD/INSTITUCIÓN Department/Faculty/Institution

Bioscience department, IBV institute, Oslo University

TIPO DE ORGANIZACIÓN Organization type

University

ORGANISMO PUBLICO
Public Body

SI Yes

SIN ANIMO DE LUCRO
Non-Profit

SI Yes

TAMAÑO Size

Approximately 27700 students

WEB

<https://www.uio.no/english/>

DISPONIBILIDAD PARA EVALUAR INFORMES DE CONVALIDACION DE CREDITOS ECTS

¿Es una prioridad para el supervisor que el estudiante valide los créditos?

Availability to evaluate ECTS credit validation reports

Is it a priority for the supervisor that the student validates ECTS credits?

It is not a priority; however, this project can be equivalent to 25-30 ECTS

2. DESCRIPCION DEL PROYECTO Project description

FECHAS ORIENTATIVAS DE REALIZACION DEL PROYECTO

Wished/approximate dates for the mobility period

2024 except July

FLEXIBILIDAD DE FECHAS

Flexibility in dates

SI yes

TÍTULO DEL PROYECTO Project title

Exploring METTL13 as a therapeutic target and biomarker for solid cancer

NUMERO DE HORAS DE TRABAJO POR SEMANA Number of working hours per week

37,5 hours per week



PROGRAMA Detailed programme of the traineeship (100-200 words approx)

In recent decades, we have observed a significantly improved in therapy results in cancer patients. However, unfortunately, aggressive and metastatic cancers require the development of novel and more specific therapeutics. Hence, researchers and clinicians should direct efforts toward the identification of alternative therapeutical targets with the final goal of developing powerful anticancer therapies.

A common characteristic of cancer cells is their ability to grow in an uncontrolled manner, and this requires extensive synthesis of new protein. Protein synthesis, which is under tight control in normal cells, is frequently dysregulated in cancer. Therefore, targeting the core components of protein translation machinery and related signaling pathways represent a promise for cancer therapy.

We discovered a novel methyltransferase enzyme, called METTL13, which methylates and modulates a key component of the protein synthesis machinery, the eukaryotic elongation factor 1 α (eEF1A). METTL13 is essential for efficient tumor growth in lung and pancreatic cancer. The goals of our project funded by the Norwegian Cancer Society aims: i) to explore the potential of METTL13 as a clinical target and identify METTL13 inhibitors; and ii) to evaluate METTL13 as a biomarker in pancreatic cancer.

CONOCIMIENTOS, HABILIDADES Y COMPETENCIAS QUE HAN DE ADQUIRIR LOS ESTUDIANTES

Knowledge, skills and competences to be acquired by the end of the traineeship (100 words approx)

You will learn cell culture techniques, adherent cancer cell lines; molecular biology such as western blotting, cell growth and viability assays. You will also learn in the field of protein methylation in cancer as well as experience in studies on drug response in cells.

You will train in transferrable skills such as presentations, writing and project planning. You will get to be part of an international research team with researchers at different stages of their careers, frequent opportunities to get input on your data (weekly lab meetings) and to get updated on the most recent advances in our field of interest ("journal club" presentations). We have an ambitious environment where team members share their expertise to help each other to improve their career prospects and intellectual enrichment.

MONITORIZACION Monitoring plan (50 words approx)

You will be closely supervised by the project leader and the main supervisor based on progress and adjust the project plan if necessary.

EVALUACIÓN Evaluation plan (50 words approx)

You will get input on your work from the supervisors and during the group lab meetings we arrange weekly. The work performed in this project can be equivalent to 25-30 ECTS.

ESPECIFICACIONES ADICIONALES EN LA INSTITUCIÓN DE ACOGIDA

Additional specifications of the host institution

OTRA INFORMACIÓN RELEVANTE Other relevant information

1. PERFIL Y REQUISITOS DEL ESTUDIANTE Student profile and requirements

AREA/S DE ESTUDIO Research area/s

Biology, Biotechnology

NIVEL DE ESTUDIO Level of studies

Degree in Biochemist, Biotechnology or Pharmacy.

REQUISITOS PREVIOS DE CONOCIMIENTOS TECNICOS O EXPERIENCIA

Student required expertise and technical knowledge:

It will be an advantage if the student is familiar with the field of cancer.

IDIOMA Y NIVEL MINIMO RECOMENDADO PARA REALIZAR LAS PRACTICAS

Language and minimum level recommended for internships

Language competence required: Good oral and written English skills.

REQUISITOS ADICIONALES DE LA INSTITUCION DE ACOGIDA

Additional requirements set by the host institutio