

Translational medicine in selected diseases areas

Titulaire

Mariana IGOILLO ESTEVE (Coordonnateur)

Mnémonique du cours

BIME-G5506

Crédits ECTS

5 crédits

Langue(s) d'enseignement

Anglais

Période du cours

Deuxième quadrimestre

Campus

Erasme

These courses will also illustrate how patient-derived data can effectively contribute to improve knowledge and the development personalized therapeutic approaches. At the end of the program the students should be able to propose a translational research approach focussed on the development of a novel therapeutic approach or diagnostic tools based on the unmet needs of a given pathology. It is expected that the student will manage to: 1. Define relevant research questions and the objective of the study. 2. Propose up-to-date pre-clinical research approaches to answer the research questions, and provide a rationale for this choice. 3. Propose a coherent clinical trial as a follow-up of the preclinical study considering the nature of the disease (common or rare) and the population affected (children, young adults, elderly people). 4. Be able to identify potential experimental, ethical, economics and organizational constraints of the project. 5. Propose alternative approaches

Defend the project in front of faculty and peers

Contenu du cours

The course will have the format of translational case studies discussion in the disease areas mentioned below:

- *Immunology
- *Cardiology
- *Diabetes
- *Neurology
- *Gastroenterology
- *Oncology

The case studies will be discussed in 3 sessions of 2 hours each per disease area with presentations by the experts or under the form of inverted class (group presentations by the students). They will exemplify the translational research process taking a starting point unmet needs related to a certain pathology. Each disease area will be coordinated by an expert in the domain who will ensure the courses by himself or will invite expert speakers to cover the topics under study.

As a training for the evaluation, a translational project will be set up based on pre-reading material on a certain pathology. This will be done at the end of all the theoretical courses in the form of active-discussion group work with the coordination of Mrs Igoillo-Esteve

Objectifs (et/ou acquis d'apprentissages spécifiques)

Taking as a starting point the current challenges and unmet needs related to a certain pathology, these interactive courses will, through the discussion of successful and failed key case studies, provide a comprehensive understanding of the translational research process from patient-oriented fundamental research into clinical trials. The experimental, ethical and economic challenges related to the translational approach will be discussed.

Pré-requis et co-requis

Cours co-requis

BIME-G5512 | Basics of pre-clinical and clinical research | 5 crédits

Cours ayant celui-ci comme co-requis

BIME-G5512 | Basics of pre-clinical and clinical research | 5 crédits

Méthodes d'enseignement et activités d'apprentissages

The course aims to be as interactive as possible. Each module will start with an introduction to the pathology by the coordinator or invited speaker describing the aetiology of the disease, clinical manifestations, prevalence and challenges for diagnostic and/or therapy. This will be followed by the presentation of a translational case study on the topic, involving preclinical and clinical research. The students will receive in advance pre-reading material (in the form of scientific publications) related with the topics to be discussed. They will be asked to actively participate to the discussion, or eventually to present themselves (individually or in groups) complementary follow-up or contradictory case studies. In this last situation, the students will be requested in advance to prepare one case study per person or per group and to present it orally in maximum 10 minutes using electronic support. The presentation will be followed by a critical discussion between all students and the professor or invited speaker aiming to find differences and similarities between the studies, contradictory findings and weak points. The students will be also asked to propose possible follow-up studies, and alternative approaches. Economical and ethical issues will also be discussed.

Contribution au profil d'enseignement

Through the study of key translational case studies in different pathologies, this module will enable the students to discover the different disciplines involved in the complex process of translating advances from preclinical research into new therapeutic or diagnostic approaches, and will also show how patient-centred strategies can contribute to the development of therapeutic approaches custom-tailored to the patient needs.

This formation will provide the knowledge to understand the evolution of medical practice and innovative processes in the healthcare sector, and to seize the new professional opportunities associated with it.

At the end of this program, the graduate will have to:

- Mastered in-depth scientific knowledge in order to understand a scientific problem and the related questions, identified the most relevant experiences and the most appropriate techniques to respond to them.
- They will have planned and applied a translational research project aimed at developing a new diagnostic or therapeutic approach for a pathology, also taking into account the economic, ethical and regulatory aspects. Communication skills
- At the end of this program, the graduate will have:
- Worked in a team, respected the work of others, common material and demonstrated scientific ethics and experimental rigor.
- Read scientific literature in English fluently and searched for relevant information.
- Argued, drawn up a synthesis of their results and considered the perspectives citing their sources and avoiding plagiarism
- Presented correct and consistent scientific information.
- Interacted with peers, shared and argued their research
- Read, interpreted, criticized scientific articles
- Questioned themselves in order to be critical, to debate and / or to defend their ideas.

Références, bibliographie et lectures recommandées

Scientific publications related to each topic will be given in advance by the coordinators of each disease area.

Support(s) de cours

Université virtuelle

Autres renseignements

Lieu(x) d'enseignement

Erasme

Contact(s)

Mrs Mariana Igoillo-Esteve: migoillo@ulb.ac.be (Main coordinator)

Coordinator of the selected disease areas:

- **Immunology:** MARCHANT Arnaud and SMEESTERS Pierre. Arnaud.Marchant@ulb.ac.be, pierre.smeesters@huderf.be
- **Oncology:** HEIMANN Pierre and SOTIRIOU Christos. pierre.heimann@erasme.ulb.ac.be, christos.sotiriu@bordet.be
- **Cardiology and Pneumology:** BONDUE Antoine. Antoine.Bondue@erasme.ulb.ac.be
- **Neurology:** De TIEGE Xavier. xdetiege@ulb.ac.be

- **Gastroenterology:** DEVIERE Jacques. jdeviere@ulb.ac.be
- **Diabetes:** IGOILLO-ESTEVE Mariana. migoillo@ulb.ac.be

Méthode(s) d'évaluation

Examen oral et Projet

Méthode(s) d'évaluation (complément)

The evaluation of the course will be done through:

- **The preparation of an inverted class** in a particular translational research topic. This is a group work in which the students will prepare a lecture, under the supervision of the expert in the topic, that they will present to the rest of the class. All the group members must participate in the presentation that will be followed by a Q&A session by the students. During this presentation the expert in the topic will play the role of moderator. This work will be evaluated. A score on 20 will be given and it will account for 30 % of the total points of this teaching unit.
- **The preparation of a translational research project.** The students will be requested to plan a Translational research proposal aiming to develop a novel therapeutic or diagnostic approach, taking as starting point a given clinical problem belonging to one of the 6 Selected Disease Areas studied during the course.

The different subjects for the evaluation will be proposed to the students on the last week of February. They will be requested to inform Mme Igoillo-Esteve about their choice at latest by March 5th .

For the evaluation, the students will be requested to prepare a written proposal (ideally in English) of 6 to 10 pages excluding references, including the points below (a-i) and to present their project orally (oral presentation with electronic support, ideally in English) followed by a discussion with faculty and fellow students. The Evaluation will take place at the end of April (the exact date will be confirmed in February). The written proposal needs to be sent electronically Mme Igoillo-Esteve: migoillo@ulb.ac.be at latest by April 15th .

The expected contents of the proposal can be found at the Virtual University

IMPORTANT: The students MUST attend minimum 80% the courses to be able to present their research proposal. No more than 1 absence to a same disease area will be accepted unless justified by a medical certificate. **The non-justified absence to more than 20% of the courses will block the validation of the full unit.**

Construction de la note (en ce compris, la pondération des notes partielles)

- **Inverted class:** 30% of the total points
- **Translational Research project :** 70 % of the total points of the module from which:.

40% of the points will be allocated to the written proposal.

Particular attention will be given to:

- The form:
- the visual presentation,

➤ spelling and syntax.

➤ The Content:

- Aim/Hypothesis
- Methodology
- Translational aspects
- Expected results
- Discussion
- References

30% of the points will be allocated to the oral presentation and discussion. Particular attention will be paid to:

- The structure of the presentation
- The clarity of the presentation
- The capability of the student to discuss the proposed program (VERY IMPORTANT)

Langue(s) d'évaluation principale(s)

Anglais

Autre(s) langue(s) d'évaluation éventuelle(s)

Français

Programmes

Programmes proposant ce cours à la faculté de Médecine

MA-BIMED | Master en sciences biomédicales | finalité Spécialisée/
bloc 2