



KATHOLIEKE UNIVERSITEIT  
**LEUVEN**

Doctoral School Biomedical Sciences

Understanding life  
for a healthier world

Leuven International Doctoral  
School Biomedical Sciences





The Leuven International Doctoral School Biomedical Sciences is a lively community counting over 900 PhD students, more than 250 promoters and a dedicated administrative staff. Together we share the ambition to:

- Train **biomedical researchers** to explore the fundamentals of living systems at all levels - from gene to cell, body and mind - and to leverage that knowledge to improve human health. By nurturing today's researchers the doctoral school contributes to a healthier world tomorrow.
- Provide an integrated **framework for doctoral training** that includes basic biomedical research, clinical research and public health research. We believe in the cross-fertilisation between disciplines and technologies and between health care professionals and scientists. We encourage PhD students to dynamically explore the link between health and disease.
- Give PhD students the opportunity to follow the doctoral training which will allow them to acquire the academic, technical, communicative, personal and other skills that are needed to successfully complete the project. Research-based training is the core of the doctoral education. In addition, there is also formal and informal teaching via seminars, workshops and other course components. These **skills** are transferable and **prepare for a future career** inside or outside academia.
- Offer **career perspectives** for doctoral graduates in different sectors. Researchers aspiring for a career in biomedical sciences will find a stimulating environment in Leuven to fulfill their ambitions.

We encourage PhD students to finalise their doctoral training and research within a period of four years. The doctoral degree is conferred after a public defense of the PhD thesis. We look forward to meet you in Leuven.

*Karin Sipido, Research Coordinator Biomedical Sciences*  
*Jan Eggmont, Director Doctoral School Biomedical Sciences*

For more information about our skills training, go to:  
<https://gbiomed.kuleuven.be/phd/skills.html>



## Doctoral School Programmes

The doctoral school comprises the doctoral programmes in the Faculties of Medicine, Pharmaceutical Sciences and Kinesiology and Rehabilitation Sciences. Doctoral training and research are structured around eleven interdisciplinary programmes led by internationally recognized scientists.

Each programme organizes a set of training activities consisting of courses, invited lectures, journal clubs and seminars that stimulate PhD students to broaden their scientific horizon and to gain specific expertise in their domain. PhD students who are affiliated with a specific programme, are expected to attend all programme-based training activities that are an inherent part of their doctoral training.

More information regarding all the programmes can be found on the website: [http://gbiomed.kuleuven.be/phd/PhD\\_Students/dsp.html](http://gbiomed.kuleuven.be/phd/PhD_Students/dsp.html)

## Cancer

The mission of the cancer programme is to train our graduate students to become tomorrow's successful cancer researchers and oncologists. At the K.U.Leuven and its associated University Hospital, more than 50 clinical and research teams are focusing on one or more aspects of cancer research. The training programme consists of a mixture of interdisciplinary teaching activities and offers a forum to keep abreast of key developments in the broad field of cancer research. [www.med.kuleuven.be/cancer](http://www.med.kuleuven.be/cancer)

## Cell Signaling and Therapeutics

This PhD programme offers young scientists a thorough training in cell signaling and encourages them to translate novel insights in cell signaling into a medical context. It connects high-profile basic research on cell signaling at the cell membrane, in the cytoplasm and in the nucleus, with current and future therapies in signaling-related diseases.

## Cognitive and Molecular Neuroscience

This doctoral programme includes neuroscience research at all levels of integration, molecular, neuronal and systemic, in health and disease, in humans and animals, in biological and artificial systems. The programme offers a wide range of topics studied in humans, animal models or computational models that are analyzed at the molecular, cellular or system level.

## Drug Design and Development: from Target to Market

The main objective is to train PhD students in up-to-date topics in pharmaceutical sciences and to expose them to the challenges experienced during contemporary drug discovery and development. This includes drug design and modelling, (bio)analysis of drugs, toxicology, visualisation techniques, biotechnology, preclinical, clinical pharmacology and pharmacokinetics, pharmaco-economy and intellectual property rights.

## Emerging Concepts in Cardiovascular Medicine

In this programme, selected novel advances in cardiovascular research and medicine are highlighted. The programme covers *in vitro* and *in vivo* research in the cardiac and vascular biology field, with a strong translational perspective (bench-to-bedside), including gene and stem cell therapies. Integration of state-of-the-art gene/genome and downstream transcriptome or proteome technologies is strongly emphasized.

## Immunology and Microbiology

An interdepartmental advanced teaching programme in immunology and microbiology is provided, encompassing current aspects in the field of virology, bacteriology and parasitology, molecular and cellular immunology, transplantation immunology, tumor vaccination immunology, allergic inflammation and autoimmunity.

## Exercise and Physical Activity in Health and Disease

The main objective of this programme is to provide a thorough training for PhD students working in the field of exercise, physical activity and rehabilitation. It aims at facilitating and encouraging cross talk between fundamental and applied research in movement, exercise and physical activity in the areas of prevention, disease and physical and mental health.



## Mechanisms of Human Disease

This programme follows a “top-down” approach, where observations of human disease generate questions to be studied at the level of healthy volunteers, animal models and in vitro systems. The research groups involved in this programme conduct both basic and clinical research. This integration offers a unique setting for translational research.

## Molecular and Developmental Genetics

The programme emphasizes the discovery of genetic and molecular principles that regulate the development, function and pathology of living systems. The programme is supported by research units that combine genetic approaches in humans and model organisms (fruitfly, zebrafish, mouse) with cutting-edge embryological, cellular, molecular and computational approaches.

## Molecular and Stem Cell Medicine

Molecular and cellular therapy holds promise to provide therapies for a wide variety of diseases. This programme focuses on research approaches that apply breakthroughs in basic biomedical research and biotechnology to the development of new drug, gene, or stem cell therapeutics and related diagnostics.

## Patient Related and Public Health Research

We focus on research concerning individual patients, groups of patients or health care workers. The programme covers the whole spectrum of medical disorders, but focuses at the level of the patient, the population and/or the society. Contrary to the Mechanisms of Human Disease programme, research at the level of healthy volunteers, animal models and in vitro systems is not included here.

## **DOCTORAL SCHOOL BIOMEDICAL SCIENCES**

Campus Gasthuisberg, O&N2  
Herestraat 49 P.O.Box 700  
BE-3000 Leuven  
Tel. + 32 16 33 02 27  
Fax + 32 16 33 02 12

phd@gbiomed.kuleuven.be  
<http://gbiomed.kuleuven.be/phd>

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