

# Postgraduate Certificate Clinical Genetics in Cardiovascular Diseases



## Postgraduate Certificate Clinical Genetics in Cardiovascular Diseases

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 6 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/us/medicine/postgraduate-certificate/clinical-genetics-cardiovascular-diseases](http://www.techtute.com/us/medicine/postgraduate-certificate/clinical-genetics-cardiovascular-diseases)

# Index

01

Introduction

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*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

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*p. 28*

# 01

# Introduction

The great development of cardiogenetics in recent years has led to the redefinition of numerous heart diseases with the consequent change in therapeutic management. In modern medicine, a complete knowledge of the genetic and pathophysiological basis of these diseases is essential. This training combines the fundamental bases of molecular biology, genetics, cardiac imaging, electrophysiology and clinical cardiology for a comprehensive practical and applied view of inherited cardiovascular diseases.



A close-up photograph of a person wearing a white lab coat and a green surgical mask, operating a white sewing machine. The person's hands are visible near the needle and foot of the machine. The background is dark and out of focus.

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*A Postgraduate Certificate that will allow you to acquire the management of hereditary-based cardiovascular diseases with knowledge of their genetic and pathophysiological bases"*

This module provides a comprehensive understanding of cardiogenetics and existing genetic testing in the context of cardiovascular diseases affecting the heart. We review the current status of clinical genetic testing for the most common channelopathies, cardiomyopathies (hypertrophic, dilated and noncompaction) and vascular syndromes. We will present practical cases of the different cardiovascular conditions of genetic cause, their management, their transmission and practical exercises of diagnosis in families affected by these diseases and syndromes.



*A specialty of notable interest for the medical professional that you will be able to acquire efficiently through this Postgraduate Certificate"*

This **Postgraduate Certificate in Clinical Genetics in Cardiovascular Diseases** offers you the characteristics of a Postgraduate Certificate of high scientific, teaching and technological level. These are some of its most notable features:

- ♦ Latest technology in online teaching software
- ♦ Highly visual teaching system, supported by graphic and schematic contents that are easy to assimilate and understand
- ♦ Practical cases presented by practising experts
- ♦ State-of-the-art interactive video systems
- ♦ Teaching supported by telepractice
- ♦ Continuous updating and recycling systems
- ♦ Self-regulating learning: Full compatibility with other occupations
- ♦ Practical exercises for self-evaluation and learning verification
- ♦ Support groups and educational synergies: questions to the expert, debate and knowledge forums
- ♦ Communication with the teacher and individual reflection work
- ♦ Content that is accessible from any fixed or portable device with an Internet connection
- ♦ Supplementary documentation databases are permanently available, even after the course

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*A training that will show you the practical methodology in the collection of information and its interpretation to create a diagnosis supported by genetic evidence”*

This program has been developed by professionals from different clinical genetics offices in which they contribute their experience in daily practice, in the care of patients and families with a variety of hereditary disorders, both in genetic counseling and in prevention programs and prenatal and preconception counseling. The faculty involved in the Postgraduate Certificate also carries out important research tasks relevant to the field of Genetics.

The program of this Postgraduate Certificate addresses in its different modules the basic and necessary knowledge for the management of patients and their diseases in a Clinical Genetics practice. It offers a practical approach to the different techniques most commonly used for the diagnosis of hereditary diseases, as well as the interpretation of their results. It offers an approach to the diseases that cause the highest number of consultations in daily practice in a Clinical Genetics service.

This Postgraduate Certificate contains a theoretical text of the subject to be addressed, practical examples extracted from clinical cases that will help the understanding and deepening of knowledge.

*This Postgraduate Certificate 100% online and will enable you to combine your studies while increasing your knowledge in this field.*





# 02 Objectives

Currently not all hospitals have genetics units, and it is foreseeable that all healthcare centers will have genetics units in the coming years. Students in this program will deepen the knowledge required to work as clinical geneticists both in the field of diagnosis and counseling in these units or to be part of multidisciplinary groups of medical services, where patients with hereditary diseases are treated.









## General Objectives

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- ◆ Knowledge of the historical evolution of knowledge in the area of genetics.
- ◆ Learn the use of genetic analysis for diagnostic purposes
- ◆ Approaching cardiogenetics
- ◆ Learn about all known hereditary cancer syndromes
- ◆ Recognize genetic diseases affecting the sensory organs and know how to manage them
- ◆ Detail the molecular basis and mechanisms for the diagnosis of endocrine diseases
- ◆ Know the genetic diseases affecting the central and peripheral nervous system
- ◆ Learn about genetic nephrourological diseases, such as Fabry disease or Alport Syndrome
- ◆ Addressing the different major pediatric diseases
- ◆ Review hematological, metabolic and deposit, cerebral and small vessel diseases.





## Specific Objectives

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- ◆ Acquire knowledge about the importance of familial heart disease in the context of cardiovascular disease
- ◆ Delve into the aspects of familial heart disease: basic genetics, relevant aspects on diagnosis and prognosis of the different hereditary cardiomyopathies: hypertrophic, dilated, noncompaction and arrhythmogenic
- ◆ Delve into relevant aspects of aortic syndromes



*Update your knowledge through the Postgraduate Certificate in Clinical Genetics in Cardiovascular Diseases”*



03

# Course Management

For our course to be of the highest quality, we are proud to work with a teaching staff of the highest level, chosen for their proven track record. Professionals from different areas and fields of expertise that make up a complete, multidisciplinary team. A unique opportunity to learn from the best.



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*A Postgraduate Certificate created and directed by experts in Clinical Genetics that will take you through the most up-to-date and complete knowledge and will give you the real and contextual vision of this area of work"*

## International Guest Director

With an outstanding scientific career in the field of Molecular Genetics and Genomics, Dr. Deborah Morris-Rosendahl has devoted herself to the analysis and diagnosis of specific pathologies. Based on her excellent results and prestige, she has taken on professional challenges such as directing the NHS South East Genomic Laboratory Hub in London.

The research of this world-class expert has focused on the identification of novel disease-causing genes for both single-gene disorders and complex neuropsychiatric conditions. Her particular interest in neuroevolutionary processes has led her to determine genotype-phenotype associations, various cortical developmental conditions, and to refine genotype-phenotype correlations for Lissencephaly, Primary Microcephaly and Microcephaly Syndromes.

She has also turned her attention to inherited cardiac and respiratory conditions, areas in which her laboratory is charged with specialized testing. On the other hand, her team has been dedicated to designing cutting-edge methodologies to offer innovative genomic diagnostics, consolidating her reputation as a leader in this field globally.

Dr. Morris-Rosendahl began her education in science at the University of Cape Town, where she obtained an honors degree in Zoology. To continue her studies, she joined the Mammalian Research Institute at the University of Pretoria. With the advent of recombinant DNA technology, she immediately redirected her efforts to Human Genetics, completing her PhD in that field at the South African Institute of Medical Research and the University of the Witwatersrand.

However, she has carried out postdoctoral research in South Africa, the United States and Germany. In Germany, she became Director of the Diagnostic Laboratory of Molecular Genetics at the Institute of Human Genetics, University Medical Center Freiburg. Recently, she has been collaborating with several multidisciplinary teams in the UK.





## Dra. Deborah Morris-Rosendahl

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- ♦ Scientific Director of the NHSE South East Genomic Laboratory Hub, London, UK
- ♦ Asmarley Principal Investigator in the Molecular Genetics and Genomics Group at the British Heart and Lung Institute
- ♦ Scientific Director, Genomic Innovation Unit, Guy's and St. Thomas' NHS Foundation Trust, UK
- ♦ Head of Clinical Genetics and Genomics Laboratory, Royal Brompton and Harefield Hospitals Clinical Group, UK
- ♦ Head of the Molecular Genetics Diagnostic Laboratory at the Institute of Human Genetics, University Medical Center Freiburg, Germany
- ♦ Research Fellow at the Institute of Mammalian Research, University of Pretoria
- ♦ Postdoctoral Fellow at Baylor College of Medicine, Houston, Texas, United States
- ♦ Postdoctoral stay awarded the Alexander von Humboldt Research Fellowship
- ♦ Doctorate in Human Genetics at the South African Institute of Medical

- Research and the University of the Witwatersrand
- ♦ B.Sc. in Zoology at the University of Cape Town

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*Thanks to TECH, you will be able to learn with the best professionals in the world”*

## Management



### Dr. S. Tahsin Swafiri Swafiri, M.D.

- ◆ Degree in Medicine and General Surgery (University of Extremadura - Badajoz)
- ◆ Specialist in Clinical Biochemistry and Molecular Pathology (Puerta de Hierro University Hospital, Majadahonda)
- ◆ Master's Degree in Rare Diseases (University of Valencia)
- ◆ Positions
- ◆ Attending physician in Clinical Genetics at the University Hospitals of Infanta Elena, Rey Juan Carlos I, Fundación Jiménez Díaz and General de Villalba
- ◆ Associate Professor of Genetics at the Francisco de Vitoria University School of Medicine (Pozuelo de Alarcón- Madrid)
- ◆ Health Research Institute - Jiménez Diaz Foundation University Hospital

## Professors

### Dr. Lorda Sánchez, Isabel María

- ◆ Degree in Medicine and Surgery from the University of Zaragoza. 1988
- ◆ Doctor of Medicine from the University of Zurich. 1991
- ◆ Validated in 1993
- ◆ Personal Professional Accreditation in Human Genetics (AEGH)
- ◆ Certifications
- ◆ Member of the Spanish Association of Human Genetics (AEGH).
- ◆ Member of the European Cytogenetics Association (ECA)

### Dr. Fernández San José, Patricia

- ◆ Pharmacist Specialized in Clinical Biochemistry
- ◆ Specialist in the Genetics Department of the Ramón y Cajal University Hospital in Madrid
- ◆ Specialized in the diagnosis of diseases of genetic origin highlighting familial heart disease, erythropathology and autoinflammatory syndromes
- ◆ As a collaborator, she belongs to CIBERER unit U728, to the RareGenomics Network and has her own line of research in Autoinflammatory Diseases within the framework of the Ramón y Cajal Institute of Health Research (IRYCIS)

**Dr. Lorda Sánchez, Isabel María**

- ♦ Adjunct Physician at the Genetics Service of the Jimenez Diaz Foundation since January 1999 (20 years)
- ♦ Degree in Medicine and Surgery from the University of Zaragoza. 1988
- ♦ Doctor of Medicine from the University of Zurich. 1991
- ♦ Validated in 1993
- ♦ Personal Professional Accreditation in Human Genetics (AEGH)
- ♦ Certifications
- ♦ Member of the Spanish Association of Human Genetics (AEGH)
- ♦ Member of the European Cytogenetics Association (ECA)

**Dr. Almoguera Castillo, Berta**

- ♦ D. in Genetics and Cell Biology. Juan Rodés Researcher (JR17/00020; ISCIII) at the Genetics Service of the Jiménez Díaz Foundation. Madrid
- ♦ 2011: D. in Genetics and Cell Biology. Madrid Autonomous University Thesis Title: "Utility of pharmacogenetics to predict the efficacy and safety of risperidone in the treatment of schizophrenia." Directors: Dr. Carmen Ayuso and Dr. Rafael Dal-Ré
- ♦ 2009: Specialized Health Training (FSE) in Clinical Biochemistry. Puerta de Hierro University Hospital, Madrid
- ♦ 2007: Diploma of Advanced Studies with the title "Molecular characterization of mitochondrial diseases with predominant phenotypic expression in cardiac muscle" directed by the Dr. Belén Bornstein Sánchez. Complutense University of Madrid
- ♦ 2018-Present: Juan Rodés Researcher (JR17/00020; ISCIII) at the Genetics Service of the Jiménez Díaz Foundation. Madrid
- ♦ 2015 - 2018: Research Scientist at the Center for Applied Genomics, The Children's Hospital of Philadelphia (USA) W

**Dr. Blanco Kelly, Fiona**

- ♦ Adjunct physician of the genetics service of the Jiménez Diaz Foundation University Hospital. Institute for Health Research-FJD
- ♦ Adjunct Physician (Area Specialist) of the Genetics Service of the Jiménez Diaz Foundation University Hospital.
- ♦ Degree in Medicine and Surgery from the Faculty of Medicine of the Complutense University of Madrid (2004)
- ♦ Area Specialist in Clinical Biochemistry since 2009.
- ♦ Doctorate in Medicine in 2012
- ♦ Professional Master's Degree in Rare Diseases, University of Valencia, Valencia, Spain 2017.
- ♦ Postdoctoral Course: University Expert in Clinical Genetics of the University of Alcalá de Henares, Madrid, Spain 2009
- ♦ Honorary Research Associate at the Institute of Ophthalmology (IoO), University College London (UCL), London, UK (01/2016-31/12/2020)
- ♦ Secretary of the Training and Dissemination Commission of the Spanish Association of Human Genetics



*The best professionals are at the best university. Don't miss the opportunity to train with them"*

# 04

## Structure and Content

The contents of this training have been developed by the different experts of this Postgraduate Certificate, with a clear purpose: To ensure that our students acquire each and every one of the necessary skills to become true experts in this field.

A complete and well-structured program that will take you to the highest standards of quality and success. Expert patients participate in the preparation of the program, which adds a very original and close perspective, with real cases and situations that are not only clinical but also social. It has a holistic perspective, not just a medical one, making it of interest to healthcare professionals of any kind.





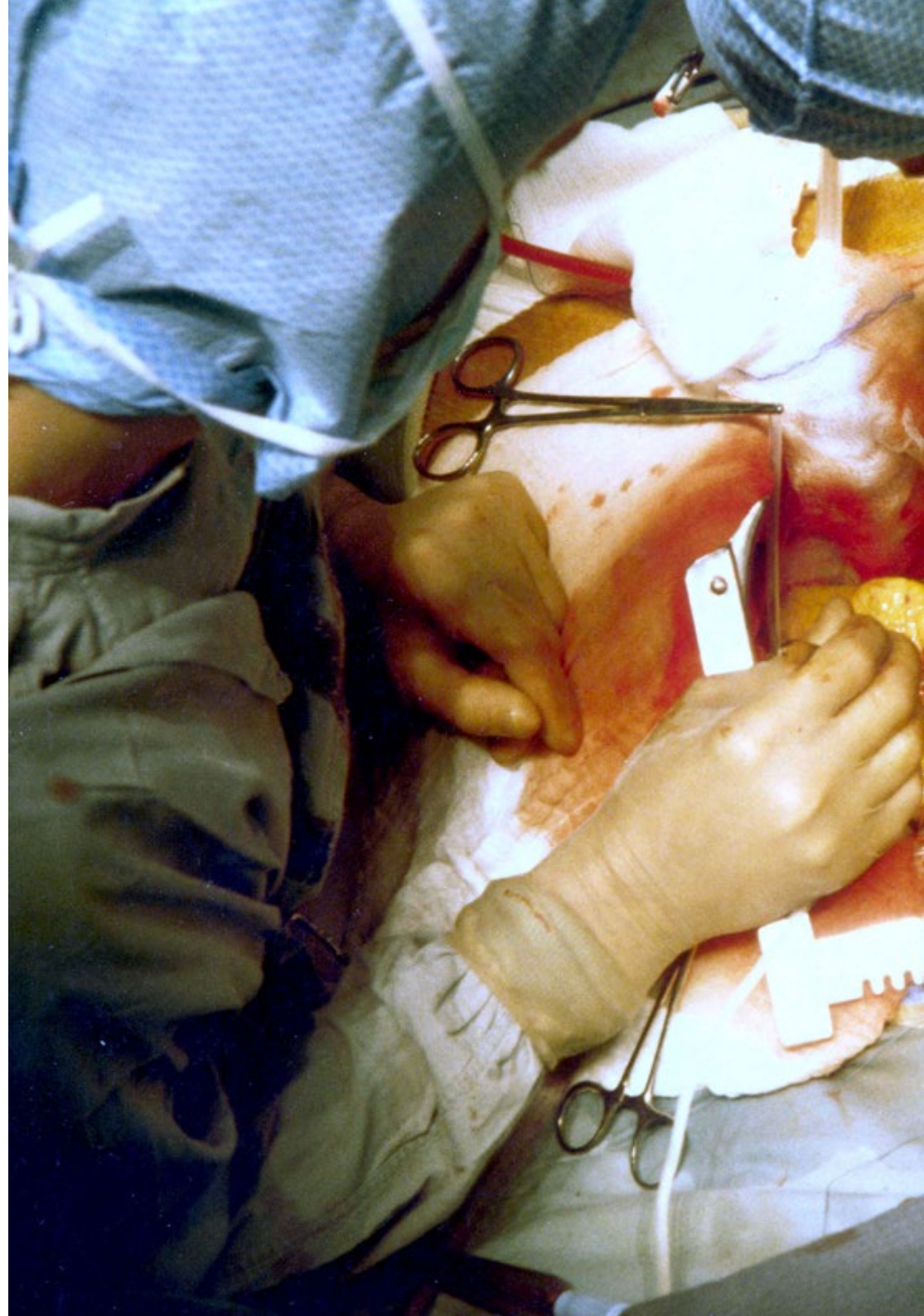


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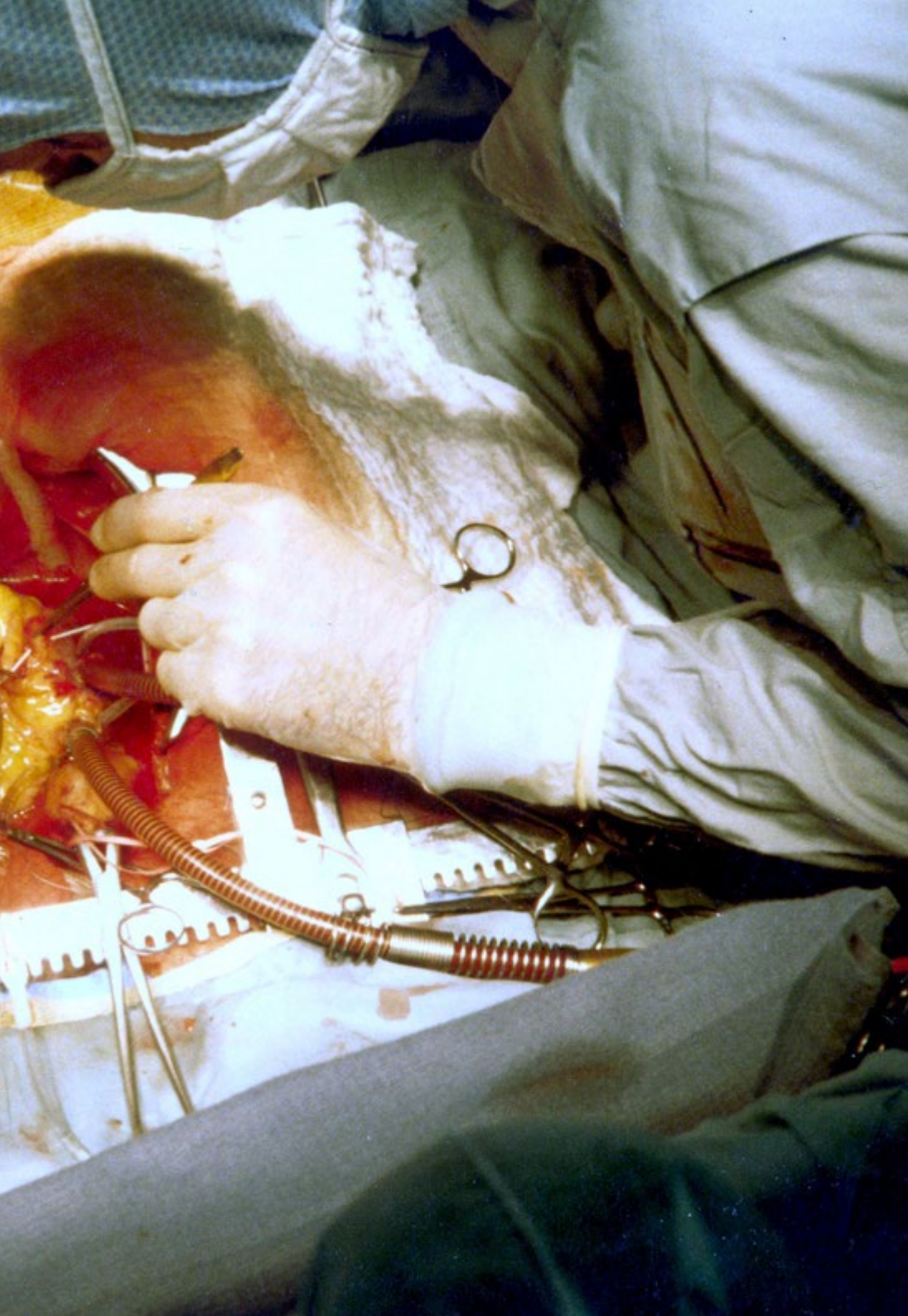
*A comprehensive compendium of knowledge that will allow you to advance your skills in the area of cardiovascular disease by incorporating the information that genetics can bring to the approach"*

## Module 1. Cardiovascular Diseases

- 1.1. Familial Hypertrophic Cardiomyopathy
- 1.2. Arrhythmogenic Cardiomyopathy of the Right Ventricle
- 1.3. Familial Dilated Cardiomyopathy
- 1.4. Left Ventricular Non-Compaction Cardiomyopathy
- 1.5. Aortic Aneurysms
  - 1.5.1. Marfan Syndrome
  - 1.5.2. Loeys-Dietz Syndrome
- 1.6. Long QT Syndrome
- 1.7. Brugada Syndrome
- 1.8. Catecholaminergic Polymorphic Ventricular Tachycardia
  - 1.8.1. Idiopathic Ventricular Fibrillation
- 1.9. Short QT syndrome
- 1.10. Genetics of Congenital Malformations in Cardiology







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*A very complete teaching program, structured in didactics organized to achieve fast and effective learning, with a focus on practical application"*

# 05

# Methodology

This training program provides you with a different way of learning. Our methodology uses a cyclical learning approach: ***Re-learning***.

This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the ***New England Journal of Medicine*** have considered it to be one of the most effective.





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*Discover Re-learning, a system that abandons conventional linear learning, to take you through cyclical teaching systems: a way of learning that has proven to be extremely effective, especially in subjects that require memorization"*

## At TECH we use the Case Method

What should a professional do in a given situation? Throughout the program, students will face multiple simulated clinical cases, based on real patients, in which they will have to do research, establish hypotheses, and ultimately resolve the situation. There is an abundance of scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you will experience a way of learning that is shaking the foundations of traditional universities around the world.*



According to Dr. Gérvas, the clinical case is the annotated presentation of a patient, or group of patients, which becomes a "case", an example or model that illustrates some peculiar clinical component, either because of its teaching power or because of its uniqueness or rarity. It is essential that the case is based on current professional life, trying to recreate the real conditions in the physician's professional practice.

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*Did you know that this method was developed in 1912, at Harvard, for law students? The case method consisted of presenting students with real-life, complex situations for them to make decisions and justify their decisions on how to solve them. In 1924, Harvard adopted it as a standard teaching method”*

The effectiveness of the method is justified by four fundamental achievements:

1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts are understood more efficiently, given that the example situations are based on real-life.
4. Students like to feel that the effort they put into their studies is worthwhile. This then translates into a greater interest in learning and more time dedicated to working on the course.



## Re-learning Methodology

At TECH we enhance the Harvard case method with the best 100% online teaching methodology available: Re-learning.

This university is the first in the world to combine the study of clinical cases with a 100% online learning system based on repetition, combining a minimum of 8 different elements in each lesson, a real revolution with respect to the mere study and analysis of cases.



*Professionals will learn through real cases and by resolving complex situations in simulated learning environments. These simulations are developed using state-of-the-art software to facilitate immersive learning.*



At the forefront of world teaching, the Re-learning method has managed to improve the overall satisfaction levels of professionals who complete their studies, with respect to the quality indicators of the best online university (Columbia University).

With this methodology, more than 250.000 physicians have been trained with unprecedented success in all clinical specialties regardless of surgical load. Our pedagogical methodology is developed in a highly competitive environment, with a university student body with a strong socioeconomic profile and an average age of 43.5 years old.

*Re-learning will allow you to learn with less effort and better performance, involving you more in your specialization, developing a critical mindset, defending arguments, and contrasting opinions: a direct equation to success.*

In our program, learning is not a linear process, but rather a spiral (learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

The overall score obtained by TECH's learning system is 8.01, according to the highest international standards.



This program offers the best educational material, prepared with professionals in mind:



#### Study Material

All teaching material is produced by the specialists who teach the course, specifically for the course, so that the teaching content is highly specific and precise.

These contents are then applied to the audiovisual format, to create the TECH online working method. All this, with the latest techniques that offer high quality pieces in each and every one of the materials that are made available to the student.



#### Surgical Techniques and Procedures on Video

TECH introduces students to the latest techniques, the latest educational advances and to the forefront of current medical techniques. All of this in direct contact with students and explained in detail so as to aid their assimilation and understanding. And best of all, you can watch the videos as many times as you like.



#### Interactive Summaries

The TECH team presents the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

This exclusive multimedia content presentation training Exclusive system was awarded by Microsoft as a "European Success Story".



#### Additional Reading

Recent articles, consensus documents and international guidelines, among others. In TECH's virtual library, students will have access to everything they need to complete their course.





#### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, TECH presents real cases in which the expert will guide students, focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.



#### Testing & Retesting

We periodically evaluate and re-evaluate students' knowledge throughout the program, through assessment and self-assessment activities and exercises: so that they can see how they are achieving your goals.



#### Classes

There is scientific evidence on the usefulness of learning by observing experts: The system termed Learning from an Expert strengthens knowledge and recall capacity, and generates confidence in the face of difficult decisions in the future.



#### Quick Action Guides

TECH offers the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help students progress in their learning.



06

# Certificate

This Postgraduate Certificate in Clinical Genetics in Cardiovascular Diseases guarantees you, in addition to the most rigorous and up-to-date training, access to a Postgraduate Certificate issued by TECH Global University.





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*Successfully complete this training and receive your university degree without travel or laborious paperwork”*

This program will allow you to obtain your **Postgraduate Certificate in Clinical Genetics in Cardiovascular Diseases** endorsed by **TECH Global University**, the world's largest online university.

**TECH Global University** is an official European University publicly recognized by the Government of Andorra ([official bulletin](#)). Andorra is part of the European Higher Education Area (EHEA) since 2003. The EHEA is an initiative promoted by the European Union that aims to organize the international training framework and harmonize the higher education systems of the member countries of this space. The project promotes common values, the implementation of collaborative tools and strengthening its quality assurance mechanisms to enhance collaboration and mobility among students, researchers and academics.

This **TECH Global University** title is a European program of continuing education and professional updating that guarantees the acquisition of competencies in its area of knowledge, providing a high curricular value to the student who completes the program.

Title: **Postgraduate Certificate in Clinical Genetics in Cardiovascular Diseases**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**







**Postgraduate Certificate**  
Clinical Genetics in  
Cardiovascular Diseases

- » Modality: online
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- » Credits: 6 ECTS
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