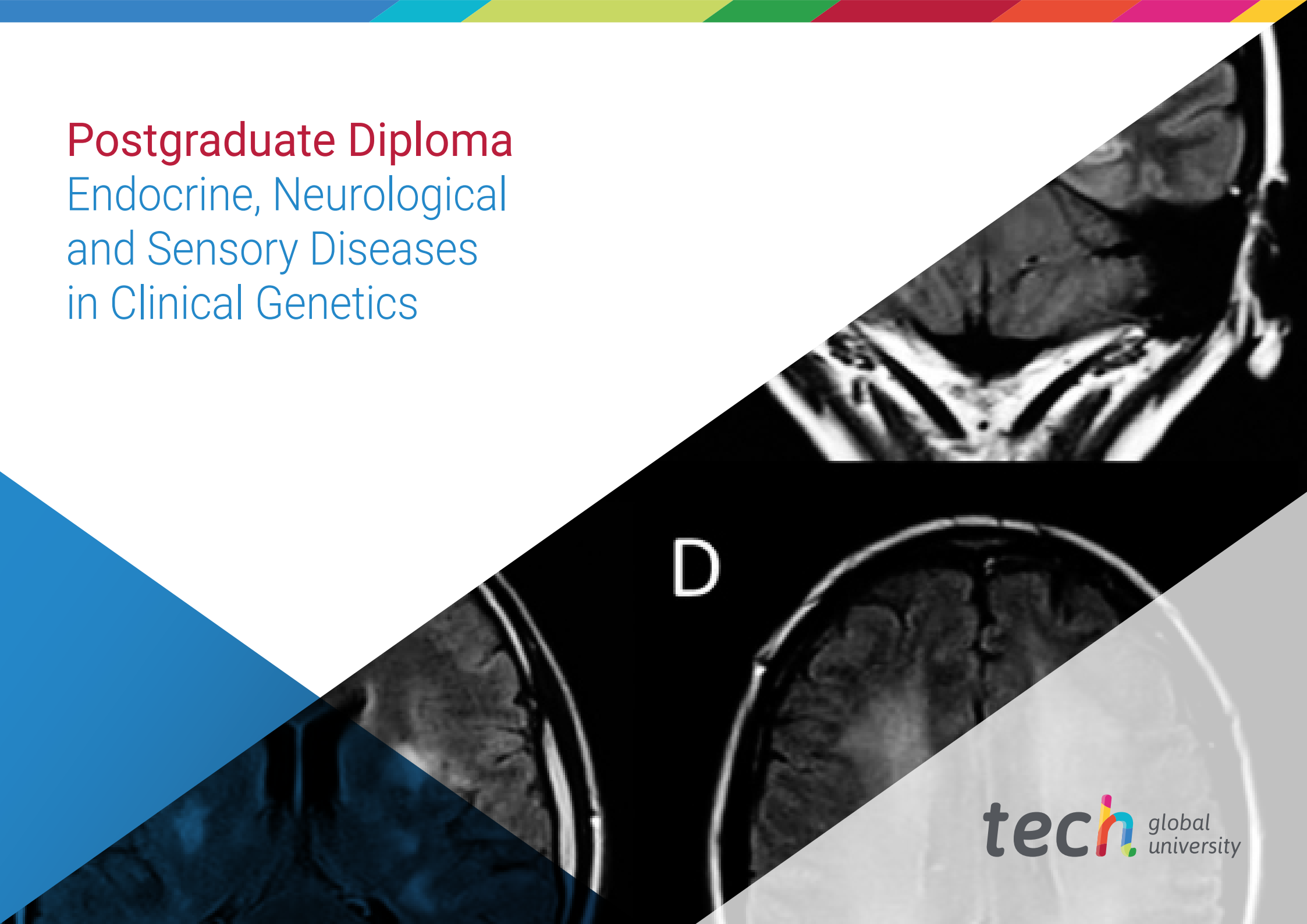
# Postgraduate Diploma

## Endocrine, Neurological and Sensory Diseases in Clinical Genetics



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# Postgraduate Diploma
## Endocrine, Neurological and Sensory Diseases in Clinical Genetics

- Modality: **online**
- Duration: **6 months**
- Certificate: **TECH Global University**
- Credits: **18 ECTS**
- Schedule: **at your own pace**
- Exams: **online**

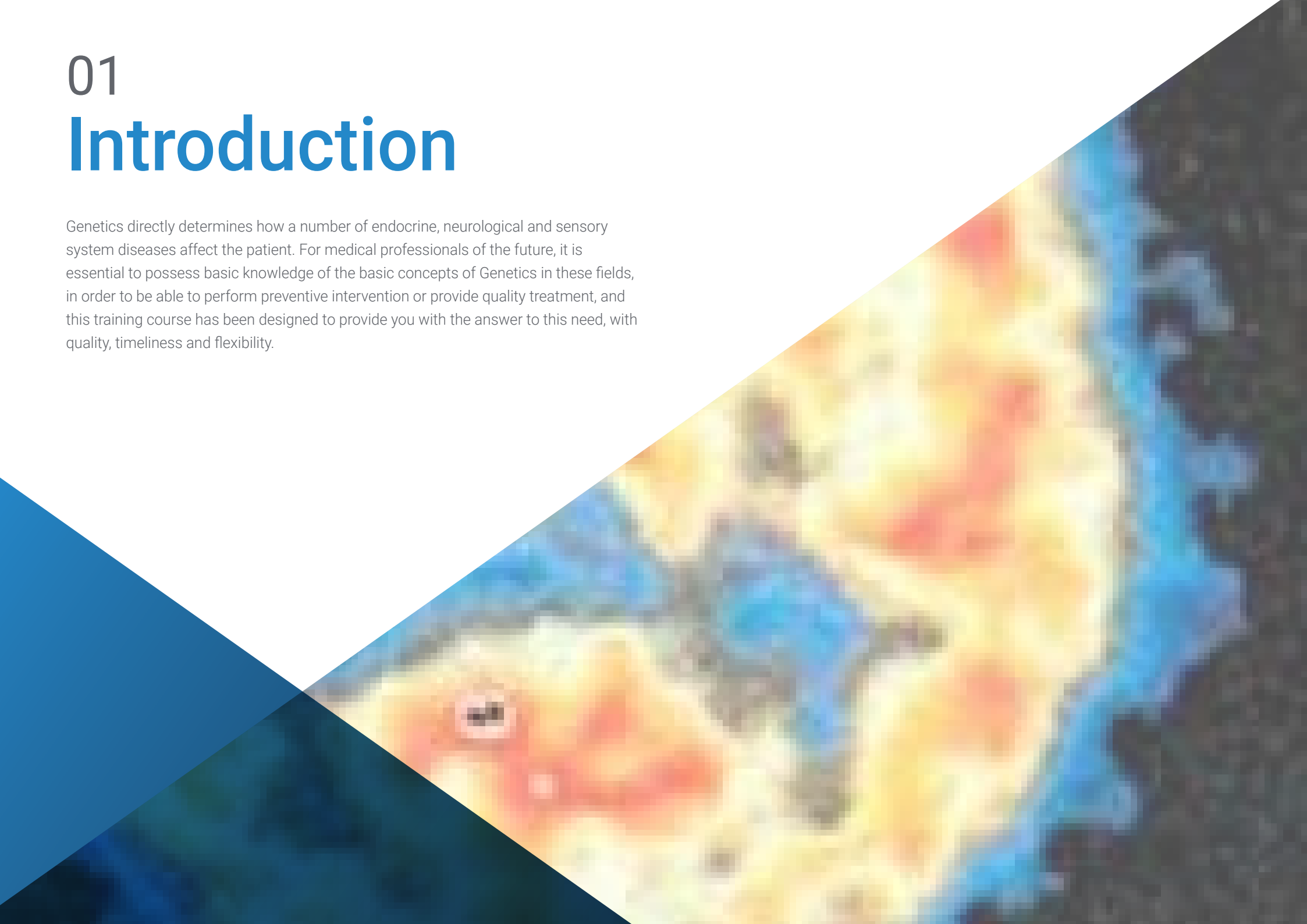
**Website:** www.techtitute.com/medicine/postgraduate-diploma/postgraduate-diploma-endocrine-neurological-sensory-diseases-clinical-genetics

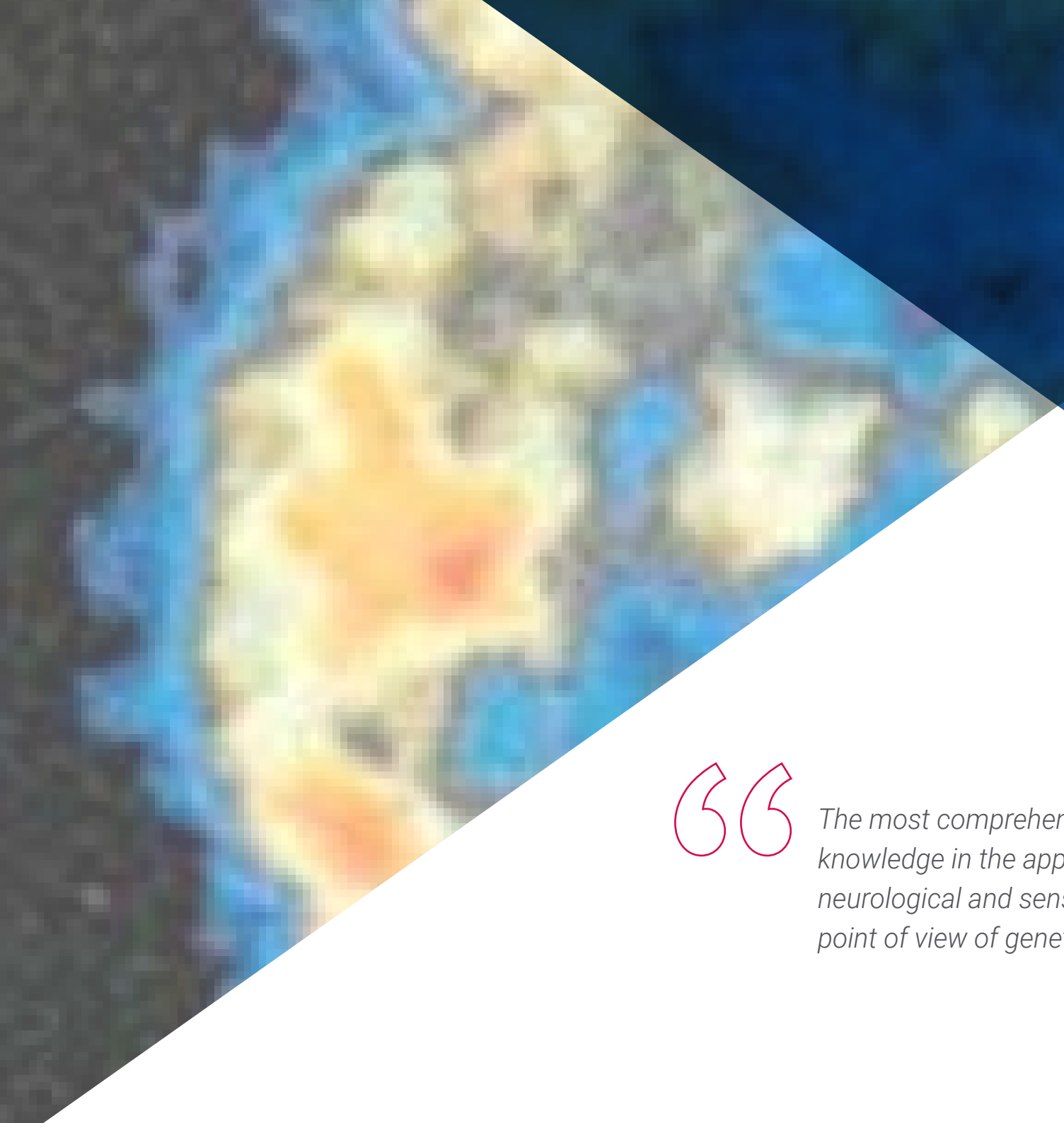
# Index

01

# Introduction

Genetics directly determines how a number of endocrine, neurological and sensory system diseases affect the patient. For medical professionals of the future, it is essential to possess basic knowledge of the basic concepts of Genetics in these fields, in order to be able to perform preventive intervention or provide quality treatment, and this training course has been designed to provide you with the answer to this need, with quality, timeliness and flexibility.





*The most comprehensive and up-to-date knowledge in the approach to endocrine, neurological and sensory diseases from the point of view of genetics as an intervention tool"*

The training program will address hereditary diseases affecting both vision and hearing, which are a group of various hereditary pathologies that are difficult to diagnose and affect a small number of people. Students will learn about the molecular basis of hereditary conditions associated with a multitude of genes that are linked to retinal dystrophies and deafness, both isolated and syndromic, their expression, and their genetic and clinical heterogeneity.

The endocrine system consists of a group of glands and organs that regulate and control various bodily functions through the production and secretion of hormones. Understanding the genetic alterations responsible for each disorder that occurs in this process will allow us to understand its molecular pathophysiology and to make more accurate diagnoses and more effective therapies.

Hereditary nervous system disorders and neurological diseases with genetic predisposition will also be reviewed. Current research indicates a genetic factor in numerous pathologies such as Parkinson's disease or dementia. Although these diseases are hereditary, symptoms often do not appear at birth and present very variable symptoms and intensity, and may also affect descendants. Therefore, for proper diagnosis or treatment and to guide and advise the family, it is important to approach the genetics of the disease correctly.

This online **Postgraduate Diploma** offers you the benefits of a high-level scientific, educational and technological course. 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.

*A specialty of notable interest for the medical professional that you will be able to acquire in an efficient way through this high-quality postgraduate diploma"*

*A training program that will show you the practical methodology that is developed in the genetic study of conditions"*

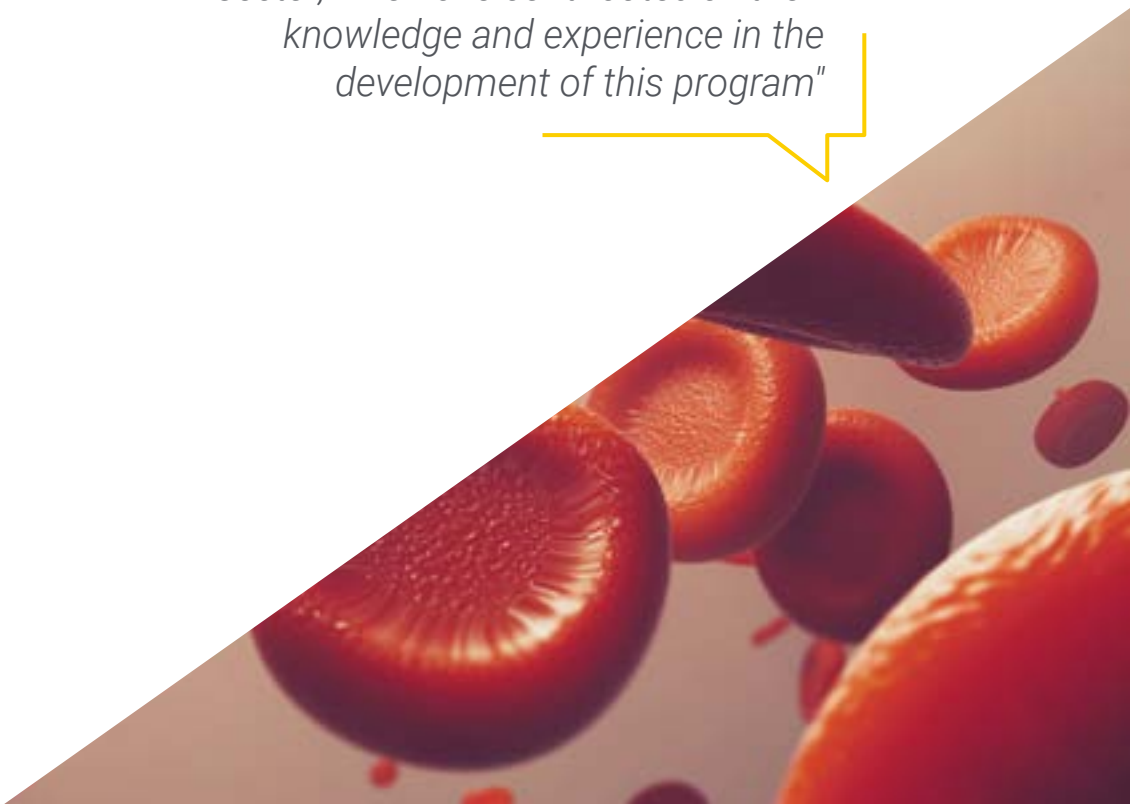
*Increase your decision-making confidence by updating your knowledge with this University Expert course.*

*You will be trained by professionals with extensive experience in the sector, who have contributed all their knowledge and experience in the development of this program"*

This program has been developed by professionals from different clinical genetics clinics 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 Diploma also carries out important research work in the field of Genetics.

The Postgraduate Diploma 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.

The diploma contains theoretical text about the subject matter, and practical examples taken from clinical cases that will facilitate understanding and the acquisition of in-depth knowledge.



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# 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.

*A high-impact course for professionals that will give you the skills you need in the approach to genetic diseases of the endocrine, neurological and sensory domains"*

## General Objectives

- Know the historical evolution of knowledge in the area of genetics.
- Learn the use of genetic analysis for diagnostic purposes.
- Learn about all known hereditary cancer syndromes.
- 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

**Module 1: Genetics of Sensory Organ Diseases**

- Comprehensive and updated learning on retinal dystrophies and sensorineural hearing loss.
- Understand in depth the genetic causes and inheritance models.
- Develop information about prognostic diagnosis and risk of disease transmission.

**Module 2: Genetics of Endocrine Diseases**

- Acquire up-to-date knowledge and learn about the characteristics of endocrine diseases, both in adults and children, associated with hereditary patterns.
- Use of clinical and analytical data to establish the differential diagnosis, from the point of view of genetics, before making the decision on the study to be performed.

**Module 3: Genetics of Neurological Diseases**

- Provide strategies for a global approach to the patient with neurological pathology of genetic origin, to guide a clinical diagnosis considering previous explorations, both analytical, immunohistochemical and electrophysiological studies already performed as well as other complementary explorations.

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# 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.

*A course created and directed by experts in clinical genetics who will take you through the most up-to-date and complete knowledge and 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

- 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

*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. Year 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.
- He works as an Area Specialist in the Genetics Service 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.
- Collaborator with the 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. Pinilla. PhD, MD, Elvira Rodríguez

- Attending Physician. Genetics Service. Jiménez Diaz Foundation University Hospital. Madrid. 2017-2020.
- Degree in Medicine and General Surgery from the Complutense University of Madrid (1972-1979).
- Doctor of Medicine and Surgery, Complutense University of Madrid (1992).
- Diploma: "Epidemiology in Action: a course for public health professional". U.S. Department of Health and Human Services. Public Health Service. Centers for Disease Control. Atlanta, Georgia (USA) (1988).
- Accredited in Human Genetics by the Spanish Association of Human Genetics. (2005).
- Puericulturist Medical Doctor. Diploma in Puericulture and Preventive Pediatrics. School of Puericulture of the Spanish Society of Puericulture: Course XXVII (87th Promotion). Course 2011- 2012.

### Dr. Kelly. PhD, MD, Fiona Blanco

- 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 Ofthalmology (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.

### Dr. Almoguera Castillo, Berta

- D. in Genetics and Cell Biology. Juan Rodés Researcher (JR17/00020; ISCIII) at the Genetics Service of the Jiménez Díaz Fundation. Madrid.
- 2011: D. in Genetics and Cell Biology. Autonomous University of Madrid. 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 Fundation. Madrid.
- 2015 - 2018: Research Scientist at the Center for Applied Genomics, The Children's Hospital of Philadelphia (USA).

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# Structure and Content

The contents of this program have been developed by the different experts of this course, with a clear purpose: to ensure that our students acquire each and every one of the skills they require to become true experts in this field.

*A comprehensive and well-structured program that will take you to the highest standards of quality and success"*

## **Module 1:** Genetics of Sensory Organ Diseases

1.1. Peripheral Retinal Dystrophies.
1.2. Central Retinal Dystrophies.
1.3. Syndromic Retinal Dystrophies.
1.4. Optic Atrophy.
1.5. Corneal Dystrophies.
1.6. Ocular Albinism.
1.7. Ocular Malformations.
1.8. Sensorineural Hearing Loss of Autosomal Dominant Recessive Inheritance.
1.9. Sensorineural Hearing Loss due to Mitochondrial Inheritance.
1.10. Syndromic Hearing Loss.

## **Module 2:** Genetics of Endocrine Diseases

2.1. Monogenic Diabetes.
2.2. Primary Hypoparathyroidism.
2.3. Familial Short Stature and Achondroplasia.
2.4. Acromegaly.
2.5. Hypogonadism.
  2.5.1. Kallmann Syndrome.
2.6. Congenital Adrenal Hyperplasia.
2.7. Genetics of Phosphocalcium Metabolism.
2.8. Familial Hypocholesterolemia.
2.9. Paraganglioma and Pheochromocytoma.
2.10. Medullary Thyroid Carcinoma.

**Module 3:** Genetics of Neurological Diseases

3.1. Peripheral Neuropathies Hereditary.
3.2. Hereditary Ataxias.
3.3. Huntington's Disease.
3.4. Hereditary Dystonia.
3.5. Hereditary Paparesis.
3.6. Muscular Dystrophies.
  3.6.1. Dystrophinopathies.
  3.6.2. Facioscapulohumeral Dstrophy.
  3.6.3. Steinert's Disease.
3.7. Myotonia Congenita.
3.8. Dementia.
  3.8.1. Alzheimers Disease.
  3.8.2. Frontotemporal Dementia.
3.9. Amyotrophic Lateral Sclerosis.
3.10. Cadasil Disease.

05

# Methodology

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

*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

In a given situation, what would you do? Throughout the program you will be presented with multiple simulated clinical cases based on real patients, where you will have to investigate, establish hypotheses and, finally, resolve the situation. There is abundant scientific evidence on the effectiveness of the method. Specialists learn better, faster, and more sustainably over time.

*With TECH you can 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 potential 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.

*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:**

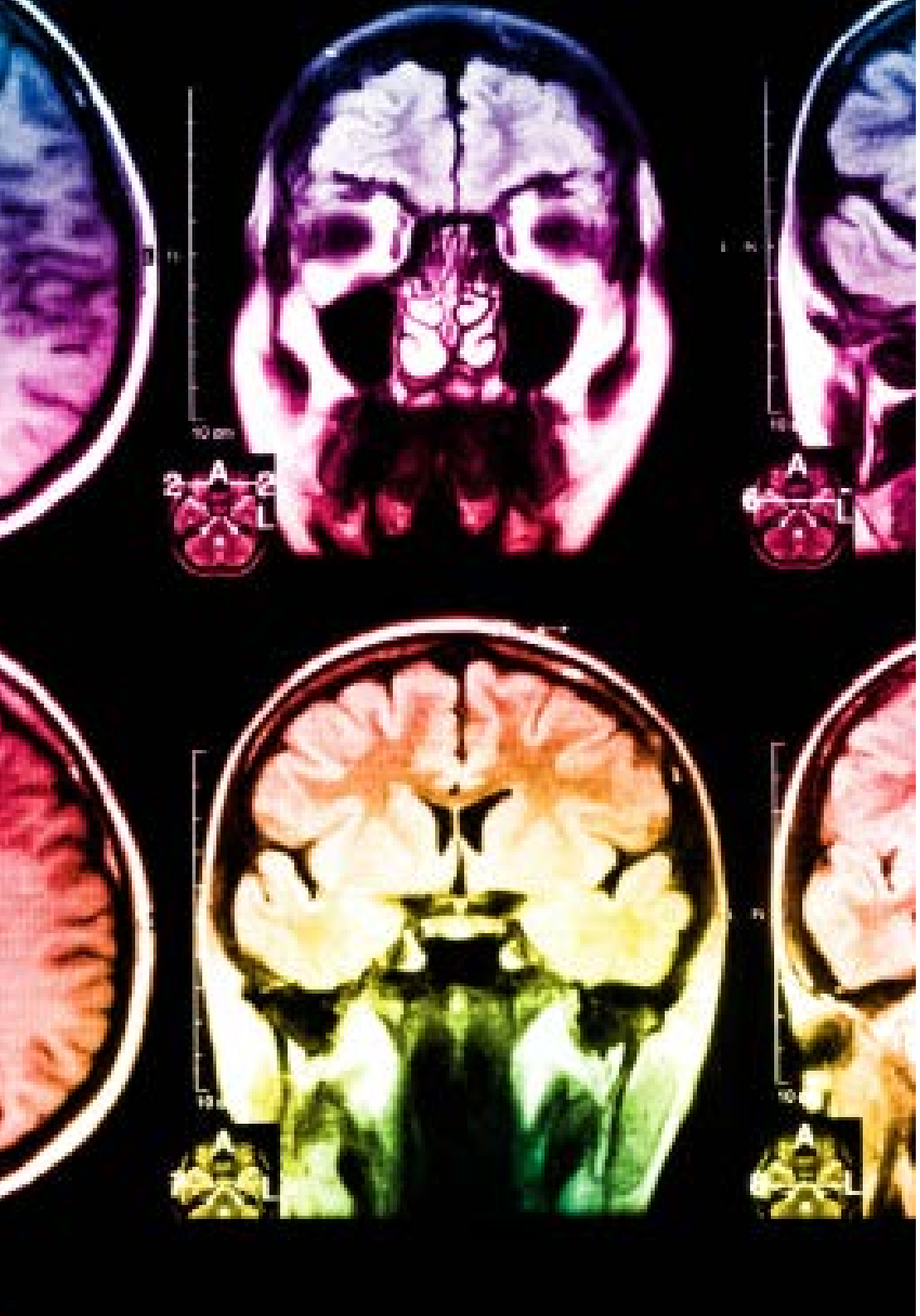
1. Students who follow this method not only grasp concepts, but also develop their mental capacity by evaluating real situations and applying their knowledge.
2. The learning process has a clear focus on practical skills that allow the student to better integrate into the real world.
3. Ideas and concepts 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.

Our 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, which represent a real revolution with respect to simply studying and analyzing cases.


*The physician will learn through real cases and by solving 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 Spanish-speaking online university (Columbia University).

With this methodology we have trained more than 250,000 physicians with unprecedented success, in all clinical specialties regardless of the surgical load. All this in a highly demanding environment, where the students have a strong socio-economic profile and an average age of 43.5 years.

*Re-learning will allow you to learn with less effort and better performance, involving you more in your training, 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 (we learn, unlearn, forget, and re-learn). Therefore, we combine each of these elements concentrically.

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

**In this program you will have access to the best educational material, prepared with you 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.

This content is then adapted in an audiovisual format that will create our way of working online, with the latest techniques that allow us to offer you high quality in all of the material that we provide you with.

### Latest Techniques and Procedures on Video

We introduce you to the latest techniques, to the latest educational advances, to the forefront of current medical techniques. All this, in first person, with the maximum rigor, explained and detailed for your assimilation and understanding. And best of all, you can watch them as many times as you want.

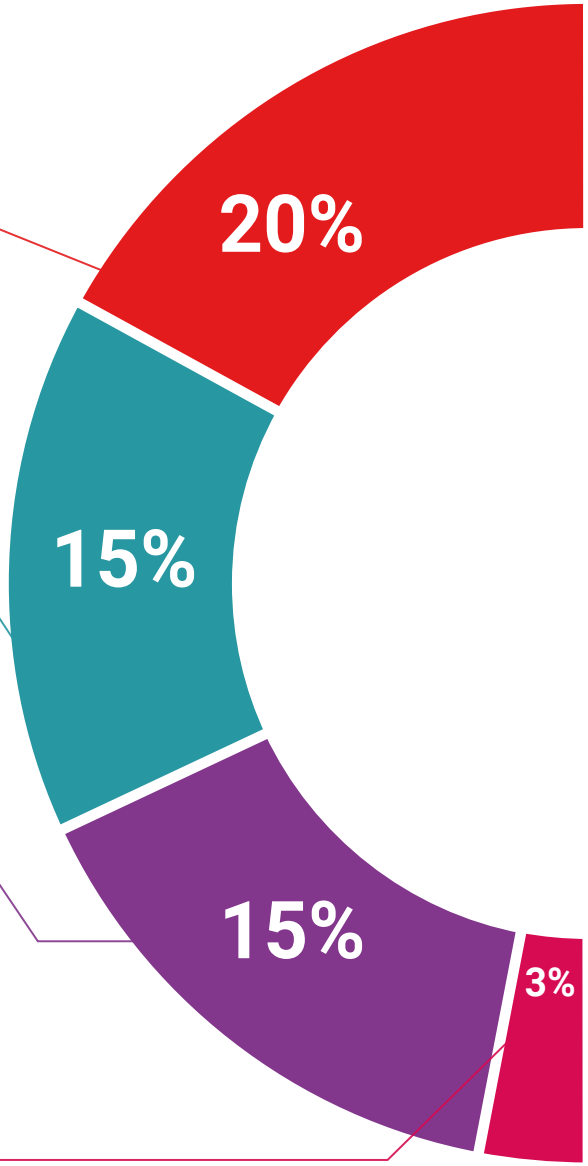
### Interactive Summaries

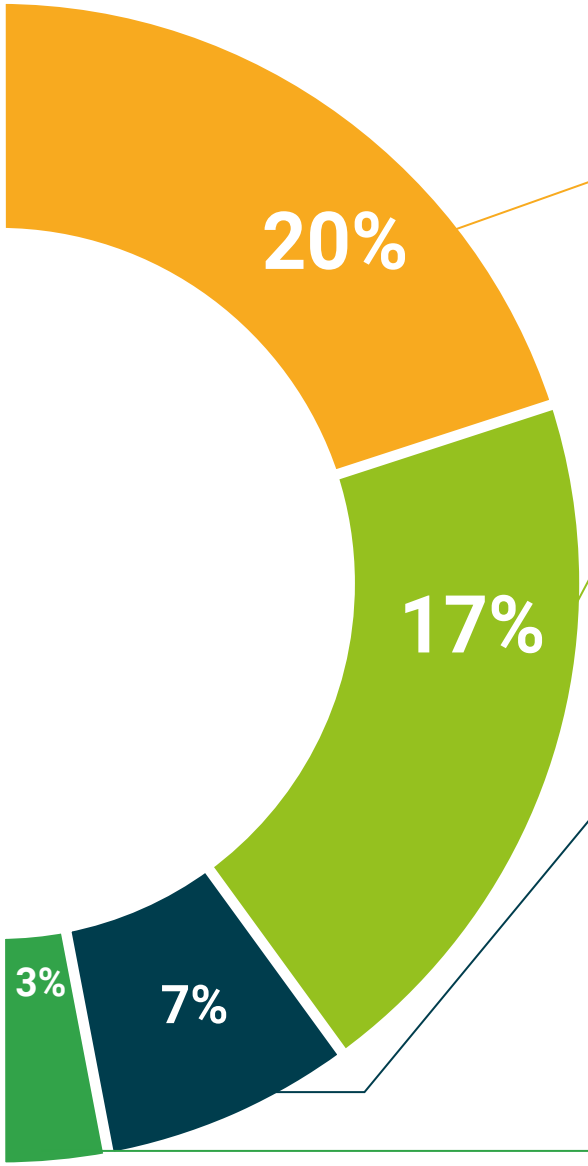
We present the contents attractively and dynamically in multimedia lessons that include audio, videos, images, diagrams, and concept maps in order to reinforce knowledge.

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

### Additional Reading

Recent articles, consensus documents, international guides. in our virtual library you will have access to everything you need to complete your training.






### Expert-Led Case Studies and Case Analysis

Effective learning ought to be contextual. Therefore, we will present you with real case developments in which the expert will guide you through focusing on and solving the different situations: a clear and direct way to achieve the highest degree of understanding.

### Testing & Re-testing

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

### Classes

There is scientific evidence suggesting that observing third-party experts can be useful.

Learning from an expert strengthens knowledge and memory, and generates confidence in our future difficult decisions.

### Quick Action Guides

We offer you the most relevant contents of the course in the form of worksheets or quick action guides. A synthetic, practical, and effective way to help you progress in your learning.

06

# Certificate

This Postgraduate Diploma in Endocrine, Neurological and Sensory Diseases in Clinical Genetics guarantees you, in addition to the most accurate and up-to-date training, access to a Postgraduate Diploma issued by TECH Global University.

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

This program will allow you to obtain your **Postgraduate Diploma in Endocrine, Neurological and Sensory Diseases in Clinical Genetics** 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 Diploma in Endocrine, Neurological and Sensory Diseases in Clinical Genetics**

Modality: **online**

Duration: **6 months**

Accreditation: **18 ECTS**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Mr./Ms. _____, with identification document _____
has successfully passed and obtained the title of:

**Postgraduate Diploma in Endocrine, Neurological and Sensory Diseases in Clinical Genetics**

This is a program of 450 hours of duration equivalent to 18 ECTS, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy.

TECH Global University is a university officially recognized by the Government of Andorra on the 31st of January of 2024, which belongs to the European Higher Education Area (EHEA).

In Andorra la Vella, on the 28th of February of 2024

Dr. Pedro Navarro Illana
Rector

This qualification must always be accompanied by the university degree issued by the competent authority to practice professionally in each country. Unique TECH Code: AFWORD23S techtitute.com/certificates

*Apostille Convention. In the event that the student wishes to have their paper Diploma issued with an apostille, TECH Global University will make the necessary arrangements to obtain it, at an additional cost.

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