Postgraduate Certificate

Immunology in the Field of Clinical Analysis

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Postgraduate Certificate

Immunology in the Field of Clinical Analysis

Course Modality: **Online**

Duration: **6 weeks**

Certificate: **TECH Technological University**

Teaching Hours: **150 hours.**

Website: www.techtitute.com/us/medicine/postgraduate-certificate/immunology-field-clinical-analysis

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01

Introduction

The numerous advances and developments in the field of immunology have led to an evolution in laboratory work, with the introduction of new techniques and ways of working. This permanent and rapid evolution requires the professional to keep up to date in order to develop their skills in new scenarios.

In this complete Postgraduate Certificate, we offer you the possibility to increase your competitiveness in a simple and very efficient way.

Through the most developed teaching techniques, you will learn the theory and practice of all the advances needed to work in a clinical analysis laboratory at a high level. With a structure and plan that is totally compatible with your personal and professional life.

Update your knowledge in the latest techniques and work systems in Immunology in the clinical analysis laboratory, with the most efficient teaching system

Immunology is one of the fundamental areas of biomedical sciences that studies the pathophysiological functioning of the immune system. This field has brought many advances to public health, including vaccines, antitumor therapy, transplants and monoclonal antibodies.

This Postgraduate Certificate approaches the immune system, its molecular and cellular components and the interactions that occur between them, in order to organize the immune response. It analyzes the immune mechanisms responsible for pathologies such as hypersensitivity, autoimmunity, transplants, immunodeficiency or cancer. And finally, it establishes the immunoanalytical techniques most commonly used in a clinical analysis laboratory setting.

The comprehensive understanding of the immune system and the appropriate choice of analytical tools, will allow the correct assessment of clinical cases and the diagnosis of a large number of pathologies that affect a large percentage of the population, which are key to public health.

The knowledge acquired in this Immunology Postgraduate Certificate will provide professionals in the field of human health with a broad vision of the study of immunological processes within a clinical analysis laboratory.

A compendium and broadening of knowledge that will lead you to excellence in your profession.

With this Postgraduate Certificate you will be able to combine high intensity training with your personal and professional life, achieving your goals in a simple and real way"

This **Postgraduate Certificate in Immunology in the Field of Clinical Analysis** offers you the advantages of a high-level scientific, teaching 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 highly skilled course which will allow you to become a highly competent professional in a clinical analysis laboratory"

The teachers of this Postgraduate Certificate are professionals currently working in a modern and accredited Clinical Laboratory, with a very solid training base and up-to-date knowledge in both scientific and purely technical disciplines.

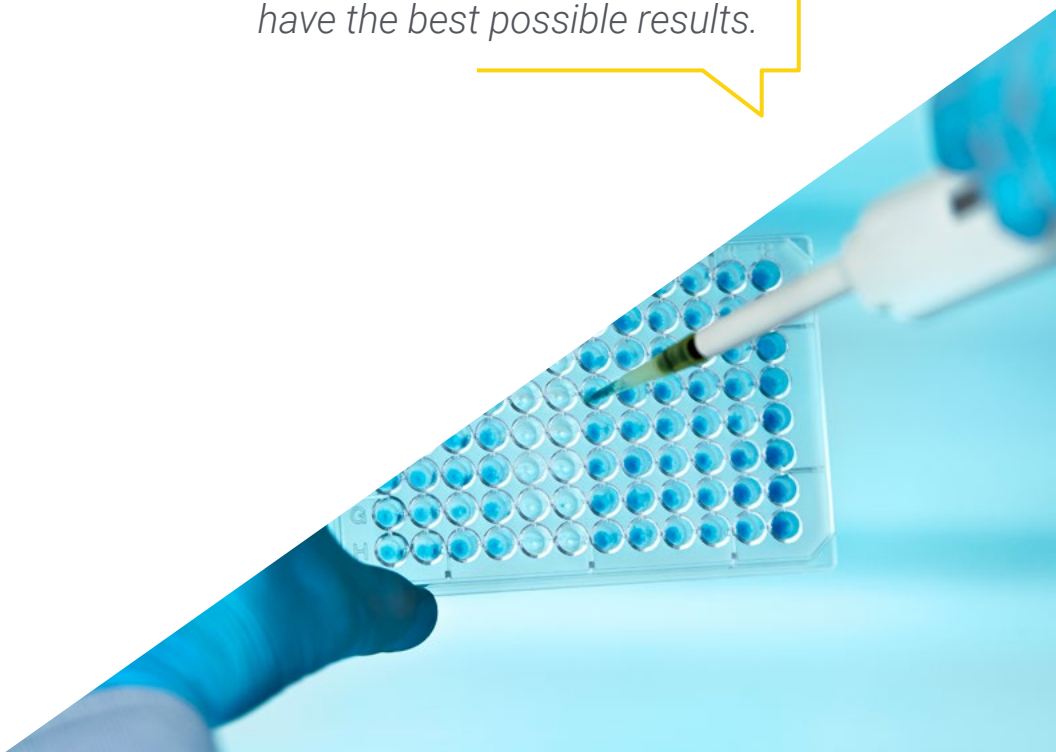
In this way, we ensure that we provide you with the training update we are aiming for. A multidisciplinary team of professionals trained and experienced in different environments, who will cover the theoretical knowledge in an efficient way, but, above all, will put the practical knowledge derived from their own experience at the service of the course: one of the differential qualities of this course.

This mastery of the subject is complemented by the effectiveness of the methodological design of this Postgraduate Certificate in Immunology in the Field of Clinical Analysis. Developed by a multidisciplinary team of experts, who integrate the latest advances in educational technology. This way, you will be able to study with a range of comfortable and versatile multimedia tools that will give you the operability you need in your training.

The design of this program is based on Problem-Based Learning: an approach that conceives learning as an eminently practical process. To achieve this remotely, we will use telepractice: with the help of an innovative interactive video system and Learn from an Expert, you will be able to acquire the knowledge as if you were facing the scenario you are learning at that moment. A concept that will allow you to integrate and fix learning in a more realistic and permanent way.

A program created and directed by active professionals who are experts in this field of work, which makes this Postgraduate Certificate a unique opportunity for professional growth.

The learning of this Postgraduate Certificate is developed through the most advanced didactic methodology in online teaching to guarantee that your effort will have the best possible results.



02

Objectives

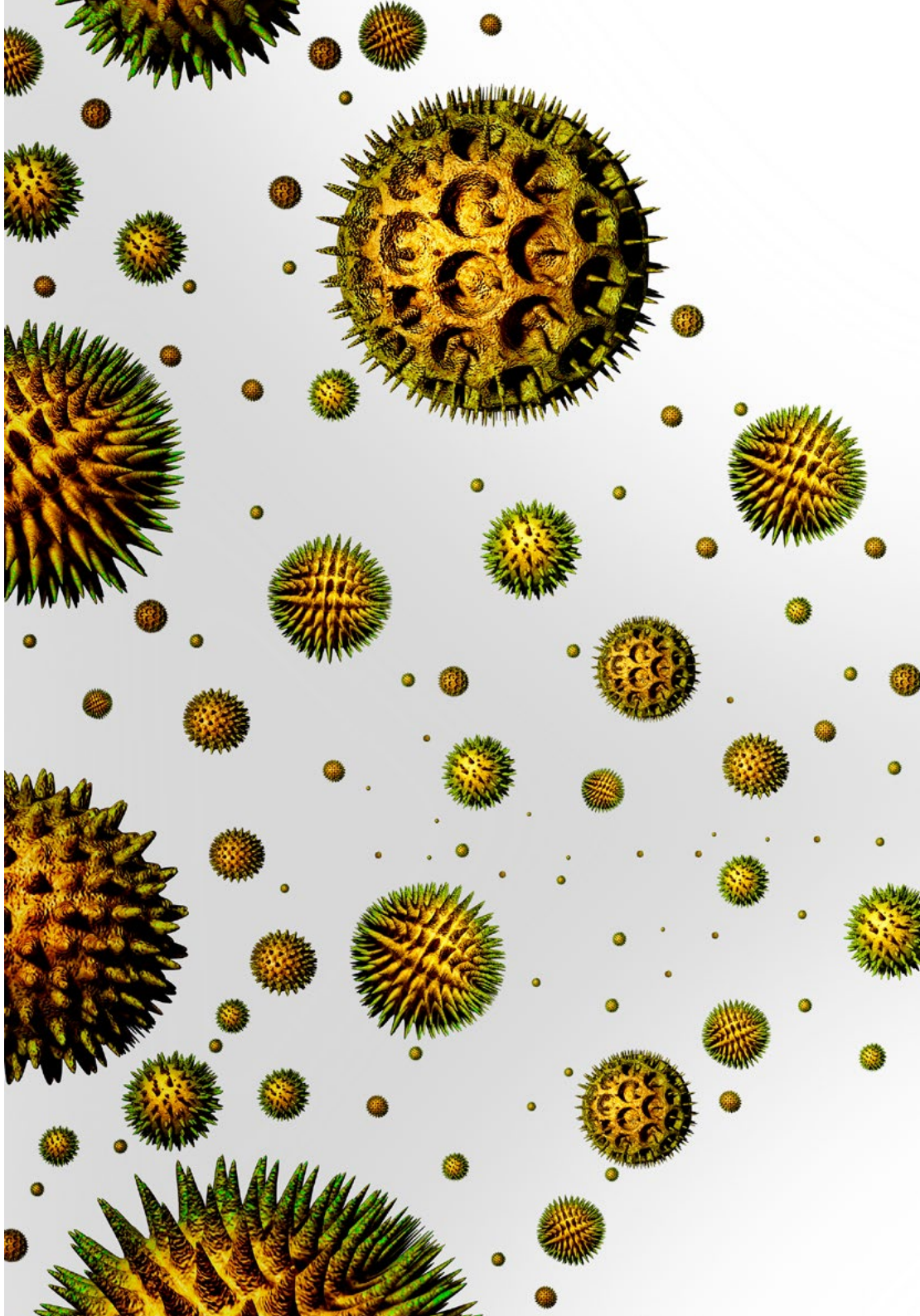
The objective of this training is to offer professionals who work in clinical analysis laboratories, the necessary knowledge and skills to perform their duties using the most advanced protocols and techniques of the moment. Through a study plan totally adapted to the student, this Postgraduate Certificate will progressively allow you to acquire the skills that will push you towards a much higher professional level.

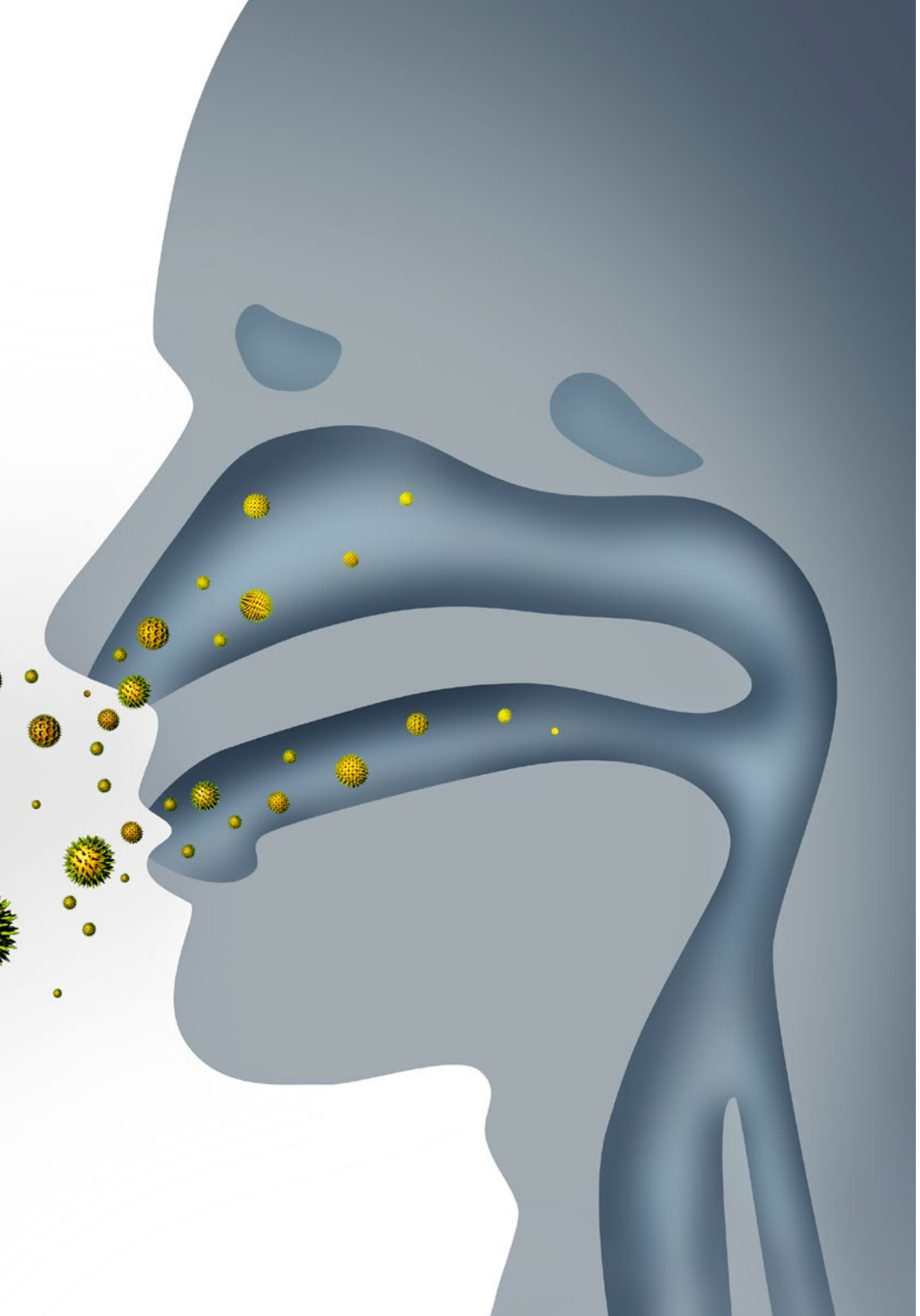
Incorporate into your knowledge and skills, the advances in techniques and procedures in the clinical analysis laboratory in the field of Immunology"

General Objectives

- Consolidate and broaden knowledge of immunology in the context of clinical analysis.
- Interrelate knowledge of immunology to address problems from different perspectives.
- Develop critical thinking skills to interpret and discuss analytical results.
- Gain skills in autonomous learning and ability to transmit knowledge acquired on immunology.

A boost to your CV that will give you the competitiveness of the best prepared professionals in the labor market"





Specific Objectives

- Define the molecular and cellular components and organ organization of the immune system
- Analyze innate and adaptive immune responses, both humoral and cellular based
- Examine the immunological processes that occur in pathological processes such as cancer, transplantation, autoimmunity and allergies.
- Apply and integrate the most commonly used immunoanalytical techniques in clinical analysis.
- Diagnose alterations of the immune system based on the evaluation of the analytical results obtained.
- Develop integrated thinking and critical reasoning for immunological problem solving.
- Propose and design new experiments to improve or incorporate new immunological techniques, as well as to know their limitations.

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.

An impressive teaching staff, made up of professionals from different areas of expertise, will be your teachers during your training: a unique opportunity not to be missed"

International Guest Director

Jeffrey Jhang, M.D. is a dedicated expert in Clinical Pathology and Laboratory Medicine. He has won several awards in these areas, including the Dr. Joseph G. Fink Award from the Columbia University College of Medicine and Surgery, among other recognitions from the College of American Pathologists.

His scientific leadership has been latent thanks to his exhaustive work as Medical Director of the Clinical Laboratory Center, attached to the Icahn School of Medicine at Mount Sinai. At the same institution, he coordinates the Department of Transfusion Medicine and Cell Therapy. In addition, Dr. Jhang has held management positions in the Clinical Laboratory at the Langone Health Center of New York University and as Chief of the Laboratory Service at Tisch Hospital.

Through these experiences, the expert has mastered different functions such as the supervision and management of laboratory operations, complying with the main regulatory standards and protocols. In turn, he has collaborated with interdisciplinary teams to contribute to the accurate diagnosis and care of different patients. On the other hand, he has spearheaded initiatives to improve the quality, performance and efficiency of analytical technical facilities.

Dr. Jhang, Jeffrey

- Director of Clinical Laboratories at NYU Langone Health, New York, United States
- Director of Clinical Laboratories at NYU Tisch Hospital, New York
- Professor of Pathology at the NYU Grossman School of Medicine
- Medical Director of the Clinical Laboratory Center at Mount Sinai Health System
- Director of the Blood Bank and Transfusion Service at Mount Sinai Hospital
- Director of Hematology and Coagulation Specialty Laboratory at Columbia University Irving Medical Center
- Director of the Parathyroid Tissue Collection and Processing Center at Columbia
- University Irving Medical Center
- Assistant Director of Transfusion Medicine at Columbia University Irving Medical Center
- Transfusion Medicine Specialist at the New York Blood Bank
- M.D. from the Icahn School of Medicine at Mount Sinai
- Anatomic and Clinical Pathology Residency at NewYork-Presbyterian Hospital
- Member of:

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

Management

Ms. Cano Armenteros, Montserrat

- Bachelor's Degree in Biology. University of Alicante
- Master'a Degree in Clinical Trials University of Seville
- Official Master's Degree in Primary Care Research by the Miguel Hernández University of Alicante for the Doctorate Recognition from the University of Chicago, USA Outstanding.
- Certificate of Pedagogical Aptitude (CAP) University of Alicante

Professors

Aparicio Fernández, Cristina

- Degree in Biotechnology with a Master's Degree in Advanced Immunology.
- Interuniversity Professional Master's Degree in Advanced Immunology from the University of Barcelona and the Autonomous University of Barcelona in 2020.
- Degree in Biotechnology from the University of León (2019).

04

Structure and Content

The contents of this Postgraduate Certificate have been developed by the different experts on this course, 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.

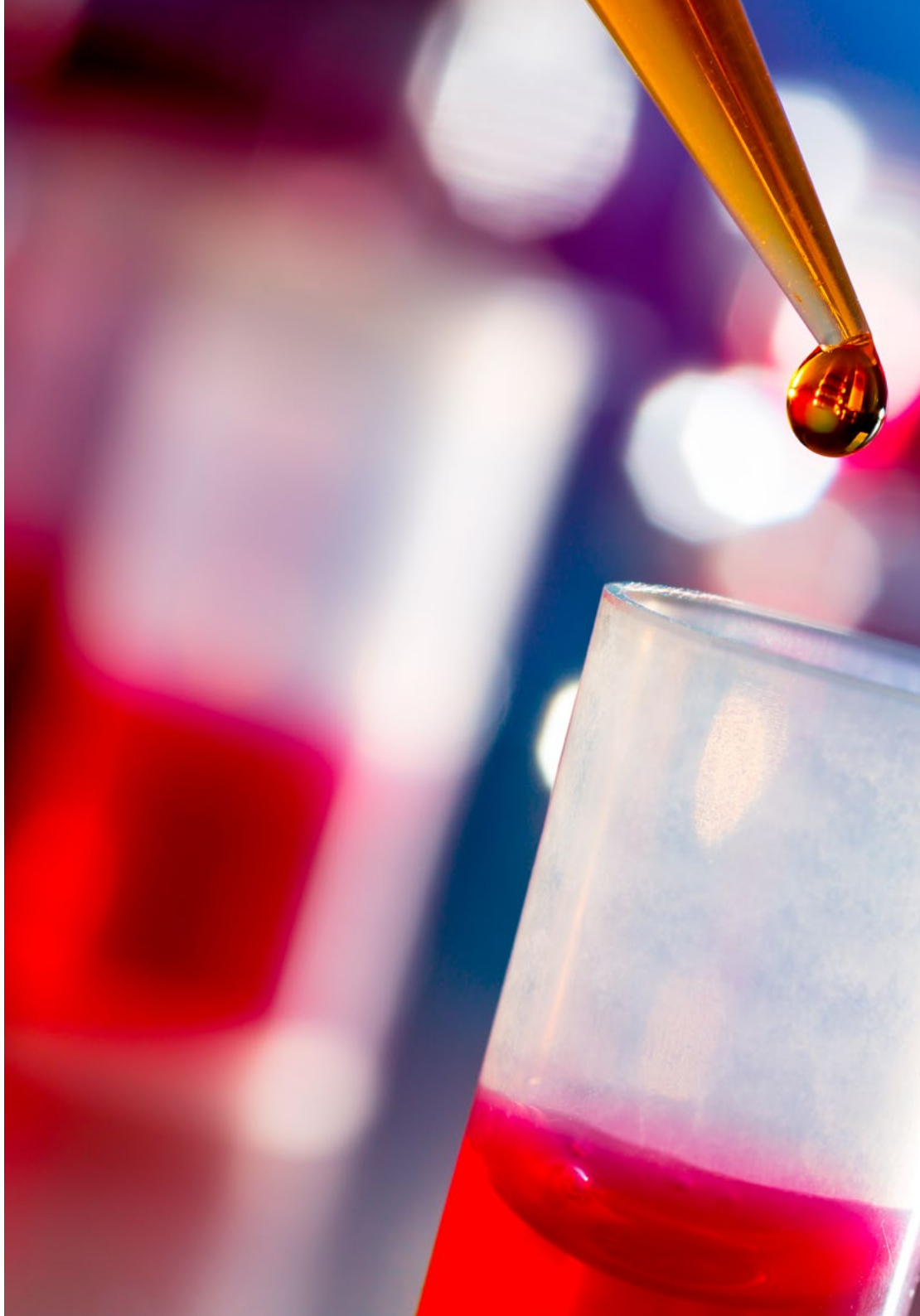
A comprehensive teaching program, structured in well-developed teaching units, oriented towards learning that is compatible with your personal and professional life"

Module 1. Immunology

1.1. Immune System Organs
- 1.1.1. Primary Lymphoid Organs
  - 1.1.1.1. Fetal Liver
  - 1.1.1.2. Bone Marrow
  - 1.1.1.3. Thymus
- 1.1.2. Secondary Lymphoid Organs
  - 1.1.2.1. Bladder
  - 1.1.2.2. Lymph Nodes
  - 1.1.2.3. Mucosal-Associated Lymphoid Tissue
- 1.1.3. Tertiary Lymphoid Organs
- 1.1.4. Lymphatic System

1.2. Immune System Cells
- 1.2.1. Granulocytes
  - 1.2.1.1. Neutrophils
  - 1.2.1.2. Eosinophils
  - 1.2.1.3. Basophils
- 1.2.2. Monocytes and Macrophages
- 1.2.3. Lymphocytes
  - 1.2.3.1. T Lymphocytes
  - 1.2.3.2. B Lymphocytes
- 1.2.4. Natural Killer Cells
- 1.2.5. Antigen Presenting Cells

1.3. Antigens and Immunoglobulins
- 1.3.1. Antigenicity and Immunogenicity
  - 1.3.1.1. Antigen
  - 1.3.1.2. Immunogen
  - 1.3.1.3. Epitopes
  - 1.3.1.4. Haptenos and Carriers



1.3.2. Immunoglobulins
1.3.2.1. Structure and Function
1.3.2.2. Classification of Immunoglobulins
1.3.2.3. Somatic Hypermutation and Isotype Shift
1.4. Complement System
1.4.1. Functions
1.4.2. Activation Routes
1.4.2.1. Classical Pathway
1.4.2.2. Alternative Pathway
1.4.2.3. Lectin Pathway
1.4.3. Complement Receptors
1.4.4. Complements and Inflammation
1.4.5. Complement Cascade
1.5. Major Histocompatibility Complex
1.5.1. Major and Minor Histocompatibility Antigens
1.5.2. HLA Genetics
1.5.3. HLA and Disease
1.5.4. Transplant Immunology
1.6. Immune Response
1.6.1. Innate and Adaptive Immune Response
1.6.2. Humoral Immune Response
1.6.2.1. Primary Response
1.6.2.2. Secondary Response
1.6.3. Cellular Immune Response
1.7. Autoimmune Diseases
1.7.1. Immunogenic Tolerance
1.7.2. Autoimmunity
1.7.3. Autoimmune Diseases
1.7.4. Study of Autoimmune Diseases
1.8. Immunodeficiencies
1.8.1. Primary Immunodeficiencies
1.8.2. Secondary Immunodeficiencies
1.8.3. Antitumor Immunity
1.8.4. Evaluation of Immunity
1.9. Hypersensitivity Reactions
1.9.1. Classification of Hypersensitivity Reactions
1.9.2. Type I Hypersensitivity or Allergic Reactions
1.9.3. Anaphylaxis.
1.9.4. Allergological Diagnostic Methods
1.10. Immunoanalytical Techniques
1.10.1. Precipitation and Agglutination Techniques
1.10.2. Complement Fixation Techniques
1.10.3. ELISA Techniques
1.10.4. Immunochromatography Techniques
1.10.5. Radioimmunoassay Techniques
1.10.6. Isolation of Lymphocytes
1.10.7. Microlymphocytotoxicity Technique
1.10.8. Mixed Lymphocyte Culture
1.10.9. Flow Cytometry Applied to Immunology
1.10.10. Flow Cytometry

A comprehensive teaching program, structured in well-developed teaching units, oriented towards learning that is compatible with your personal and professional life"

05

Methodology

This academic program offers students a different way of learning. Our methodology uses a cyclical learning approach: ***Relearning***.

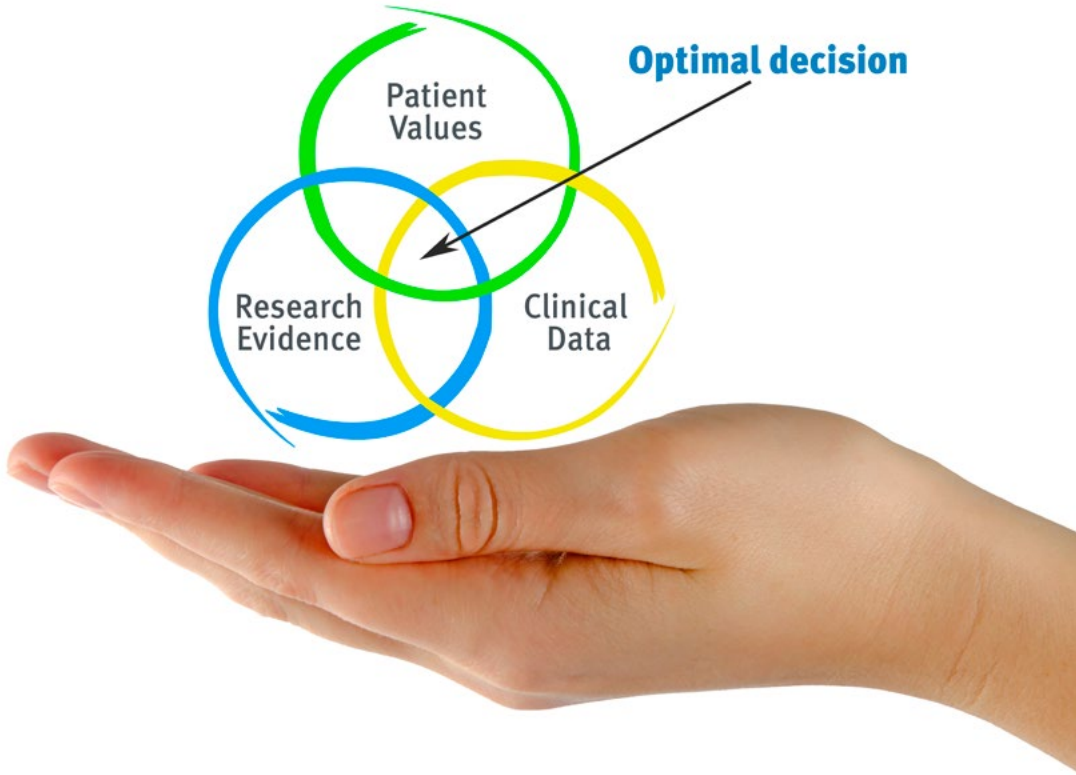
This teaching system is used, for example, in the most prestigious medical schools in the world, and major publications such as the ***New England Journal of Medicine*** have considered it to be one of the most effective.

Discover Relearning, 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.

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

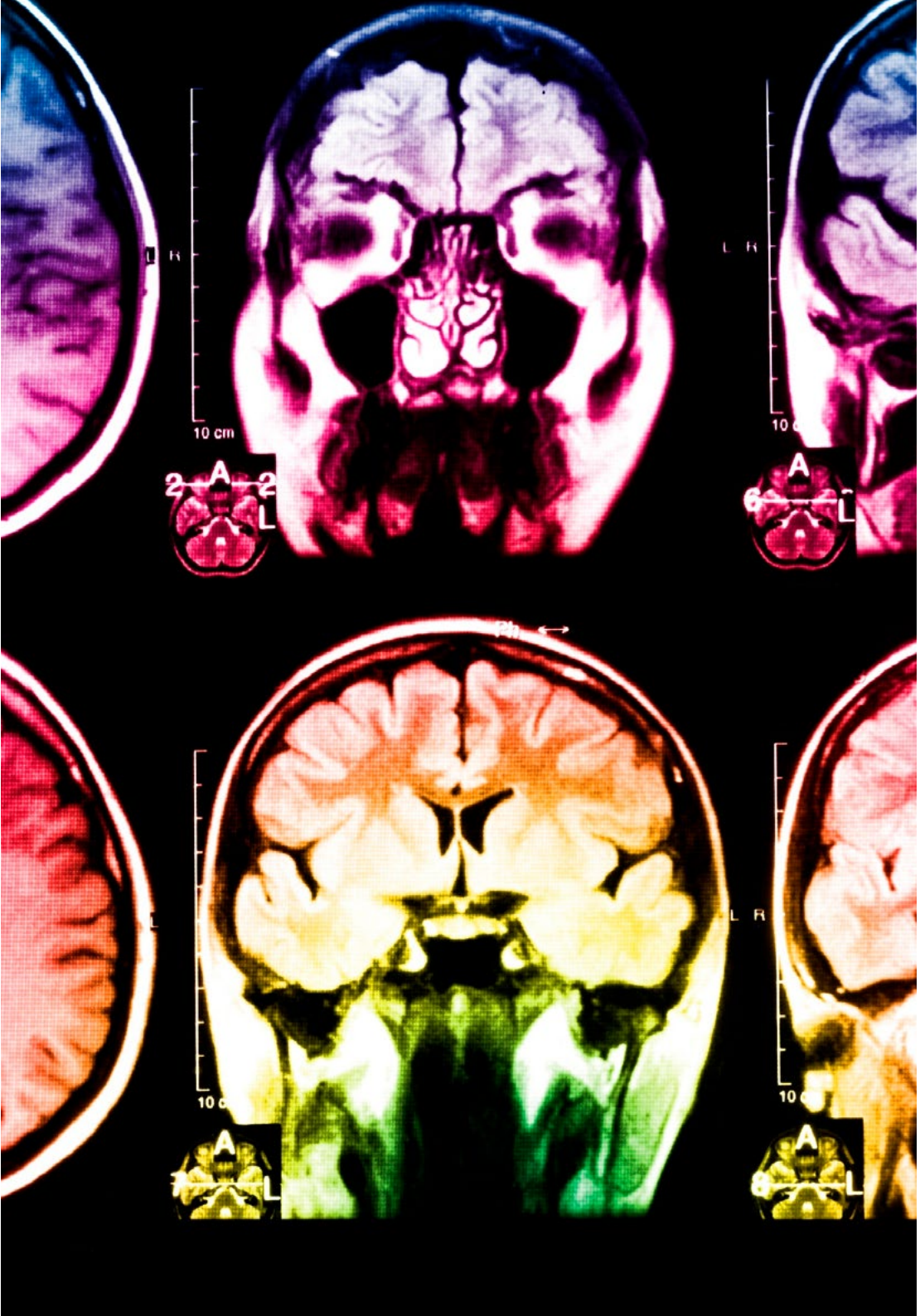
1. Students who follow this method not only achieve the assimilation of concepts, but also a development of their mental capacity, through exercises that evaluate real situations and the application of knowledge.
2. Learning is solidly translated into practical skills that allow the student to better 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.

Relearning Methodology

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

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 Relearning 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.

Relearning 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.

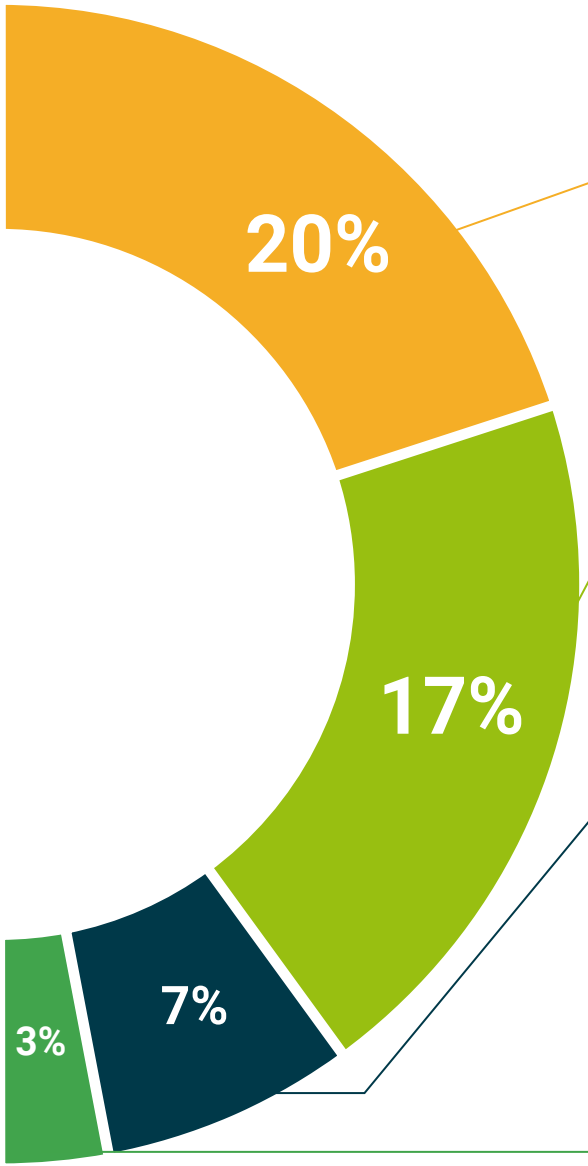
Interactive Summaries

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 educational system for presenting multimedia content 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 their goals.

Classes

There is scientific evidence on the usefulness of learning by observing experts. The system known as Learning from an Expert strengthens knowledge and memory, and generates confidence in future difficult decisions.

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

Through a different and stimulating learning experience, you will be able to acquire the necessary skills to take a big step in your training. An opportunity to progress, with the support and monitoring of a modern and specialized university, which will propel you to another professional level.

Include in your training a Postgraduate Certificate in Immunology in the Field of Clinical Analysis: a highly qualified added value for any professional in this area"

This **Postgraduate Certificate in Immunology in the Field of Clinical Analysis** contains the most complete and up-to-date scientific program on the market.

After the student has passed the assessments, they will receive their corresponding **Postgraduate Certificate diploma** issued by **TECH Technological University via tracked delivery**.

The diploma issued by **TECH Technological University** will reflect the qualification obtained in the Postgraduate Certificate, and meets the requirements commonly demanded by labor exchanges, competitive examinations and professional career evaluation committees.

Title: **Postgraduate Certificate in Immunology in the Field of Clinical Analysis**

Official Nº of Hours: **150 hours.**


tech technological university

Awards the followi ng

DIPLOMA

to

Mr./Ms. _____, with identification number _____ .

For having passed and accredited the following progra m

POSTGRADUATE CERTIFICATE

in

Field of Clinical Analysis

This is a qualification awarded by this University, equivalent to 150 hours, with a start date of dd/mm/yyyy and an end date of dd/mm/yyyy .

TECH is a Private Institution of Higher Education recognized by the Ministry of Public Education as of June 28, 2018.

June 17, 2020

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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 EDUCATION will make the necessary arrangements to obtain it, at an additional cost.


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Postgraduate Certificate

Immunology in the Field of Clinical Analysis

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