

# Postgraduate Diploma

## Skin Microbiota





## Postgraduate Diploma Skin Microbiota

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-skin-microbiota](http://www.techtitute.com/us/medicine/postgraduate-diploma/postgraduate-diploma-skin-microbiota)

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# 01

# Introduction

Skin Microbiota comprises a very wide catalogue of diverse microorganisms that act as a double barrier, both physical and immunological. It is therefore a vital set of agents for skin health maintenance, as well as for disease prevention and treatment such as acne, psoriasis or atopic dermatitis. Therefore, it is a part of the system where special attention should be paid and which medical professionals have to know the latest developments. And given TECH's strong commitment to these specialists, it has decided to launch a comprehensive program that collects the most comprehensive and innovative information related to skin physiology and the microbiomatic context. Therefore, they will be able to update the factors that influence their imbalance, as well as the diagnostic and therapeutic innovations most effective in its clinical management.





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*An innovative and intensive Postgraduate Diploma designed exclusively for medical professionals to update their knowledge on Skin Microbiota and its clinical advances”*

Acne, psoriasis or atopic dermatitis top the list of consultations in Dermatology and Primary Care. According to studies, one of the main causes that provokes the appearance of these pathologies is an imbalance in the Skin Microbiota, i.e., in the set of bacteria, fungi and parasites that constitute the system that acts as a double barrier: both physical and immunological. These microorganisms work as protective agents of the system against external pathogens, promoting patient health and fighting for infection or chronic disease prevention and treatment.

Therefore, medical professionals should be aware of the strategies for the care and recovery of the skin microbiome, something that they can work with this comprehensive Postgraduate Diploma. And, over the 6 months of this academic experience, specialists will delve into the clinical advances in Skin Microbiota: its physiology, the factors that regulate it, the most frequent pathologies and its antagonistic treatments. They will also cover the latest developments related to metagenomics, as well as the important role of microorganisms in the immune system.

And it will have 450 hours of the best theoretical, practical and additional material, the latter presented in different formats: in-detail videos, research articles, complementary readings, dynamic summaries, self-knowledge exercises and clinical cases extracted from real consultations. All compacted into a 100% online program that you can access from any device with internet connection, without schedules or face-to-face classes. Therefore, students can get up to date in a guaranteed way and through a high-level academic experience.

This **Postgraduate Diploma in Skin Microbiota** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ Case studies presented by experts in the Digestive System
- ♦ The graphic, schematic, and practical contents with which they are created, provide scientific and practical information on the disciplines that are essential for professional practice
- ♦ Practical exercises where the self-assessment process can be carried out to improve learning
- ♦ Its special emphasis on innovative methodologies
- ♦ Theoretical lessons, questions to the expert, debate forums on controversial topics, and individual reflection assignments
- ♦ Content that is accessible from any fixed or portable device with an Internet connection



*Thanks to its comfortable and flexible 100% online format, specialists will not have to worry about schedules or face-to-face classes, being able to design their own academic calendar based on their own availability”*



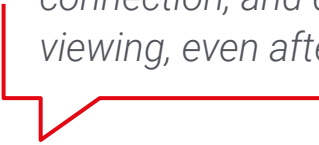
*You will work with the most comprehensive and innovative information related to Microbiome and Metagenomics, so you can implement the best and most innovative clinical strategies to your practice”*

The program’s teaching staff includes professionals from the sector who contribute their work experience to this educational program, as well as renowned specialists from leading societies and prestigious universities.

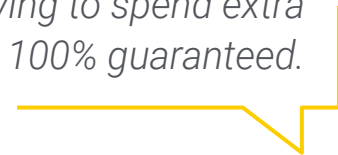
The multimedia content, developed with the latest educational technology, will provide the professional with situated and contextual learning, i.e., a simulated environment that will provide immersive education programmed to learn in real situations.

This program is designed around Problem-Based Learning, whereby professionals must try to solve the different professional practice situations that arise during the academic year. For this purpose, the student will be assisted by an innovative interactive video system created by renowned and experienced experts.

*Students will be able to access the Virtual Campus from any device with internet connection, and download all the content for viewing, even after the academic experience.*



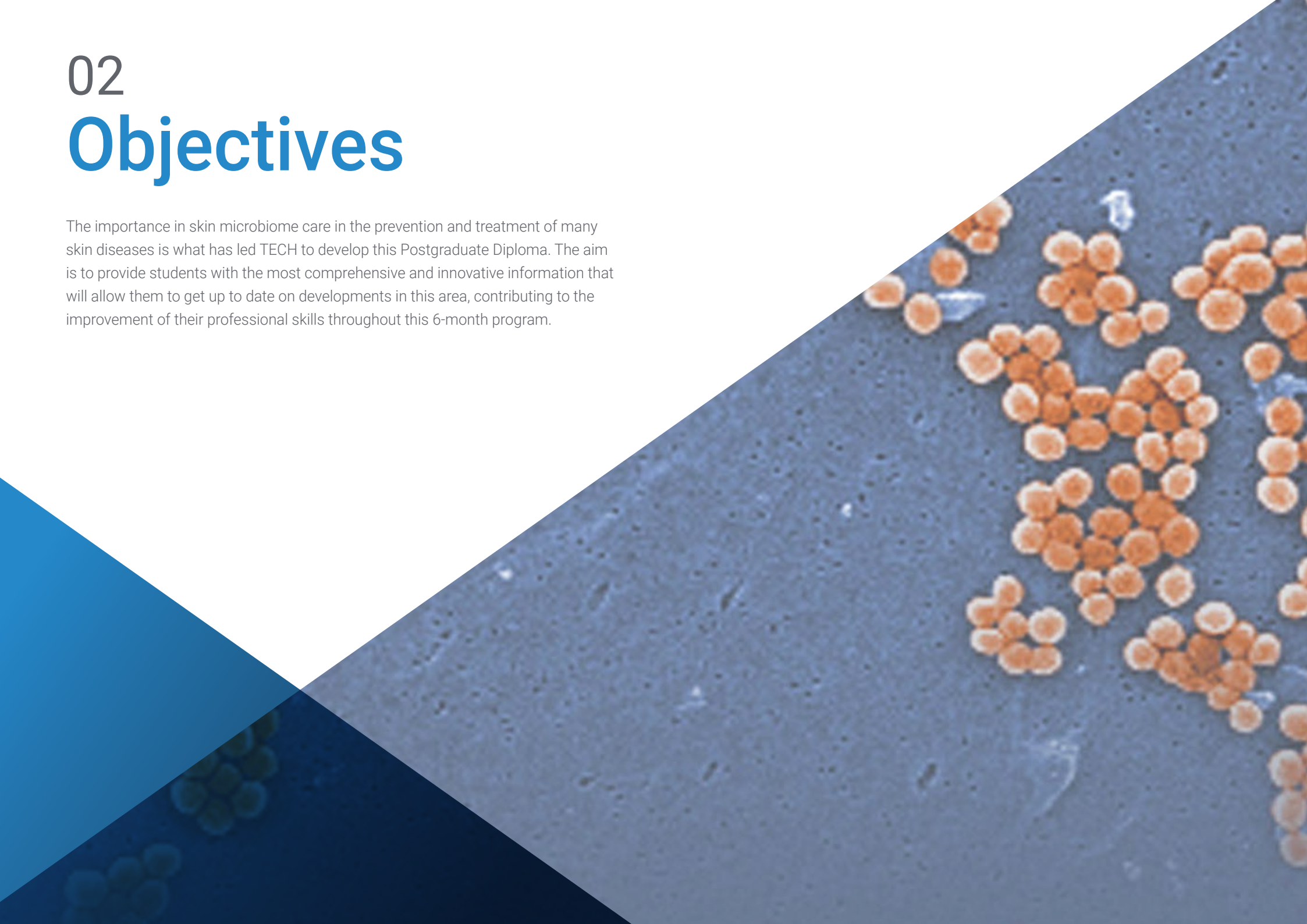
*The use of Relearning methodology in the development of this Postgraduate Diploma's content will allow you to update your knowledge without having to spend extra hours on memorizing. 100% guaranteed.*





# 02 Objectives

The importance in skin microbiome care in the prevention and treatment of many skin diseases is what has led TECH to develop this Postgraduate Diploma. The aim is to provide students with the most comprehensive and innovative information that will allow them to get up to date on developments in this area, contributing to the improvement of their professional skills throughout this 6-month program.







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*If what you are looking for is a program with which to delve into the latest advances of the Microbiota and the immune system to update your clinical practice, this Postgraduate Diploma is perfect for you. Are you going to pass up the opportunity?"*



## General objectives

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- Make the latest and relevant information related to the Skin Microbiota and the clinical advances that have been carried out available to students
- Specialize in the latest clinical treatments related to the health recovery of the immune system microbiome



*A path to achieve education and professional growth that will propel you towards a greater level of competitiveness in the employment market”*







## Specific objectives

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### Module 1. Skin Microbiota

- ◆ Know the physiology of the skin and its microbial composition
- ◆ Understand the factors that regulate the type of bacterial flora in the skin: sweat glands, sebaceous glands, desquamation
- ◆ Deepen the factors that alter the ecology of the skin and the Microbiota
- ◆ Know the cutaneous immune system
- ◆ Understand the factors that produce an alteration of the normal cutaneous microbiota (dysbiosis) and alteration of the barrier function
- ◆ Know the triggered cutaneous pathologies: Psoriasis (*Streptococcus pyogenes*), Acne vulgaris, Atopic dermatitis, Rosacea
- ◆ Delve into the influence of the use of Probiotics in the prevention and treatment of different skin diseases
- ◆ Delve into the current lines of research

### Module 2. Microbiota. Microbiome. Metagenomics

- ◆ Know the relationship between the Microbiota and the Microbiome and their most accurate definitions
- ◆ Understand in depth the concepts of symbiosis, commensalism, mutualism and parasitism
- ◆ Delve into the different types of Human Microbiota and know their generalities
- ◆ Delve into the aspects that trigger the balance and imbalance of the Microbiota

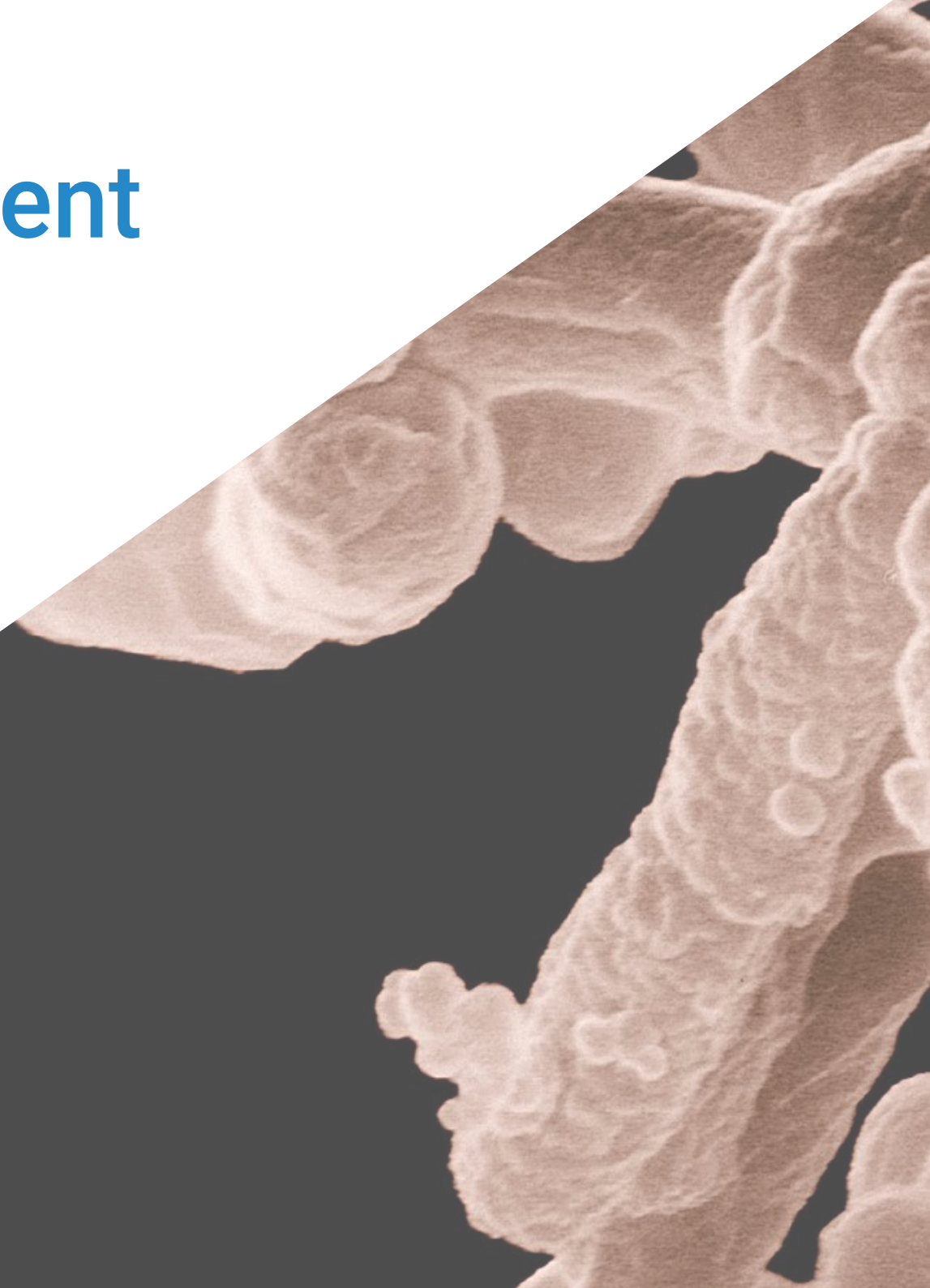
### Module 3. Microbiota and Immune System

- ◆ Delve into the bidirectional relationship between Microbiota and Neuroimmunological System and study in depth the intestine-microbiota-brain axis and all the pathologies that are generated in its imbalance
- ◆ Analyze the role of nutrition and lifestyle and their interaction with the immune system and Microbiota

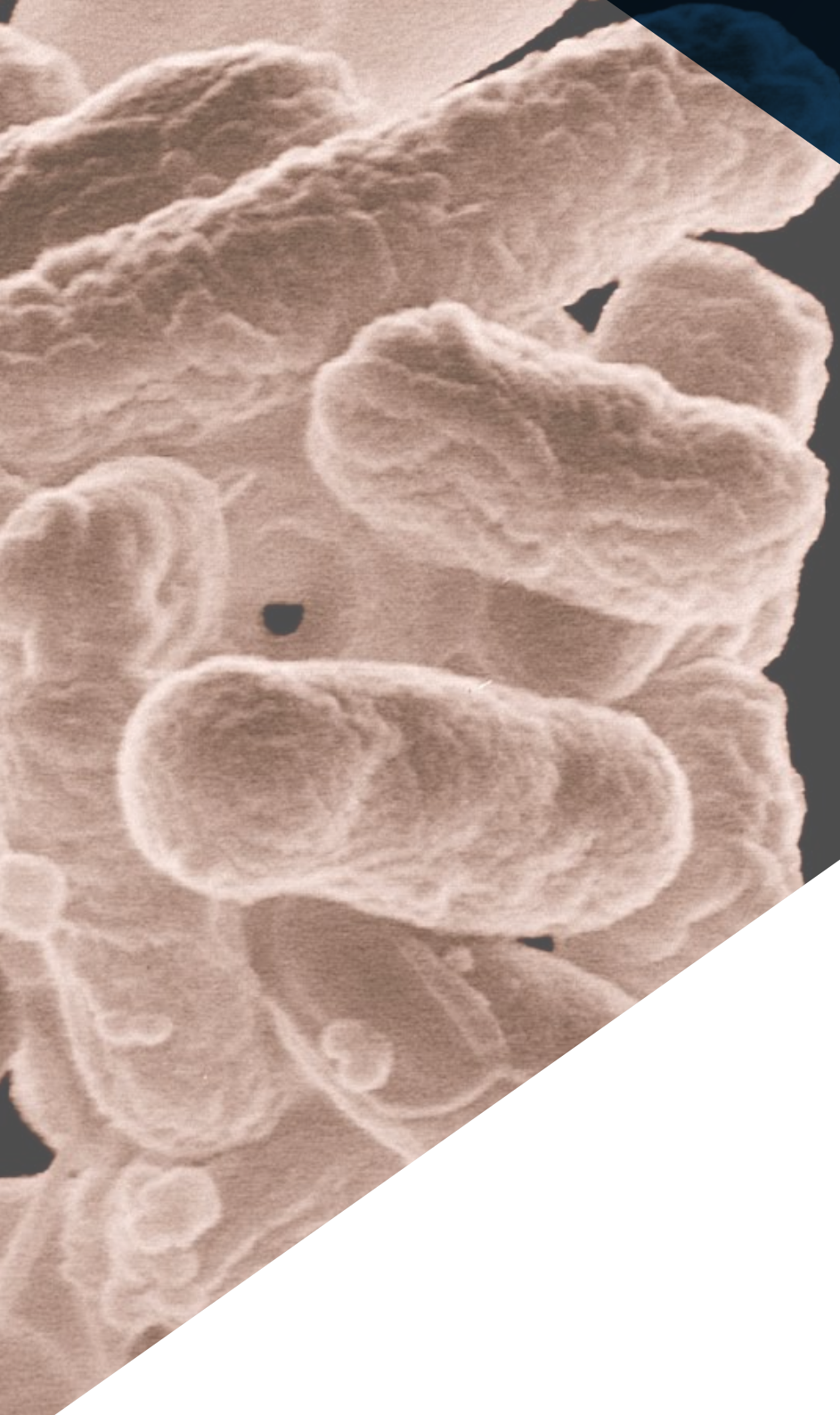
03

# Course Management

TECH believes that having a teaching team specialized in this field is not only an incentive for students, but a unique opportunity to get up to date with the best. For that reason, this Postgraduate Diploma has selected a group of professionals in the field of Microbiology and Medicine experienced in the study of the skin microbiota. Therefore, they will be able to reflect on their experience and success strategies in the program, bringing students closer to the latest developments in the profession through their own vision and career in the clinical field.







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*A high-level teaching team will accompany you during the 6-month qualification to provide you with the best material and to answer your questions through its extensive experience in working with the skin Microbiota”*

## Guest Directors



### Dr. Sánchez Romero, María Isabel

- Medical Specialist in Clinical Microbiology and Parasitology
- Area Specialist in the Microbiology Department of the Puerta de Hierro University Hospital, Madrid
- Member of the Spanish Society of Infectious Diseases and Clinical Microbiology
- Technical Secretary of the Madrid Society of Clinical Microbiology
- Doctor in Medicine and Surgery from the University of Salamanca (2003) with the qualification of outstanding cum laude
- Degree in Medicine and Surgery from the University of Salamanca



### Dr. Portero, María Francisca

- Acting Head of the Microbiology Department of the Puerta de Hierro University Hospital, Madrid
- Specialist in Clinical Microbiology and Parasitology, Puerta de Hierro University Hospital, Madrid
- Postgraduate in Clinical Management by Gaspar Casal Foundation
- Doctorate in Medicine from the Autonomous University Madrid
- Degree in Medicine and Surgery from the Autonomous University of Madrid



### **Dr. Alarcón Caveró, Teresa**

- Specialist in the Microbiology Department at the La Princesa University Hospital
- Head of Group 52 of the Research Institute of the La Princesa Hospital
- Degree in Biological Sciences with a major in Fundamental Biology from the Complutense University of Madrid
- Master's Degree in Medical Microbiology from the Complutense University of Madrid



### **Dr. Muñoz Algarra, María**

- Area Specialist in the Microbiology Department of the Puerta de Hierro Majadahonda University Hospital, Madrid
- Head of Patient Safety of the Microbiology Service in the H.U. Puerto de Hierro Hospital Majadahonda
- Teaching collaborator at the School of Medicine in the subject of Microbiology at the Autonomous University of Madrid
- Doctorate in Pharmacy from the Complutense University of Madrid
- Degree in Pharmacy from the University of Valencia



### Dr. López Dosil, Marcos

- Specialist Physician of the Microbiology and Parasitology Department of the Hospital de Móstoles
- Degree in Medicine from the University of Santiago de Compostela
- Master's Degree in Infectious Diseases and Antimicrobial Treatment from CEU Cardenal Herrera University
- Master's Degree in Tropical and Health Medicine from the Autonomous University of Madrid
- Expert in Tropical Medicine from the Autonomous University Madrid



### Dr. Anel Pedroche, Jorge

- Facultative Area Specialist. Microbiology Department, Puerta de Hierro University Hospital, Majadahonda, Spain
- Degree in Pharmacy from the Complutense University of Madrid



## Management



### **Ms. Fernández Montalvo, María Ángeles**

- Parapharmacy Manager and Nutrition and Natural Medicine Professor
- Specialist in Food Intolerances and the Study of Intestinal Microbiota
- Member of the Spanish Society of Probiotics and Prebiotics (SEPyP)
- Diploma in Natural and Orthomolecular Medicine
- Degree in Biochemistry from the University of Valencia
- Specialist Degree in Nutrition, Dietetics, and Diet Therapy
- Expert in Microbiological Food Analysis
- Expert in Nutrition, Food, and Cancer. Prevention and Treatment
- Expert in Vegetarian, Clinical, and Sports Nutrition
- Expert in the current use of Nutricosmetics and Nutraceuticals in general
- Expert in point-of-sale management in Pharmacies and Parapharmacies

## Professors

### Dr. Álvarez García, Verónica

- ◆ Digestive system specialist at the Central Hospital of Asturias (HUCA).
- ◆ Degree in Medicine

### Dr. Lombó Burgos, Felipe

- ◆ Associate Professor at University of Oviedo
- ◆ PhD in Biology and head Professor from the University of Oviedo

### Dr. Gonzalez Rodríguez, Silvia Pilar

- ◆ Deputy medical director and research coordinator
- ◆ Clinical Chief of the Menopause and Osteoporosis Unit at the Velázquez Medical Cabinet (Madrid)
- ◆ PhD in Medicine and Surgery from the University of Alcalá de Henares. Gynecology Specialist.

### Dr. Díaz Martín, Juan José

- ◆ Pediatric gastroenterologist at the Central Hospital of Asturias (HUCA)
- ◆ Member of the Spanish Society of Pediatric Gastroenterology, Hepatology, and Nutrition
- ◆ Associate Professor of Pediatrics at the University of Oviedo

### Dr. Fernández Madera, Juan

- ◆ Allergist
- ◆ Allergy Specialist
- ◆ Degree in Medicine





**Dr. Solís Sánchez, Gonzalo**

- ♦ Neonatologist at the Hospital Universitario Central de Asturias (HUCA)
- ♦ Researcher, Associate Professor of the University of Oviedo

**Dr. López López, Aranzazu**

- ♦ Researcher in oral microbiology at FISABIO foundation
- ♦ Ph.D. in Biological Sciences

**Dr. Suárez Rodríguez, Marta**

- ♦ Neonatologist of the Central University Hospital of Asturias (HUCA)
- ♦ Researcher and Professor of the Master's Degree in Early Care and the Master's Degree in Critical Care Nursing at the University of Oviedo and other training courses

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*Do not hesitate and opt for a leading program in medicine that will allow you to perfect your skills to offer a pediatric and neonatological clinical service of the highest level”*



# 04

## Structure and Content

This Postgraduate Diploma's curriculum has been developed based on 3 criteria: the teaching team's recommendations, the developments related to the field of study of skin microbiota and the specifications of the innovative and effective Relearning methodology. Thanks to this, it has been possible to form a complete, comprehensive and innovative program that gathers the latest information related to the immune system, the skin and microbiome health. This way, students will be able to update their knowledge in this field through the course of this 100% online academic experience adapted to their professional needs and clinical requirements.







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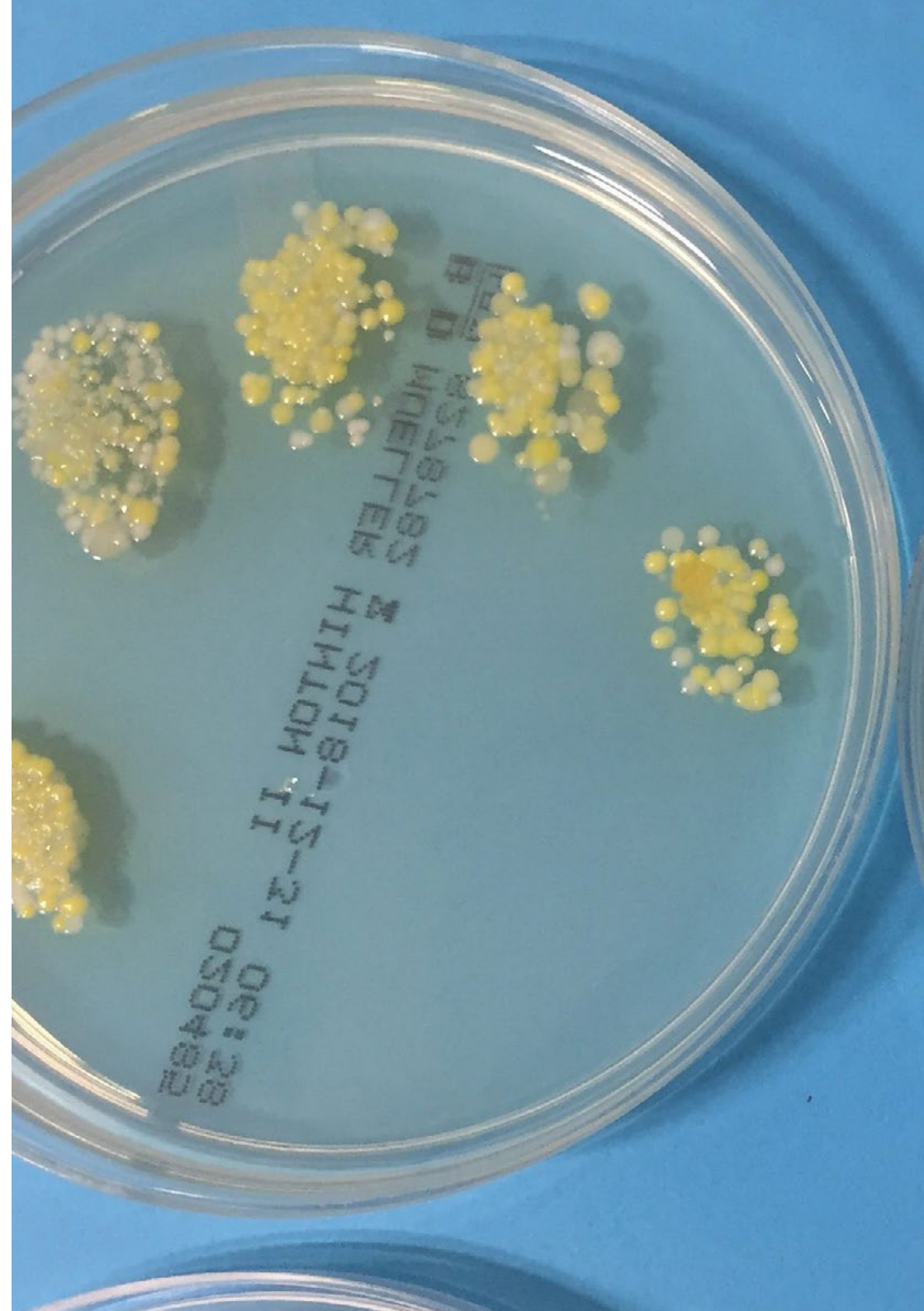
*You will address psoriasis, acne and atopic dermatitis from its newest clinical evidence, focusing on prevention and management treatments that have had better results today”*

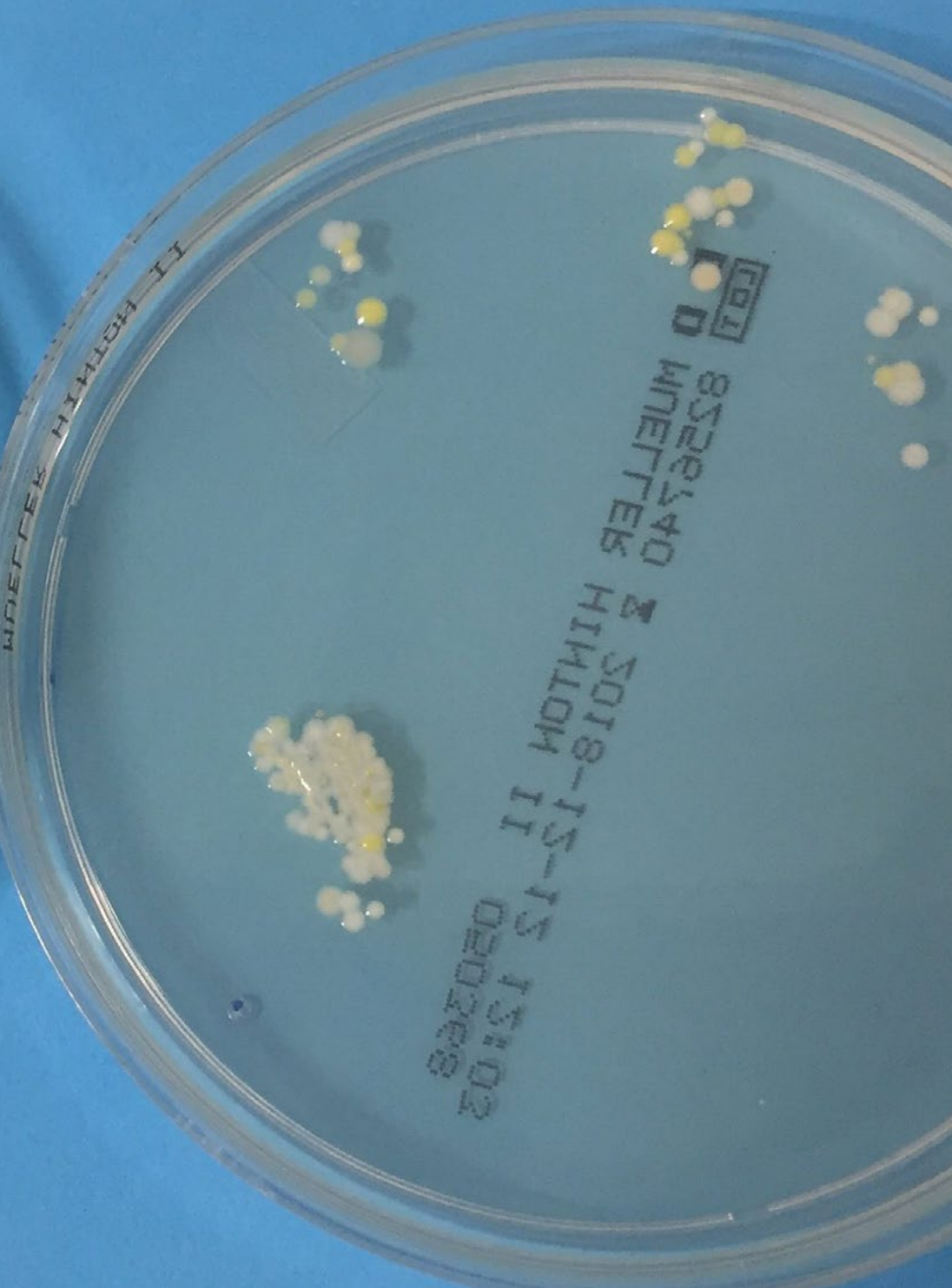
## Module 1. Skin Microbiota

- 1.1. Skin Physiology
  - 1.1.1. Structure of the Skin: Epidermis, Dermis, and Hypodermis
  - 1.1.2. Functions of the Skin
  - 1.1.3. Microbial Composition of the Skin
- 1.2. Factors that Regulate the Type of Bacterial Flora in the Skin
  - 1.2.1. Sweat Glands, Sebaceous Glands, Desquamation
  - 1.2.2. Factors that Alter the Ecology of the Skin and its Microbiota
- 1.3. Skin Immune System
  - 1.3.1. Epidermis; Essential Element of our Defences
  - 1.3.2. Elements of the Cutaneous Immune System: Cytosines, Keratinocytes, Dendritic Cells, Lymphocytes, Antimicrobial Peptides
  - 1.3.3. Influence of the Skin Microbiota on the Skin Immune System. Staphylococcus Epidermidis, Staphylococcus Aureus
- 1.4. Alteration of the Normal Skin Microbiota (Dysbiosis)
  - 1.4.1. Impaired Barrier Function
- 1.5. Triggered Skin Diseases
  - 1.5.1. Psoriasis (Streptococcus Pyogenes)
  - 1.5.2. Acne Vulgaris
  - 1.5.3. Atopic Dermatitis
  - 1.5.4. Rosacea
- 1.6. Influence of the Use of Probiotics in the Prevention and Treatment of Different Skin Diseases
- 1.7. Current Lines of Research

## Module 2. Microbiota. Microbiome. Metagenomics

- 2.1. Definition and Relationship Between Them
- 2.2. Composition of the Microbiota: Types, Species and Strains
- 2.3. Different Human Microbiota. General Overview of Eubiosis and Dysbiosis
  - 2.3.1. Gastrointestinal Microbiota
  - 2.3.2. Oral Microbiota
  - 2.3.3. Skin Microbiota





- 2.3.4. Respiratory Tract Microbiota
- 2.3.5. Urinary Tract Microbiota
- 2.3.6. Reproductive System Microbiota
- 2.4. Factors that Influence Microbiota Balance and Imbalance
  - 2.4.1. Diet and Lifestyle. Gut-Brain Axis
  - 2.4.2. Antibiotic Therapy
  - 2.4.3. Epigenetic-Microbiota Interaction. Endocrine Disruptors
  - 2.4.4. Probiotics, Prebiotics, Symbiotics. Concepts and Overviews
  - 2.4.5. Fecal Transplant, Latest Advances

### Module 3. Microbiota and Immune System

- 3.1. Immune System Physiology: What is Immunity?
  - 3.1.1. Immune System Components
    - 3.1.1.1. Lymphoid Tissue
    - 3.1.1.2. Immune Cells
    - 3.1.1.3. Chemical Systems
- 3.2. Organs Involved in Immunity
  - 3.2.1. Primary Organs
  - 3.2.2. Secondary Organs
- 3.3. Innate, Non-Specific, or Natural Immunity
- 3.4. Acquired, Adaptive, or Specific Immunity
- 3.5. Nutrition and Lifestyle and their Interaction with the Immune System and the Microbiota
- 3.6. Functional Foods and their Effect on the Immune System
  - 3.6.1. Probiotics, Prebiotics, and Symbiotics
  - 3.6.2. Nutraceuticals and Functional Foods
- 3.7. Bidirectional Relationship Between Microbiota and the Neuroimmunoendocrine System
- 3.8. Microbiota, Immunity, and Nervous System Disorders: Anxiety, Depression, Autism, Schizophrenia, or Alzheimer's Disease
- 3.9. The Gut-Microbiota-Brain Axis
- 3.10. Current Lines of Research



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.







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*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. Gervas, 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.



## Relearning Methodology

At TECH we enhance the 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

The Postgraduate Diploma in Skin Microbiota guarantees you, in addition to the most rigorous and up-to-date training, access to a Postgraduate Diploma Degree issued by TECH Technological University.





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

This **Postgraduate Diploma in Skin Microbiota** 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 Diploma** issued by **TECH Technological University** via tracked delivery\*.

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

Title: **Postgraduate Diploma in Skin Microbiota**

Official N° of hours: **450 h.**



\*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.

future  
health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present quality  
development language  
virtual classroom



## Postgraduate Diploma Skin Microbiota

- » Modality: online
- » Duration: 6 months
- » Certificate: TECH Technological University
- » Dedication: 16h/week
- » Schedule: at your own pace
- » Exams: online



# Postgraduate Diploma

## Skin Microbiota