

# Postgraduate Certificate

## Pediatric Microbiota in Pharmacy





## Postgraduate Certificate Pediatric Microbiota in Pharmacy

- » Modality: online
- » Duration: 6 weeks
- » Certificate: TECH Global University
- » Credits: 5 ECTS
- » Schedule: at your own pace
- » Exams: online

Website: [www.techtute.com/pharmacy/postgraduate-certificate/pediatric-microbiota-pharmacy](http://www.techtute.com/pharmacy/postgraduate-certificate/pediatric-microbiota-pharmacy)

# Index

01

Introduction

---

*p. 4*

02

Objectives

---

*p. 8*

03

Course Management

---

*p. 12*

04

Structure and Content

---

*p. 16*

05

Methodology

---

*p. 20*

06

Certificate

---

*p. 28*

# 01

# Introduction

Scientific research in the field of children and adolescent Microbiota has been booming in recent decades. This Postgraduate Certificate is aimed both at the study of its own characteristics, as well as the impact on children health, as it opens a door to the knowledge of multiple diseases, especially those called functional, being the microbiome the main course of action of health professionals in this field. Aware of this, TECH professionals have designed this Postgraduate Certificate aimed at training pharmacists to be able to understand the functioning of the Microbiome in pediatric customers. All this will make them much more competent professionals, prepared to work in various fields of medicine with greater guarantees of success.



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*The study of Pediatric Microbiota opens a door to the knowledge of multiple diseases, adding great value to the Pharmacist's curriculum.*

Abundant scientific evidence has linked child microbiome to its potential impact on various pathological conditions in recent years, giving rise to new therapeutic strategies to control and regulate this ecosystem. The study of this ecosystem is a field that is rapidly advancing scientifically, and it is universally accepted that, to achieve an adequate state of health in minors, it is also necessary to have a "healthy" Microbiota.

Microbiota undergoes changes as children grow older. All this results from the influence of multiple factors, such as diet, lifestyle, and pharmacological treatments, among others. These factors generate alterations in the bacterial ecosystem, and the anomalous interaction that the organism could have with it is related to certain processes: allergies, acute and chronic intestinal diseases, obesity and metabolic syndrome, neurological diseases, dermatitis and other alterations in the dermis, and even some types of cancer.

Consequently, this Postgraduate Certificate in Pediatric Microbiota in Pharmacy responds to the need for more information in the field. The program therefore focuses on providing them with general knowledge on all topics related to Microbiota, its Eubiosis and Dysbiosis, and related problems.

Furthermore, during the training, the use of Probiotics and Prebiotics will be discussed in depth, as well as the growing market launch of new products with very specific strains for very specific problems and diseases. This will help pharmacists to better understand the treatment of pathologies in pediatric users, and will allow them to offer a much more adapted and personalized treatment to children and adolescents who come to the pharmacy.

This will enable Pharmacists to guide minors so that they can recover and maintain bacterial Eubiosis and, thus, have a good state of health, in addition to positively contributing to the recommended medical treatment.

This **Postgraduate Certificate in Pediatric Microbiota in Pharmacy** comprises the most complete and up-to-date scientific program on the market. The most important features of the program include:

- ♦ Practical cases presented by Neonatology and Pediatrics Microbiota experts. The graphic, schematic, and eminently practical contents with which they are created provide scientific and practical information on the disciplines that are essential for professional practice.
- ♦ Latest developments in Microbiota in Neonatology and Pediatrics.
- ♦ It contains practical exercises where the self-evaluation process can be carried out to improve learning.
- ♦ Special focus on innovative methodologies in Microbiota in Neonatology and Pediatrics
- ♦ All of this will be complemented by 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.



*Improve your knowledge in Pediatric Microbiota through this program, where you will find the best didactic material with real case studies.*

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*This Postgraduate Certificate is the best investment you can make when selecting a refresher program for two reasons: in addition to updating your knowledge of Pediatric Microbiota, you will obtain a qualification endorsed by TECH Global University.*

The program includes, in its teaching staff, professionals belonging to the field of medicine and pharmacy, who bring to this training the experience of their work, in addition to recognized specialists from prestigious reference societies and Universities.

Its Multimedia Content, elaborated with the latest Educational Technology, will allow the Professional a situated and contextual learning, that is to say, a Simulated Environment that will provide an immersive specialization programmed to train in real situations.

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

*The Postgraduate Certificate allows training through simulated environments, which provide immersive learning programed to train for real situations.*

*This 100% online course will allow you to combine your studies with your professional work while increasing your knowledge in this field.*



# 02

# Objectives

The main objective of the program is the development of theoretical and practical learning, so that the professional can practically and rigorously master the study of Microbiotics in daily professional practice. Consequently, the Postgraduate Certificate in Pediatric Microbiota in Pharmacy responds to the continuous professional demand for quality training in this area, serving as a means to use microbiological therapy as a preventive or therapeutic tool in maintaining the health of children and adolescents.





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*This Postgraduate Certificate is designed to help you expand your knowledge in Pediatric Microbiota with the use of the latest educational technology to contribute quality and safety to decision-making, diagnosis, treatment, and patient support.*



## General Objective

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- ♦ This Postgraduate Certificate fulfills a need in today's society, a quality and updated training program that allows for the use of microbiological therapy as a preventive or therapeutic tool for health maintenance.
- ♦ Offer a complete and wide vision of the current situation in the area of the Human Microbiota, in its widest sense, the importance of the balance of this Microbiota as a direct effect on our health, with the multiple factors that influence it positively and negatively.
- ♦ Arguments based in scientific evidence show how Microbiota and its interaction with many non-digestive pathologies of autoimmune nature, or its relation with the dysregulation of the of the immune system, its capacity for disease prevention and as a support to other medical treatments, are all currently being given a privileged position.
- ♦ The program will promote work strategies based on the integral approach of the patient as a reference model, not only focusing on the symptomatology of the specific pathology, but also looking at its interaction with Microbiota and how the latter may be influencing it.
- ♦ Encourage professional stimulation through continuing education and research.





## Specific Objectives

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- ◆ Become familiar with mother-infant symbiosis.
- ◆ Understand the factors influencing the Intestinal Microbiota of the mother in the gestational stage and at the time of delivery
- ◆ Understand the influence of the type of delivery on the microbiota of the neonatal
- ◆ Understand the influence of the type of breastfeeding on the infant's microbiota
- ◆ Know the clinical applications of Probiotics and Prebiotics in the pediatric patient
- ◆ Understand how antibiotics and other psychotropic treatments influence child Microbiota.
- ◆ Delve deeper into the current lines of research on the subject.

# 03

# Course Management

The program's teaching staff includes leading specialists in Human Microbiota and other related areas, who bring their years of work experience to this training program. In addition, other specialists of recognized prestige participate in its design and elaboration, completing the program in an interdisciplinary manner. All of which is carried out with the aim of providing Pharmacists with the most complete educational information and contents so that they can practice their profession with greater guarantees of success and serve pediatric customers with a deeper knowledge of the functioning of their microbiota.





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*Learn from leading professionals  
the latest advances in procedures  
in the field of Pediatric Microbiota.*

## International Guest Director

Dr. Harry Sokol is internationally recognized in the field of Gastroenterology for his research on the gut microbiota. With more than 2 decades of experience, he has established himself as a true scientific authority thanks to his numerous studies on the role of microorganisms in the human body and their impact on chronic inflammatory bowel diseases. In particular, his work has revolutionized medical understanding of this organ, often referred to as the “second brain.”

Among Dr. Sokol’s contributions, he and his team have opened a new line of advances on the bacterium *Faecalibacterium prausnitzii*. In turn, these studies have led to crucial discoveries about its anti-inflammatory effects, opening the door to revolutionary treatments.

In addition, the expert is distinguished by his commitment to the dissemination of knowledge, whether by teaching academic programs at the Sorbonne University or by publishing works such as the comic book *The Extraordinary Powers of the Belly*. His scientific publications appear continuously in world-renowned journals and he is invited to specialized congresses. At the same time, he carries out his clinical work at the Saint-Antoine Hospital (AP-HP/University Hospital Federation IMPEC/Sorbonne University), one of the most renowned hospitals in Europe.

On the other hand, Dr. Sokol began his medical studies at Paris Cité University, showing early on a strong interest in health research. A chance meeting with the eminent Professor Philippe Marteau led him to Gastroenterology and the enigmas of the Intestinal Microbiota. Throughout his career, he also broadened his horizons by training in the United States, at Harvard University, where he shared experiences with leading scientists. Upon his return to France, he founded his own team where he researches on Fecal Transplantation, offering state-of-the-art therapeutic innovations.



## Dr. Sokol, Harry

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- Director of Microbiota, Gut and Inflammation at Sorbonne University, Paris, France
- Specialist Physician at the Gastroenterology Department of the Saint-Antoine Hospital (AP-HP), Paris, France
- Group Leader at the Institut Micalis (INRA)
- Coordinator of the Center of Microbiome Medicine of Paris FHU
- Founder of the pharmaceutical company Exeliom Biosciences (Nextbiotix)
- President of the Fecal Microbiota Transplantation Group
- Medical Specialist in different hospitals in Paris
- Doctorate in Microbiology at the Université Paris-Sud
- Postdoctoral Fellowship at the Massachusetts General Hospital, Harvard University Medical School
- Degree in Medicine, Hepatology and Gastroenterology at Université Paris Cité

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

## Management



### Fernández Montalvo, María Ángeles

- ◆ Degree in Biochemistry from the University of Valencia
- ◆ Specialist Degree in Nutrition, Dietetics and Diet Therapy
- ◆ Expert in Microbiological Food Analysis
- ◆ Specialist Degree in Nutrition, Food, and Cancer. Prevention and Treatment.
- ◆ Expert in Vegetarian, Clinical, and Sports Nutrition
- ◆ Specialist in food intolerances and the study of the intestinal microbiota.
- ◆ Numerous courses on Intestinal microbiota, methods of analysis, and applications
- ◆ Diploma in Natural and Orthomolecular Medicine
- ◆ Expert in the current use of Nutricosmetics and Nutraceuticals in general.
- ◆ Expert in point-of-sale management in Pharmacies and Parapharmacies.
- ◆ Member of the Spanish Society of Probiotics and Prebiotics (SEPyP).
- ◆ Member of the Spanish Society of Dietetics (SEDCA)
- ◆ Member of the Spanish Society of Nutrition (SEÑ)



## Professors

### Dr. Lombó Burgos, Felipe

- ♦ Doctor in Biology from the University of Oviedo
- ♦ Full professor at the University of Oviedo

### Dr. López López, Aranzazu

- ♦ Ph.D. in Biological Sciences
- ♦ Researcher in oral microbiology at FISABIO foundation.
- ♦ Public Health Research Center of Valencia

### Dr. Méndez García, Celia

- ♦ Doctorate in Microbiology from the University of Oviedo.
- ♦ Research at Novartis Laboratories (Boston).

### Dr. Gonzalez Rodríguez, Silvia P.

- ♦ PhD in Medicine and Surgery from the University of Alcalá de Henares, specialty in Gynecology
- ♦ Deputy Medical Research Coordinator and Clinical Chief of the Menopause and Osteoporosis Unit at the Velázquez Medical Cabinet (Madrid)

### Dr. Álvarez García, Verónica

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

### Dr. Solís Sánchez, Gonzalo

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

### Dr. Suárez Rodríguez, Marta

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

### 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 José

- ♦ Degree in Medicine
- ♦ Specialist in Clinical Allergology and Immunology
- ♦ Specialist in Sports Medicine

04

# Structure and Content

The content structure has been designed by a team of professionals from the best hospitals and universities in the country, aware of the relevance of current events to prevent, detect and intervene in those pathologies related to alterations in the human microbiota, and committed to quality teaching through new educational technologies. All of which is aimed at training Pharmacists to be much more competent and prepared to prescribe treatments that help and favor the microbiome of pediatric customers.





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*This Postgraduate Certificate in Pediatric Microbiota in Pharmacy comprises the most complete and up-to-date scientific program on the market.*

## Module 1. Microbiota in Neonatology and Pediatrics

- 1.1. Mother-Child Symbiosis
- 1.2. Influencing Factors on the Gut Microbiota of the Mother during Pregnancy and during Birth Influence of the Type of Delivery on the Microbiota of the New-born
- 1.3. Type and Duration of Breastfeeding and Its Influence on the Infant Microbiota
  - 1.3.1. Breast Milk: Composition of the Breast Milk Microbiota Importance of Breastfeeding in the New-born's Microbiota
  - 1.3.2. Artificial Breastfeeding Use of Probiotics and Prebiotics in Infant Milk Formulas
- 1.4. Clinical Applications of Probiotics and Prebiotics in Pediatric Patients
  - 1.4.1. Digestive Diseases: Functional Digestive Disorders, Diarrhea, and Necrotizing Enterocolitis Intolerances
  - 1.4.2. Non-Digestive Diseases: Respiratory and ENT, Atopic Diseases, Metabolic Diseases Allergies.
- 1.5. Influence of Antibiotic and other Psychotropic Treatments on Infant Microbiota
- 1.6. Current Lines of Research





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*A unique, key, and decisive master's degree experience to boost your professional development.*

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.





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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

In a given clinical 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. Pharmacists learn better, more quickly 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. 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 potential or because of its uniqueness or rarity. It is essential that the case is based on current professional life, attempting to recreate the actual conditions in a pharmacist'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. Pharmacists who follow this method not only achieve the assimilation of concepts, but also develop their mental capacity through exercises to evaluate real situations and apply 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.

*Pharmacists 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 115,000 pharmacists with unprecedented success, in all clinical specialties. Our pedagogical methodology is developed in a highly demanding environment, with a university student body with a high 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 (we learn, unlearn, forget, and re-learn). Hence, 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 created specifically for the course by specialist pharmacists who will be teaching the course, so that the didactic development is highly specific and accurate.

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.



### Video Techniques and Procedures

We bring you closer to the latest techniques, to the newest educational advances, to the forefront of current pharmaceutical care procedures. 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

The Postgraduate Certificate in Pediatric Microbiota in Pharmacy guarantees, in addition to the most rigorous and updated specialization, access to a Certificate issued by TECH - Technological University.





*Successfully complete this training  
and receive your diploma without the  
hassle of travel or paperwork.*

This program will allow you to obtain your **Postgraduate Certificate in Pediatric Microbiota in Pharmacy** 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 Systemic Lupus Erythematosus**

Modality: **online**

Duration: **6 weeks**

Accreditation: **5 ECTS**



\*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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health confidence people  
education information tutors  
guarantee accreditation teaching  
institutions technology learning  
community commitment  
personalized service innovation  
knowledge present  
development languages  
virtual classroom



**Postgraduate Certificate**  
Pediatric Microbiota  
in Pharmacy

- » Modality: online
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