

Postgraduate Certificate

Antibiotic Resistance
in Streptococcus, Enterococcus
and Staphylococcus



Postgraduate Certificate

Antibiotic Resistance in Streptococcus, Enterococcus and Staphylococcus

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

Website: www.techtute.com/us/medicine/postgraduate-certificate/antibiotic-resistance-streptococcus-enterococcus-staphylococcus

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01

Introduction

Antibiotic resistance is a global public health crisis. Among the most problematic pathogens are Streptococcus, Enterococcus and Staphylococcus, which are responsible for a wide range of infections in humans. According to the World Health Organization, infections caused by these microorganisms are associated with high mortality, underscoring the need to develop new management strategies. In this context, physicians play an important role in ensuring effective therapies for infections caused by these bacteria. It is therefore essential that they remain abreast of the most innovative treatments to address these pathologies. In view of this, TECH implements a pioneering online university program dedicated to this subject.



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With this 100% online Postgraduate Certificate, you will master the most effective strategies to optimize the diagnosis, treatment and management of infections caused by bacteria"

According to recent data from the European Center for Disease Prevention and Control, Streptococcus, Enterococcus and Staphylococcus bacteria are responsible for more than 50% of nosocomial infections in Europe. Resistance mechanisms, such as the production of beta-lactamases or the alteration of target sites, complicate the effective treatment of these infections. Faced with this reality, physicians need to deepen their understanding of emerging strategies to efficiently manage antibiotic resistance in these pathogens and therefore improve the well-being of their patients.

In this context, TECH has created a revolutionary Postgraduate Certificate on Antibiotic Resistance in Streptococcus, Enterococcus and Staphylococcus. Designed by specialists in this field, the academic itinerary will explore in depth the natural habitat of Gram-positive pathogens. In this way, graduates will be able to identify the risks of transmission in clinical settings. In addition, the syllabus will address in detail the various treatment options for pathologies such as Streptococcus pneumoniae, Enterococcus faecium and Staphylococcus aureus.

Moreover, throughout the program, physicians will develop advanced skills to adjust antibiotic treatments according to patient response and sensitivity test results, ensuring maximum effectiveness and minimizing side effects.

It should be noted that the university program acquires greater dynamism thanks to the multimedia pills and the wide variety of didactic resources offered by TECH (such as specialized readings, interactive summaries or case studies). Along the same lines, TECH's Relearning methodology will allow practitioners to obtain a much more effective update in a shorter period of time. Therefore, their learning process will be completely natural and progressive, so they will not have to invest long hours of study. In addition, the teaching staff will be available at all times to offer graduates personalized advice and resolve any doubts they may have about the syllabus.

This **Postgraduate Certificate in Antibiotic Resistance in Streptococcus, Enterococcus and Staphylococcus** contains the most complete and up-to-date scientific program on the market. The most important features include:

- ♦ The development of practical cases presented by experts in Microbiology, Medicine and Parasitology.
- ♦ The graphic, schematic and eminently practical contents with which it is conceived gather scientific and practical information on those disciplines that are indispensable 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



An extremely comprehensive program that will allow you to reconcile your daily activities with a quality qualification"

“

You will learn about the various treatment options to combat Streptococcus pneumoniae and optimize the well-being of your patients”

The program’s teaching staff includes professionals from the field 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 the professional must try to solve the different professional practice situations that arise during the course. For this purpose, students will be assisted by an innovative interactive video system created by renowned and experienced experts.

Are you looking to incorporate into your practice the most innovative strategies to promote the rational use of antibiotics to minimize the development of resistance? Achieve it through this program in only 150 hours.

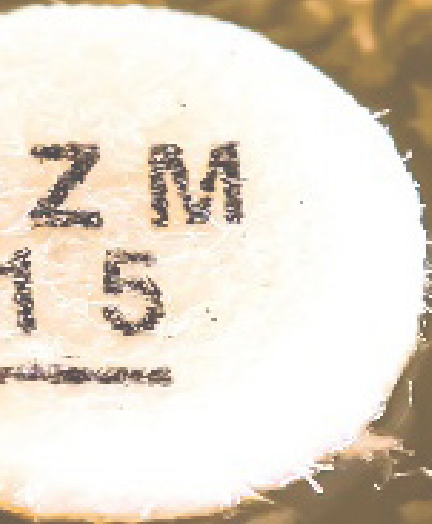
The Relearning system applied by TECH in its programs reduces the long hours of study so frequent in other teaching methods.



02 Objectives

Upon completion of this Postgraduate Certificate, clinicians will have a holistic understanding of the mechanisms of antibiotic resistance in *Streptococcus*, *Enterococcus* and *Staphylococcus*. Similarly, graduates will develop competencies to interpret laboratory tests to detect infections and determine antibiotic rejection. In addition, professionals will design and implement infection prevention and control protocols to reduce the transmission of resistant bacteria in healthcare settings.





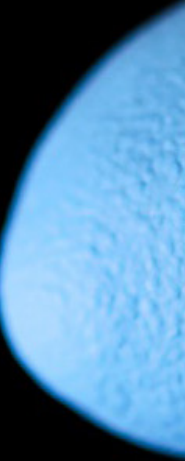
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You will acquire competences to identify bacteria and their resistance profiles using the most advanced diagnostic methods”



General Objectives

- ♦ Examine the main infections by Gram Positive Bacteria, including their natural habitat, Nosocomial Infections and community-acquired infections
- ♦ Determine the clinical significance, resistance mechanisms and treatment options for different Gram-positive Bacteria





Specific Objectives

- Explore the implications of antibiotic resistance of the major Gram Positive Bacteria on Public Health and clinical practice
- Discuss strategies to mitigate antibiotic resistance in Gram Positive Bacteria



You will have access to the multimedia resource library and the entire syllabus from day one. No fixed timetables, no attendance!"



03

Course Management

For the design and delivery of this Postgraduate Certificate, TECH has brought together leading experts in Antibiotic Resistance in Streptococcus, Enterococcus and Staphylococcus. These professionals have an extensive professional background, where they have been part of renowned health institutions to optimize the quality of life of numerous patients. In this way, they have developed teaching materials that stand out both for their high quality and their full applicability to the needs of today's labor market. Thanks to this, doctors will enjoy an efficient update that will optimize their daily practice considerably.



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Leading experts in Antibiotic Resistance in Streptococcus, Enterococcus and Staphylococcus have come together in this program to show you their knowledge in this field"

Management



Dr. Ramos Vivas, José

- ♦ Director of the Banco Santander-Universidad Europea del Atlántico Chair in Innovation
- ♦ Researcher at the Center for Innovation and Technology of Cantabria (CITICAN)
- ♦ Academic of Microbiology and Parasitology at the European University of the Atlantic
- ♦ Founder and former director of the Cellular Microbiology Laboratory of the Valdecilla Research Institute (IDIVAL)
- ♦ PhD in Biology from the University of León
- ♦ Doctor in Sciences from the University of Las Palmas de Gran Canaria
- ♦ Degree in Biology from the University of Santiago de Compostela
- ♦ Master's Degree in Molecular Biology and Biomedicine from the University of Cantabria
- ♦ Member of: CIBERINFEC (MICINN-ISCIII), Member of the Spanish Society of Microbiology and Member of the Spanish Network of Research in Infectious Pathology

Professors

Dr. Domenech Lucas, Mirian

- ♦ Researcher at the Spanish Reference Laboratory for Pneumococci, National Centre of Microbiology
- ♦ Researcher in International Groups led from College London, UK and Radboud University in the Netherlands
- ♦ Academician of the Department of Genetics, Physiology and Microbiology of UCM
- ♦ PhD in Biology from the Complutense University of Madrid
- ♦ Degree in Biology, specializing in Biotechnology from UCM
- ♦ Diploma of Advanced Studies, UCM



04

Structure and Content

Through this Postgraduate Certificate, practitioners will gain a comprehensive understanding of the mechanisms of antibiotic rejection in Streptococcus, Enterococcus and Staphylococcus. The syllabus will investigate the causes of Gram-positive bacterial infections, enabling practitioners to identify symptoms indicative of bacterial infection. In addition, the program will cover Mycobacterium Tuberculosis in depth and present the different treatment options available. In this way, clinicians will acquire advanced skills to manage infections caused by resistant strains, including patient monitoring.



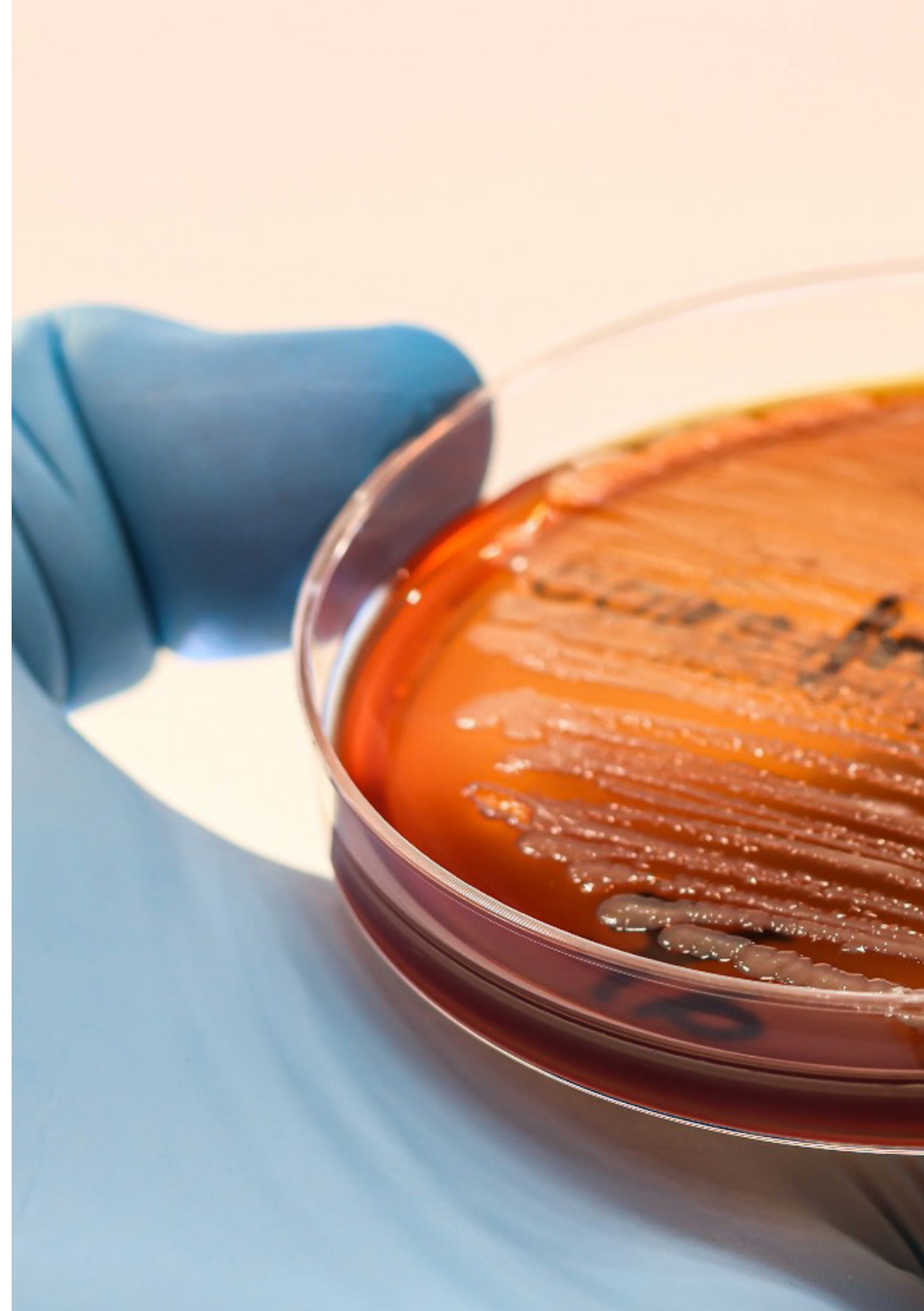


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You will be highly qualified to select the most effective antibiotic treatments based on pathogen-specific resistance profiles”

Module 1. Antibiotic Resistance in *Streptococcus*, *Enterococcus* and *Staphylococcus*

- 1.1. Infections Due to Gram-Positive Bacteria
 - 1.1.1. Natural Habitat of Gram-Positive Pathogens
 - 1.1.2. Nosocomial Infections due to Gram-Positive Bacteria
 - 1.1.3. Community-acquired Infections by Gram-Positive Bacteria
- 1.2. In Vitro and in Vivo Systems for the Study of Resistance in Gram-Positive Bacteria
 - 1.2.1. *Biofilms*
 - 1.2.2. Cellular Models
 - 1.2.3. Animal Models.
- 1.3. *Streptococcus pneumoniae*
 - 1.3.1. Clinical Significance
 - 1.3.2. Resistance Mechanisms
 - 1.3.3. *Biofilms*
 - 1.3.4. Treatment Options
- 1.4. *Streptococcus Pyogenes*
 - 1.4.1. Clinical Significance
 - 1.4.2. Resistance Mechanisms
 - 1.4.3. *Biofilms*
 - 1.4.4. Treatment Options
- 1.5. *Streptococcus Agalactiae*
 - 1.5.1. Clinical Significance
 - 1.5.2. Resistance Mechanisms
 - 1.5.3. *Biofilms*
 - 1.5.4. Treatment Options
- 1.6. *Enterococcus Faecalis*
 - 1.6.1. Clinical Significance
 - 1.6.2. Resistance Mechanisms
 - 1.6.3. *Biofilms*
 - 1.6.4. Treatment Options





- 1.7. *Enterococcus Faecium*
 - 1.7.1. Clinical Significance
 - 1.7.2. Resistance Mechanisms
 - 1.7.3. *Biofilms*
 - 1.7.4. Treatment Options
- 1.8. *Staphylococcus aureus*
 - 1.8.1. Clinical Significance
 - 1.8.2. Resistance Mechanisms
 - 1.8.3. *Biofilms*
 - 1.8.4. Treatment Options
- 1.9. *Mycobacterium tuberculosis*
 - 1.9.1. Clinical Significance
 - 1.9.2. Resistance Mechanisms
 - 1.9.3. Treatment Options
- 1.10. Resistance in Other Gram-Positive Bacteria
 - 1.10.1. Coagulase-Negative Staphylococcus
 - 1.10.2. *Clostridioides Difficile*
 - 1.10.3. Emerging Gram Positive Pathogens

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A contextual and realistic educational experience that will immerse you in the reality of a profession full of challenges. Enroll now!”

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 Certificate in Antibiotic Resistance in Streptococcus, Enterococcus and Staphylococcus guarantees, in addition to the most accurate and up-to-date education, access to a Postgraduate Certificate issued by TECH Global University.



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Successfully complete this program and receive your university qualification without having to travel or fill out laborious paperwork”

This private qualification will allow you to obtain a **Postgraduate Certificate in Antibiotic Resistance in Streptococcus, Enterococcus and Staphylococcus** 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** private qualification, 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 Antibiotic Resistance in Streptococcus, Enterococcus and Staphylococcus**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 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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