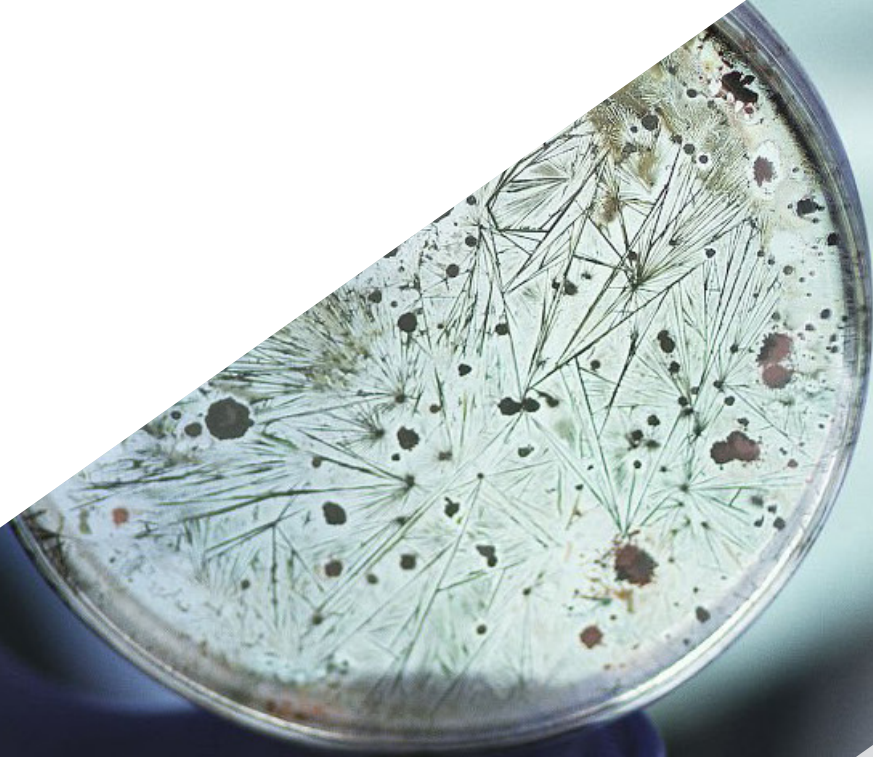


Postgraduate Certificate

New Antimicrobial Molecules





Postgraduate Certificate New Antimicrobial Molecules

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

Website: www.techtute.com/us/medicine/postgraduate-certificate/new-antimicrobial-molecules

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01

Introduction

Antimicrobial resistance has become one of the main threats to global health, compromising the effectiveness of conventional treatments and increasing the mortality associated with bacterial infections. So much so that the World Health Organization estimates that these microorganisms cause approximately 700,000 deaths per year. In this context, physicians play a fundamental role in the development of New Antimicrobial Molecules to counteract emerging resistance and guarantee the availability of effective treatments. It is therefore essential for these specialists to keep abreast of the latest advances in this field. In this framework, TECH launches a cutting-edge online university program that brings together the most recent innovations in Antimicrobial Molecules.



“

Thanks to this 100% online Postgraduate Certificate, you will effectively manage complex clinical cases involving infections by multi-resistant pathogens using New Antimicrobial Molecules"

In recent years, bacterial resistance has complicated the treatment of many infections, highlighting the need for new therapeutic alternatives. Faced with this, the scientific community has made progress in the development of New Antimicrobial Molecules, ranging from bioprospecting or medicinal chemistry to advances in bioinformatics. In order to provide excellent services, professionals need to acquire advanced skills to make the most of these tools and therefore optimize the quality of life of their patients.

In this context, TECH has created a pioneering and revolutionary Postgraduate Certificate in New Antimicrobial Molecules. The academic itinerary will address the methods of discovery of these elements, taking into account key factors such as advances in screening technology, drug design or functional genomics. Along the same lines, the syllabus will delve into the applications of new drugs (including penicillins, cyclic lipopeptides or monobactams), examining their different mechanisms of action, therapeutic uses and possible adverse effects. In this way, graduates will obtain advanced skills to apply infection prevention and control protocols in clinical settings.

It should be noted that this university program is taught 100% online, giving physicians the necessary flexibility to adapt to their schedules. In addition, the Relearning system, based on the repetition of key concepts to fix the knowledge, will facilitate an effective and rigorous update. On the other hand, the teaching team will be available at all times to provide graduates with personalized advice and resolve any doubts that may arise during the course of the program. Undoubtedly, a high intensity experience that will allow physicians to optimize their daily practice and experience a considerable leap in quality in their careers.

This **Postgraduate Certificate in New Antimicrobial Molecules** 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.



Give your medical career a quality boost by incorporating the latest advances in innovative antimicrobial molecules into your work"

“

You will delve into how Cyclic Lipopeptides contribute to combat a wide range of Gram Positive Bacteria"

The program's teaching staff includes professionals from the sector who contribute their work experience to this specializing 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.

Looking to gain skills in interpreting the scientific evidence related to New Antimicrobial Molecules? Get it through this program in only 180 hours.

With TECH's Relearning method you will assimilate the essential concepts in a fast, natural and precise way.

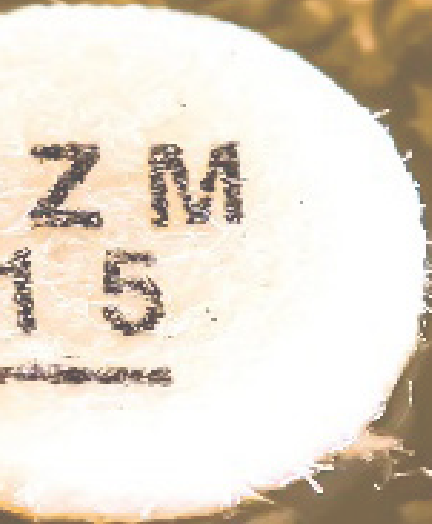


02

Objectives

Upon completion of this Postgraduate Certificate, doctors will have a holistic understanding of the molecular and genetic mechanisms that allow microorganisms to develop resistance to antibiotics. Graduates will also incorporate into their daily clinical practice the most innovative strategies to prevent and mitigate antimicrobial resistance, including both the use of combination therapies and drug rotation. In addition, professionals will be able to apply new antimicrobial molecules in the treatment of infections, as well as to monitor the results.





“

You will master advanced technologies, such as Genetic Sequencing, to identify resistant pathogens and assess their antimicrobial sensitivity profile”



General Objectives

- ♦ Understand how bacterial resistance evolves as new antibiotics are introduced into clinical practice
- ♦ Understand the colonization and infection of patients in Intensive Care Units (ICUs), the different types and risk factors associated with infection
- ♦ Evaluate the impact of Nosocomial Infections on the critically ill patient, including the importance of risk factors and their impact on length of stay in the ICU
- ♦ Analyze the effectiveness of infection prevention strategies, including the use of quality indicators, evaluation tools and continuous improvement tools
- ♦ Understand the pathogenesis of Gram-negative Infections, including the factors related to these bacteria and patients themselves
- ♦ 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
- ♦ Substantiate the importance of Proteomics and Genomics in the Microbiology laboratory including recent advances and technical and bioinformatics challenges
- ♦ Acquire knowledge on the dissemination of resistant bacteria in food production
- ♦ Study the presence of multidrug-resistant bacteria in the environment and wildlife, as well as to understand their potential impact on public health
- ♦ Acquire expertise in innovative antimicrobial molecules, including antimicrobial peptides and bacteriocins, bacteriophage enzymes and nanoparticles
- ♦ Develop expertise in the discovery methods for new antimicrobial molecules
- ♦ Gain specialized knowledge on Artificial Intelligence (AI) in Microbiology, including current expectations, emerging areas and its cross-cutting nature
- ♦ Understand the role that AI will play in Clinical Microbiology, including the technical lines and challenges for its implementation and deployment in laboratories



Specific Objectives

- Analyze the mechanisms of action, antimicrobial spectrum, therapeutic uses and adverse effects of new antimicrobial molecules
- Differentiate new antimicrobial molecules among the antibiotic families: penicillins, cephalosporins, carbapenemics, glycopeptides, macrolides, tetracyclines, aminoglycosides, quinolones and others



You will have a wide range of learning resources at your disposal, accessible 24 hours a day"



03

Course Management

TECH aims to offer the most pragmatic and renewed programs in the academic market. For this reason, it carries out an exhaustive process to constitute its teaching staff. Thanks to this, the present Postgraduate Certificate has a teaching team made up of renowned specialists in the field of New Antimicrobial Molecules. These professionals not only stand out for their solid knowledge in this area, but also for their vast professional experience in prestigious health institutions. In this way, they have created teaching materials characterized by their excellent quality. Therefore, doctors will have access to a first-class program that will improve their practice.



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*Get updated on New Antimicrobial Molecules
by the best experts in the field. Launch your
professional career with TECH!"*

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. Pacheco Herrero, María del Mar

- ♦ Project Manager at the European University of the Atlantic, Cantabria
- ♦ Principal Researcher at the Pontifical Catholic University Madre y Maestra (PUCMM), Dominican Republic
- ♦ Founder and Director of the Neuroscience Research Laboratory at PUCMM, Dominican Republic
- ♦ Scientific Director of the Dominican Republic Node of the Latin American Brain Bank for the Study of Neurodevelopmental Diseases, University of California, USA.
- ♦ Researcher at the Ministry of Higher Education, Science and Technology, Dominican Republic
- ♦ Researcher at the German Academic Exchange Service (Deutscher Akademischer Austauschdienst) (DAAD), Germany
- ♦ International Advisor at the National Dementia BioBank of the National Autonomous University of Mexico
- ♦ Postdoctoral Research Stays at the University of Antioquia (Colombia) and the University of Lincoln (UK)
- ♦ PhD in Neurosciences from the University of Cadiz
- ♦ Master's Degree in Biomedicine from the University of Cadiz
- ♦ Master's Degree in Monitoring of Clinical Trials and Pharmaceutical Development INESEM Business School
- ♦ Degree in Biochemistry from the University of Cordoba
- ♦ Member of: National Career of Researchers in Science, Technology and Innovation, Dominican Republic and Mexican Council of Neurosciences



04

Structure and Content

By means of this Postgraduate Certificate, doctors will be characterized by their exhaustive knowledge of the mechanisms of action of New Antimicrobial Molecules. The syllabus will delve into the use of emerging drugs such as penicillins, cephalosporins and carbapenemics, taking into account their antimicrobial spectra and therapeutic uses. In this way, graduates will gain advanced skills to personalize antimicrobial treatments, based on the clinical profiles of patients and the results obtained from bacterial sensitivity tests. In addition, the program will include a disruptive module on opportunities in the development of new antimicrobial molecules.





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You will master the most effective strategies to minimize the emergence of antimicrobial resistance, including the development of drugs with innovative mechanisms of action"

Module 1. New Antimicrobial Molecules

- 1.1. New Antimicrobial Molecules
 - 1.1.1. The Need for New Antimicrobial Molecules
 - 1.1.2. Impact of New Molecules on Antimicrobial Resistance
 - 1.1.3. Challenges and Opportunities in the Development of New Antimicrobial Molecules
- 1.2. Methods of Discovery of New Antimicrobial Molecules
 - 1.2.1. Traditional Discovery Approaches
 - 1.2.2. Advances in Screening Technology
 - 1.2.3. Rational Drug Design Strategies
 - 1.2.4. Biotechnology and Functional Genomics
 - 1.2.5. Other Innovative Approaches
- 1.3. New Penicillins: New Drugs, their Future Role in Anti-Infective Therapeutics
 - 1.3.1. Classification
 - 1.3.2. Mechanism of Action
 - 1.3.3. Antimicrobial Spectrum
 - 1.3.4. Therapeutic Uses
 - 1.3.5. Adverse Effects
 - 1.3.6. Presentation and Dosage
- 1.4. Cephalosporins
 - 1.4.1. Classification
 - 1.4.2. Mechanism of Action
 - 1.4.3. Antimicrobial Spectrum
 - 1.4.4. Therapeutic Uses
 - 1.4.5. Adverse Effects
 - 1.4.6. Presentation and Dosage
- 1.5. Carbapenemics and Monobactams
 - 1.5.1. Classification
 - 1.5.2. Mechanism of Action
 - 1.5.3. Antimicrobial Spectrum
 - 1.5.4. Therapeutic Uses
 - 1.5.5. Adverse Effects
 - 1.5.6. Presentation and Dosage
- 1.6. Cyclic Glycopeptides and Lipopeptides
 - 1.6.1. Classification
 - 1.6.2. Mechanism of Action
 - 1.6.3. Antimicrobial Spectrum
 - 1.6.4. Therapeutic Uses
 - 1.6.5. Adverse Effects
 - 1.6.6. Presentation and Dosage
- 1.7. Macrolides, Ketolides and Tetracyclines
 - 1.7.1. Classification
 - 1.7.2. Mechanism of Action
 - 1.7.3. Antimicrobial Spectrum
 - 1.7.4. Therapeutic Uses
 - 1.7.5. Adverse Effects
 - 1.7.6. Presentation and Dosage
- 1.8. Aminoglycosides and Quinolones
 - 1.8.1. Classification
 - 1.8.2. Mechanism of Action
 - 1.8.3. Antimicrobial Spectrum
 - 1.8.4. Therapeutic Uses
 - 1.8.5. Adverse Effects
 - 1.8.6. Presentation and Dosage



- 1.9. Lincosamides, Streptogramins and Oxazolidinones
 - 1.9.1. Classification
 - 1.9.2. Mechanism of Action
 - 1.9.3. Antimicrobial Spectrum
 - 1.9.4. Therapeutic Uses
 - 1.9.5. Adverse Effects
 - 1.9.6. Presentation and Dosage
- 1.10. Rifamycins and other Developmental Antimicrobial Molecules
 - 1.10.1. Rifamycins: Classification
 - 1.10.1.2. Mechanism of Action
 - 1.10.1.3. Antimicrobial Spectrum
 - 1.10.1.4. Therapeutic Uses
 - 1.10.1.5. Adverse Effects
 - 1.10.1.6. Presentation and Dosage
 - 1.10.2. Antibiotics of Natural Origin
 - 1.10.3. Synthetic Antimicrobial Agents
 - 1.10.4. Antimicrobial Peptides
 - 1.10.5. Antimicrobial Nanoparticles

“With TECH you have the comfort in your hands by having the time flexibility to perform your sessions at any time of the day. 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. 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.

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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 New Antimicrobial Molecules guarantees, in addition to the most accurate and up-to-date knowledge, access to a Postgraduate Certificate issued by TECH Global University.



The image features three black graduation caps (mortarboards) against a bright blue sky with light, wispy clouds. The caps are positioned at different angles, creating a sense of depth and movement. The bottom right corner of the image is overlaid with a white diagonal shape that contains text.

“

*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 New Antimicrobial Molecules** 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 New Antimicrobial Molecules**

Modality: **online**

Duration: **6 weeks**

Accreditation: **6 ECTS**



future

health confidence people

education information tutors

guarantee accreditation teaching

institutions technology learning

community commitment

tech global
university

personalized service innovation

knowledge present

online training

development language

virtual classroom

Postgraduate Certificate
New Antimicrobial
Molecules

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

Postgraduate Certificate

New Antimicrobial Molecules