

Internship Program
Precision Pneumology
Genomics and Big Data



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01 Introduction

The prevention of diseases such as Asthma, COPD or Cystic Fibrosis has become a priority for Genomic Precision Pneumology. Thus, new tools and more specific diagnostic and treatment procedures have emerged. Keeping up with these advances can be challenging for specialists who, most of the time, cannot find programs that fit their priority of acquiring skills in a practical way. For this reason, TECH offers you a pioneering academic modality of its kind, with an intensive and immersive face-to-face format. In it, the doctor will move to a first level hospital institution and, together with great experts, will examine and apply the most modern techniques during 3 weeks of preparation.

“

Become an expert in the new applications of Precision Medicine, in the field of Pneumology, from the face-to-face, practical and intensive stay offered by this program"





The discovery of specific biomarkers to prevent Lung Cancer is one of the most recent scientific results that validates Pneumology's confidence in Precision Medicine. This and other examples are evidence that genomic and genetic studies make it possible to offer much earlier diagnosis and specific treatments to patients with conditions such as tumors, ASMA, COPD or Cystic Fibrosis. Big Data is added to this, with the intention of facilitating the comparison of cases with different respiratory pathologies and, thus, making better clinical decisions for their correct management.

Although there are many advantages brought about by scientific and technological evolution in relation to Genomic Precision Pneumology, it is not easy for the physician to keep up to date with all of them. This is due, to a large extent, to the fact that the educational panorama is plagued by didactic examples with a high theoretical load where the practical applications of this growing discipline are not examined.

TECH, willing to solve this problem, offers specialists an innovative modality where, for 3 weeks, they will have to travel to a prestigious health institution and learn in situ the latest trends and management of this area of health. Thus, this training is distinguished by its 100% practical, face-to-face and intensive nature, where the most innovative protocols in the diagnosis and treatment of real patients with pathologies of diverse complexity are collected and developed.

In addition, to support this comprehensive and direct learning process, the professional will be assisted by a designated tutor, who will check their progress and incorporate tasks to expand their daily praxis. At the same time, you will have the opportunity to work with the best experts in the industry and share first-class experiences with them.

02

Why Study an Internship Program?

Currently, few programs delve into the links between Pneumology and Precision Medicine. The few programs that deal with this subject are based on a high theoretical load. TECH, in response to this context, has developed this intensive classroom-based academic modality, where doctors have the opportunity to update their knowledge in situ, within a first level hospital institution, and with real patients. Thus, from this Internship Program in Genomic Precision Pneumology and Big Data, the specialist will be able to broaden his professional practice by applying more innovative methods of analysis for respiratory pathologies of various kinds.



Thanks to TECH, you will delve into new methods of diagnosis and treatment, based on Genomic Precision techniques, which allow a better management of diseases such as Asthma, COPD and Cystic Fibrosis"

1. Updating from the latest technology available

In the field of Pneumology and Precision Medicine, there are many pieces of equipment that today facilitate the diagnosis and treatment of different pathologies. With TECH, the specialist will achieve a complete mastery of these new tools, handling them directly, in a 100% face-to-face, intensive and immersive learning environment.

2. Gaining In-Depth Knowledge from the Experience of Top Specialists

During the course of this Internship Program, the pulmonologist will support his or her learning through the experiences and joint work with experts of wide prestige. Thanks to them, the specialist will be updated on the most modern techniques and procedures with which Precision Medicine has enriched the study of respiratory diseases. In addition, an assistant tutor will be in charge of helping them to perfect the skills acquired directly in this very complete program.

3. Entering First-Class Clinical Environments

The choice of the medical institutions that are part of this academic modality has demanded a great deal of meticulousness on the part of TECH. Thus, it has ensured that each of the selected instances has the most modern technology and has rigorous and renowned experts in its clinical teams. Based on the quality of these learning scenarios, the physician will complete this program with the skills most in demand in his or her professional environment.



4. Putting the acquired knowledge into daily practice from the very first moment

The academic market is plagued by pedagogical programs that are poorly adapted to the daily work of the specialist and with a heavy theoretical load. However, TECH offers a new learning model, 100% practical, which allows the specialist to develop competencies in a direct way, providing care to real patients and with a duration of 3 weeks.

5. Expanding the Boundaries of Knowledge

With TECH, the pulmonologist will not be limited to a single institution for clinical practice. On the contrary, in this program, the specialist will be able to expand the frontiers of his knowledge, under international criteria, in entities located in different latitudes. This one-of-a-kind learning opportunity can only be realized by the world's largest digital university.



*You will have full practical immersion
at the center of your choice"*

03 Objectives

In an exclusively practical and face-to-face manner, this Internship Program will help physicians to update their knowledge and practice regarding the applications of Precision Medicine in the field of Pneumology. Thus, the educational modality will allow a thorough mastery of the diagnostic and therapeutic tools that genomics has currently provided for respiratory pathologies.



General Objectives

- Update strong knowledge of the different pulmonary pathologies and their genetic basis
- Improve the assessment for the prognosis and prevention of respiratory diseases
- Understand the precision treatment of pulmonary pathology in the daily practice of medicine
- Interpret and generate knowledge with the information provided by primary and secondary sources of Big Data





Specific Objectives

- Delve into the health care and ethical implications of Precision Medicine
- Study in depth the sources of information on Precision Medicine
- Master the omic biomarkers of interest in pneumology
- Determine the contribution of specific care in personalized care
- Study Examine the minimally invasive bronchological techniques that allow genetic and precision diagnosis
- Learn more about minimally invasive pleural techniques that allow genetic and precision diagnosis
- Master endoscopic invasive treatments for specific pneumologic patients
- In-depth knowledge of invasive techniques that increase bronchological diagnostic accuracy
- Address invasive techniques that increase pleural diagnostic accuracy
- Deepen understanding of precision endobronchial treatments
- Rate-depth understanding of genetic links to disease in the pediatric population
- Know the applications of Big Data in the study of the epidemiology of Respiratory Diseases
- Discuss the usefulness of Big Data in the evaluation of procedures used in respiratory pathology
- Explain how Big Data can help in the study of risk factors for Respiratory Diseases
- Describe the utility of Big Data in the management of obstructive diseases and sleep ventilation disorders
- Study in depth the importance of Big Data in the evaluation of other Respiratory Diseases such as pleural pathology, lung cancer, interstitial diseases, pulmonary thromboembolism and pulmonary hypertension
- Specify the applications of Big Data in the field of Neonatal Onset Respiratory Diseases



Enroll in this program and update your knowledge on imaging techniques that enable a more accurate diagnosis of lung function"

04

Educational Plan

With this academic modality, a pioneer of its kind, TECH aims to keep the specialist up to date on the latest considerations in Genomic Precision Pneumology and Big Data. In order to achieve this goal, it has a face-to-face, intensive and immersive stay in a hospital center equipped with the latest technologies in this medical discipline and ready to undertake highly complex clinical procedures. In these instances, they will provide direct care to real patients from day one.

In this completely practical Internship Program, the activities are aimed at developing and perfecting the skills necessary to provide healthcare care in areas and conditions that require highly qualified professionals, and are oriented towards specific expertise for practicing the activity, in a safe environment for the patient and with highly professional performance.

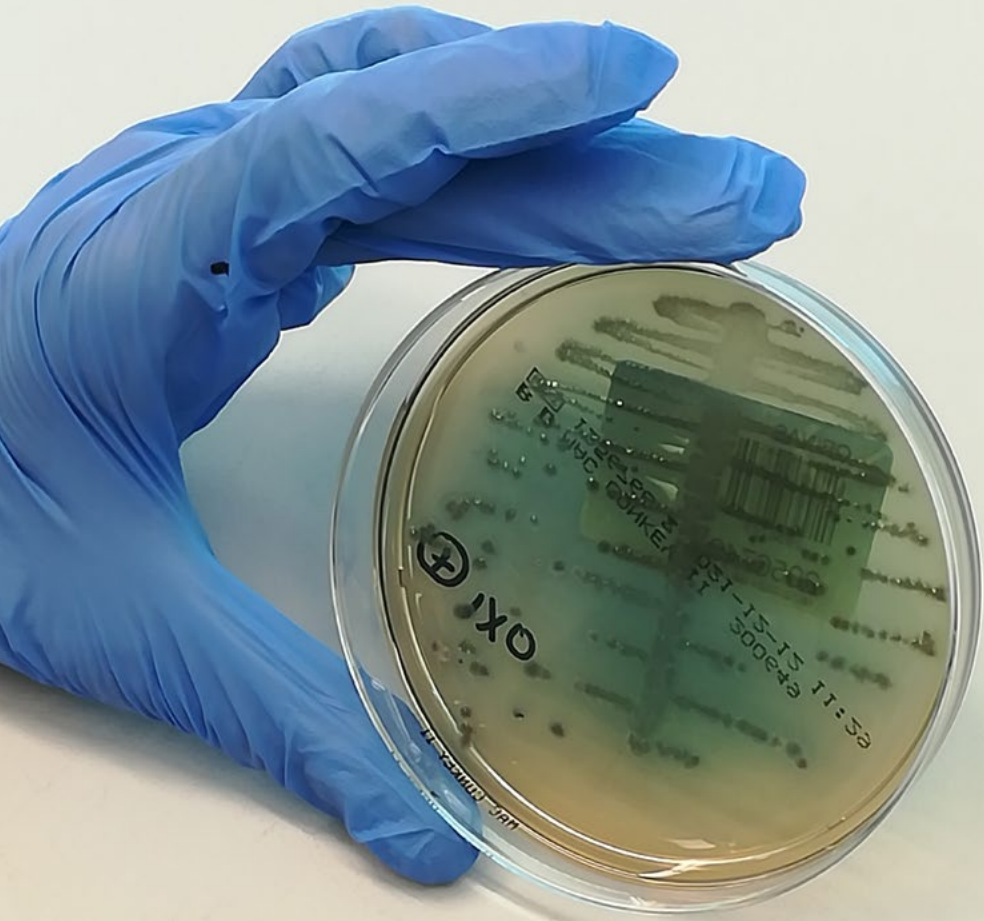
The educational process will be extended in consecutive 8-hour days, Monday through Friday, for a total of 3 weeks. Throughout this Internship Program, the professional will work with highly prestigious experts, learning from their practice and experiences. At the same time, the student will be supported and supervised by an assistant tutor, who will be able to incorporate tasks of varying complexity to the learning dynamics.

The practical education will be carried out with the active participation of the student performing the activities and procedures of each area of competence (learning to learn and learning to do), with the accompaniment and guidance of the professors and other training partners that facilitate teamwork and multidisciplinary integration as transversal competencies for the practice of the medical (learning to be and learning to relate).

The procedures described below will form the basis of the practical part of the training, and their completion is subject to both the suitability of the patients and the availability of the center and its workload, with the proposed activities being as follows:



Receive specialized education in an institution that can offer you all these possibilities, with an innovative academic program and a human team that will help you develop your full potential"



Module	Practical Activity
Precision Genomic Techniques Applied to Pneumology	Identify biomarkers associated with interleukin (IL)-6-dependent inflammatory pathways, such as C-reactive protein (CRP) and fibrinogen that indicate risk of chronic obstructive pulmonary disease (COPD)
	Sampling of biomarkers for asthma by specific methods such as bronchoalveolar lavage
	Extract genomic samples through the induced Sputum
	Implement biomarker studies of procalcitonin (PCT) and CRP to assess the propensity to develop Pneumonias
	Apply studies on the patient's DNA, based on Comparative Genomic Hybridization, to find signs of respiratory disease
	Implement amplification techniques to obtain multiple copies of DNA and determine the existence of specific respiratory pathologies
Pulmonary function studies and imaging techniques for genomic assessment of respiratory diseases	Perform specific anatomopathological and molecular studies to identify signs of tumors in the respiratory tract
	Using high-resolution computed tomography (HRCT) to assess the impact of cystic fibrosis on lung function
	Assess the lung parenchyma and all thoracic structures by means of X-rays
	Determination of severe respiratory distress through ultrasound scans
Interventional Pulmonology and Precision Medicine for diagnosis and treatment	To appreciate the presence of tumor tissues or metastases by means of computed tomography
	Perform one or more biopsies of the pleura with a special needle to obtain an accurate and genetic diagnosis
	Indicate bronchoscopy studies to obtain a total cell count and airway remodeling
Big Data and respiratory diseases	To evaluate thoracic surgery for lung resection after ruling out other therapeutic measures
	Collect information on respiratory infectious diseases
	Describe different COPD patient trajectories through data collected with Big Data
	Manage, thanks to Big Data, the different phenotypes and endotypes that determine the asthmatic patient's response to specific treatments
Genetics, Precision Medicine and Lung Cancer	Correctly interpret the different predictive models obtained through the databases generated by Big Data
	Apply immunotherapies based on specific molecular targets against lung cancer
	Indicate the use of drugs against EGFR mutations and target lung tumors

05 Where Can I Do the Internship Program?

This innovative study modality allows medical professionals access to health institutions equipped with the most advanced resources in the area of Pneumology and Precision Genomics. During 3 weeks of Internship Program, the specialist will be able to handle the most modern technologies for this field of health and apply, through them, new therapeutic procedures on real patients. In this way, you will be able to update all your skills and stand out in the workplace due to your high level of competence.



All the centers chosen by TECH for this intensive classroom learning program are equipped with the most advanced technology and apply the most innovative procedures in precision pneumology"





The student will be able to do this program at the following centers:



Medicine

Hospital HM Modelo

Country: Spain City: La Coruña

Address: Rúa Virrey Osorio, 30, 15011, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Anaesthesiology and Resuscitation
- Palliative Care



Medicine

Hospital HM Rosaleda

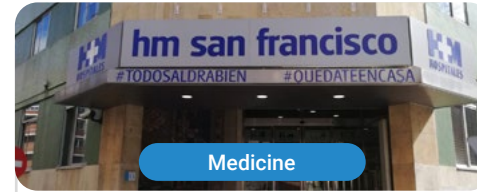
Country: Spain City: La Coruña

Address: Rúa de Santiago León de Caracas, 1, 15701, Santiago de Compostela, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Hair Transplantation
- Orthodontics and Dentofacial Orthopedics



Medicine

Hospital HM San Francisco

Country: Spain City: León

Address: C. Marqueses de San Isidro, 11, 24004, León

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Update in Anesthesiology and Resuscitation
- Trauma Nursing



Medicine

Hospital HM Regla

Country: Spain City: León

Address: Calle Cardenal Landázuri, 2, 24003, León

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Update on Psychiatric Treatment in Minor Patients



Medicine

Hospital HM Nou Delfos

Country: Spain City: Barcelona

Address: Avinguda de Vallcarca, 151, 08023 Barcelona

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Aesthetic Medicine
- Clinical Nutrition in Medicine



Medicine

Hospital HM Madrid

Country: Spain City: Madrid

Address: Pl. del Conde del Valle de Súchil, 16, 28015, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Palliative Care
- Anaesthesiology and Resuscitation



Medicine

Hospital HM Montepíncipe

Country: Spain City: Madrid

Address: Av. de Montepíncipe, 25, 28660, Boadilla del Monte, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Palliative Care
- Aesthetic Medicine



Medicine

Hospital HM Torrelodones

Country: Spain City: Madrid

Address: Av. Castillo Olivares, s/n, 28250, Torrelodones, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Anaesthesiology and Resuscitation
- Palliative Care



Medicine

Hospital HM Sanchinarro

Country	City
Spain	Madrid

Address: Calle de Oña, 10, 28050, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Anaesthesiology and Resuscitation
- Palliative Care



Medicine

Hospital HM Puerta del Sur

Country	City
Spain	Madrid

Address: Av. Carlos V, 70, 28938, Móstoles, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Palliative Care
- Clinical Ophthalmology



Medicine

Policlínico HM Arapiles

Country	City
Spain	Madrid

Address: C. de Arapiles, 8, 28015, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Anaesthesiology and Resuscitation
- Pediatric Dentistry



Medicine

Policlínico HM Cruz Verde

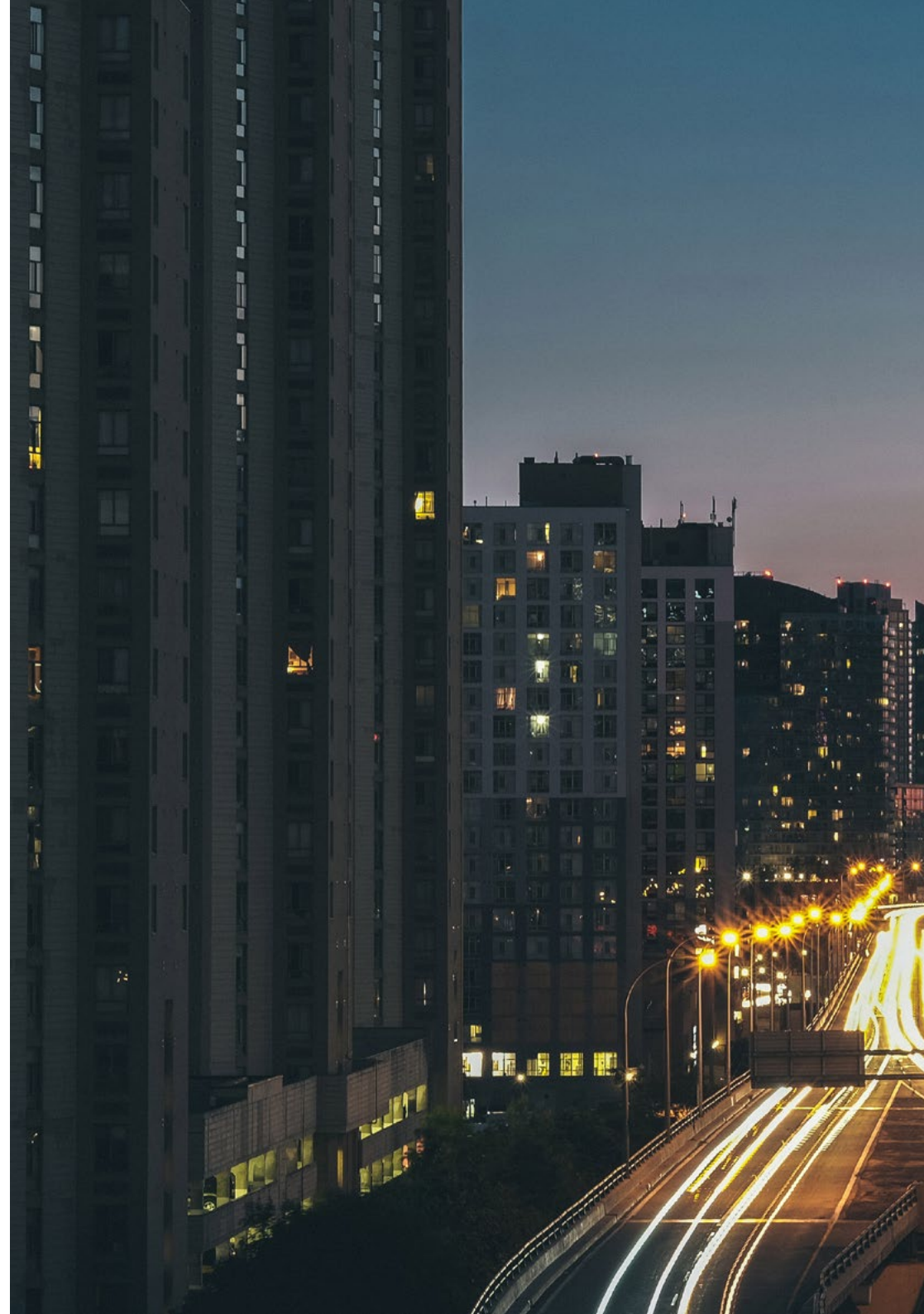
Country	City
Spain	Madrid

Address: Plaza de la Cruz Verde, 1-3, 28807, Alcalá de Henares, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Advanced Clinical Podiatry
- Optical Technologies and Clinical Optometry





Medicine

Policlínico HM Gabinete Velázquez

Country	City
Spain	Madrid

Address: C. de Jorge Juan, 19, 1º 28001, 28001, Madrid

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Clinical Nutrition in Medicine
- Aesthetic Plastic Surgery



Medicine

Policlínico HM Matogrande

Country	City
Spain	La Coruña

Address: R. Enrique Mariñas Romero, 32G, 2º, 15009, A Coruña

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Sports Physiotherapy
- Neurodegenerative Diseases



Medicine

Policlínico HM Rosaleda Lalín

Country	City
Spain	Pontevedra

Address: Av. Buenos Aires, 102, 36500, Lalín, Pontevedra

Network of private clinics, hospitals and specialized centers distributed throughout Spain.

Related internship programs:

- Advances in Hematology and Hemotherapy
- Neurological Physiotherapy

06 General Conditions

Civil Liability Insurance

The main concern of this institution is to guarantee the safety of both the interns and the other collaborating agents required in the Internship Program processes in the company. Among the measures dedicated to achieve this is the response to any incident that may occur during the entire teaching-learning process.

To this end, this entity commits to purchasing a civil liability insurance policy to cover any eventuality that may arise during the course of the internship at the center.

This liability policy for interns shall have broad coverage and shall be taken out prior to the start of the practical internship period. That way professionals will not have to worry in case of having to face an unexpected situation and will be covered until the end of the internship program at the center.



General Conditions of the Internship Program

The general terms and conditions of the internship agreement for the program are as follows:

1. TUTOR: During the Internship Program, students will be assigned with two tutors who will accompany them throughout the process, answering any doubts and questions that may arise. On the one hand, there will be a professional tutor belonging to the internship center who will have the purpose of guiding and supporting the student at all times. On the other hand, they will also be assigned with an academic tutor, whose mission will be to coordinate and help the students during the whole process, solving doubts and facilitating everything they may need. In this way, the student will be accompanied and will be able to discuss any doubts that may arise, both clinical and academic.

2. DURATION: The internship program will have a duration of three continuous weeks, in 8-hour days, 5 days a week. The days of attendance and the schedule will be the responsibility of the center and the professional will be informed well in advance so that they can make the appropriate arrangements.

3. ABSENCE: If the students does not show up on the start date of the Internship Program, they will lose the right to it, without the possibility of reimbursement or change of dates. Absence for more than two days from the internship, without justification or a medical reason, will result in the professional's withdrawal from the internship, therefore, automatic termination of the internship. Any problems that may arise during the course of the internship must be urgently reported to the academic tutor.

4. CERTIFICATION: Professionals who pass the Internship Program will receive a certificate accrediting their stay at the center.

5. EMPLOYMENT RELATIONSHIP: The Internship Program shall not constitute an employment relationship of any kind.

6. PRIOR EDUCATION: Some centers may require a certificate of prior education for the Internship Program. In these cases, it will be necessary to submit it to the TECH internship department so that the assignment of the chosen center can be confirmed.

7. DOES NOT INCLUDE: The Internship Program will not include any element not described in the present conditions. Therefore, it does not include accommodation, transportation to the city where the internship takes place, visas or any other items not listed.

However, students may consult with their academic tutor for any questions or recommendations in this regard. The academic tutor will provide the student with all the necessary information to facilitate the procedures in any case.

07 Certificate

This **Internship Program in Precision Pneumology Genomics and Big Data** contains the most complete and up-to-date program in the professional and academic landscape.

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

The diploma issued by TECH will reflect the grade obtained in the test.

Title: **Internship Program in Precision Pneumology Genomics and Big Data**

Duration: **3 weeks**

Attendance: **Monday to Friday, shifts of 8 consecutive hours.**

Total Hours: **120 h. of professional practice**



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