

Stem Cell and Tissue Engineering (Master) (with Thesis)			
Master	TR-NQF-HE: Level 7	QF-EHEA: Second Cycle	EQF-LLL: Level 7

Program Information

There is a significant increase in biotechnological research and applications in the world, especially in the field of health. Developments in this field create increasingly important opportunities for humanity for a healthier and better-quality life. Developed countries have managed to quickly turn these opportunities into economic benefits. Its applications in the field of biotechnology, including stem cell and tissue/organ engineering, have become one of the important elements of the economies of developed countries.

State-controlled and/or uncontrolled 'Biotechnology Companies' based on stem cells and tissue/organ engineering are in great competition in many countries, especially in the USA. Today, similar developments are taking place in countries with growing economies such as South Korea, Singapore, Israel, India, China and even Iran.

Our country is making great efforts to close the gap with developed countries in this field with initiatives such as the Vision 2023 program and the Horizon 2020 program. Türkiye has the chance to become a global power in these fields in a short period of time. Such a power will give our country an economic and technological advantage in biotechnology, defined as the technology of the 21st century, that is not limited to improving the quality of life of our people. Therefore, it has become increasingly important to train qualified personnel at international standards to work in this field.

In the stem cell and tissue engineering master's program, we train students who can contribute to the country's economy, put the information produced in the laboratory to use in daily life, and complete projects for this purpose.

In parallel with the developments in the world, "biotechnology companies" have started to operate in the field of stem cell and tissue engineering in our country, under the management of both the public and private sectors. He has completed a training program that includes theoretical and practical knowledge specific to different scientific disciplines (molecular biology, stem cell and cell biology, immunology, tissue engineering, regenerative medicine, genetic engineering, biotechnology and bioinformatics) and has all kinds of technological equipment in a center with a completed infrastructure for practice. Master's degree graduates who can use it will easily meet the requirements of this and similar biotechnology institutions. However, in many countries, there are units that can provide postgraduate education under the name of "Stem Cell Institute" or function as a separate Department/Science in Medical Faculties under the name of "Regenerative Medicine".

The courses in the Istinye University Stem Cell and Tissue Engineering Master's Program with Thesis generally cover topics related to stem cell biology, genetics, types, differentiation, laboratory and clinical applications. If we look in more detail, stem cells during the master's degree; All types in the embryo and adult, from the highest potential type to the one with the least differentiation ability, are discussed together and separately, and the intracellular biological, biochemical, immunological and genetic processes at these stages are examined. On the other hand, the acquisition, characterization, culture, differentiation and other manipulation methods of

stem cells are taught, and all of these are demonstrated practically in our laboratories with research and GMP standards. Simultaneously, courses are given on the use of stem cells in tissue engineering, from biomaterials to 3D tissue design and genetic engineering. Finally, stem cell applications in clinical branches directly related to stem cells are mentioned and the bridge between the research and clinical application phases of the stem cell field is completed. Therefore, within the framework of the program, students receive a versatile multidisciplinary education reinforced with laboratory and clinical applications, as well as their use in stem cells and tissue engineering.

Students graduating from this program will have job opportunities in a wide variety of sectors, from TÜBİTAK to universities, from hospitals to biomedical companies. Istinye University provides high-level education at European standards with its hospitals, Research Centers established with great importance given to R&D, and its Stem Cell and Tissue Engineering Master's program, with its internationally experienced and influential academic staff.