



BIOTECHNOLOGIES AND BIOENGINEERING IN I.V.F. AND IN HUMAN BASED RESEARCH

Art. 1 - Constitution

The IVF Mediterranean Centre, Institute for Training and Research, active for the year 2020 – 2021, the II level International Master entitled “BIOTECHNOLOGIES AND BIOENGINEERING IN I.V.F. AND IN HUMAN BASED RESEARCH”

The master is in agreement with University of Palermo , public university of Italy known at MIUR, through n° 0046511 of 19/06/2018 - [UOR: SI000999 - Classif. III/5]. Moreover, the IVFMC is in agreement also with University of Palermo following these protocol number:

n° 27445 - training agreement and curricular orientation;

n° 32629 - training agreement and extracurricular orientation.

The Master is self-financed. The IVF Mediterranean Centre takes care of its accounting and administrative management. The main source of funding is represented by the contributions of the enrolled in the Master; any contributions from public authorities and/or private companies are desired, but not mandatory for the activation of the course.

The initiative is motivated by the lack of advanced training courses in this sector, whereas there is an increase in the demand for qualified personnel thanks to the spread of the use of sophisticated techniques and equipment for the study and application of the various aspects of In Vitro Fertilization (from now IVF) and all disciplines related to them. Hence the need to train new professionals within the human-based research approach, with particular focus on pathologies such as neurosciences, benign and malignant neoplasms and pathologies related to human reproduction.

With the activation of the master in question the IVF Mediterranean Centre and Penco Bioscience intend to make a significant contribution to scientific research in order to satisfy a growing scientific, training and working need.

Art. 2 – Location

The Course is situated at the training venue IVF Mediterranean Centre, located in Italy and Middle East , with the realization of potential theoretical lessons in conference call with other universities.

Art. 3 – Duration and language

The Master has a duration of one year (12 months). The official language of the course is English. It starts at January 2020 and will end at January 2021.

Art. 4 – Purpose

The main aim of the master is to train highly specialized personnel in the field of technologies for human health through the learning of the most common and modern clinical embryology laboratory techniques for the study of human reproductive cells and normal and pathological tissues from a biological, genetic, bio molecular, morphological and pathological point of view.

IVF techniques are the fundamental step to undertake important human-based research paths. The goal of this approach is to start research directly on human tissues, organs, gametes, totally excluding animal research.

The Master aims to give the possibility to the participants to gain experience in the execution of all the methods present in the study plan, as well as to understand the cultural bases that motivate the choice between one or more IVF techniques, a choice that should be weighted by virtue of the requirements of the same techniques or dependent on the diagnostic or scientific problem of the case in question.

Art. 5 – Employment opportunities

The person formed by the master will see employment opportunities as private or public research facilities and pharmaceutical industries. In particular, the goal is to make the master enrolled a competitive element in the world of work for inclusion in hospitals, in research laboratories of university departments, other private research institutions, CNR, pharmaceutical industries, as well as in companies operating in the biological and medical technologies field.

It is also specified that the IVF Mediterranean Centre and Penco Bioscience will evaluate the entry of some participants within their research staff, thus inserting them into their national and international network.

Art. 6 – Participants

The master is mainly open to biologists, doctors, gynecologist, biotechnologists, pharmacists, laboratory technicians, psychologists, biomedical engineers, uro/andrologist , endocrinologist .

Art. 7 – Didactic plan and final exam

The Master has a theoretical-practical denomination; the practical frontal lessons will be followed by activities divided into small groups included in operational offices where the theoretical knowledge acquired will be put into practice. Furthermore, in-progress checks are planned on the contents carried out and a final exam to obtain the title.

The Master is structured on 60 UFC, for a total of 1500 hours of activities divided as follows:

- frontal lessons 150 hours
- e-learning 150 hours
- seminars, study meetings, conferences 150 hours • stage 350 hours
- work experience 200 hours
- final exam and thesis 500 hours.

The master will make use of teachers with experience and specific skills on the topics dealt with. The teaching staff includes multiannual experts in the field of IVF and BIO BANKS of human tissues and organs for research. The most prestigious scientific professors are from various Italian and foreign universities, including Palermo, Catania, Bologna, Genoa, Tor Vergata, Jeddah (Saudi Arabia) , Dubai (Emirates) Jules Vern (Paris - France), Amman (Jordan), Malta.

The articulation of the Educational Didactic Program is described below:

MODULE I – II – Biomedicine, biotechnology and endocrinology

- Human anatomy of the male and female reproductive system
- Gynecology of infertility 4
- Aspects of endocrinology of infertility

- Gastrointestinal disorders, impotence and difficulties in the male and female reproductive environment
 - Vascular diseases in diabetes
 - Genetics of male and female infertility and pre-implantation genetic diagnosis
 - Prevention of infertility in cancer patients - General oncology
 - CNS implications on ovarian tissue responses to multiple follicular induction therapies
 - In vitro embryology of human gametes
 - In vitro maturation of oocytes and general tissue cryopreservation
 - Time Laps Embryo Imaging
 - Human microbiome and human based research
 - Microbiology and virology
 - Andrology - Testicular biopsies for diagnostic/operative purposes in the I and II level IVF techniques
 - "High Tech database" IT Project for infertile patients
 - Medically Assisted Procreation in the heterologous field
 - Laparoscopy of endometriosis
 - Indicators of pregnancy rates results
 - Pregnancy rate in the blastocyst transfer
 - Automated vitrification of gametes and human tissues
 - Cryobiology of gametes and human reproductive tissues
 - Adult Mesenchymal Stem Cells from umbilical cord - State of the art of research and clinical application
 - "Penco Bioscience Project": Donation of Organs and Human Tissues for Research and Bio Banks of Human Fabrics for Research
 - Evolution of Training in General Surgery and Diagnostic-operative Endoscopy with alternative methods - The use of human cadaver and synthetic men

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- Nutrition principles for research on metabolic diseases
- Research Methods Substitutive to Animal Experimentation
- Health and Wellness Project: health information on the prevention of serious diseases
- Family Medicine
- Oxidative stress: the role of free radicals in the functional activity of ovarian and testicular tissue, and of cancerous pathologies on human organs and tissues **MODULE III - Legislature**
- Current regulations on human bio-tissue banks for research
- Differentiation from bio-banks for the donation of transplant organs

- Differentiation from bio-banks for cryo-conservation of cord blood at delivery
- Human-based scientific research draft law in a network of bio donated organ and tissue banks.

MODULE IV - Preparation and discussion of the final exam

The final exam of the master, for the achievement of the degree, will consist in the preparation and subsequent discussion of a written paper, in Italian or in English, on a topic related to one or more of the modules provided by the educational program. The topic will be agreed with one of the teachers, who will take on the role of Tutor. The teacher will be assigned by the Teacher Ordering Committee.

The discussion of this work will take place in a public session, in front of a Commission formed by the Ordering Committee, the Relator and other members of the Academic Board.

Art. 8 – Changes to the Formative Program

The IVF Mediterranean Centre reserves the right, in exceptional cases, for the needs of scientific and/or educational updating, to modify the proposed training program, while maintaining the high scientific and didactic quality of the Master and its teachers.

Art. 9 – Treatment of personal data

Pursuant to Legislative Decree n. 196 of 30 June 2003, the IVF Mediterranean Centre commit to respect the confidential nature of the information provided by the candidates: all data provided will be processed only for the purposes connected and instrumental to the competition and any management of the relationship during the course of the Master, in compliance with the provisions in force.

Art. 10 – Postponement rules

Although not provided for in this announcement, the laws and regulations regarding private Masters in force in Italy must be applied.

IVF MEDITERRANEAN CENTRE PRESIDENT PhD. Prof. Mirta Baiamonte

PhD. Prof. Mirta Baiamonte

IVF MEDITERRANEAN CENTRE VICE PRESIDENT Cav. Dr. Salvatore Scalisi

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