

University Masters
Interdisciplinary Level II



SIRTEPS

SOCIETÀ ITALIANA
RICERCA TRASLAZIONALE E PROFESSIONI SANITARIE

From diagnosis to therapy through Liquid Biopsy

2019/2021

Magna Græcia University of Catanzaro

UMG
Dubium sapientiæ initium



Professional Profile



Precision medicine is a medical model that proposes the personalization of health care through multidisciplinary approaches especially in the field of complex diseases. To this end, the search for biomarkers suitable for personalizing the medical approach and their translational clinical application requires competence and preparation in a sector that is now clearly growing. In this panorama, liquid biopsy, like peripheral blood sampling, represents a non-invasive strategy to select and detect precious cellular biomarkers (ie circulating epithelial, tumor and endothelial cells), subcellular (ie vesicles, microvesicles, exosomes) and molecular (ie cell fragments) DNA and RNA free) useful for the nosographic and prognostic framing of the complex pathology. The objective of the Master is to train professional figures able to identify the useful biomarker and apply the most appropriate analytical procedure to the clinical case in question. The lack of a training offer in this sector risks creating a cultural and technical gap with important economic consequences in terms of welfare.

Working Opportunity

Those who will achieve the title will acquire laboratory and translational skills aimed at: – discerning among the various types and technical procedures currently in use in the field of liquid biopsy according to the pathology in study; – select subjects of all ages and direct them to a most advantageous diagnostic and monitoring path; – identify the analytical procedure suitable for the individual case and clinically evaluate the results – evaluate the minimal residual disease – identify the personalized therapy. In addition, participants will find in this training offer the information necessary for the practical preparation of specialized laboratories in the sector.

Academic Title

II level Master's degree issued by the Higher Education School of the Magna Graecia University of Catanzaro

Study Plan

- Genetic–molecular biomarkers in blood and derivatives
- Isolation and characterization of non– hematological cellular component of blood
- Isolation and characterization of micro vesicles and circulating vesicles
- Analytical techniques and standardized protocols of **liquid biopsy (LB)**
- LB procedures ex vivo and model in vivo
- Applications of LB in internal and rheumatology diseases
- Applications of LB in cardiology
- Applications of LB in oncology
- Correlation between LB and Imaging technology
- Histology of tissue biopsy and cytology of LB compared
- Limits and advantages of the transfer of LB
- LB in prognosis and monitoring during medical / surgical therapies
- Medical statistics and biometrics of LB
- Bioethics and forensic medicine of LB

Laboratories in the classroom

Flow Cytometry / Sorter
Molecular pathology
Cytopathology
Cell cultures
Microscopy

Training

150 hours



Thesis

Discussion of a written report

Seminars

National and International Experts

Scientific Committee

Giuseppe Viglietto
Vincenzo Mollace
Natalia Malara
Giuseppe Donato
Patrizio Candeloro

Directors

Giuseppe Donato
Natalia Malara

Academic coordinator

Natalia Malara

Didactic secretariat

Anna Peluzzo

Master Teachers

Giorgio Volpentesta University Magna Grecia
Paola Valentino University Magna Grecia
Antonio Brunetti University Magna Grecia
Daniela Foti University Magna Grecia
Chiara Mignogna University Magna Grecia
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Amerigo Giudice University Magna Grecia
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Vito Barbieri University Magna Grecia
Maria Teresa Di Martino University Magna Grecia
Nadia Innaro University Magna Grecia
Marta Greco University Magna Grecia
Pasquale Mastroroberto University Magna Grecia
Umberto Sabatini University Magna Grecia
Carlo Pietro Voci University Magna Grecia
Antonio Gambardella University Magna Grecia
Marialaura Coluccio University Magna Grecia
Gerardo Perozziello University Magna Grecia
Salvatore De Rosa University Magna Grecia
Salvatore Pullano University Magna Grecia
Domenico La Torre University Magna Grecia
Elisabetta Ferraro University of Pisa
Antonio Spagnolo Catholic University of Roma
Adele Losso University of Cosenza
Angelo Comito University of Reggio Calabria
Gianluca Santise S. Anna Hospital (CZ)
Maria Giovanna Fava Metropolitan (RC) Hospital
AnnaMaria Lavecchia Pugliese (CZ) Hospital
Camillo Almici Brescia Civil Hospital
Franco Fulciniti Institute Cantonale of Pathology
Clodoveo Ferri University of Modena

Interdisciplinary Master's Degree in Liquid Biopsy

Admission

To enrol you must have obtained one of these titles or **equivalent** of 1st or 2nd level Degree in:

LM-06 – Biologia

LM-08 – Biotecnologie industriali

LM-09 – Biotecnologie mediche, veterinarie e farmaceutiche

LM-13 – Farmacia e farmacia industriale

LM-21 – Ingegneria biomedica

LM-22 – Ingegneria chimica

LM-41 – Medicina e chirurgia

LM-42 – Medicina veterinaria

LM-70 – Scienze e tecnologie alimentari

LM-71 – Scienze e tecnologie della chimica industriale

LM/SNT1 – Scienze infermieristiche e ostetriche

LM/SNT2 – Scienze delle professioni sanitarie della riabilitazione

LM/SNT3 – Scienze delle professioni sanitarie tecniche

LM/SNT4 – Scienze delle professioni sanitarie della prevenzione

University Laboratory of Talents

Attendance is compulsory for this Master for at least 2/3 days of lessons, the penalty of non attendance is failure to obtain the Academic title.

The lessons (324 hours/year of frontal teaching is divided into 12 modules of 27h each and 156 hours/year of theoretical and practical lessons) will be held on weekends.

Active and integrated teaching methods alternate between lectures, theoretical and practical laboratories, exercises and internships. The Master has an biannual duration and issues **120 educational credits** (ECTS / CFU)



A 3D-rendered illustration of numerous red blood cells (erythrocytes) floating in a reddish, fluid-like environment. The cells are depicted as biconcave discs with a textured surface. The background is a deep red color with a subtle, swirling pattern, suggesting a microscopic view of blood.

REGISTRATION OPENING

starting from January 2020

<http://web.unicz.it/it/page/altaformazione>

Follow us at

<https://www.facebook.com/Master-liquid-Biopsy->

For more information

Send an email to mliquidbiopsycomplex@gmail.com

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Venue

Campus Salvatore Venuta, Germaneto

Complesso San Giovanni, Catanzaro