

Research Position for a PhD program at IRCCS MultiMedica - Milan

IRCCS MultiMedica is a research hospital based in Milan, Italy. It is one of the only 3 IRCCSs specifically focusing on cardiovascular disease in Italy, has a solid clinical activity and large laboratory facilities, and it is affiliated with Academic Institutions including the University of Milan. Milan is the second-largest city in Italy, with a thriving economical and social life, and is extremely well-connected with most major cities in Italy and Europe.

MultiMedica is interested in expanding its research activities of basic and translational investigation in the field of cardiovascular pathophysiology and pharmacology, recruiting young investigators with keen interest in these fields for a PhD program position in the laboratory of Prof Catapano.

A research position is available for a project on the role of Triglyceride Rich Lipoproteins in cardiovascular disease in these fields, under the supervision and coordination of Prof. Alberico L. Catapano and dr Andrea Baragetti. (See the research summary program attached)

The prospective candidates should have the following characteristics:

- Age: <30 years old;
- Degree: a degree in biomedical sciences,
- English language proficiency;
- Specific expertise in experimental in vitro models as documented by publications in these areas and/or letters of recommendation;
- Previous experience in qualified national/international Institutions will be a plus;
- Commitment to effective team work.

Job place: MultiMedica Technological and Research Pole, Via G. Fantoli 16/15, Milan, Italy. Collaboration with clinical investigators of MultiMedica Hospital to carry out specific translational research will be part of the programme.

Period: 3 year.

To apply, send CV, a brief description of personal interests and professional aims, and at least one letter of recommendation to: Alberico.catapano@unimi.it or Alberico.catapano@multimedica.it

Prof. Alberico L. Catapano

Head of the cardiovascular research at MultiMedica IRCCS

IRCCS MultiMedica S.p.A.*

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Capitale sociale € 20.000.002,00 i. v.

Società con socio unico soggetta a direzione e

coordinamento di MultiMedica Holding S.p.A.

Sede legale: via Fantoli 16/15 - 20138 Milano

Sedi operative:

- Via Milanese 300 - 20099 Sesto S. Giovanni (MI)
Tel. 02 2420.91
- Polo Scientifico e Tecnologico / MultiLab*
Via Fantoli 16/15 - 20138 Milano Tel. 02 55406.1

Altri Presidi Ospedalieri e Ambulatoriali non IRCCS

Ospedale San Giuseppe*
Ospedale Classificato
Via San Vittore, 12 - 20123
Milano - Tel. 02 8599.1

Ospedale MultiMedica*
Viale Piemonte, 70
21053 Castellanza (VA)
Tel. 0331 393.111

Ospedale MultiMedica
Via Fratelli Bandiera, 3
20812 Limbiate (MB)
Tel. 02 2420.91

**Ambulatorio Multispecialistico
MultiMedica**
Via San Barnaba, 29 - 20122 Milano
Tel. 02 2420.91

PHD COURSE IN EXPERIMENTAL AND CLINICAL, PHARMACOLOGICAL, AND BIOMOLECULAR SCIENCES

TUTOR PROPONENTE: Andrea Baragetti
CO-TUTOR MM: Alberico L. Catapano

UNDERSTANDING THE PROATHEROGENIC POTENTIAL OF INCREASED PLASMA TRIGLYCERIDES: EPIGENETIC EFFECTS ON CELLULAR INFLAMMATION AND AGING

Low Density Lipoproteins (LDL) reduction is a key goal for Cardiovascular Disease (CVD) prevention. In addition, both fasting triglycerides (TG), a proxy of Very Low Density Lipoproteins (VLDL), and the extent of postprandial lipemia (PPL) are causal risk factors for CVD linked to chronic inflammation.

Mechanistically, fasting and postprandial VLDL elicit endothelial and systemic inflammatory gene activation. The project will be set on preliminary background built up by the host Laboratory, demonstrating that genetically determined lipid “burden” in hypercholesterolemia accelerates leukocytes and hematopoietic stem cells (HSCs) telomere length shortening, an indicator of aging consequent to epigenetic reprogramming. Whether increased plasma TG, a marker of high PPL, result in similar effects marking epigenetic remodeling responsible for the inflammatory activation of HSCs and of the progenitor cells of the endothelial compartment (Endothelial Progenitor Cells, EPCs) will be the main scientific question addressed by the development of this PhD project.

Objectives and hypothesis

Hence, the long-term aim of the project is to exploit these preliminary observations to TG rich lipoproteins to test their ability to induce long-term chronic inflammation. Understanding the mechanisms linking TG-rich VLDL to chronic inflammation will provide pathophysiological insights for the identification of new therapeutic targets.

Specific Aims and actions of the project

In detail the project will cover three specific aims over the three years' period of the PhD program:

- 1) Ex vivo effects of an increased PPL on inflammatory activation of HSCs and EPCs
- 2) Characterize the in vivo long-term effect of elevated VLDL on inflammatory activation of HSCs and EPCs
- 3) Define the epigenetic effect of elevated VLDL on inflammatory activation of HSCs and EPCs

SKILLS AND KNOWLEDGE

- (i) Scientific degree, knowledge in lipid and lipoprotein metabolism.
- (ii) Basic of genetics, genomics and DNA molecular biology.
- (iii) Basic experience with cell culture.