



ID code: A039

The integral version is available at the following link:

<https://www.unimi.it/en/research/doing-research-us/research-fellowships/fellowships-announcements>

THE ENGLISH LANGUAGE TRANSLATION DOES NOT HAVE LEGAL VALUE IN ITSELF, AND THUS DOES NOT SUPERSEDE THE ITALIAN VERSION OF THE CALL ANNOUNCEMENT (BANDO).

PUBLIC COMPETITION FOR 24 MONTHS FOR 1 TYPE A FELLOWSHIP FOR COLLABORATION TO RESEARCH ACTIVITIES IN THE SCIENTIFIC AREA OF MEDICAL SCIENCES.

ART. 1 - COMPETITION NOTICE

According to art. 2 of Regulations, this University has launched a competition by qualifications and interview to award 1 two years type A FELLOWSHIP, for a collaboration to research activities for the scientific area of Medical Sciences, restricted to doctorate graduates or graduated holding a diploma in the specialty health area. for collaboration to research activities.

ART. 2 - REQUIREMENTS

All graduates who have an appropriate scientific-professional curriculum to carry out research activities established by this competition notice can participate in this public selection.

completed by appropriate scientific production, unless otherwise specified, is preferential requirement for admission according to this competition notice.

Candidates must meet the following requirements:

- a. Absence of criminal record;
- b. Master's Degree or equivalent, from an Italian or foreign university.
- c. PhD or equivalent qualification obtained abroad or medical specialization degree
- d. Expertise in research area:

Cell culture experience. iPSC generation and characterization. (Basic) expertise in molecular biology. Expertise in immunocytochemical and biochemical analysis of cellular models and tissues. Bioinformatics skills in the analysis of omics data.

- e. Knowledge of language: English

Qualifications must be owned on the date of expiry established for the presentation of the application form.

Applicants in possession of degrees obtained abroad, who have not the declaration of equivalence, will have to enclose in the application form a translation into Italian or into English of the foreign degree, (Degree with marks earned in each examination and PHD degree), completed by a self-certification related to the correspondence to the original of the translation itself.

The degree earned abroad can be declared admissible, by the Judging Commission, only for



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purposes related to the selection.

The following qualifications will be evaluated for purposes related to the competition:

- a. PhD thesis or equivalent qualification earned abroad or Medical Specialization thesis degree;
- b. Any Master's degree;
- c. Scientific-professional curriculum based on proven experience for research activity already carried out at public and private bodies with contracts, fellowships or appointments, both in Italy and abroad;

ART. 3 - CANDIDATES LIST AND CURRICULA PUBLICATION

In application of obligations of transparency as from D.lgs. 14/03/2013 n. 33 this competition notice, the list of candidates with their curriculum vitae and the result of each selection will be published on the web site <https://www.unimi.it/en/research/doing-research-us/research-fellowships>.

ART. 4 - APPLICATION

Application forms in plain paper must be written according to the form at the following link: <https://www.unimi.it/en/research/doing-research-us/research-fellowships> TYPE A section, and include name, surname, place and date of birth, address, telephone number, competition notice information. Application forms must be submitted online, at the following email address: unimi@postecert.it, within **January 23, 2025 at 11.59 pm (Italian time)**. The application form and any other enclosures requiring the candidate's signature. The message should state in the object field:

“Pec: Domanda concorso Assegno di Ricerca Prof. Comi Giacomo Pietro, code ID A039”

Application forms not signed or incomplete or sent after the deadline established will not be admitted.

The application form must enclose:

- a. Degree with final mark;
- b. Phd degree / specialization degree (pdf file);
- c. Scientific qualifications, diplomas, scholarships, attendance of post-graduate courses;
- d. Up to 6 publications in PDF format (scientific publications in qualified reviews, with a list of them and a justification for their choice);
- e. Curriculum of scientific activities (use the template at: <https://www.unimi.it/en/research/doing-research-us/research-fellowships> , TYPE A section);
- f. Research project related to the title of this call.

Documents above mentioned can be presented as follows:

Academic and professional qualifications can be self-certificated, according to DPR 28/12/2000 n.



445. The other qualifications which require evaluation, publications included, can be presented in original or copy.

ART. 5 - CURRICULUM PRESENTATION

Candidates, by the same time of presentation of the application form, must scan and send to the e-mail address curriculum.assegni@unimi.it a copy of the curriculum vitae in pdf with the ID code with date according to the form at the following link: <https://www.unimi.it/en/research/doing-research-us/research-fellowships> - [TYPE A section](#).

ART. 6 - RESEARCH ACTIVITIES

The Fellowship implies carrying out the activities briefly mentioned below at Dipartimento di Fisiopatologia Medico-Chirurgica e dei Trapianti dell'Università degli Studi di Milano and under the supervision of Prof. Comi Giacomo Pietro within the research programme "***Unravelling mitochondrial vascular contribution in stroke pathogenesis leveraging 3D brain organoids.***", of the following research program and its specific aims:

Description

It has become increasingly clear that defects in mitochondrial function are linked with diseases more commonly associated with old age. Unquestionably, there is a need to understand processes that maintain mitochondrial functionality throughout all ages and study the genetic form can help to study and treat more common diseases.

Mitochondrial encephalomyopathy, lactic acidosis and stroke-like episodes (MELAS) syndrome is one of the most well-known mitochondrial diseases, with most cases attributed to m.3243A>G, and one of the most frequent genetic causes of stroke.

Investigating MELAS pathogenesis is relevant for developing potential therapeutic strategies not only for MELAS, but also for other more common cerebrovascular diseases since endothelial cells energetic dysfunction might play a significant role in them and can be more easily targeted by drugs systemically injected than for instance neuronal cells.

We aim at reproducing the cellular and molecular mechanisms underlying the pathogenesis of MELAS by using in vitro 3D models of structured vascularized brain organoids (vBr-Org). These models can be used in the future to explore therapeutic strategies for MELAS and other cerebrovascular diseases. vBr-Org will be generated from induced pluripotent stem cells (iPSCs) of MELAS patients harboring m.3243A>G mutation to study functional and metabolic alterations along with cell-type specific transcriptional changes. Three healthy subjects vBr-Org will be used as control.

AIM 1. To generate and characterize vascularized brain organoids (vBr-Org) from iPSCs of MELAS and healthy subjects.

AIM 2. To identify organoid cell type specific molecular dysfunctions at bulk and single cell level with "omics" in particular discriminating vascular vs neuronal contribution to the pathogenesis.



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AIM 3. To create chimera of MELAS vBr-Org with healthy vasculature (cells from a very young and a very old subject to evaluate the impact of aging) and viceversa to evaluate degree of phenotypic complementation.

The research activities are reported here:

1. Generation and characterization of induced Pluripotent Stem Cells from MELAS subjects and healthy control subjects (HC);
2. Generation and characterization of vBr-Org from MELAS and HC iPSCs;
3. Multiomics (transcriptomics, proteomics, metabolomics) analysis to identify organoid cell type specific molecular dysfunctions at bulk and single cell level in particular discriminating vascular and neuronal contribution to the pathogenesis.

ART. 7 - INCOMPATIBILITIES

For requisitions of admission and incompatibilities please see art. 6 and 8 of Regulations at the link:

<https://www.unimi.it/it/ateneo/normative/regolamenti/regolamento-gli-assegni-di-ricerca>

ART. 8 - FELLOWSHIP AND INSURANCE

The Fellowship's yearly gross amount is of Euro 21.000,00. The amount is tax free according to art. 4 Legge 13 August 1984 n. 476 and subject, for what concerns welfare regulations, to regulations as from art. 2 paragraphs 26 and following Legge 8 August 1995 n. 335.

University will provide, for the period of the contract of collaboration to research, private insurance cover, with a public liability insurance and industrial accident insurance in favour of the fellow and within carrying out of research activities. The amount of the premium for insurance against industrial accidents is subtracted each year from the remuneration for the fellow.

ART. 9 - PAYMENT AND SUPERVISION

The amount is paid in postponed monthly instalments. The Fellows' duties, established by the individual contract, are performed under the supervision of the Professor coordinator who will verify the activity carried out according to art. 8 paragraph 5 of Regulations.

ART. 10 - SELECTION PROCESS

Application forms will be examined by a judging Commission, specifically appointed by the Rector. The evaluation criteria for qualifications and scientific-professional curriculum are the following:

- curriculum vitae et studiorum;
- attendance of master degree;
- specialization degrees;



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- attendance of post-graduate courses;
- PhD thesis
- research activity in Italy;
- research activity abroad;
- *fellowships*, scientific-professional contracts and appointments;
- participation in scientific congresses;
- up to 6 publications in PDF format (scientific publications in qualified reviews, with a list of them and a justification for their choice);
- monographic publications and chapters in books with explanation, for each publication, of the rationale behind the choice;
- patents;
- identity card scanned;
- other qualifications;

Evaluation criteria for research projects are the following:

- relevance of the project to the subject suggested by the Department;
- originality and feasibility of the research suggested, updating of the project, appropriate bibliographic reference;

The assessment of qualifications and of the research project takes place before the interviews and the results of assessments will be let known, for each subject, by publication in the web site: <https://www.unimi.it/en/research/doing-research-us/research-fellowships>. The date and place of the interviews will be communicated to the candidates at least 15 days in advance, by publication in the web site mentioned above with reference to the subject concerned.

For the evaluation of the candidates, the commission has 100 points, 65 of which are to be attributed overall to the qualifications, the scientific-professional curriculum of the candidate and the research project and the remaining 35 points to be reserved for the interview. Candidates who earn more than 32,5 points in the qualifications and in the project are admitted to the interview.

The interview aims to assess the contents of the project proposed by the candidate and scientific competences developed. The sub commission can use up to 35 points and the interview is overcome if the candidate earns more than 17,5 points. Candidates admitted to



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the interview, resident abroad, can do a telematics interview by means of procedures that guarantee their identification.

In case of equal result in the same subject, the fellowship will be awarded to the youngest candidate.

Art. 11 - Winner not compliant with competition notice and regulations

Winners of fellowships who do not comply what established by this competition notice and Regulations lose the right to the fellowship upon Rector's act by previous written communication.

ART. 12 - PLACE AVAILABLE IN CASE OF LOSS OF RIGHT OR RENOUNCE BY WINNER

In case of loss of the right or lack of stipulation within the deadline established or possible renounce by the winners, fellowships are made available to the candidates usefully placed in the ranking that, according to what established by Regulations, is valid up to ninety days from the approval of acts.

ART. 13 - PERSON IN CHARGE OF THIS COMPETITION

According to Legge 7 August 1990, n. 241 Mrs Anna Tavano at Direzione Trattamenti Economici e Lavoro Autonomo - Via S. Antonio n. 12, Milano is in charge of the competition as from this competition notice.

For more information please contact the Ufficio Contratti di Formazione e Ricerca at Direzione Trattamenti Economici e Lavoro Autonomo - e-mail: assegni.postdoc@unimi.it.

For what is not established by this competition notice, please see laws in Regulations and laws in force on the subject.

According to DL 196/2003 and according to the General Data Protection Regulation (GDPR) EU 2016/679 and to Regulations on the protection of personal data of the University of Milan University will commit itself to respect all confidential information provided by the candidate: "all information provided will be handled only for aims connected to the selection and to the stipulation and management of relationship with University".

Full information is available at: <https://www.unimi.it/it/ateneo/normative/privacy> of the University website.

THE RECTOR
Marina Brambilla