

PhD fellow in Cancer Biology

IIT invites excellent candidates to apply to its PhD program organized in collaboration with the Open University; this international PhD program confers Doctorates in *Health, Sustainable and Human Technologies*.

In order to be admitted into the ARC program, the minimum requirements are

- i. a Masters-level degree, which broadly corresponds to a 4/5-year undergraduate MSc/MChem/Meng-style degree or to a postgraduate Masters in the British system, or to a second level University degree in Italy;
- ii. a grade corresponding to an upper second class (2.1) or a merit in the UK system or 100/110 in the Italian system. Candidates with lower grades but redeeming features (publications, specific expertise) are requested to contact the potential supervisors before applying;
- iii. where English is not the applicant's first language, a valid IELTS (International English Language Testing System) certificate. The minimum acceptable score is an overall 6.5, with no less than 6.0 in any of the four categories

One PhD fellow position **will be available from October 1st 2024** in the group of Molecular Medicine led by Dr. **Benedetto Grimaldi**.

Title of the project: Exploring the role of non-coding RNAs in autophagy and cancer chemoresistance.

Background: Autophagy is the primary process in eukaryotes for the degradation of macromolecules and organelles. This process is critical in maintaining cellular homeostasis. Given its function as either a pro-survival or a pro-death phenomenon, autophagy has a complex physio-pathological role. In some circumstances, autophagy can promote chemosensitivity and contribute to cell death.

The significant contribution of autophagy to cancer drug resistance has led to the introduction of small molecule modulators and natural compounds inhibiting autophagy with the aim of altering the response of cancer cells to chemotherapy. While the effects of inhibiting autophagy on post-transcriptional signalling pathways have been extensively studied, the information on transcriptional alterations deriving from a blockade of autophagy is still incomplete, especially in relation to non-coding RNAs. Nonetheless, recent studies are revealing that non-coding RNAs are among the main regulators of autophagy, e.g., via the modulation of chemoresistance pathways.

Description: The objective of this study is to identify the non-coding RNAs regulated by autophagy inhibitors developed in our laboratory. Preliminary findings indicate that the blockade of autophagy in cancer cells produces significant alterations in the expression of several non-coding RNAs. The overall aim of this project is to precisely understand which RNAs are affected by anti-autophagic therapies and to characterize their molecular role in mediating autophagy-dependent cancer cell death and/or chemoresistance.

Main Supervisor: [Benedetto Grimaldi](#). ([Molecular Medicine](#))

Essential expertise:

- i. MSc or equivalent degree in Molecular Biology or cognate discipline
- ii. BSc or equivalent degree in Biology, Pharmacology or cognate discipline
- iii. Proven lab experience in standard molecular biology techniques (Western blotting, PCR, ELISA etc.)
- iv. Experience in mammalian cell culture techniques

Desirable expertise:

- i. Background in non-coding RNAs
- ii. Expertise in molecular cloning
- iii. Expertise in RNA-seq data analysis
- iv. Expertise in fluorescent microscopy

How to apply. Prospective students must submit using [the online form](#) the following documents

- 1) 2-page CV, which includes studies, expertise and achievements.
- 2) 1-page research statement, which includes the choice of a project from the list above and a justification of the choice. Only if robustly justified, the student may signal their interest also for a second project, but there is no guarantee that this will be taken into account by the selection panel.
- 3) A transcript of undergraduate and postgraduate studies.
- 4) A valid IELTS certificate, obtained no more than two years before the proposed registration date.
- 5) Contact details of two referees.

For this position, ARC accepts candidatures on an ongoing basis (first-come, first-served) .

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Istituto Italiano di Tecnologia is an Equal Opportunity Employer that actively seeks diversity in the workforce.

Please note that the data that you provide will be used exclusively for the purpose of professional profiles' evaluation and selection, and in order to meet the requirements of Istituto Italiano di Tecnologia. Your data will be processed by Istituto Italiano di Tecnologia, based in Genoa, Via Morego 30, acting as Data Controller, in compliance with the rules on protection of personal data, including those related to data security.