

PhD fellow in Signalling in neural regeneration

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 April 1st 2023** in the [Non-coding RNAs and RNA-based Therapeutics](#) Research Line, led by its Principal Investigator, [Stefano Gustincich](#).

Title of the project: Dissection of cell signalling pathways during planarian nervous system regeneration

Background: The group is interested in the study of the nervous system from a functional developmental genomics point of view. In this particular context, we have set up a wide tool box for genetic and pharmacological manipulation of planarian signalling, and collected preliminary evidence on the role of specific extracellular clues in regulating brain regeneration.

Description: The selected PhD student will work on a project aimed at characterizing different aspects of cell signaling during nervous system regeneration. In particular, the project will focus on the evolutionary role of selected extracellular signaling pathways and both their known and novel molecular effectors. For this goal we will perform in vivo experiments on the regenerating flatworm *Schmidtea mediterranea* (planaria). In parallel, we will employ mammalian stem cell in vitro differentiation as a model of neurogenesis for biochemical studies.

References:

Laminin 511 and WNT signalling sustain prolonged expansion of hiPSC-derived hippocampal progenitors.

Dunville K et al. *Development* (2022) Oct 15;149(20) : dev200353

METTL1 Promotes let-7 MicroRNA Processing via m7G Methylation.

Pandolfini L, et al. *Mol. Cell* (2019) 74:1278-1290.

Promoter-bound METTL3 maintains myeloid leukaemia by m6A-dependent translation control.

Barbieri* I, Tzelepis* K, Pandolfini* L, et al. *Nature* (2017) 552:126-131.

RISC-mediated control of selected chromatin regulators stabilizes ground state pluripotency of mouse ESCs.

Pandolfini L et al. *Genome Biol.* (2016) 17: 94-99.

Main Supervisor: [Luca Pandolfini](#)

Other supervisor: [Dafne Campigli di Giammartino](#)

Essential expertise:

- i. A graduate degree in cell, developmental or molecular biology, neurobiology, genomics, biotechnology, or a related discipline
- ii. A strong developmental biology background

- iii. Previous experience with experimental molecular biology tools Basic molecular biology toolkit (PCR, cloning, in vitro transcription)
- iv. Some experience with developmental model organisms (e.g. Xenopus, D. rerio, Drosophila)

Desirable expertise:

- v. Working experience with non-canonical developmental model organisms (e.g. Planaria, etc.)
- vi. More advanced experimental skills required for classical and molecular embryology studies (e.g. in situ hybridisation, surgical micromanipulation and microinjection)
- vii. Previous, demonstrable experience with genomics and transcriptomics techniques
Knowledge of genomics and transcriptomics techniques
- viii. Previous, demonstrable experience with manipulation of signalling pathway
Knowledge of signalling pathway manipulation

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.