

TITLE

The IL8-CXCR1/CXCR2 circuit in thyroid cancer stem cell

DESCRIPTION

By studying thyroid tumorigenesis, we recently identified interleukin 8 (IL8/CXCL8) as a crucial paracrine/autocrine factor that induces the epithelial-to-mesenchymal transition (EMT) and increases stemness features of thyroid cancer (TC) cells. IL8 acts by binding CXCR1 and CXCR2 receptors on TC stem cells (TCSCs), and CXCR2 can also bind CXCL1, another cytokine produced by TC cells. Given the crucial role of the IL8 pathway in TCSCs, we aim to dissect the molecular mechanisms involved in IL8-mediated TC EMT and stemness and to assess the impact of such mechanisms on its tumorigenicity/metastatic phenotype by:

- 1) Isolating TCSCs from various TC cell lines and human samples by exploiting their biological properties (e.g., growth in non-adherent conditions). Characterization of stemness will be assessed by analysis of specific stem gene expression signature.
- 2) Determining the distinct role(s) of each component of the IL8/CXCL1-CXCR1/2 circuit and of downstream stemness-related genes (NANOG, ITGA4, CD38, MYCN) in controlling TCSCs tumorigenic features (cell proliferation, self-renewal, invasiveness, tumor-initiating ability, chemoresistance).
- 3) Identifying novel IL8 transcriptional targets in TCSCs and testing their functional relevance in TC.

Eligibility Criteria

- Applicants shall have a master degree in in **Medicine and Surgery, Medical and Pharmaceutical Biotechnology** or in **Biological Sciences** corresponding to the second level of studies.
- Mobility rule: There will be no nationality restrictions. Applicants can be from any Country. However, according to the mobility rule, at the time of the application deadline researchers should not have resided or carried out their main activity (work, studies, etc.) in Italy for more than 12 months in the 3 years immediately prior to the reference date. Compulsory national service and/or short stays such as holidays will not be taken into account.
- Research experience: Applicants shall, at the time of the application deadline, be in the first four years (full-time equivalent research experience) of their research careers and not yet awarded a doctoral degree.

Full-Time Equivalent (FTE) Research Experience will be determined from the date when a researcher obtained the degree which would formally entitle him or her to embark on a doctorate, either in the country in which the degree was obtained or in Italy, irrespective of whether or not a doctorate is or was ever envisaged.

Evaluation Criteria

Step 1 -Evaluation of documentation provided by the candidate: a) Academic record and training b) Research activities c) CV/motivation letter; d) Level of English; e) Reference letters.

Step 2 - Interview: a) Scientific knowledge in the field of interest; b) Research experience in the field of interest c), Motivation; d) English proficiency.