

TITLE

Unraveling the genetic and molecular landscape of skeletal neoplastic degenerations

DESCRIPTION

Paget's disease of bone (PDB) is a skeletal disorder characterized by focal abnormalities of bone remodelling, resulting in enlarged and deformed bones in one or more regions of the skeleton. Since 2002, mutations affecting the ubiquitin-associated domain of *SQSTM1* have been identified in up to 10% and 40% of sporadic and familial PDB cases, respectively. However, we recruited a large number of families negative for mutations, suggesting that one or more genes other than *SQSTM1* are responsible for PDB. Moreover, PDB long-term evolution increases the risk of malignant degenerations as osteosarcoma (OS) and giant cell tumor (GCT), identified in 1% of cases. To date, the molecular basis of tumorigenesis in PDB remains unknown.

Our Research Group, established within the Institute of Genetics and Biophysics of National Research Council of Italy, focuses on molecular mechanisms responsible for bone remodelling disorders and their neoplastic degenerations. To achieve this objective, our research activity includes next generation sequencing technologies to identify novel responsible genes. Furthermore, molecular studies on stromal and osteoclast-like giant cells, isolated "ad hoc" through Laser Capture Micro-dissection, from tumor biopsies drive toward understanding the development of these neoplastic degenerations in PDB patients.

Job description

Your project: We offer a position for a PhD Student. Your project will aim at the functional characterization of responsible genes, including the generation of mouse models to elucidate the molecular mechanism causative for Pagetic neoplastic degenerations.

Your qualifications: We are looking for a curious, independent and creative person with a strong background and interest in molecular biology. You should hold a university degree in biology or an equivalent field and have good skills in state of the art molecular biology.

Our Offer: We offer you working in a young creative team, in an innovative, well- equipped and scientifically stimulating surrounding with a variety of training opportunities. As a PhD student at IGB you will be part of the Biomolecular Sciences doctoral training program at Second University of Naples (SUN).

SELECTION CRITERIA

Eligibility Criteria

- Academic degree: Applicants shall have a master degree or equivalent in **Life or Natural sciences** (e.g. Biology, Biochemistry, Biotechnology, Molecular Biology or related fields), 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.