

POSITION

1. Project Title/ Job Position title:

Molecular characterization of endometrial carcinoma: prognostic and predictive impact.

2. Area of Knowledge:

Life Sciences

3. Group of disciplines: (choose one option)

Human Biology, Microbiology, Molecular Biology, Genetics, Cellular Biology, Genomics and Proteomics, Biochemistry

4. Research project/ Research Group description

Endometrial carcinoma is the most common gynecological tumor in females. Classically subdivided in type I or endometrioid, accounting for more than 80% of cases, and type II, including the serous variant, with a worst prognosis. Both are supposed to be different entities also at the molecular level, with *KRAS*, *PTEN*, *PI3KCA* or *CTNBB1* alteration for the type I, and *mTOR* components pathway of *TP53* mutations in type II.

More recently, the TCGA study revealed the existence of 4 molecular subtypes with impact in the prognosis of the patients: *POLE* mutated group, microsatellite instable group, and the high and low copy number alterations groups. The identification of surrogate markers to identify these molecular subgroups, mainly by easily to perform techniques in the pathology departments is a big challenge. Combination of *POLE* mutation, and p53, PMS2 and MSH6 immunohistochemistry has been proposed.

Surgery is the cornerstone for the treatment of these tumors. To identify those patients with medium-high risk of relapse will be very helpful in order to consider adjuvant treatment. To date, there is not a clinical benefit supporting the standardization of targeted therapies, but there are multiple clinical trials exploring some hallmarks for tumor development, including tumor growth signaling, angiogenesis, DNA repair and immunotherapy. The characterization of the effect of these drugs in preclinical models, ideally form different molecular subtypes, could be a very interesting way to explore the rational use of these drugs.

Our group is focused in the identification of prognostic and predictive biomarkers related to different types of tumors. The Research Project has three major goals:

Validate published molecular classification of EC and relate to patient's outcome.

Explore biomarkers for the identification of intermediate or high risk of relapse in low grade tumors.

Preclinical studies in EC established cell lines.

5. Job position description

Role: The candidate will be in charge of performing the experimental activities of the project, in collaboration with other members of the group. To tackle these issues, the student will employ a broad array of highly specialized techniques, including molecular analysis on tissue sections by PCR and immunohistochemistry, and cellular and functional analysis of culture cell. He/she will be trained accordingly and mentored through the completion of his/her PhD thesis.

Responsibilities

Set up and perform experiments, maintain experimental resources (as cell lines, reagents, etc.) according to protocols, analyze & interpret results and contribute to the development of experimental strategies with accuracy and honesty.

Keep updated the laboratory notebook and properly store and manage the data produced during the project.

Collaborate with colleagues and participate in team activities (such as meetings, seminars, workshops, etc.) across the research group and wider scientific community while keeping up to date with current knowledge and recent advances.

Participate in knowledge exchange with several stakeholders, to promote the value of research in public health and to contribute to the dissemination of his/her research results in the principles of EU's Open Science policy.

Undertake any other duties of equivalent standing as assigned to him/her.

Skills

MSc Degree in Life Sciences: Biology, Medicine or Pharmacy.

Previous experience in any of the tasks will be positively valued, but not mandatory for consideration of the application.

Motivation, critical thinking and problem-solving oriented skills.

Good interpersonal skills, including team working.

Good communication skills, willingness to engage in public presentations and ability to transmit complex concepts in a clear way.

Good time and workload management skills, including both initiative and flexibility.

GROUP LEADER

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<http://www.idipaz.es/PaginaDinamica.aspx?IdPag=252&Lang=EN>