

Research Project Proposal
Academic year 2016-2017

Project Nº 40
Title: Dissection of new targets to block loco-regional failure post-brachytherapy
Department/ Laboratory Tumores sólidos y Biomarcadores. Laboratorio 1.02. CIMA
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<p>Summary</p> <p>Loco-regional failure (LRF) represents a frequent event that occurs after surgery with brachytherapy in a variety of tumors leading to a dismal prognosis with reduced therapeutic options. Yet, the molecular mechanisms directing this process are poorly understood. We have set up a novel animal model of murine breast cancer of loco-regional failure that recapitulates this process. Based on preliminary results, we sought to define the intrinsic tumor factors involved in LRF, and the factors derived of the immune infiltrate, that are influenced by the tissue remodeling after resection ("tumor-bed healing effect") and the irradiation effects ("tumor bed radiation effect"), influencing this process. Aim 1: Functional characterization of the post-resection model post-brachytherapy. We will study the effects of dose, size and time to loading. Aim 2: Identification of the phenotype of intrinsic radioresistance using a transcriptomic-integrative approach of enriched phenotype. Aim 3: Dissection of the role of the immune system in the LRF. We will study the immune infiltrate and the inhibition using check-point inhibitors. Aim 4: Clinical identification of circulating bioentities in LRF. We sought to validate these findings in a retrospective cohort of breast cancer patients. The translation of this knowledge to the clinical setting will probably introduce new treatment strategies increasing patient survival.</p> <p>References :</p> <ol style="list-style-type: none"> 1. Martinez-Monge R et al. Brachytherapy 2014;13:400-404. 2. Martinez-Monge R et al. Brachytherapy 2015;14:565-570. 3. Luis-Ravelo, (...) F Lecanda. Oncogene 2013; 23;33(43):5090-9 <p>POSSIBILITY OF PhD</p> <p>YES*</p> <p>* (PhD grant required)</p>