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OC-139 - DEVELOPMENT OF ZEBRAFISH MODELS OF HUMAN GLIOBLASTOMA FOR THE SCREENING OF NEW TREATMENTS: INVESTIGATION OF CELLULAR AND MOLECULAR MECHANISMS UNDERLYING THE DISEASE

P. Reimunde[1], L. Sánchez[2], M. Carreira Crende[2], V. Lombao Iglesias[2], A.P. Losada García[3], M.I. Quiroga Berdeal[3] and F. Torres Andón[4]

[1]Hospital Universitario Lucus Augusti, Lugo, Spain. [2]Departamento de Zoología, Genética y Antropología Física, Universidade de Santiago de Compostela, Lugo, Spain. [3]Departamento de Anatomía, Producción Animal y Ciencias Clínicas Veterinarias, Universidade de Santiago de Compostela, Lugo, Spain. [4]Centro de Investigación en Medicina Molecular y Enfermedades Crónicas (CiMUS), Universidade de Santiago de Compostela, Santiago de Compostela, Spain.

Resumen

Introduction: Glioblastoma (GBM) is the most common of all brain malignant tumors. High heterogeneity, aggressive and invasive behavior, the impossibility of completing tumor resection, limitations for drug administration and resistance to current treatments are the main problems presented by this pathology.

Objectives: To establish and optimize pre-clinical zebrafish models of human glioblastoma for the discovery of new treatments. To investigate the cellular and molecular mechanisms underlying GBM disease and its therapeutic intervention, using zebrafish models.

Methods: Design and procedures description, including the extraction and handling of GBM tumor samples from patients, and their implantation in zebrafish. Histopathological studies and screening of new treatments in zebrafish models. The whole procedure has been described, evaluated, approved and authorized by the relevants Ethics Committee, Research Institute Foundation and University Hospital.

Results: In recent years, the zebrafish has arisen as a promising animal establishment of pre-clinical cancer models and their use for therapeutic screening, thanks to its transparency, ease of genetic manipulation, ethical and economic advantages and in particular for brain diseases due to the similarity of zebrafish brain structures with those in humans. In this study, for the first time in Spain, we are implementing the xenotransplantation of GBM tumor cells extracted from real patients at different locations of zebrafish embryos for establishment of the pre-clinical models. We present our first preliminary results on the optimization of the models and plan for pre-clinical testing of anti-tumoral drugs, including immunotherapies.

Conclusions: Zebrafish models result of foremost interest, taking into account their biological, ethical and economic advantages, for the screening and comprehensive evaluation of new antitumoral treatments to ultimately improve the outcome of patients with GBM.

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