3rd SUNRISE Meeting

NEW ADVANCED IN CANCER STEM CELLS

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Abstract submission form

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TITLE

Human medulloblastoma cell lines: investigating on cancer stem cell-like phenotype

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Type of presentation:

- Poster presentation

Authors asked to submit abstracts under one of the following categories:

- Heterogeneity of CSC populations

ABSTRACT

Medulloblastoma (MB) is the most common malignant pediatric brain tumor; despite the progress of new treatments including surgery, radiotherapy and chemotherapy, the risk of recurrence, morbidity and death remains important and the long-term adverse effects in survivors are substantial. The fraction of cancer stem cell-like (CSCs) within a brain tumor, with their self-renewal ability and multi-lineage differentiation potential, is critical of tumor initiation, growth and resistance to therapies, impacting on the survival of patients with "poor-prognosis". For new CSC-targeting therapies, further in depth studies are needed using enriched and stable MB-CSCs populations.

This work, aimed at identifying the amount of CSCs in three available human cell lines (DAOY, D341 and D283), describing different approaches based on the expression of stemness markers evaluated by in vitro and in vivo assays. First, we explored potential differences in gene and protein expression patterns of specific stem cell markers. Then, in order to identify and discriminate undifferentiated from differentiated cells, MB cells were also characterized using a physical characterization method based on a high frequency dielectrophoresis approach, complementary to cell biological features. Finally, we compared their tumorigenic potential *in vivo*, through engrafting in nude mice. Concordantly, our findings identify the D283 human cell line as an ideal model of CSCs, providing important evidence on the use of a commercial human MB cell line for the development of new strategic CSC-targeting therapies.

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