Abstract submission form
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TITLE
Human medulloblastoma cell lines: investigating on cancer stem cell-like phenotype

Authors full names:
Arianna Casciati¹, Mirella Tanori¹, Barbara Tanno¹, Paola Giardullo², Elena Porcù³, Elena Rampazzo³, Luca Persano³⁴, Giampietro Viola³⁴, Rémi Manczak⁵, Sofiane Saada⁶, Claire Dalmay⁵, Fabrice Lallouë⁶, Arnaud Poithier⁵, Caterina Merla¹ and Mariateresa Mancuso¹

Authors affiliations
¹Laboratory of Biomedical Technologies, Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), Rome, Italy;
²Department of Radiation Physics, Guglielmo Marconi University, Rome, Italy;
³Department of Women’s and Children’s Health (DSB), University of Padova, Padova, Italy;
⁴Pediatric Research Institute (IRP), Padova, Italy;
⁵University of Limoges, CNRS, XLIM, UMR 7252, F-87000 Limoges, France;
⁶University of Limoges, Captur, EA3842, F-87000 Limoges, France.

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- 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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