ESRF	**Experiment title:** MRT vs BB: Evaluating acute damage in murine lung, a preliminary study for the treatment of pulmonary malignancies.	**Experiment number:** **MD-1181**
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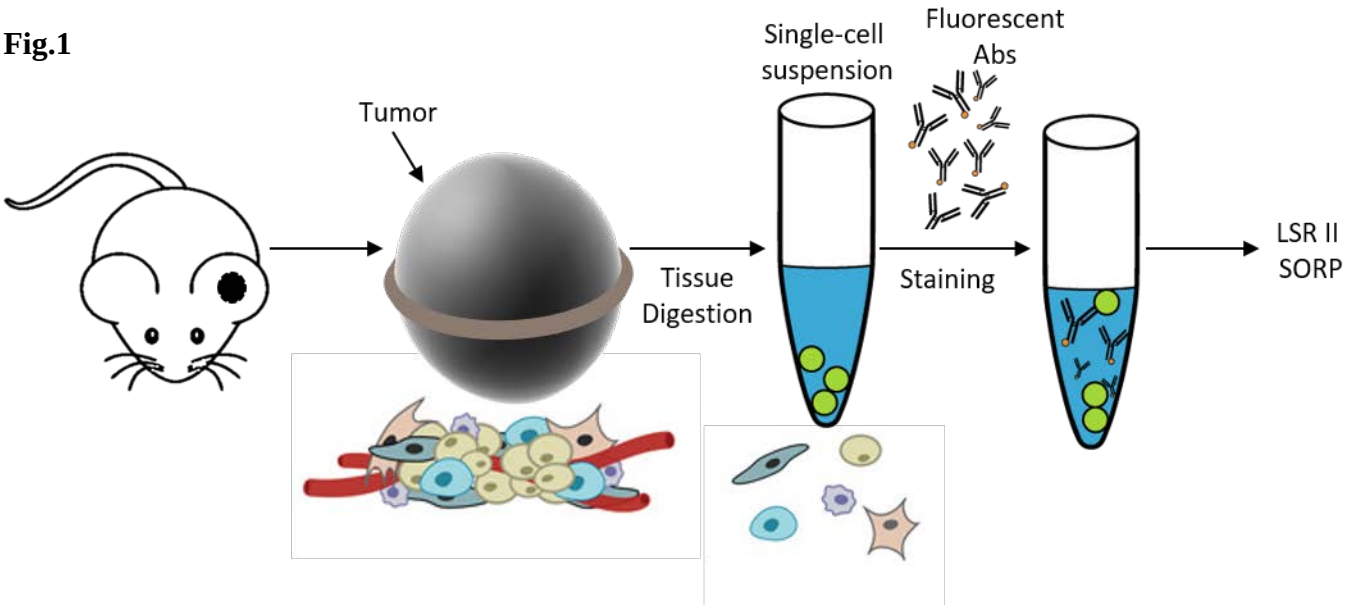
Report:

Aim of the project: to prove that Synchrotron Microbeam Radiotherapy (SMRT) evokes a different immumodulatory response to a homogenous synchrotron broad beam (SBB) of radiation in mouse melanoma and identify cellular mechanisms that could be targets for adjuvant immunotherapy.

Methods: C57BL/6J mice were implanted in both ears with melanoma cells. Either SMRT, SBB or no treatment were applied. Six to eight tumors per group were harvested at three different time points: 2, 5 and 7 days post-irradiation (pi). Tumors were digested, single cell suspensions were stained with different mixes of fluorescent Abs (Fig1) and data recorded at the flow cytometer. Macrophages (Mfs), Granulocytes and T cells were evaluated.

Fig.1



Results: After SMRT there was a significant infiltration of Mfs with respect to the SBB treatment at 5 days pi, while both treatments show a significant decrease of Granulocytes in the tumors. 2 days after SMRT Granulocytes and Mfs had a higher anti-tumorigenic profile. From day 2 pi onwards, both treatments showed a decrease of pro-tumorigenic Mfs. These results suggest the presence of an earlier anti-tumor response in the SMRT treated melanomas. At day 7 pi, there was higher percentage of T cells infiltration (specifically Cytotoxic T cells) in the SMRT group compared to the SBB one.