immunity showed very different profiles following RT compared to controls. Surprisingly, we observed very little variations between the different RT schedules. We performed FACS analyses on blood and on tumors collected 4 or 11 days following the 2 RT schedules or from non-irradiated mice. In the blood, we observed a net increase of DX5 NK cells and an important decrease of eosinophil in the irradiated group of mice compared to the non-irradiated mice. Four days after RT treatment, we observed a transient decrease in neutrophil and Ly6C\\textsuperscript{+} monocyte and a transient increase in Ly6C\\textsuperscript{low} monocyte that return to the level of the non-irradiated group at day 11. Inside the tumor, results showed a drastic decrease in dendritic cells following RT, no significant difference in F4/80\textsuperscript{+} macrophage proportion between groups, but RT appeared to induce a switch in macrophage polarization with a decrease in MHCII\\textsuperscript{high} macrophage (M1) proportion and an increased MHCII\\textsuperscript{low} macrophage (M2) proportion.

Conclusions: These data demonstrate that RT profoundly modifies several components of the tumor microenvironment, with minor variations according to the RT schedules. These modifications could impact the behavior of the primary tumor and should be taken into account to avoid tumor dissemination or for improving treatments efficacy.

PO-1066
PET FMISO investigation of head and neck tumor cell lines treated with cetuximab
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Purpose/Objective: Cetuximab is an inhibitor of the epidermal growth factor receptor (EGFR) impairing the molecular signals for cell division. Cetuximab has been approved for treatment of advanced head and neck tumour squamous cell carcinomas (HNSCC) that are often associated with poor prognosis, resistance to treatments and low 5-year survival rate. The purpose of this study was to investigate correlations between responsiveness to cetuximab treatments and tumour oxygenation in two mouse HNSCC models.

Materials and Methods: Two HNSCC cell lines (UT-SCC-2 and UT-SCC-14) were cultured and injected subcutaneously in BALB/c (nu/nu) nude mice at two sites in each mice (N = 60). UT-SCC-14 is sensitive in vitro for cetuximab, while UT-SCC-2 is more resistant in vitro. After one week of tumour growth, half of the mice received three cycles of 50mg/kg cetuximab intra-peritoneally (during 9 days) and the others were kept as controls. All the mice were subsequently imaged with \textsuperscript{18}F-fluoromisonidazole (FMISO) in a Siemens Focus 120 microPET. Volumes of interest in the tumour and background (arm muscle) were manually delineated and the tumour-to-background ratio (T/B) calculated as the mean standard uptake value (SUV) in the considered volumes. Tumours with T/B ≥ 1.5 (visibility threshold) were not discernible from the uptake in the surrounding area.

Results: The results showed a positive correlation between FMISO uptake and tumour size in untreated tumours, with UT-SCC-14 having higher T/B ratios than UT-SCC-2 tumours. In the case of treated tumours, UT-SCC-2 showed FMISO tracer uptake almost at the visibility threshold level, in spite of the similar tumour volumes with UT-SCC-14 that had significantly higher uptake, albeit under the values in untreated tumours. The oxygenation assessed based on PET FMISO of the tumour derived from the cell line in vitro resistant to cetuximab, UT-SCC-2, was better than the oxygenation of the tumour based on the sensitive cell line UT-SCC-14 after the treatment with cetuximab.

Conclusions: These results indicating a possible mechanism for cetuximab to influence the oxygenation of tumours may be exploited for maximising the therapeutic gain provided that further investigations are conducted.