Supplemental Data

for

Redox Biology

https://doi.org/10.1016/j.redox.2020.101804

Magnetic Resonance Imaging (MRI) of Pharmacological Ascorbate-Induced Iron Redox State as a Biomarker in Subjects Undergoing Radio-Chemotherapy

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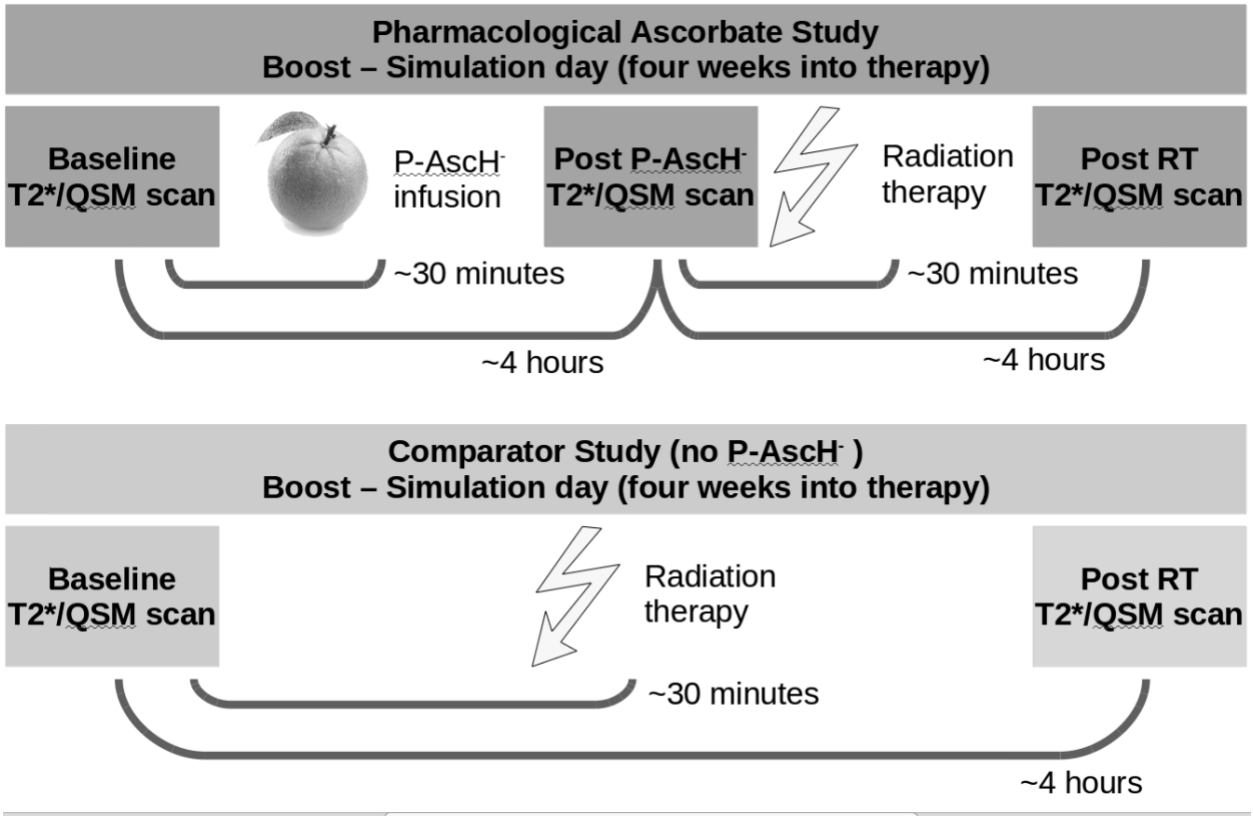
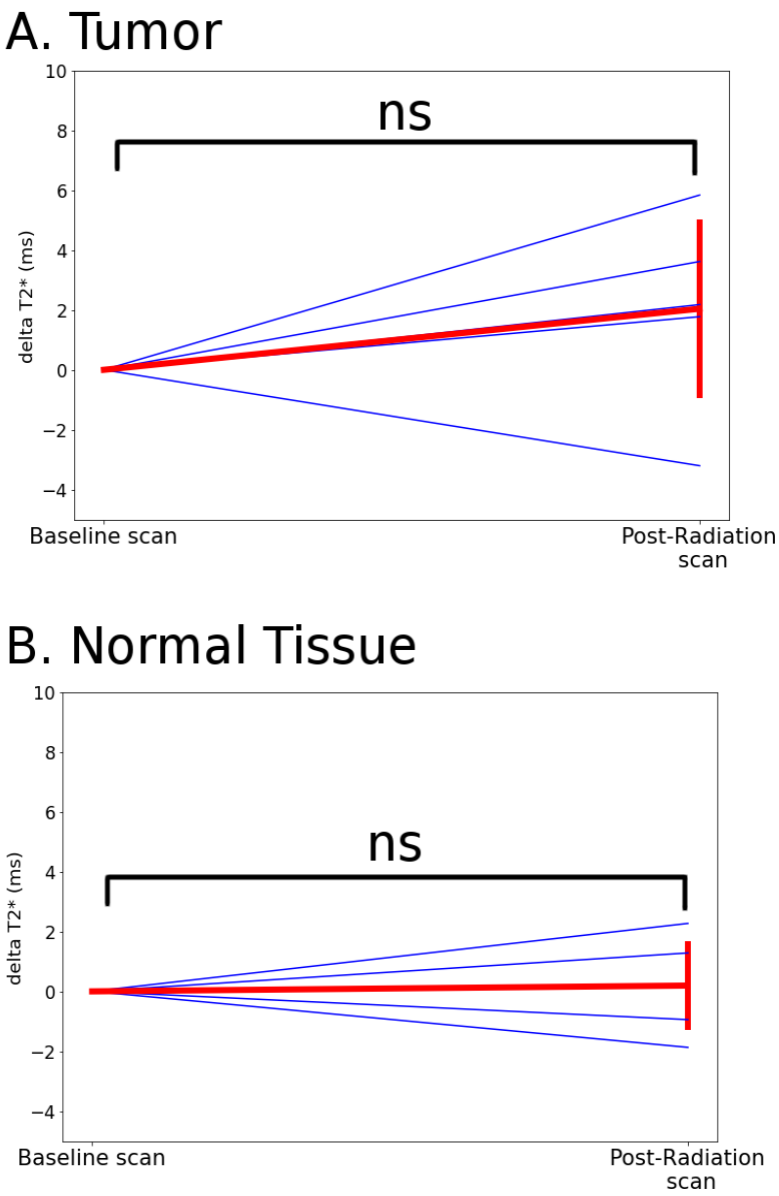
Supplemental Figure 1.



Supplemental Figure 1. Clinical imaging protocol.

Subjects with confirmed glioblastoma were scanned at boost simulation (approximately 4 weeks into therapy) three times in a single day. Directly prior to P-AscH$^-$ therapy (timepoint 1) directly after P-AscH$^-$ and prior to radiation therapy (timepoint 2) and 4 hours post timepoint 2. Comparator subjects not receiving ascorbate were scanned prior to and post radiation therapy.

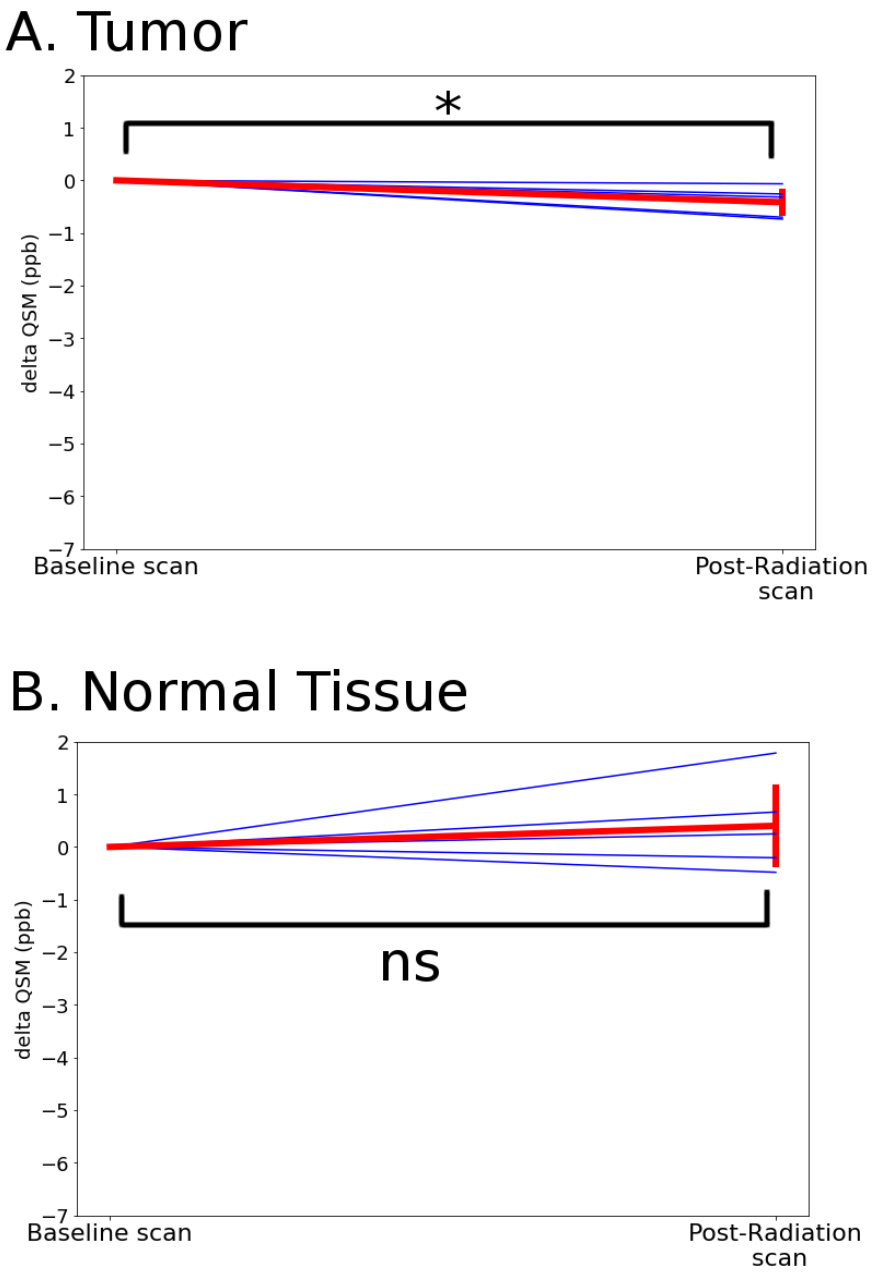
Supplemental Figure 2.



Supplemental Figure 2. Time-course of mean T_2* values.

Time-course of mean T_2* values in the contrast enhancing region of tumors **(A)** and normal tissue **(B)** of comparator subjects receiving only radiation and temozolomide therapy show no statistically significant change in tumors (p = 0.22) or normal tissue (p = 0.68) post radiation therapy. Data are normalized per subject to the baseline scan.

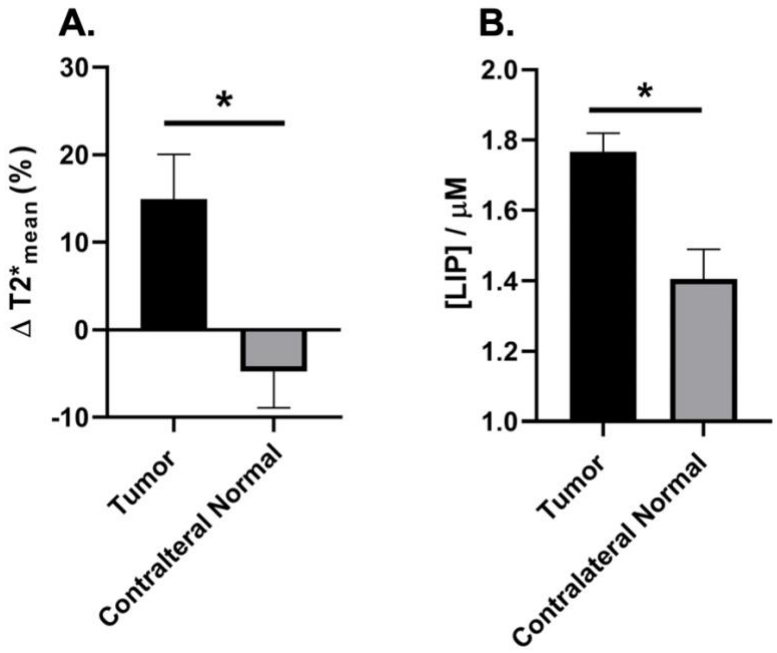
Supplemental Figure 3.



Supplemental Figure 3. Time-course of mean QSM values.

Time course of mean QSM values in the tumors **(A)** and normal tissue **(B)** of comparator subjects receiving only standard of care therapy show a statistically significant decrease in tumors (-0.41 ppb, p = 0.04) that is within measurement error and may therefore be artifactual. Normal tissue showed no statistically significant change (p = 0.68). Data are normalized per subject to the baseline scan.

Supplemental Figure 4.



Supplemental Figure 4. T_2* relaxation times are selectively increased by P-AscH$^-$ in an orthotopic glioma model.

Mice with orthotopic U87 tumors were treated twice daily for 7 consequtive days with 4 g kg^{-1} P-AscH$^-$. Animals were scanned immediately prior to the beginning of treatment as a baseline.

(**A)** The change (day 7 – day 0) in T_2* relaxation times associated with P-AscH$^-$ treatment following 7 days of treatment.

(B) The LIP in associated tumor and contralateral normal tissue measured using EPR spectroscopy.

Error bars represent standard deviation of 3 replicate measurements. Groups were compared using a two-tailed, unpaired t-test with *$p < 0.05$.

End