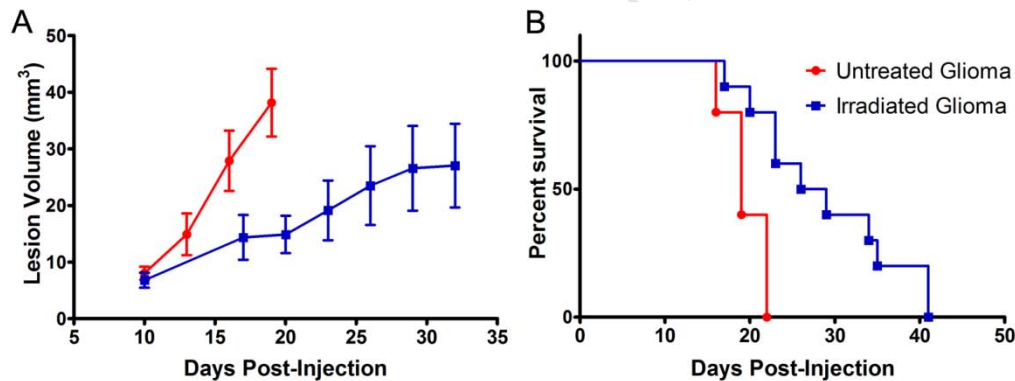*Supplementary Figure 1.* Radiation model at all time points. Post-contrast T1-weighted (1st row), MTR map (2nd row), ADC map (3rd row), and T2-weighted(4th row) images of a representative mouse from week 1 (leftmost column) to week 12 (rightmost column) post-irradiation. The radiation injury can be identified as the bright region on post-contrast T1-weighted, ADC map, and T2 weighted; and the dark region on MTR map.

Supplementary Figure 2. Radiation Impacts Survival. Panel **A** shows the size of the tumor as derived from post-contrast T1-weighted images for untreated glioma and irradiated glioma models. For mice that died prematuyrely, their last observation was carried forward for the purposes of this graph. Data are shown as mead ± SEM Panel **B** shows the Kaplan-Meier survival curve between the same groups. Even though all mice succumbed to the glioma there is a marked survival difference with untreated glioma having a media survival of 19 days and irradiated glioma having a median survival of 27.5 days (P=0.001 by Log-rank (Mantel-Cox) Test).