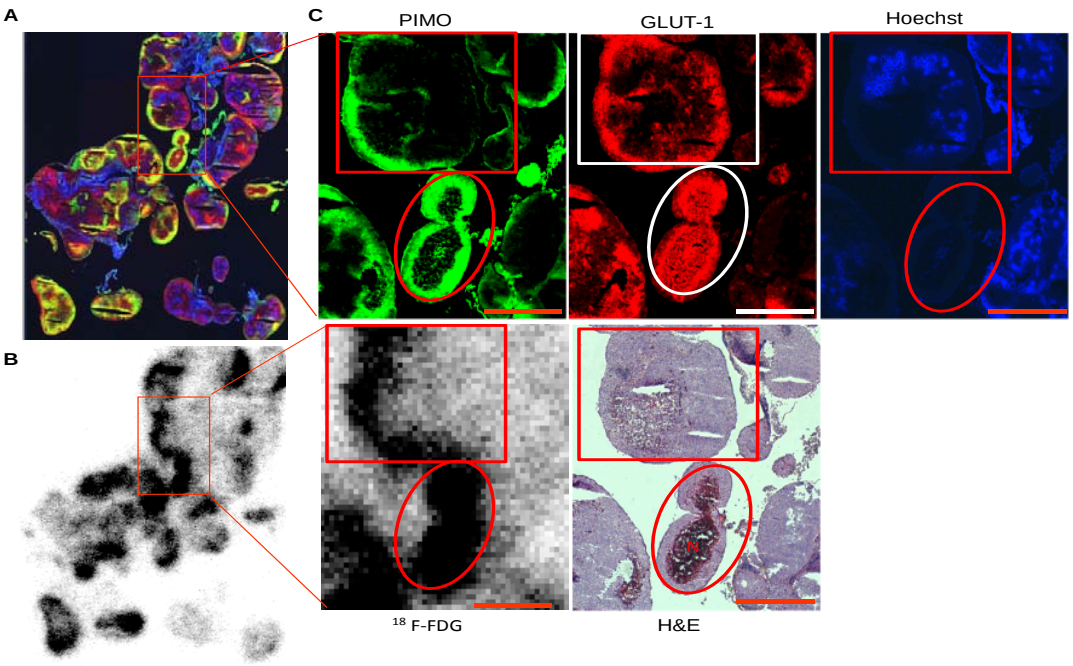
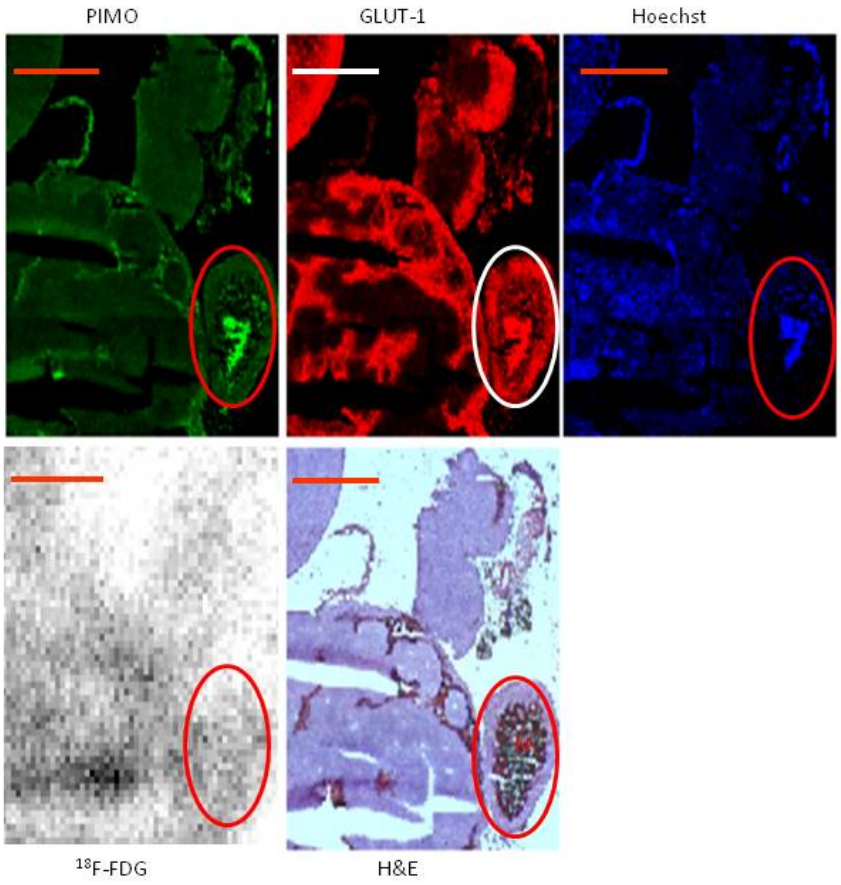
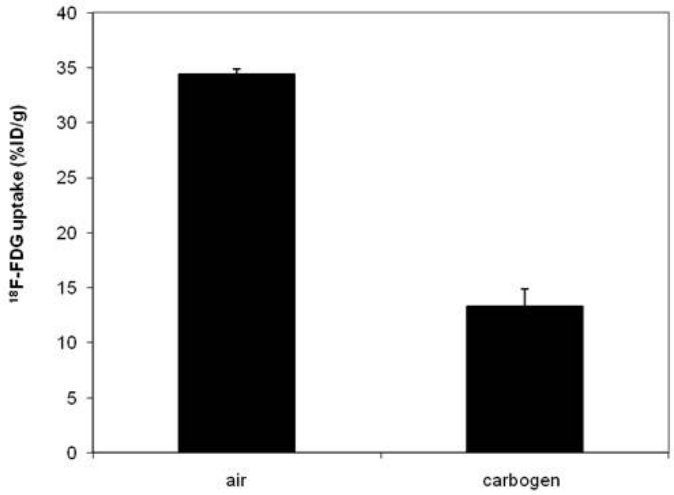



**Supplemental Figure 1 (A)** Relationship between $^{18}$F-FDG uptake, pimonidazole binding, GLUT-1 expression and blood perfusion in disseminated peritoneal HCT-8 tumors from an animal breathing air. (A) Merged fluorescence image of pimonidazole (PIMO, green), GLUT-1 (red) and Hoechst 33342 (blue) from a tumor tissue section containing tumors ranging from several hundred micrometers to several millimeters in diameter. (**B**) $^{18}$F-FDG autoradiogram of the same section. **(C)** Enlarged images of the region of interest indicated in A&B. The larger tumor (square) has centrally low $^{18}$F-FDG uptake, pimonidazole binding and GLUT-1 expression with significant blood perfusion. In contrast, the microscopic tumors (circle) have high $^{18}$F-FDG uptake, pimonidazole binding and GLUT-1 expression in viable cells with little perfusion. H&E image provided for reference. All images were obtained from the same section. Similar results were seen in 2 air-breathing animals. Scale bar 1 mm. N= necrosis.




**Supplemental Figure 2** Relationship between $^{18}$F-FDG uptake, pimonidazole binding, GLUT-1 expression and blood perfusion in disseminated peritoneal HCT-8 tumors from a carbogen-breathing animal. $^{18}$F-FDG uptake and pimonidazole binding were lower than in air-breathing conditions (see Suppl. Fig. 1) although GLUT-1 expression was similar. All images were obtained from the same section. Similar results were seen in 2 carbogen-breathing animals Scale bar 1 mm. N= necrosis.




**Supplemental Figure 3** The differences in $^{18}$F-FDG uptake between sub-millimeter HCT-8 tumors in air and carbogen breathing animals were significant (number of tumors: 3-6), Quantitative $^{18}$F-FDG uptake based on a collection of intraperitoneal HCT-8 tumors of sub-millimeter diameter derived from a single air-breathing animal (3 tumors) and a single carbogen-breathing animal (6 tumors). $^{18}$F-FDG uptake was significantly reduced for carbogen-breathing, $P < 0.001$.