Multi-modality biomedical imaging*

1 R24 CA84596-01

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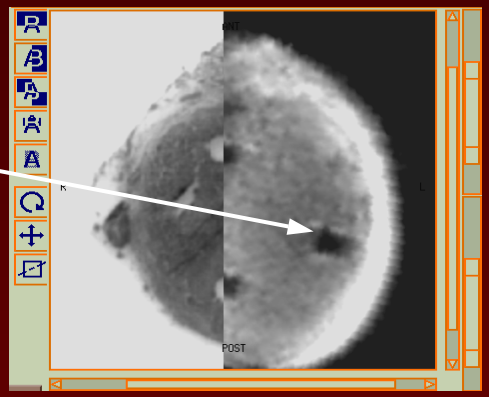
Koutcher/Ballon

- **MRI / MRS**

Soft tissue anatomy
Blood flow
Hypoxia
Spectroscopy

Co-registered Biological Images

Fiduciary markers for registration of multi-modality images



Zanzonico
Collab. D.Chapman – Fox Chase

- **PET**

Glucose metabolism FDG
Hypoxia 124IAZG
Apoptosis 124I-Annexin

Humm

- **Histology/ARG**

Tumor morphology
Capillary vasculature
Viability staining Ki67
Radionuclide microdistribution

Burgman/Russell

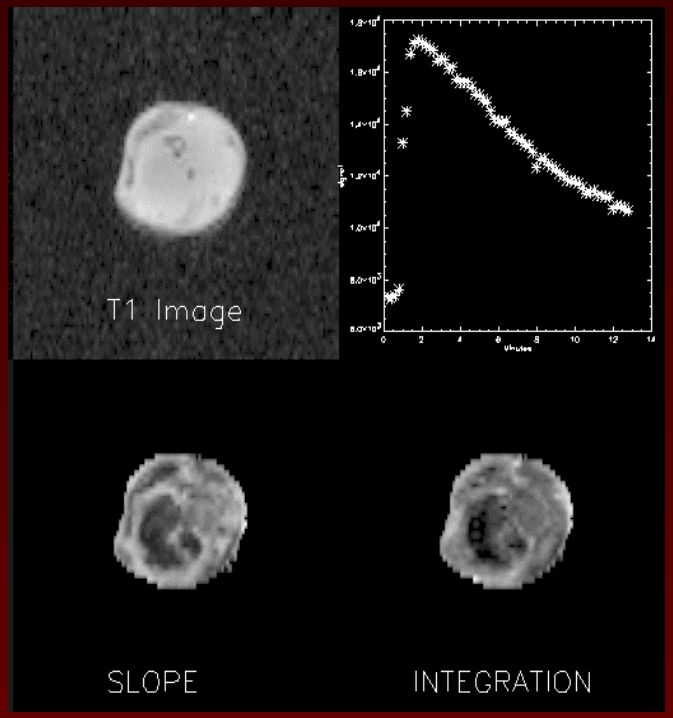
- **Radiobiology**

pO_2 probe measurements
Tumor response
Cell death - apoptosis

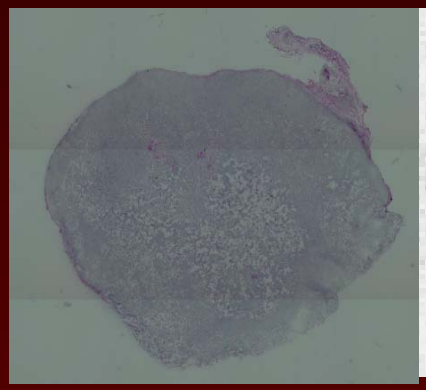
* Installation of micro CT imminent

METHODS

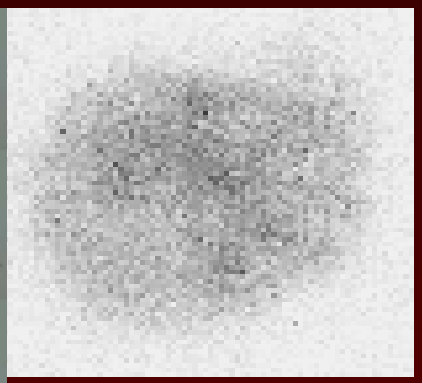
MRI Gd-DTPA blood flow



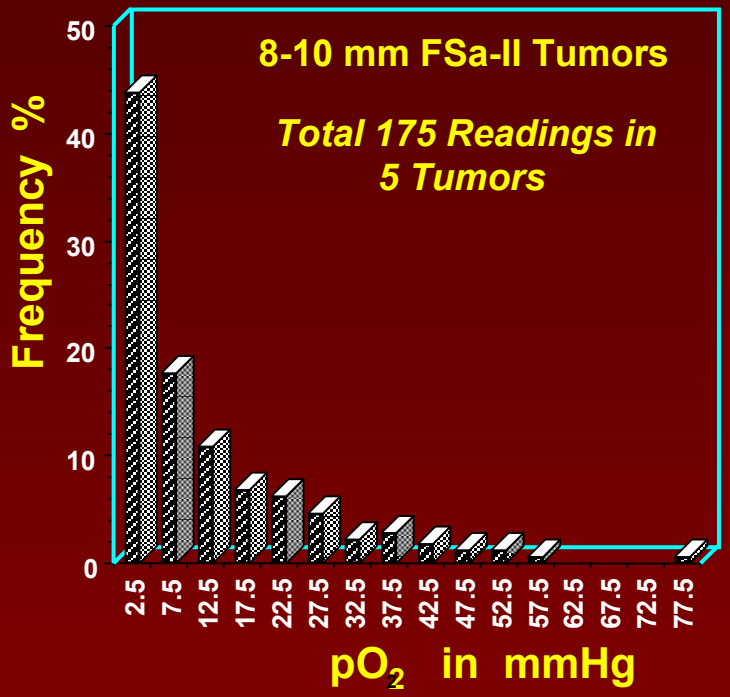
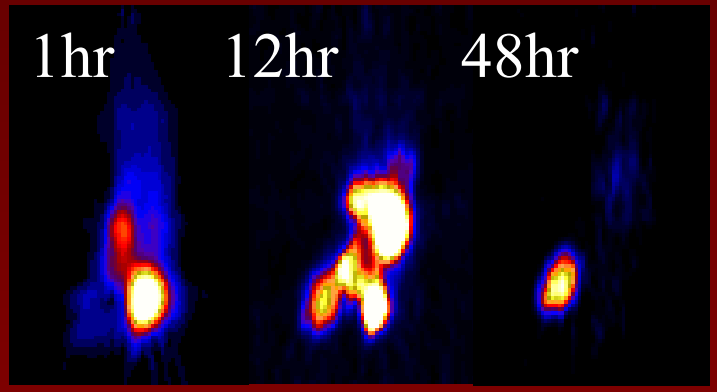
H&E stain



Autoradiography of ^{18}F-MISO



Radiobiology – pO_2 probe



MicroPET images of hypoxia with ^{124}IAZG