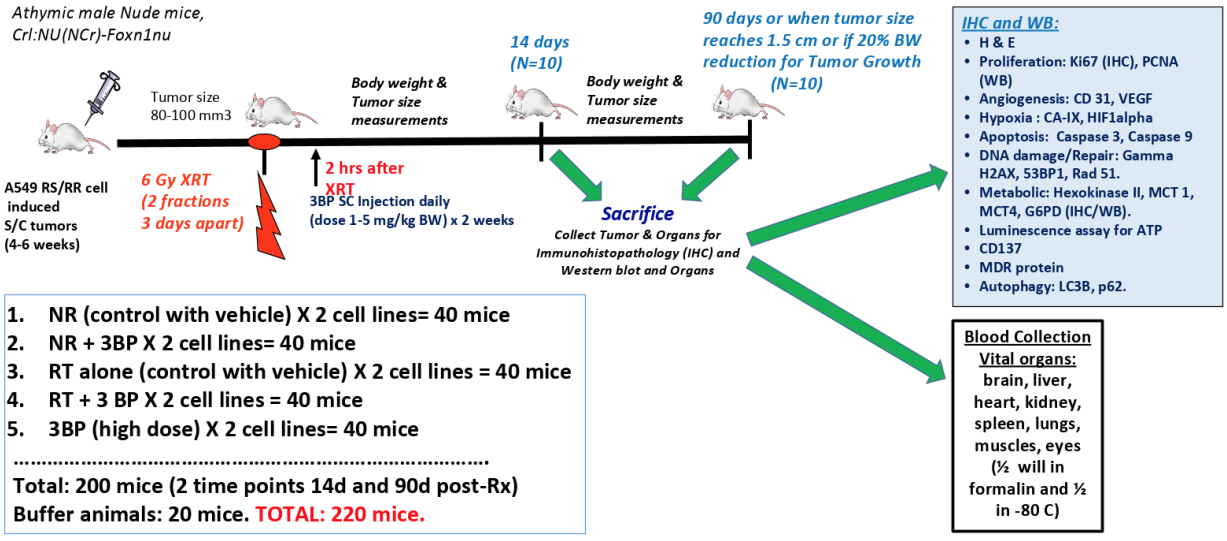
3rd Preclinical Study

Completed preclinical study in partnership with the University of Maryland in 2018.
The University of Maryland study tested KAT's effectiveness in conjunction with Radiation Therapy (RT). These results have been particularly exciting.

Hypothesis & AIMS:

- Cancer cells exhibit increased glycolysis for ATP production (the Warburg effect). 3BP could possibly inhibit glycolysis and inhibit NSCLC tumor growth.
- ROS generation is one of the mechanisms of action of 3BP. By utilizing radiation to deplete ROS scavengers, the tumoricidal response from 3BP may be enhanced.
- Elevated glycolysis facilitates rejoining of radiation-induced DNA strand breaks by activating both non-homologous end joining (NHEJ) and homologous recombination (HR) pathways of DNA double strand break repair leading to a reduction in radiation-induced cytogenetic damage of NSCLC tumor. 3BP could possibly reverse this in radio-resistant NSCLC tumors.

To elucidate the effect of 3BP on tumor growth delay in a mouse model of Non-Small Cell Lung cancer (NSCLC; Radiosensitive & Radioresistant).



1. NR (control with vehicle) X 2 cell lines= 40 mice
2. NR + 3BP X 2 cell lines= 40 mice
3. RT alone (control with vehicle) X 2 cell lines = 40 mice
4. RT + 3 BP X 2 cell lines = 40 mice
5. 3BP (high dose) X 2 cell lines= 40 mice

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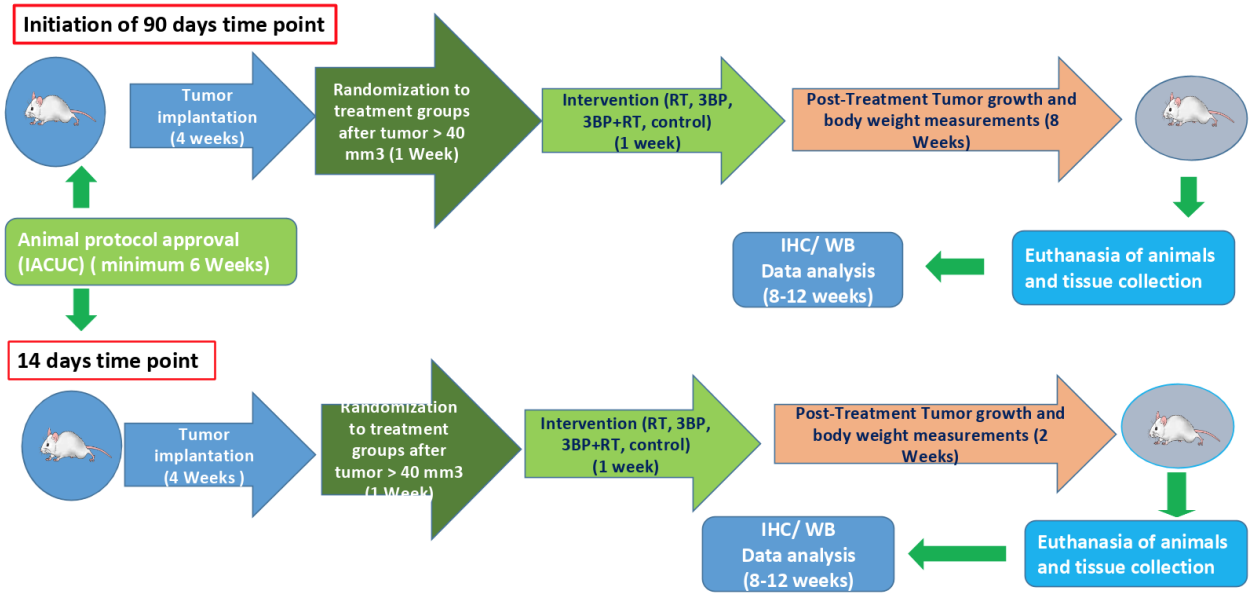
Total: 200 mice (2 time points 14d and 90d post-Rx)
Buffer animals: 20 mice. TOTAL: 220 mice.

Timeline (total 10 months)



The data is still being written up for publication, but preliminary general findings can be summarized as follows:

- Patients receiving RT alone showed positive response initially, but tumors rapidly regrew later.
- Under conditions employed, the study results suggest RT is more effective when used in combination with KAT.
- No tumor regrowth was observed when RT was combined with KAT.
- Patients receiving KAT alone showed decreased tumor burden suggesting it as standalone therapy.
- The study suggested KAT is capable of eradicating cancer stem cells.
- No cytotoxicities were observed in the treatment groups.