

## IN VIVO STUDY DESIGN & BEAM REQUEST

### PROJECT TITLE:

Principal investigator:

PI Affiliation:    CCHMC        UC        Other:

Research Field:    Biology        Physics        Other:

Initial submission date:

Requested Beam Time (I.E. 1 hr., etc.):

Preferred irradiation date:

Anticipated Animal Transfer to Liberty:

Anticipated Animal Transfer Back to Base:

Modification # and date:

Date approved by SC:

### STUDY OBJECTIVES:

- (1) Describe the key question to be addressed by this experiment.
  
- (2) Define study endpoint (e.g. when tumors reach xx size or necropsy at xx days after treatment)
  
- (3) Provide a full list of measurements required (e.g. survival, tumor size, PD marker analysis at xx days post treatment, pulmonary function at xx days post treatment).

*\*\*\*Please note that endpoints and measurements cannot be added or modified once the study plan is approved.*

### ANIMAL REQUIREMENTS

- Total number of animals:
- IACUC Protocol #:
- IACUC Approved Proton Radiation Doses:
- Species: [e.g., mouse or rat]
- Strain: [e.g., C57BL/6]



**INSTRUCTIONS FOR WHEN ANIMALS REACH STUDY ENDPOINT:**

e.g. harvest tumor, blood and draining lymph nodes, perform necropsy (please specify organs to be collected and methods) etc.

**CRITERIA FOR EUTHANIZATION PRIOR TO STUDY ENDPOINT:**

e.g. weight loss >20% for more than 3 days

**INSTRUCTIONS FOR WHEN ANIMALS REACH EUTHANASIA CRITERIA PRIOR TO STUDY ENDPOINT:**

e.g. harvest tumor, necropsy etc.

**POTENTIAL PITFALLS AND MITIGATION PLAN:**

e.g. what to do if severe toxicity is observed prior to study endpoint

**Other instructions:**

e.g. implant tumors to 20% more animals to account for tumor take rate and allow optimal randomization

Proper un-irradiated control group (Sham) should also be transferred at Liberty as the animals will be hosted for various length of time outside a barrier environment

**For in-vivo experiments:** Due to possible interlock during irradiation delivery or issues during anesthesia, it is suggested to add 20% more mice/dose group

**REQUIRED BEAM TIME ESTIMATION:**

Use the guaranteed minimum productivity rates below, rounding up to the nearest hour.

For conventional irradiation: 6 mice/hour, 8 trays/hour.

For special irradiations: 5 mice/hour, 7 trays/hour.

*Dose = Proton physical dose*

*Photon equivalent dose (Assuming RBE 1.1) = Proton physical dose \*1.1*

For questions relating to submission, please contact: [Brenda.Ingram@cchmc.org](mailto:Brenda.Ingram@cchmc.org) or [Joseph.Speth@cchmc.org](mailto:Joseph.Speth@cchmc.org)