IN VIVO PROTON BEAM TIME REQUEST *Please email completed form to ProtonResearch@cchmc.org.*	***Date Approved:*** ***Project ID:*** *To be completed by Proton Staff*

1. EXPERIMENT INFORMATION

1a. Form Submission Date:	1b. Principal Investigator:	1c. Project Contact (Name and Phone Number):
1d. Project Title:		
1e. Assigned Project ID: *From Approved Project Application*	1f. Requested Beam Time (e.g., 1 hour):	1g. Preferred Irradiation Date(s):

The proton research team requests that users provide advance notice of any intended publication or sharing of proton data including grant applications, posters, oral presentations, or manuscript submissions.

2. EXPERIMENT OBJECTIVES

2a. Briefly summarize the overall objective of the project and indicate whether anything has changed since the project application was approved.

2b. Describe the goal of this experiment and indicate how it relates to the objective of the larger project.

2c. 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).

2d. Define the endpoint (e.g., when tumors reach xx size or necropsy at xx days after treatment).

Note: Endpoints and measurements cannot be added or modified once this beam time request is approved.

3. ANIMAL REQUIREMENTS

3a. Anticipated Animal Transfer to Liberty*:	
3b. Anticipated Animal Transfer Back to Base*:	
3c. IACUC Protocol #, IACUC PI, and Approved Proton Radiation Doses:	
3d. Total Number of Animals**:	
3e. Species (e.g., mouse or rat):	
3f. Strain (e.g., C57BL/6):	
3g. Age and Weight at the Start of the Experiment:	
3h. Sex:	
3i. Source (e.g., name of vendor or bred in-house):	
3j. Primary Housing Location(s):	
3k. Location Where Manipulation Will Be Conducted:	
3l. Will animal tissue be extracted at Liberty?	

Animal transfers should not be scheduled until your beam time request has been reviewed and approved by the proton research team.

****Please contact the proton research team if you intend to irradiate more than 25 animals per session.***

4. TUMOR MODEL INFORMATION

4a. Genetic Model Description:	
4b. Tumor Cell Line Name:	
4c. Cell Line Culture Condition:	
4d. Number of Cells Used to Inoculate:	
4e. Inoculation Volume:	
4f. It treated, what drug was used for treatment?	
4g. Dose and Duration of Drug Treatment:	
4h. Average Tumor Size to Start Treatment*(e.g., 200 mm^3):	
4i. Tumor Size for Euthanasia (e.g., 2000 mm^3):	

We recommend tumor size be evenly distributed across all experimental groups.

5. RADIATION TREATMENT SETUP

5a. Field Size/Shape:	
5b. Beam Particle/Preferred Delivery Platform:	
5c. Dose Constraints (e.g., organ sparing):	
5d. Beam Energy:	

6. EXPERIMENTAL SETUP

Groups	Number Of Animals*	Treatment (e.g., dose, dose rate, fractionation, etc.)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

****Remember to include enough animals per group to power statistical significance. We recommend n≥7.***

Note: A proper un-irradiated control group (Sham) should also be transferred to Liberty as the animals will be hosted for various length of time outside a barrier environment.

Note: Due to possible interlock during irradiation delivery or issues during anesthesia, it is suggested to add 20% more mice/dose group.

7. EXPERIMENTAL PROTOCOL

Date	**Procedure (e.g., sc injection of $2x10^5$ tumor cells on right flank)**
Day	
Day	
Day	
Day	
Day	
Day	
Day	
Day	

8. OTHER EXPERIMENTAL DETAILS

8a. Plan 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.):	
8b. Criteria for Euthanasia Prior to Endpoint (e.g., weight loss >20% for more than 3 days):	
8c. Plan for When Animals Reach Euthanasia Prior to Study Endpoint (e.g., harvest tumor, necropsy etc.)	
8d. Plan for Potential Pitfalls and Mitigations (e.g., what to do if severe toxicity is observed prior to study endpoint):	
8e. Other Considerations (e.g., implant tumors to 20% more animals to account for tumor take rate and allow optimal randomization)"	

9. REQUIRED BEAM TIME ESTIMATION

9a. Use the guaranteed minimum productivity rates below, rounding up to the nearest hour, to estimate the required beam time.

For only conventional irradiation: 6 mice/hour
For only FLASH irradiations: 6 mice/hour
For both conventional and FLASH irradiations: 5 mice/hour

Note: An experiment with a combination of FLASH and conventional irradiations in the same day takes longer due to the needed time to make adjustments to deliver different types of irradiations.

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

10. OTHER NOTES

10a. If there is any additional information you want to share or anything you want to elaborate on, please use this space.

10b. Please attach on a separate page any piece of data you want our team to review in regard to your request.