

ITRF/LhARA

Bridging Funds Application

Funds requested

Justification

High Level Description

Funds requested

			Yr1	Yr2	Yr 1&2 total	Yr3	3yr Total		
Radiobiological experimentation and modelling	WP A	WP A.7 - Radiobiology Experiment	83.3	83.33	166.67	656	83.33	250	909
		WP A.4 - Ion acoustic dose measurement	50.0	50.00	100.00		50.00	150	
		WP A.5 - End station and novel diagnostics	59.7	59.67	119.33		59.67	179	
		WP A.2 - Source for Radiobiology Expt	135.0	135.00	270.00		60.00	330	
ITRF/LhARA R&D	WP B	WP B.6 - FFA feasibility study	193.3	193.33	386.67	1137	193.33	580	1780
		WP B.2 - Source	175.0	175.00	350.00		250.00	600	
		WP B.3 - Capture	200.0	200.00	400.00		200.00	600	
PM	WP C	WP C.1 - Proj Man	86.7	86.67	173.33	207	86.67	260	310
		WP C.8- Outreach & Engagement	16.7	16.67	33.33		16.67	50	
Total			1000	1000	1999	1000	2999	2999	

Justification

ITRF/LhARA will:

- Drive advances in the field of radiation biology; and
- Demonstrate the technologies required to deliver particle-beam therapy in completely new regimens.

Bridging Funds will:

- Develop a full proposal for the ITRF;
- Establish demonstration and test facilities to:
 - Make the radiobiological measurements to develop an evidence base ... publications in peer-reviewed journal(s); and
 - Perform the measurement and prototype evaluation needed to develop the full infrastructure proposal;
- Cement existing and build on strategic partnerships.

Project Plan – high level

The Bridging project will be structured into three major activities

- Work Package A: Radiobiological experimentation and modelling
 - Work Package B: ITRF/LhARA Facility risk reduction
- Work Package C: Project management, outreach and engagement.

University and national lab effort is integrated within the work packages.

WP A will deliver the critical experimental demonstration of radiobiological efficacy ... experiments at the SCAPA facility.

Initial cell survival/DNA damage studieswithin the first 2 years with stretch targets for the final year developed as results are analysed.

Also contains work on novel ion acoustic dose mapping as well as the user end station ... that will facilitate the direct comparison between cyclotron and laser generated protons.

WP B - focussed on risk reduction
three major deliverables:

1. Demonstration of continuous stable 1Hz operation at SCAPA
2. Operation of penning configuration electron trap at increased voltage.
3. Feasibility studies on FFA magnet and cavity design.

WP C Project Management,
Outreach, engagement