

Convergence Science Centre

Guidelines:

Applications for CRUK
Convergence Science Centre
PhD studentships

CRUK Convergence Science Centre PhD Studentship Proposal Application Guidelines

These guidelines explain what we are looking for in proposals for the Convergence Science Centre PhD Programme. We advise careful reading before completing and submitting the accompanying application form.

KEY DATES

Application deadline: **January 17th, 2022**

Funding decision: **February 2022**

Funding commences: **October 1st, 2022**

Applicants are advised to read the MIT White Paper "[The Third Revolution: The Convergence of the life sciences, physical sciences and engineering](#)" which outlines key concepts of convergence science.

Cancer Research UK Case Studies on multidisciplinary research which can found [here](#) and [here](#).

These articles are key examples of convergence research and give insights on the type of proposals we are looking for.

1. What is the Convergence Science Centre PhD Programme?

The CRUK Convergence Science Centre is a partnership between the Institute of Cancer Research and Imperial College London, which brings together world leading expertise in cancer research, engineering and the physical sciences (EPS) to address the big challenges in cancer. One of our strategic goals is to train the next generation of convergence scientists by building cross-institutional research teams with supervisors from distinct disciplines who will equip our PhD students with cutting-edge convergence research skills.

2. What are we offering?

We are offering several highly competitive PhD Studentships that are inclusive of home fees (funding for overseas fees is not provided; however, overseas students may discuss other options to support the difference in international fees with prospective supervisors), a fixed annual stipend of £21,000 and a consumable budget for a period of four years. Applications should demonstrate a clear strategy/pathway for training the students to ensure success in their PhD and their future careers.

3. What are we looking for?

Tumour heterogeneity and evolution; that is the variation seen within tumours and between patients, significantly impacts on the clinical efficacy of cancer treatments. By better understanding how tumours evolve mechanisms of resistance to therapy, we can develop better treatment strategies and methods to monitor therapy response in patients. As the current approaches for detecting therapy response have limitations, new insights that will help clinicians to understand the mechanism of therapeutic action and response that will in turn aid clinical decision making are vital.

Proposals submitted to this call should clearly articulate how they will address challenges associated with **cancer heterogeneity and evolution, mechanisms of therapy monitoring or resistance**.

We are seeking a mixture of cross-institutional, convergence science PhD proposals from EPS (Imperial) and cancer researchers (ICR) working together or single institutional cancer biology led proposals from Imperial or ICR supervisors. Proposals must address an unmet need in understanding cancer in our thematic area of **cancer heterogeneity and evolution, mechanisms of therapy monitoring or resistance**.

For joint institutional convergence science proposals: applicants should articulate the cancer related question(s) and outline the need for novel engineering or physical sciences approaches to address them. **The application of existing tools or methodologies is not considered to be convergence science.** For example, the application of existing bioinformatics tools to biological data is not considered to be convergence science – the generation of new approaches to model and analyse biological data iteratively with biological experimentation would be considered within remit. To train successful convergence scientists, we expect that students will be exposed to scientific research across different disciplines. Therefore, the proposal should clearly articulate how the learnings from one discipline will inform experimental strategies in the partner discipline and vice versa, and how the student

will be trained in the relevant experimental techniques. Applications in this area must span different disciplines with cross-institutional joint supervisory partners.

For single institutional cancer biology led proposals: applicants should articulate the cancer related questions(s); the idea(s) presented must be aligned to our research theme and must be novel and of high quality. Proposals should clearly outline a strategy for training the student within the timeframe of the PhD.

4. How will we assess your application?

Your application will be reviewed by the Convergence Science Centre Training Committee comprising equal membership from Imperial College London and the Institute of Cancer Research. The Committee membership reflects convergence research and cancer biology expertise and will judge your proposal in the following areas:

CANCER LED	<ul style="list-style-type: none"> Addresses an unmet need in cancer which aligns with the strategic research theme
CONVERGENCE APPROACH (joint projects only)	<ul style="list-style-type: none"> Addresses the need for a convergence science approach to meet the challenge The appropriateness of the research teams and how the student will be trained in multidisciplinary research/share their time appropriately between teams
NOVELTY	<ul style="list-style-type: none"> Quality and originality of the research Clear and justified research questions Translational potential
FEASIBILITY	<ul style="list-style-type: none"> Training plan, including how the student will be trained in a manner that will benefit their career prospects Achievability of the project for a postgraduate student for the duration of the funding

5. Are you the right applicant?

We are supportive of applications from early career researchers who meet their institutional requirement for supervising a PhD and who will have tenure for the duration of the studentship.

Please note that studentships will not be allocated in consecutive years to successful applicants even when a new bid is submitted with one-half of a previously successful partnership. Consider the following questions before completing the application form. Your eligibility as an applicant depends on a positive answer.

- Do you have access to the space and equipment necessary for successful completion of the studentship?
- Do you have approval from your Head of Department/Division to apply for this studentship? Please note that students applying to joint investigator led PhD's will

share their time working across both institutions. However, they can only be registered at one institution (the primary) with affiliate or visiting status at the other (the secondary). The tuition fees will only be paid to the primary institution whereas research expenses will be shared between both institutions.

- Do you fulfil the eligibility criteria to supervise PhD students according to your home institution guidelines; including tenure at your institution for the duration of the studentship?

6. How should you complete the application form?

Proposal Title: Please provide a short title that accurately summaries your project. This will be used to advertise the project to prospective students.

Supervisors: Please provide the name and contact details of the supervisors. Also indicate the number of previously supervised research degrees. Please include any additional supervisors whom you deem necessary for the success of your project, e.g., institutes, partners or associates.

Proposal outline: Outline the scientific aims and approaches to be employed explaining why this meets our remit, in particular the application of novel approaches to address the research question and any translational potential. Within this section, you should include any relevant preliminary data that supports your hypothesis and proposed approach. *(Up to 1000 words and 1 additional page of figures. Figure legends should not be used to add additional experimental details.)*

Proposal feasibility: Describe the suitability of your proposal for a PhD project, include a timeline showing the achievability of the project within four years. *(Up to 300 words)*

Convergence science approach (cross-institutional projects only): State the novelty of the technologies and methodologies from the different disciplines to be employed. Outline the roles and contributions of the supervisors/teams and provide a tailored strategy for training in multidisciplinary research, this might include taught modules, technical training courses etc. Give details of the project timeline and how you anticipate your student will share their time across the participating teams. **Please note that applications that do not justify the convergence of distinct disciplines and approaches or only use well established methodologies to address the research question will not be considered within remit.** *(Up to 500 words)*

Research theme alignment: Outline how your work aligns to our priority theme. *(Up to 300 words)*

Literature references: Include a bibliography in the standard Harvard format listing any articles referred to in your proposal.

Advertising details: If your application is successful, we will advertise your project on external websites. Please list up to 6 key words/phrases that students might type into search engines to find your project.

Project suitability: Please indicate from the list provided the student background that will be the right fit for your project.