

BACKGROUND INFORMATION

The Institute of Chemical Biology (ICB) has been awarded an Engineering and Physical Sciences Research Council (EPSRC) Centre for Doctoral Training (CDT) in physical sciences innovation in Chemical Biology for bio-industry and healthcare.

In collaboration with the Grantham Institute (GI) the ICB is inviting proposals for jointly funded 4 year PhD studentships.

The GI was founded with a mandate to drive forward climate change related research, by translating this into real world impact. This joint call between the ICB and the GI recognises that both the development of new and also the translation of existing Chemical Biology tools and technologies for the study of molecular interactions are likely to make a significant impact upon a number of challenges that are linked to climate change and the environment.

Research in this area is critical to our future if we are to cater for the needs of our expanding population, and find solutions that will drive and sustain increases in the yield and climate resilience of food crop production, whilst mitigating competition for water and land use.

THE RESEARCH THEME

The central research theme of the ICB CDT is concerned with the development of new molecular tools and technologies to study specific molecular interactions and their applications to strategic biological problems. This scheme will therefore fund proposals that develop new or translate existing chemical biology tools and technologies that can provide molecular insight into challenges that impact upon (i) earth systems variability and change, (ii) climate change mitigation or (iii) impacts and adaptation (e.g. water and food).

THE STUDENTSHIP

The studentships, starting in the 2015/16 academic year, comprise a 1-year MRes in Chemical Biology: Industrial Innovation and Translation, followed by a 3-year PhD. The MRes course involves taught elements in basic Chemical Biology, which lasts from October-January, followed by a research project that runs from January to September.

The studentship will cover tuition fees and stipend for a total of 4 years. In addition, there is a consumable allowance of £3,000 per annum and a total of £1,800 towards travel and the EVOLVE program per studentship.

SUPERVISOR ELIGIBILITY

Imperial College rules	Supervisors must fulfill the usual College criteria for eligibility to act as a PhD supervisor.
Number of supervisors and tenure	At least two supervisors on the application must hold an academic position at Imperial College that is tenured over the complete period of the studentship. This does not mean that IC supervisors who do not hold a position for the full four year period cannot apply. However, in such circumstances a third supervisor (from Imperial College) who could continue the student supervision (if the original supervisor's tenure was not extended) would have to be added.
Expertise	The supervisors should provide different skill sets, and the most usual division will be to have one “biological/plant/agri/earth science” and one “physical/ engineering/ mathematics” supervisor. These definitions are not meant to be restrictive, nor are they necessarily defined by departmental affiliations. What is important is exposure of the student to multiple disciplines, wherever these are located. Refer also to “Multidisciplinarity” under “Project requirements” below.
External supervisors	The primary supervisor must be Imperial based. Non-Imperial supervisors may be included but at least two supervisors on the application must hold an academic position at Imperial College, as it is vital that the student has a multidisciplinary lab experience. The inclusion of external supervisors should be discussed with the CDT director/ deputy directors before submission of the application form. Please contact them early in the process.
Cap on number of applications	A maximum of 2 applications per supervisor is allowed.

PROJECT REQUIREMENTS “ANNUAL CALL” - ASSESSED COMPONENTS		Threshold / maximum score
Science Remit (fit to theme)	<p>Proposals will typically be concerned with the development of new molecular tools and technologies to study specific molecular interactions that address key GI challenges. (i) earth systems variability and change, (ii) climate change mitigation and (iii) impacts and adaptation (e.g. water and food) and a novel tool or technology to address the problem with. The proposal must be in the area of MOLECULAR interactions (such as protein-protein, protein - nucleic acid, protein lipid etc.).</p> <p>Potential projects could include the development of novel Chemical Biology tools and technologies able to provide much needed molecular insight into challenges that include:</p> <ul style="list-style-type: none"> • Climate effects on crop productivity resulting from changes in temperature and CO2 levels. This could for example be achievable with new chemical biology approaches that enhance carbon fixation pathways in crops. • Increased risk to crops from bacterial and fungal sources promoted by climatic changes. Chemical proteomics approaches could be used to overcome agrochemical resistance, improve species specificity and/or facilitate improved systemic delivery to pests. • Water stress of crops due to aridity or water-logging. Innovation in the physical sciences will aid the development of detection and molecular intervention tools that will control crop yield losses by manipulating the stress pathways and mechanisms in plants. 	(3.0/5.0)
Physical science innovation	<p>The application must demonstrate innovation in the physical sciences. Technologies can be experimental or theoretical (making, measuring, manipulating and modelling). A solely biological proposal, no matter how interesting, cannot be funded. Typically, projects would involve the development <i>or</i> the translation of a new technology applied to a biological problem. Modification of an existing technology to solve a specific biological problem is allowed as well, but there has to be considerable novelty in the development of the technology underpinned by innovation in the physical sciences. Translation into a new sector without innovation in the physical sciences is not within the remit of the CDT.</p>	(4.0/6.0)
Multidisciplinarity	<p>It is fundamental that the project is inherently multidisciplinary. Therefore it must include at least two supervisors. The supervisors should provide the different skill sets, and the most usual division will be to have one “biological/agri/plant/earth science” and one “physical” supervisor. These definitions are not meant to be restrictive, nor are they necessarily defined by departmental affiliations. What is important is exposure of the student to multiple disciplines, wherever these are located. It is expected that the student will typically undertake work in each research environment for some part of the study, including the MRes project.</p>	(3.0/5.0)

<p>Feasibility and Suitability</p>	<p>ICB-CDT PhD studentships are fully funded for 4 years (1+3 year format). The first year is an MRes course with taught components in the first few months and a research project subsequently starting in January and finishing in September. Even though this research project directly feeds into the 3 year PhD, the proposal must put forward a self-contained MRes project that can be achieved within 9 months.</p> <p>If the proposed project builds on a previously funded CDT studentship you must include details of the innovation that has been successfully achieved and list outputs (the work must be published or patented).</p> <p>OR</p> <p>If the suggested technology is completely new please explain why you think the proposed work will be successful and provide a risk mitigation plan (“plan B for the student”)</p>	<p>(4.0/6.0)</p>
<p>Synergy</p>	<p>In order to facilitate networking amongst the students, new projects must have synergy with existing ICB core activities. It is important to explain the communalities of the proposed project with existing ones. See http://www.icb-cdt.co.uk/research/projects. Explain synergies in terms of tools and technology development, common biological problem/target, potential for technology translation.</p>	<p>(2.5/4.0)</p>
<p>Impact</p>	<p>Describe the intended impact/ scientific merit that would arise from this work. This can include a translational element (e.g. how the application of the new technology could be applied to other biological problems or climate change issues and policy discussions) and / or any other added value that the project can bring to the ICB and GI, such as outreach, new collaborations (with companies) and follow-on funding. Indicate the timeframe for the achievements listed in your impact statement.</p>	<p>(2.5/4.0)</p>
<p>Please note the different weighting and threshold of each requirement!</p>		<p>Maximum Score : 30.0</p>

APPLICATION AND REVIEW PROCESS

<p>How to apply</p>	<p>The awards will be made on the basis of written applications to the ICB. Applications to the ICB must be made using the separate application forms provided. When filling in the application form it is important to demonstrate that your proposed project meets all the criteria listed (see section “requirements” below). Proposals should clearly outline the innovative aspect of the research counterbalanced by its achievability in terms of time and funds. Please specify your research infrastructure, including the access to resources already in place and any additional needs in the feasibility section. With the award of a studentship, supervisors automatically become ICB members. Therefore, you must select at least one of the “ICB membership activities” (listed in the Annex) you would like to get involved in.</p>
<p>Page Limit and Font</p>	<p>Please complete your application by entering your text only into the tables in the word document and restrict your application to the four page limit. Do not use a font less than 10 pt Arial. Note that we cannot consider applications longer than 4 pages and in any other format than .doc or .docx. Annexes and additional tables are not allowed.</p>

APPLICATION AND REVIEW PROCESS

Review process	2 studentships will be awarded via this call (subject to the quality of proposals matching the ICB selection and quality criteria). Each proposal will be independently scored by reviewers drawn from members of the ICB Executive Board and the GI. In addition, applicants can suggest Imperial College academics that have the necessary expertise to review the application.
Relevant Dates	- APPLICATION DEADLINE: Please email the completed application form as doc or docx file to Erika (e.rosivatz@imperial.ac.uk) by the 5th January 2015 (5pm) . - Recruitment : ICB recruitment days in January (tbc)
Any Questions?	We actively encourage participants to discuss potential projects with members of the ICB Executive Board if they are unsure of the procedure or the remit.

POST AWARD

Student Eligibility	The awarding body for the ICB CDT studentships is the EPSRC. Students must therefore conform to the eligibility requirements laid down by the EPSRC, which normally means that the student must be a UK resident. All students must have a good honours degree (2.1 or above) in a physical sciences subject at MSci level (or equivalent).
Recruitment	Eligible students will be interviewed by the ICB-CDT Board and the project supervisors on ICB-CDT recruitment days in February (dates to be announced). It is the responsibility of supervisors to ensure that studentship places are filled by 31st June 2015. Any studentship that does not have a suitable student signed up at this time will be deemed to have forfeited the award, which will be reassigned to reserve projects – this deadline will be strictly enforced.
Supervision splits	All ICB students are registered in the Department of Chemistry. The lead supervisor must therefore be based in the Chemistry department. This can be a nominal supervisor (1%) and does not have to be listed on the application form. The data check is carried out in November and the supervision split can be adjusted accordingly then.
MRes	The 4 year program typically comprises a 1-year MRes followed by a 3-year PhD.
ICB events and EVOLVE program	The CDT program, under the administration of the ICB, involves colloquia, and student organised conferences. In order to encourage wide interactions we make attendance at these programs a mandatory requirement for both students and supervisors. Students must also attend CDT specific courses in transferable skills (one per year) and take part in the EVOLVE program. Through the EVOLVE program the student will spend a total of 2 months (in years 2-4) at a series of placements to support a key goal identified by each CDT student. Examples of such goals include engagement in the early stages of commercialisation of research they have pioneered, stimulating a new line of research not linked to their PhD or hosting an art exhibition for the general public to highlight the impact of research. EVOLVE is designed to give students workplace based experience of entrepreneurial activities, policy making, media/outreach, industrial research, or research within international academic institutions to meet a specific goal decided by the student. EVOLVE is supported from the outset by over 30 affiliated organisations who are committed to hosting students, provide mentoring advice and offering placement training.
ICB membership	With the award of a studentship, supervisors automatically become ICB members and you will be approached by the CDT management regarding ICB responsibilities chosen on the application form (see Annex).

ANNEX

ICB core activity to be listed on the application form. Choose at least one activity you agree to be responsible for if you are awarded a studentship.

1. Organise a cross campus / cross university event
2. Organise ICB colloquium
3. Organise a careers seminar
4. Organise industry workshops
5. Contribution to MRes taught training (e.g. lectures, BioLab, group learning seminars)
6. Write ICB badged grants
7. Contribution to the CDT newsletter/ website
8. Act as tutor at a transferable skills course
9. Act as member of judging panels at events such as the CDT Den competition
10. Act as an member of an ICB expert panel to mark future proposals
11. Organise technology show case events / SME workshops
12. Mentoring CDT students through the EVOLVE journey
13. Act as a cohort mentor for 1 year (includes visiting students at residential courses)
14. Other