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**Fera-White Rose DTP Studentships 2014/2015****Information for Applicants****Closing Date: Friday 15<sup>th</sup> November 2013****Aim**

The White Rose Universities and Fera are looking to develop new research collaborations across a number of strategic themes. In order to support new projects, Fera and the White Rose Doctoral Training Partnership (DTP) for *Mechanistic Biology and its Strategic Application* (Appendix 1) will co-fund a number of studentship projects.

**Background**

The DTP brings together the research of the world-class molecular and cellular bioscience centres at the White Rose universities of Leeds, Sheffield and York alongside partners at Fera and Harwell. The collaboration has attracted a £5.7 million investment from the Biotechnology and Biological Sciences Research Council (BBSRC) which, together with additional investment from the partner universities, will support a minimum of 78 PhD studentships over the next three years.

**The strategic theme*****Detection and Diagnostics for applications in Agrifood and the Environment***

This call sits within the remit of the White Rose Universities Consortium BBSRC DTP 'Mechanistic biology and its strategic application' specifically addressing the challenges Fera face in diagnostics and detection across the agrifood chain. Applicants should explain how their research project will deliver mechanistic insights into processes important for the development of applications for detecting and diagnosing in agrifood and describe strategic relevance to fera and defra.

Proposals that embrace 'new ways of working' (multidisciplinary and/or embracing new tools and technologies) are particularly welcome.

**Scheme**

- The scheme will support an integrated research community across Fera and the universities working upon a larger initiative. This group will be allocated a PhD studentship.
- £2,500 of funding will be made available to the network to support collaborative activity and to develop the group's future direction.

- Each studentship is bilateral and should involve two supervisors – the principal supervisor at a White Rose University, where the student will be registered, and the co-supervisor at Fera.
- Multi-disciplinary proposals are encouraged.
- Studentships are for four years and will provide full tuition fees at UK/EU student rates, an annual maintenance grant and a contribution towards research and travel expenses to students embarking on full-time PhD programmes.
- The administration of the studentships, including financial payment to students will be provided by the individual Universities.

### Timetable

Action	Date
<p>Call launched:</p> <ul style="list-style-type: none"> <li>• Call sent to all who attended the Fera sandpit</li> <li>• Call advertised on the White Rose University Consortium web-site (<a href="http://www.whiterose.ac.uk">http://www.whiterose.ac.uk</a>).</li> <li>• Universities to promote internally.</li> </ul>	<b>Monday 9<sup>th</sup> September 2013</b>
<p>Call closes:</p> <p>Proposals should be submitted directly to Nadia Gopichandran (<a href="mailto:n.gopichandran@whiterose.ac.uk">n.gopichandran@whiterose.ac.uk</a>) at White Rose by e-mail.</p> <p>In addition, a paper copy with signatures must be received by White Rose by <b>Friday 22<sup>nd</sup> November 2013</b>. Any proposal submitted without the appropriate signatures will not be considered. Please send the paper copy to:</p> <p><i>Dr Nadia Gopichandran Project Development Manager White Rose University Consortium Enterprise and Innovation Office Charles Thackrah Building 101 Clarendon Road University of Leeds Leeds LS2 9LJ</i></p>	<b>Friday 15<sup>th</sup> November 2013</b> Proposals received after this will not be considered.

BBSRC DTP Management Board to select one Studentship Network	<b>November 2013</b>
Network announced and studentship recruitment begins.	<b>November 2013 onwards</b>

### Application Procedure

Applicants must complete the “Fera-White Rose DTP Studentship 2014/15– Proposal Form”. It is the responsibility of the project leader to collate the studentship information and submit the proposal to White Rose by the deadline. A proposal requires the following:

- A project description covering the overall aims, activities, future developments and long term sustainability (to be completed by the project leader).
- A description of the project’s studentship (to be completed by the principal supervisor and to include approval from their Head of School/Department).

### Assessment Procedure

Representatives from the BBSRC DTP Management Board alongside those from Fera will select the successful Studentship project.

The proposals will be assessed using the following criteria:

- The added value of the collaboration (in what way does the network provide an opportunity for collaboration which would not otherwise exist).
- The strategic relevance of the network to White Rose universities.
- The extent and nature of interaction with other networks and stakeholders.
- The sustainability of the network and its potential for long term collaboration.
- The novelty, timeliness and clarity of the studentships overall.
- Do the proposed supervisory teams have satisfactory track records? Please note that applications from new supervisors are welcomed, but applicants must demonstrate that there is suitable experience within the supervisory team.
- Are resources and facilities adequate?
- Is the timely completion of the projects likely?

### Studentship Project Details

Members of the project are expected to meet as a group at least three times a year. A short report on network activities will be required each year. The academic lead for the project will be responsible for producing the report, and a form will be provided for this purpose. Failure to complete annual reports may result in future network funding being withheld. The reports will be used to inform the development of the studentship scheme, and to assist

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White Rose in developing new activities within the Consortium. A White Rose Project Development Manager will be assigned to the project. Representatives from the project may occasionally be asked for informal updates, e.g. for publicity purposes, or to attend PVC Research meetings.

The studentship is tenable for four years from Session 2014/15 (start September/October 2014) and will provide Home/EU tuition fees, a maintenance grant paid at standard Research Council rates for the first year of study (renewable for subsequent years of study subject to satisfactory academic progress) together with a Project Support Grant of £20,000 for the lifetime of the award. It is expected that the student appointed to the project will liaise with both supervisors at least 6 times a year. Applicants for these studentships will be expected to hold a UK Upper Second Class Honours degree or equivalent.

Students appointed to the project will be bound by the regulations of the lead institution, at which they will be registered. However, partner institutions should also extend the use of computing and library facilities as well as laboratory/research facilities by arrangement. Students would not normally be eligible to apply for accommodation at the partner institution.

If international students are appointed to the project then the following individual University regulations will apply:

- Leeds: If an international candidate is offered a White Rose Studentship, the School would have to pay the difference between the international fee rate and the UK/EU fee rate.
- Sheffield: If an international candidate is offered a White Rose Studentship, the candidate will be required to pay the difference between the international fee rate and the UK/EU fee rate.
- York: If an international candidate is offered a White Rose Studentship, the candidate will be required to pay the difference between the international fee rate and the UK/EU fee rate.

### **Contact Details**

Please feel free to contact the White Rose University Consortium.

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## Appendix 1

### **White Rose University Consortium (WRUC) BBSRC DTP Research Training Strategy 'Mechanistic Biology and its Strategic Application'**

#### ***Vision:***

Our WRUC BBSRC DTP will have at its heart **Mechanistic Biology**, the study of basic, life-governing processes at all levels of organization, from the atomic scale to the whole organism, and will place these studies in the context of key strategic needs in **food security, bioenergy, biorenewables and industrial biotechnology**. Student research projects will encompass a wide range of model organisms and biological systems, physical methods, mathematical models and computational techniques applied to real-world problems. The students enrolled on our programme will undertake an interdisciplinary project that embraces **New Ways of Working** applied to some of the most compelling biological questions. The DTP Aims and Objectives (set out in section 3 of the JeS form) support **our vision to train researchers of the future equipped to address and solve fundamental and strategic biological questions of national and global importance.**

#### ***Contributing Organizations, Departments and Supervisors:***

This application builds on the excellent track records of the Universities of Leeds, Sheffield and York as leading centres in molecular and cellular biosciences both in terms of research and training. This is demonstrated by our combined RAE2008 performance, where 60, 75 & 60%, respectively, of research activity over a total of 243 academic staff was graded as world-leading or internationally excellent, and corroborated by **our combined BBSRC spend, which in 09/10 was >£15m**. Our excellence in providing cutting-edge PhD training is evidenced by the diversity of funders (BBSRC, ESPRC, Wellcome Trust, MRC, NERC, Charities, Industry, EU) of our postgraduate training programmes. These have supported a total of approximately 650 PhD students across the three Institutions in the Biosciences over the last 3 years.

In this application we have chosen the very best molecular and cellular biosciences research across the consortium that falls within the BBSRC remit and the research foci of this application to create a regional PhD training programme that has rigor, strategic importance and interdisciplinarity at its heart. It brings together researchers in different disciplines (Biosciences, Physics, Chemistry etc.), within different research centres (Astbury Centre for Structural Molecular Biology and Centre for Plant Sciences (Leeds), Krebs Institute (Sheffield) and Centre for Novel Agricultural Products (CNAP) and York Structural Biology Laboratory (York)). The consortium also spans many departments (The Faculties of Biological Sciences (FBS), and Maths and Physical Sciences (Leeds) the Departments of Biology and Chemistry (York) and primarily the Department of Molecular Biology and Biotechnology in Sheffield, with combined research power and critical mass in the area of Mechanistic Biology and its Strategic Application which is the focus of the proposed DTP. Individually, we provide *excellent* training for PhD students; combined we will provide *outstanding* training, enhanced by greater depth and diversity of experience and research opportunity. We will also develop and expand links to national organizations including the Food & Environment Research Agency (**FERA**, Sand Hutton, York) and the Research Complex at Harwell (**RCaH**, Harwell, Oxford) who are partners in this application. FERA's remit overlaps the DTP in the Food Security strategic priority (plant development and seeds, plant pathogens, plant breeding and microbial food safety). Their involvement will provide



DTP students with a valuable link to applied research that informs policy. Collaborations with RCaH will allow students access to unique state-of-the-art equipment, including the synchrotron, laser facilities and optical imaging (of live cells).

Our consortium is not a marriage of convenience, but is built on the long-established traditions of the **WRUC**, a regional organization that has fostered cross-institution collaborations and PhD training for ~15 years. Since its inception in 1997, WRUC has been designing, facilitating and enhancing mutually beneficial collaborative research, knowledge exchange and learning and teaching activities across Yorkshire, the UK and overseas. The WRUC already manages successful multi-institutional Doctoral Training Centres (ESRC funded White Rose Social Science DTC (48 studentships p.a.) and the EPSRC funded DTC in Tissue Engineering and Regenerative Medicine (~10 studentships p.a.). In recognition of the importance of Biosciences research and student education in the White Rose Universities, **the WRUC will directly support the DTP programme by the provision of three PhD studentships per annum in addition to studentships provided by the BBSRC. The individual universities combined will also provide an additional three studentships per annum. FERA will contribute financially to studentship provision (£25k per annum) in strategic areas (e.g. food security).** BBSRC investment in our DTP will add impetus to established cross-institutional collaborative research. Together, investment in these studentships will ensure a dynamic, buoyant and successful cohort focused on applying new ways of working to understand biology in mechanistic detail.

#### ***Research Strategy, Core Expertise and Relation to Strategic Priorities:***

We have chosen to bid for studentships in the areas **Food Security** and **Bioenergy and Industrial Biotechnology** as well as **underpinning world class bioscience** as there is critical mass in these areas that plays to our research strengths as a partnership. We have characterised our research into clusters (groups of supervisors working on related biological problems) and pathways (groups of supervisors using related techniques). These are illustrated in Fig. 1, which serves to emphasise the breadth of topics of fundamental and strategic importance that will be embraced by the WRUC BBSRC DTP, and the wealth of research tools and techniques that will be brought to bear on each topic. Additionally, how the clusters and pathways are aligned to three areas of strategic importance to the BBSRC (Food Security, Underpinning World Class Bioscience and Bioenergy and Industrial Biotechnology) that are our research foci are highlighted. The 90 supervisors listed on the JeS form are also shown with appropriate alignment to topic and/or technique. The diagram illustrates the richness of the training environment available to the DTP students and emphasises the wide range of research groups addressing diverse problems using interdisciplinary approaches. Interaction across the partners is already common, as detailed in the section 12 of the JeS form. With the various mechanisms to ensure interdisciplinary research and training, the DTP will act as a catalyst for further effective interactions and the sharing of expertise, ideas and research facilities, ensuring optimal use of resources across the consortium. However, BBSRC remit and BBSRC-funded research in the consortium covers a much broader range than indicated in the exemplar Fig. 1. Accordingly we have assembled a longer list of ~180 potential supervisors selected based on research track record, BBSRC funding and match to the BBSRC Strategic Plan. These supervisors will be eligible to submit potential projects. As evidence of the research strengths underpinning our

training in the three foci of this application some examples of excellence are highlighted below:

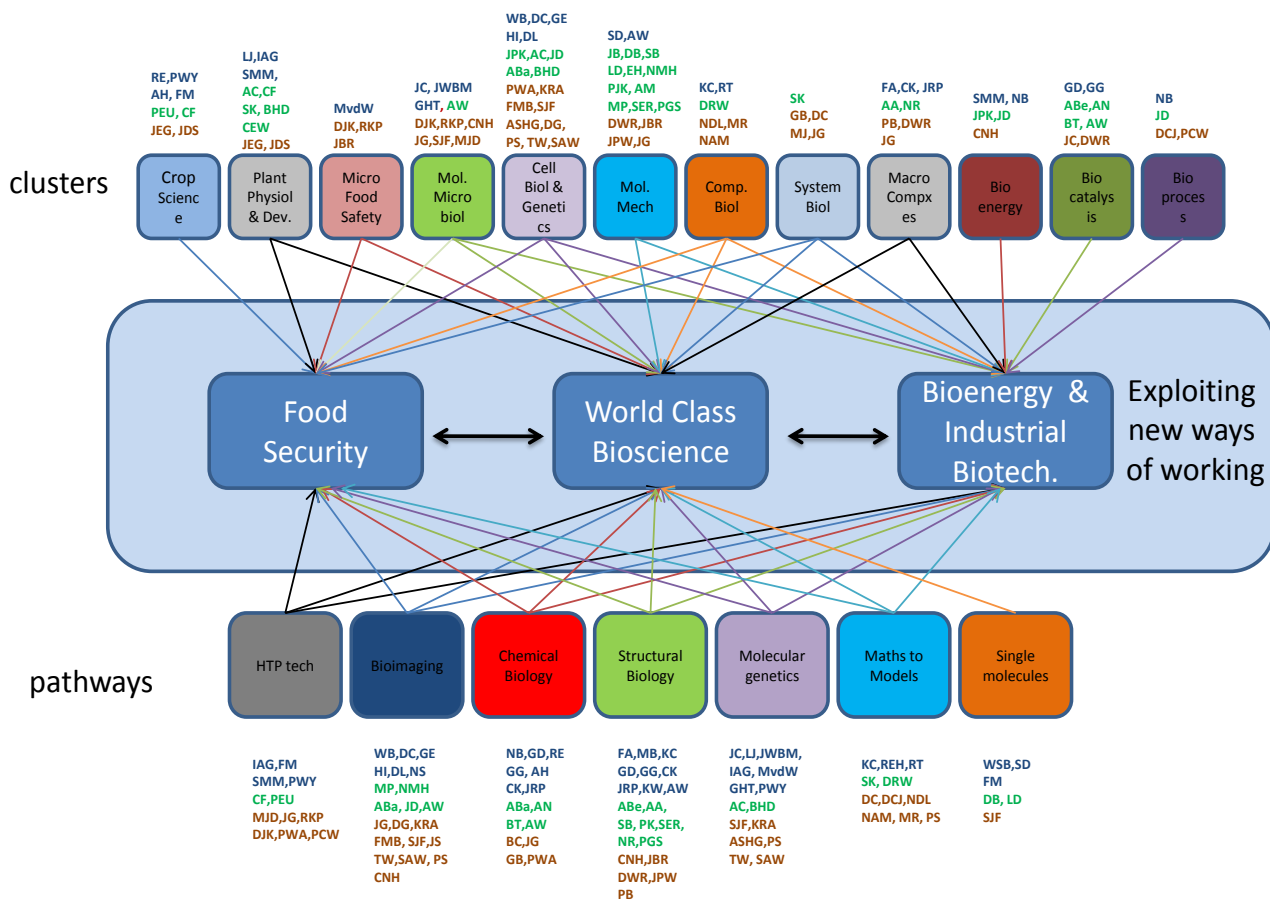


Figure 1 WRUC DTP in Mechanistic Biology and its Strategic Application. Diagram showing the relationship between clusters of related topics, methodological pathways and the BBSRC strategic priorities. Initials relate to staff named on the JES, colour coded according to partner- Blue = York, Green = Leeds, Brown = Sheffield.

## Food Security

The consortium has critical mass in molecular plant science; especially at CPS (Leeds) and CNAP (York), with specific focus on biotic and abiotic (including drought & nutrient) stress of plants. Highlights include Edwards' (CNAP and FERA) work on plant glutathione transferases, which has been pivotal in the identification of their roles in the metabolism and resistance of herbicides in soybean, wheat, black grass (a major weed of wheat) and maize; Atkinson's & Urwin's (CPS, Leeds) work on the control of plant parasitic nematodes in >10 crops, and Gray's (Sheffield) work on development of stomatal patterning, which has implications for water use by plants and has led to four recent publications in Current Biology. Foyer (CPS, Leeds) has recently been recognised by the journal Antioxidants and Redox Signalling as a 'Redox Pioneer' in recognition of achieving >1000 citations for a paper in redox biology. Additionally, we have strong expertise in the microbiology of food borne pathogens, in particular *Salmonella* and *Campylobacter* (Poole,



Kelly; Sheffield, van der Woude, York), which links through to structural biology (Rafferty, Sheffield). Finally, the Africa College Partnership (Leeds) and groups in York provide a route for linking of basic mechanistic biology research in the food security area to agroecology, soil & climate science, transportation and social science.

### **Bioenergy and Industrial Biotechnology**

Research strengths in this area include a BBSRC LoLa led by Hunter FRS (Sheffield £3.5M), investigating the biogenesis, function and organization of photosynthetic membranes using molecular genetics, protein engineering, atomic force microscopy, structural and spectroscopic methods with implications for the design and production of biomimetic systems to capture, convert and store solar energy. McQueen-Mason and Bruce (CNAP York) have identified a suite of genes from the gut of the gribble, a small aquatic crustacean wood borer, which are responsible for the conversion of woody material to sugar (currently being exploited through a Sustainable Bioenergy BBSRC grant). Fast-track breeding of *Artemisia annua* for the production of the anti-malarial artemisinin, was funded through a \$26M Bill & Melinda Gates Foundation grant and led by Bowles, CBE and Graham (CNAP York), with high-yielding plants already in field trials in the third world. Chemical biology is also a strength within all three partner Institutions, linking groups in Chemistry (e.g. Nelson, Turnbull, Wilson (Leeds) and Hubbard, Davies, Wilkinson, Wilson and Brzozowski (York) with partners in the biosciences, biotech and industry. Research highlights here include the development of anti-Alzheimer's compounds based on disrupting the O-GlcNAc modification of tau protein (Davies' group, York) in collaboration with Merck and Alectos Therapeutics). Chemical methods have also been used for the production of compound libraries with diverse unnatural stereochemistries for screening novel drug candidates (Nelson, Leeds), directed evolution of new enzymes for the production of antivirals (Berry/Nelson, Leeds) and the use of systems biotechnology for bioprocess engineering (James, Sheffield). Poole leads a multi-disciplinary SysMO team (£1.1M in Sheffield) taking a systems biology approach to understand *Escherichia coli* catabolism, which is providing new mechanistic insight into oxygen-responsive gene-regulatory circuits with implications for improving the efficiency of high cell-density fermentations.

### **World Class Bioscience.**

The three partner Institutions involved in the WRUC BBSRC DTP boast one of the largest groupings of structural biologists in the UK with the application of structural methods applied to Mechanistic Biology as a research strength of all three partners. Highlights include a BBSRC LoLa involving York and Leeds, led by Kleanthous (York, £3.3M) investigating how antibacterial colicins translocate into and kill *E. coli* and exploiting this process to develop novel, single-molecule methods for imaging membrane receptors and force spectroscopy measurements of protein-protein interactions in the bacterial cell envelope. A BBSRC LoLa involving Westhead (Leeds) with Cambridge, Birmingham and Manchester) is involved in regulatory network inference from new generation sequencing and other 'omics' data. The partner institutions are also at the forefront of method development; e.g. Duckett (Chemistry, York) (hyperpolarization NMR as a means of enhancing sensitivity in biological MRI), Dougan/Brockwell (Leeds) (single molecule force spectroscopy), Foster and collaborators (Sheffield) (atomic force microscopy for bacterial architecture analysis),

Pearson/Cunningham (Leeds) and collaborators at RCaH (the development of TeraHz spectroscopy for analysis of protein dynamics); Wilson/Cowtan's long-running development of macromolecular crystallography software through CCP4. Research highlights also include the use of cryo-EM to reveal the molecular mechanism of dynein (Burgess/Peckham/Edwards/Knight (Leeds) published in Cell and the highly interdisciplinary research exploiting novel mathematics in tiling theory (Twarock, York) with biochemical/biophysical characterisation (Stockley, Leeds) to provide powerful insights into virus structure and assembly.

### ***Cohort-based Research Training Strategy:***

A strength of the WRUC BBSRC DTP is our ability to build upon an established and effective training and management structure. The Integrated Training Matrix (ITM, Fig. 2) embeds “*new ways of working*” in the scientific development of the student cohort, as evidenced by publication list associated with this application. The ITM is an extension of our already excellent current practices illustrated by our exemplary submission rates over a large cohort of students. Our programme recognizes the need to train bioscientists at the interdisciplinary interfaces and in particular to equip them with the core mathematical, data analysis and generic professional skills that are necessary for biological research in the coming decades. The interaction between student and supervisors is key for effective training and WRUC BBSRC DTP management structure is dedicated to supporting this relationship. We will provide **compulsory cohort-wide training** modules in core skills (eg. new technologies, mathematics, data-analysis and modelling), in generic professional skills as identified by the Vitae “Research and Development Statement” (e.g. good scientific practice, public engagement and translation). Personal effectiveness will be promoted through mentoring by supervisory teams and postgraduate training coordinators and by student engagement in WRUC BBSRC DTP symposia and annual induction days to support students in reflecting on progress and identifying training needs. We have engaged partners to provide a range of tailored individual professional experiences in our PIPS scheme (see Portfolio agreement). We recognize that students will arrive with a wide range of previous experiences. The ITM will thus also provide access to optional training opportunities across the consortium to provide customised training opportunities. These will be identified by an annual “Training Needs Analysis” to ensure that individual needs are met. Collaboration with FERA, RCaH and other partners via CASE, will provide access to specialist technologies and an appreciation of the role of research in informing policy-making. To access these and other opportunities we will encourage student mobility by using the flexibility of the DTP funding to support students requiring training offered by external providers (e.g. off-site equipment training, PIPS placements). Students will commit to a minimum of 10 days training per year (JeS form, section 9) which will be monitored annually (JeS form, section 10). To develop our ITM we will have robust internal (via Graduate Schools and the Management Board) and external (via the Advisory Board) monitoring processes to ensure our training provision is effective, current and relevant to the strategic plans of BBSRC.

### ***Embedding New Ways of Working:***

The core ethos of Mechanistic Biology necessitates an interdisciplinary approach to address significant biological questions and thus **all the students on the WRUC BBSRC DTP will embrace ‘new ways of working’**. Advances in methodology from optical microscopy, to single molecule methods, sophisticated developments in bioimaging and quantitative and

computational approaches have underpinned innovative research in biology. The WRUC BBSRC DTP is committed to this philosophy and the partners have extensive experience in developing and catalyzing interdisciplinary research and providing world-class training that traverses traditional academic boundaries. We have an outstanding track record in developing students that are open minded, ambitious and courageous to tackle new and difficult problems in the Biosciences (as exemplified by our **7 BBSRC DTGs and 2 Wellcome Trust Interdisciplinary PhD programmes**). To embed new ways of working in our programme the WRUC BBSRC DTP includes supervisors who are chemists, physicists, engineers and mathematicians and we are exploiting developments in bioimaging, next generation sequencing, 'omics technology and synthetic biology in our current research portfolio. Interdisciplinarity is promoted and nurtured through the affiliation of our supervisors in established multi-disciplinary centres: the Astbury Centre for Structural Molecular Biology in Leeds ([www.astbury.leeds.ac.uk](http://www.astbury.leeds.ac.uk)), the Krebs Institute in Sheffield ([www.krebs.group.shef.ac.uk](http://www.krebs.group.shef.ac.uk)) and the York Centre for Complex Systems Analysis ([www.york.ac.uk/res/yccsa/](http://www.york.ac.uk/res/yccsa/)). Thus, the students enrolled on our programme will be fully integrated into and enhance our established structures for collaborative interdisciplinary research applied to biological problems of fundamental and/or strategic importance.

#### ***International Dimension and Industrial Involvement:***

Our regional training programme is set within a wider national and international context and the consortium participates in a large and diverse range of international and industrial collaborations, providing opportunities for students to network on a global scale. For example, we are involved in EU Co-operation/COST projects, EU ITNs, trans-European systems biology activities and host international Fellows (e.g. EMBO, Marie Curie etc). A RCUK funded Chemical Biology network on protein-protein interactions with partners including Imperial College London, AstraZeneca, GSK, Pfizer and other relationships with several SMEs provides students with opportunities for interaction with industry. There are multiple industry-funded projects that span novel synthetic routes (Nelson/AstraZeneca), development of better biopharmaceuticals (Radford/Brockwell Leeds-Medimmune), new delivery systems (Baldwin/Jeuken Leeds - Medimmune), and new strategies to defeat super bugs (Foster, Sheffield - Absynth Biologics, a spin out company based on BBSRC-funded research). We are also partners in the Centre of Excellence for Biocatalysis, Biotransformations and Biocatalytic Manufacture (see [www.coebio3.org](http://www.coebio3.org)), a research and training platform with an industry focus on biocatalyst-based processes (Bruce/Grogan, York).

#### ***WRUC BBSRC DTP Added Value:***

- Research focus on Mechanistic Biology and its strategic application, which embeds new ways of working by applying interdisciplinary approaches to address significant biological problems.
- Builds on an established regional network of research-led universities with a pedigree of successful collaborative PhD training (7 DTGs 2 WT PhD programmes) and BBSRC supported Masters training (MSc programmes in Sheffield and York).
- Six WRUC DTP-supported PhD studentships *pa* in addition to BBSRC support.
- FERA and RCaH enhance fundamental and translational aspects of the DTP.

- Significant on-going consortium-wide investment in relevant staff and infrastructure .
- Research and training portfolios matched to BBSRC strategic priorities and underpinning research, with a 40:60 split in terms of proposed DTP PhD provision.
- Integrated training matrix encapsulating new ways of working, and providing cohort access to a range of high-quality training opportunities that could not be sustained by individual institutions.

Bespoke, customized, interdisciplinary project-specific training to complete a WRUC BBSRC DTP PhD in Mechanistic Biology and its Strategic Application											
Researcher Development Statement Domains											
Domain A			Domain B			Domain C			Domain D		
Knowledge and intellectual capabilities			Personal effectiveness			Research governance and organisation			Engagement, influence and impact		
Knowledge base	Cognitive abilities	Creativity	Personal qualities	Self management	Professional and career development	Professional conduct	Research management	Finance, funding and resources	Working with others	Communication and dissemination	Engagement and impact
<b>Engagement with supervisory teams and regular training needs analyses and mentoring</b>											
Scientific writing support, literature reviews and reports linked to upgrading		Engagement with supervisory teams			Regular training needs analyses	Health & safety	Engagement with supervisory teams	Technology event		WRUC and local symposia	PIPS
Group meetings				Careers events & awareness sessions		Good scientific practice	Seminar programmes	Grant writing and the peer-review system	Public engagement courses and activities		
Technology event	Data analysis courses	Creativity & problem solving	Annual induction days	Conference/symposia presentation/attendance		Intellectual property		Budget management		Publication of scientific papers, preparation of posters & thesis writing	Research into policy & practice
WRUC and local symposia				PIPS		Ethics	The RAE/REF			Science communication activities	Supervision of undergraduate project students
Seminar programmes	Mathematical modelling & data analysis event		Assertiveness	Time & project management	WRUC networking events- e.g. symposia, training days	Building an academic career	Evaluation & quality enhancement		Team working/ managing partnerships	Media skills	Translation training event
Project specific research methods	Critical reading & thinking	Enterprise			Myers-Briggs analysis and training				Bioscience YES Team		
On-line information skills training resources	IT skills	Vitae Graduate School							Vitae Graduate School	Business models & planning/ commercialisation	

Figure 2 WRUC BBSRC DTP integrated training matrix. Training in all domains is provided and underpinned by the supervisor-student relationship in the context of executing world-class research (green type), supported by regular training needs analyses and electronic reflective logs. Generic skills training is centred on the four domains of the Vitae Research Development Statement (black type). Our ITM will be subject to regular review in response to feedback from all stakeholders. Blue type indicates training that will mostly be delivered locally (generic titles are provided, for details of module availability see each partner's website). Red type indicates training delivered across the WRUC. All training packages will be open to WRUC BBSRC DTP students and will be advertised through the dedicated website.