

## CENTRE FOR RESEARCH IN BIOSCIENCES

### Research and Knowledge Exchange Strategy

**2013-2017**

Centre for Research in Biosciences (CRIB) is a multidisciplinary Research Centre which brings together world-class research in the following areas:

- Biomedical
- Bio-sensing
- Agri-Food, Plant and Environmental

CRIB main strength is its close links with national and international academic partners, health organisations and industry that ensure that CRIB research has real social and economic impact.

*CRIB Aim is to lead world class research in the areas of strategic importance, underpinned by partnerships and innovative approaches, which positively impacts on a wider community and enhances students' experience.*

This aim will be achieved via the 4 work streams:

- (i) Research
- (ii) Partnership and internationalisation
- (iii) Knowledge exchange
- (iv) Teaching, learning and students experience

#### 1. Context

This Strategy reaffirms CRIB priorities in research and knowledge exchange and defines objectives for the next 5 years. The strategy has been developed in discussion with CRIB Management Group, CRIB Advisory Board, CRIB members, representatives of the Department of Biological, Biomedical and Analytical Sciences (BBAS) Executives, and Faculty of Health and Applied Sciences (HAS) Executives.

CRIB strategic priorities are linked to the HAS Research Strategy 2013-2017, which capitalises on Research Centres as the main drivers for research and innovations.

CRIB Strategy consists of 4 work-streams which align with the University of the West of England (UWE) Strategy 2020 and are related to the following UWE Priorities for Action:

- (i) Research with impact
- (ii) Strategic partnership, connections and networks
- (iii) Outstanding learning and
- (iv) Ready and able graduates (*UWE Bristol Strategy 2020*).

## **Excellence of Research**

CRIB strategy builds on the excellence and international quality of CRIB research, which is evidenced by outcomes of the RAE 2008. 65% of CRIB biomedical and bio-sensing research, and 45% of plant and environmental research was recognised as internationally excellent or world-leading (4\* and 5\*). The main strength of CRIB is a combination of fundamental and applied research which allows translating scientific findings into novel technologies and practical applications. This has been acknowledged in the UK Research Council Report 2011, where 3 CRIB research themes were featured among the 100 top ideas which will have a profound effect on our future. These themes focus on (i) developing diagnostic biomarkers for Alzheimer' disease; (ii) developing and implementing novel technologies (bioluminescent bacteria-based biosensors) for prediction of individual responses to chemotherapy, and (ii) developing cutting edge technologies for analysis food quality traits. CRIB strategy builds on these successes and supports "research with impact" to make a difference to the society and wider international community.

## **Innovation and Partnership**

The UK Government, national and international funding bodies and authorities place a strong emphasis on innovation, partnership and impact of research. The NHS Chief Executive Innovation in Health and Wealth Report 2011 states: *"Simply doing more of what we have always done is no longer an option. We need to do things differently. Innovation is the way – the only way – to meet these challenges"*. Innovation and partnership is in the heart of CRIB activities. This is evidenced by strong collaborative links with over 60 UK and international companies supported by industry-funded doctoral and research grants, industry-academia partnership grants from the UK Research Councils, Technology Strategy Board, European Commission, and other funding bodies. CRIB strategy focuses on strengthening links with existing partners and developing new links and collaborations with industry, NHS and other stakeholders. At the regional level, CRIB will enhance collaboration with NHS Trusts and universities via Bristol Health Partners, Doctoral Training Partnerships and other collaborative initiatives, which will form a platform for developing joint research and training facilities, knowledge exchange and public engagement events, and multidisciplinary collaborative research projects. At the faculty and university level, CRIB will expand multidisciplinary and collaborative research with other centres and institutes to enhance competitiveness of CRIB portfolio and access a wider range of funding sources including Knowledge Transfer Partnership grants and Government Innovation Vouchers.

## **Internationalisation**

*“Universities are international organisations, not only in recruiting students... but also through international research partnerships and joint venture investments...”* (Wilson Report, 2011). CRIB has strong international reputation and plays leading role at the faculty in the development of international links and collaborations. Current international activities can be illustrated by over 100 links with university, research organisations and stakeholders across Europe, in China, Malaysia and USA supported by the European Commission, British Council, BBSRC and international industry. CRIB leads such major initiatives as UK/China Partnership on Novel Technologies and EU Marie Curie International Research Staff Exchange Scheme, which facilitate international impact of CRIB research. CRIB strategy focuses on expanding international activities, enhancing engagement with international stakeholders including the European Commission, sharpening our focus on large strategic initiatives, and linking international research and teaching activities.

## **Knowledge exchange and public engagement**

CRIB research is closely linked to knowledge exchange and public engagement, which form a core component of CRIB impact. CRIB is committed to knowledge exchange and widening participation agenda via a range of initiatives and projects including public relation grants, public lectures, industry-orientated workshops, and presentations to stakeholders. CRIB strategy places strong emphasis on enhancing links with the university Science Communication Unit, Public Engagement Unit and Institute of Bio-Sensing Technology, as vehicles for driving impact. CRIB supports the University Equality and Diversity agenda via active participation in the Athena SWAN initiative.

## **Teaching, learning and students experience**

One of the core CRIB activities is strengthening links between research and teaching and enhancing students' experience. CRIB has pioneered a highly successful externally funded summer bursaries scheme, opened seminars and other events to undergraduate and post-graduate students, and provided opportunities to engage in international staff exchange schemes and networks. CRIB strategy capitalises on students experience and aims to prepare students to the competitive real-world market and increase their employability.

## 2. Work-streams

### Work-stream 1: Research

International quality research with impact is in the heart of CRIB vision. We capitalise on innovation and partnership to deliver outstanding user-orientated multidisciplinary research portfolio which generates sustainable income, underpins students experience and makes difference in addressing real-world challenges.

*Objective 1.1. To attract and sustain research income from a diverse range of external funding bodies.*

#### Strategy:

- Proactive influence the content of external calls via expression of interest, concept notes, membership on relevant panels, consultation documents and lobbying the funding bodies (including the European Commission and UK Research Councils).
- To build on extensive existing links with industry in order to develop (i) industry-supported grants and PhD studentships (via Technology Strategy Board, Research Councils, European Commission, and Knowledge Transfer Networks); (ii) applications for the Government Innovation Vouchers and Knowledge Transfer Partnership; (iii) consultancy and directly-supported industry grants.
- Develop an effective support mechanism for diverse research bidding and post-award support including (i) funding body specific workshops for academic staff and early career researchers; (ii) unsuccessful bids surgeries; (iii) database of impact cases; (iv) specific EU bidding training (in collaboration with RBI).
- Maximise outputs from IBST and ISHE-led initiatives (i.e. Medilink, and Business Technology Centre) to enhance competitiveness of research applications and to enhance links with end-users.
- Strategic bidding to the European Commission to access 80 billion HORIZON 2020 programmes including Marie Curie International Staff Exchange Schemes, Research for Benefit of SMEs, EU Programme grants, and EU Cooperation Schemes.
- Enhancing external image via effective marketing material, CRIB websites, personal profiles, press releases and other publicity.
- Improving Research Governance (working with faculty and the university) including (i) development of effective research database system; (ii) increasing the number of staff involved in the university peer-review college, (iii) improving lab management; (iv) regular audit and update of standard operating procedures; (v) development of effective system for control of compliance with the Human Tissue Act.

*Objective 1.2. Excellent research facilities and infrastructure*

#### Strategy:

- Developing a long-term plan for space and equipment needs (in collaboration with the faculty and departments)
- Bidding for research equipment and infrastructure grants to external funding bodies.

- Developing cross-institutional equipment initiatives and creating joint research facilities in partnership with industry, Bristol Health Partners and other regional and national collaborators.
- Working with the faculty on (i) mechanisms for dedicated technical support for specialised equipment and (ii) procedures for requesting technical support for research during non-teaching period.

*Objective 1.3. Trained, skilled and motivated staff*

*Strategy:*

- Training and professional development of technical, research and academic staff via Personal Development Reviews, mentoring schemes, women's network, and staff development courses.
- Working with the faculty, HR, University Equality and Diversity Team and Athena SWAN initiative on clarification of promotion and progression pathways for research staff.
- To continue working with the faculty and the department of making new strategically important appointments and promoting existing members of staff.
- Integrating contract research staff into departmental activities (in collaboration with Head of Department and Associate Head of Department in Research)
- Recognising staff successes via nominations for international and external awards, CRIB updates, and press-releases.
- Supporting new academics and young researchers (via university grants for young researchers, faculty Quality Research competitions, mentoring schemes, including younger members of staff in supervisory teams for undergraduate and postgraduate projects, encouraging applications for personal fellowships).

**Work stream 2. Partnership and internationalisation**

We will maintain our existing links and expand our engagement with regional, national and international academic, industrial, NHS partners, funding bodies, government organisations and other stakeholders. We will ensure that our partnerships and collaborations strongly contribute to our research, teaching and knowledge exchange portfolio, and enhance competitiveness and international image of our research.

*Objective 2.1. Developing strategic partnerships and collaborations*

*Strategy:*

- To develop stronger links with faculty and university Research Centres and Institutes via joint initiatives, research bidding, workshops and seminars in order to bring together complementary expertise and increase competitiveness of research and knowledge exchange bids.

- Active involvement in Bristol Health Partners via Health Integration Teams, events and joint projects.
- To organise topic-specific events, seminars and conferences in collaboration with regional, national and international partners.
- To promote the culture of joint publications and PhD co-supervision with external partners.
- To enhance the use of partners' facilities for students placement.

### Objective 2.2. Internationalisation

#### Strategy:

- Enhance bidding to British Council, the Royal Society, European Commission and UK Research Councils for travel grants, visiting fellowships, workshops and staff exchange in order (i) to sustain existing and establish new collaborations and (ii) generate pilot data for collaborative research applications.
- Establish strategic international networks supported by EU COST actions, BBSRC partnering awards, EU Marie Curie International Training Networks in order to develop consortia for international bidding.
- Expand "visiting research fellows" scheme. Improve the mechanism and clarify procedures for hosting international visiting researchers and PhD students (together with the faculty and Research, Business and Innovation team)
- To organise and/or host international conferences, seminars, workshops and other events to enhance CRIB international image and expand international network.
- To build on existing successful links with China, Ukraine and EU countries, and emerging links with Brazil to access funding bodies in these countries (as subcontractors or collaborators of research grants).

### Objective 2.3. Working with industry

#### Strategy:

- Sustain and further develop research collaborations with industry via Technology Strategy Board, EU Industry/Academia Collaboration grants, and direct funding from industry.
- To work with the faculty and University Graduate Schools on establishing industry co-funded PhD studentships schemes.
- Develop close links with UWE Business Technology Centre and sustain collaboration with Institute of Bio-Sensing Technology to promote CRIB research to industry, attract industrial funding and provide industry-related training to researchers and students.
- Promote and support applications for the Government Innovation Vouchers and Knowledge Transfer Partnerships.

- Expand links with Knowledge Transfer Networks (i.e. Biosciences KTN) and access KTN funds (i.e. SPARK awards, CASE PhD studentships, travel grants).
- Develop IP provision “fit for purpose” which would facilitate collaboration with industrial partners (in collaboration with Research, Business and Innovation team)
- Promote and financially support publications with industrial partners as co-authors.
- Include industry representatives in CRIB Advisory Board.

### **Work Stream 3. Knowledge Exchange**

Knowledge exchange is a key element in enhancing impact of our research. We will focus on expanding our engagement with stakeholders and wider community to ensure that they understand and implement outcomes of our research for benefit of the society.

#### Objective 3.1. Knowledge exchange with academic community

##### Strategy:

- Influencing national and international research directions and legislations via membership in relevant boards and committees and lobbying funding bodies.
- Publications in international peer-reviewed journals
- Presentations at national and international scientific meetings, seminars and workshops
- Developing international staff and knowledge exchange grants, leading or participating in international networks and partnerships (i.e. via BBSRC International Partnering Awards, EU Specific Support Actions)
- Hosting, organising and contributing to national and international conferences, workshops and seminars.
- Hosting international visiting fellows, researchers and PhD students.

#### Objective 3.2. Knowledge exchange with stakeholders and wider community

##### Strategy:

- Provide training to researchers and academics in “science communication to non-scientists”
- Develop applications for Public Engagement Grants to external funding bodies (in collaboration with the Science Communication Unit) including grants for engaging with community schools.
- Deliver public lectures on regular basis.
- Organising and running annual Festivals of Nature.
- Presenting research at industry-led or industry-organised workshops and seminars (as invited speakers).

- Opening CRIB seminars, workshops and other events to students, collaborators, and representatives of industry, healthcare professionals and other stakeholders.
- Organising topic-specific users-orientated workshops and conferences (i.e. Novel Technologies for Healthcare).
- Organising public-orientated workshops (in collaboration with Science Communication Unit), i.e. “Technology – how does it benefit me?”
- To continue and expand externally funded summer vacation bursaries and schemes for potential and current students.
- Membership on industry and other stakeholders Advisory Boards, consultations for the EU and industry.
- Running research-based Continuous Professional Development courses and classes for industry.
- Expanding public and patients’ involvement in research, and consultations with end-users at the stage of grant development.
- Expand membership in Knowledge Transfer Networks.
- Develop joint doctoral training schemes with stakeholders.
- Promote and support short-term and long-term visits and placement from/to industrial companies and other stakeholder’s organisations.
- Promote CRIB research in a user-friendly manner via TV appearance, radio interviews, and press releases.
- To invite stakeholders to CRIB Advisory Board.
- Present and promote CRIB research at university and faculty Open Days and at “Project Open Days” during the National Science and Engineering week (in collaboration with Science Communication Unit).
- To produce research/technology video clips for demonstration to non-scientists and linking them to CRIB and faculty website (and other websites as appropriate)

#### **Work stream 4. Teaching, learning and students experience**

We are committed to place research in the heart of students experience at all the levels, from undergraduate courses to master, doctorate and continuous professional development training. We will work closely with our national and international partners to provide students with real-life experience and increase their employability.

##### Strategy:

- To build on the successful externally-funded CRIB vacation bursary scheme and to expand the scheme to a wider range of disciplines and subjects.



- To use CRIB extensive links with industry and academic partners to expand opportunities for students' industrial placements, "sandwich courses", and work-based programmes.
- To open a wider range of CRIB events (seminars, annual meetings, poster competitions, and workshops) to undergraduate and postgraduate students.
- To provide an opportunity for students to gain experience in international laboratories via International Exchange Schemes (i.e. International Training Networks, UK/China Partnership, and British Council schemes).
- To work with University Graduate School and Faculty Executives on establishing NHS, industry and other users co-funded Partnership PhD Scheme.
- To develop regional, national and international consortia for bidding for external Doctoral Training Grants (i.e. BBSRC and EU Marie Curie). In collaboration with faculty and University Graduate School.
- To enhance and expand research-based Continuous Professional Development (CPD) provision (based on successful "Odour Judgement" CPD for industrial companies).
- To increase a number of publications in international peer-reviewed journals and presentations at conferences with undergraduate and post-graduate students as co-authors.
- To provide financial support to BSc, MSc and PhD projects from CRIB externally funded research grants.