



BBSRC

Overview, Strategic Priorities and Funding Opportunities

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UK research funding

Department of Business, Innovation and Skills (BIS)

**Science Budget £18.3 billion
(\$30Bn) 2011-2015**



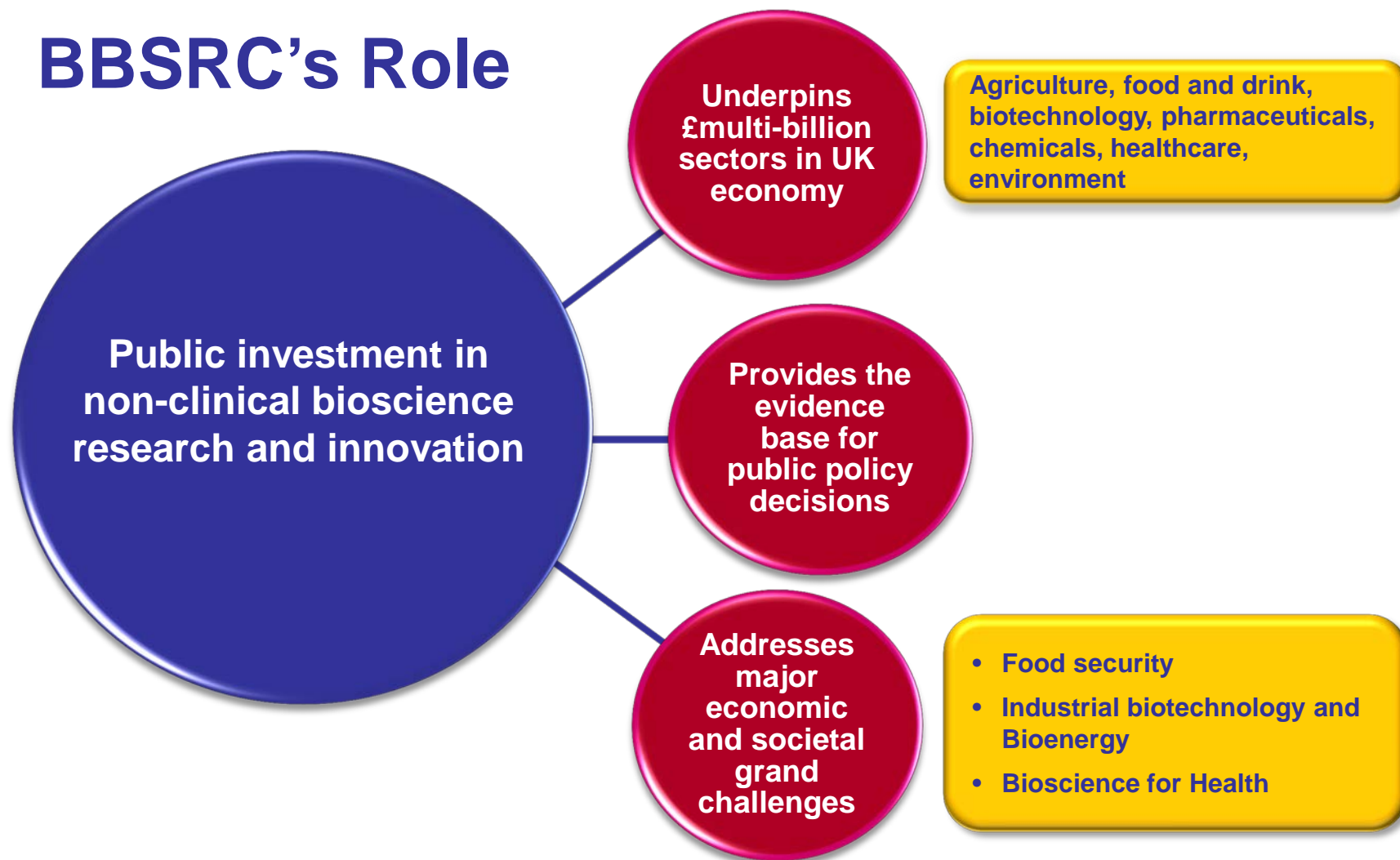
~£3 billion p.a



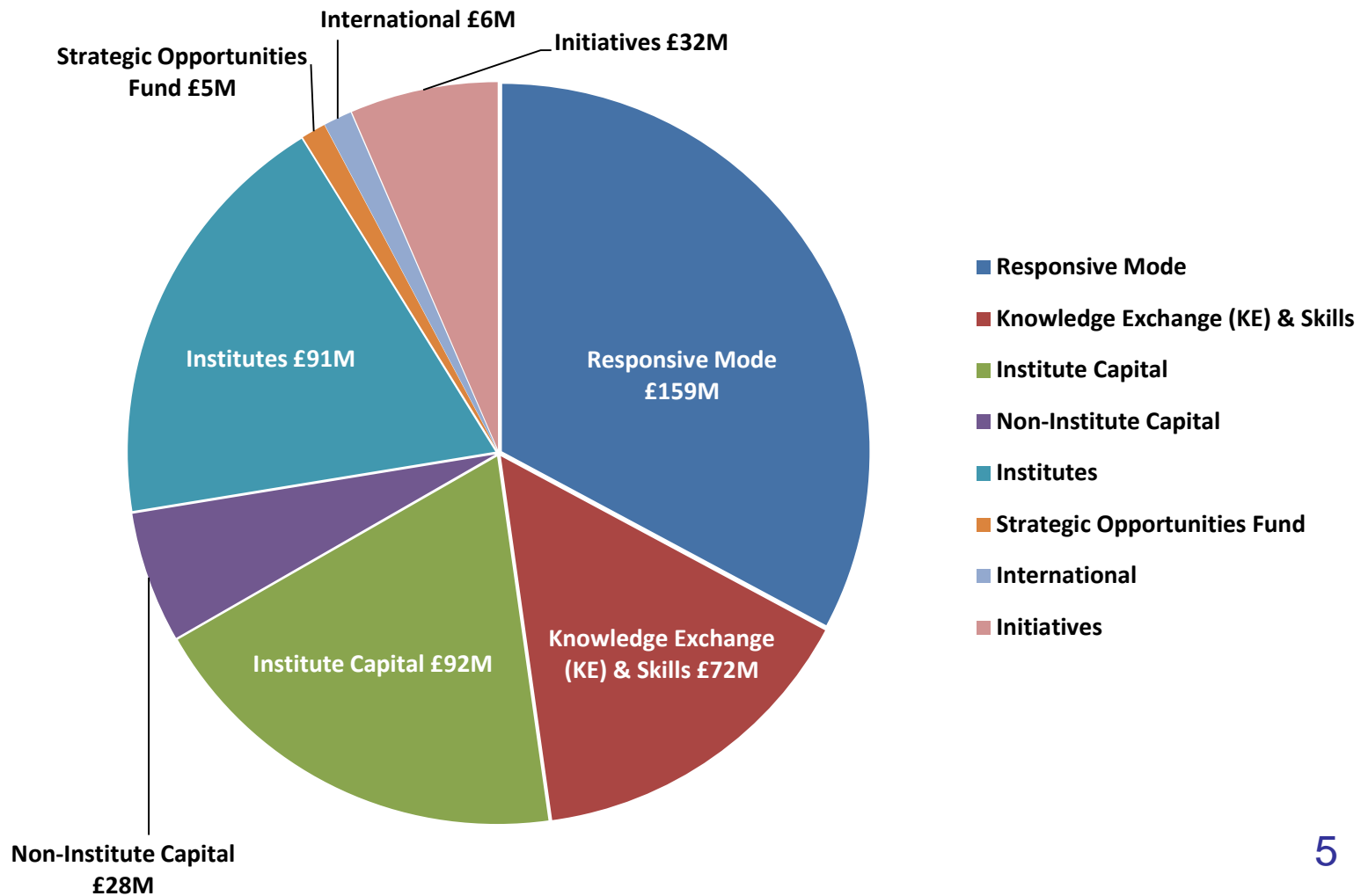
BBSRC – what we do:

- Fund **world-class bioscience research** in UK Universities and Institutes
- Fund **bioscience training and skills** for the next generation of bioscientists
- Drive the widest possible **social and economic impact** from our bioscience in industry, policy and public goods
- Promote **public dialogue** on bioscience

BBSRC's Role



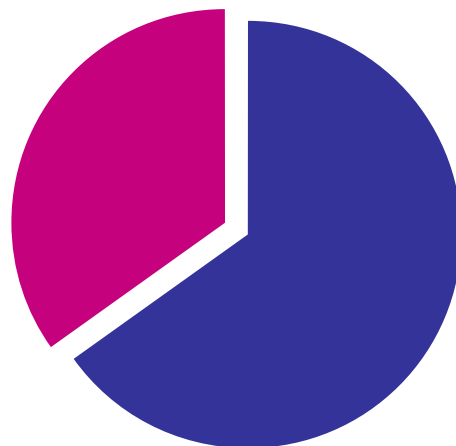
Spending Overview 2013-2014



BBSRC funds research in universities & institutes

Institutes

- **More strategic** research
- **Mission-oriented**
- Longer-term funding (5yr programmes)
- Specialist facilities and capabilities



Universities

- **Basic and strategic** research
- More curiosity-driven/ may be aligned to University strategy
- Short- and long-term funding (1-5yr grants)
- Specialist facilities and capabilities

BBSRC strategic plan: The age of bioscience

- Refreshed Strategic Plan published January 2014
- Refresh reflects:
 - progress 2010-2014
 - emerging opportunities

<http://www.bbsrc.ac.uk/news/planning/strategy/>





Supporting world-class bioscience is a key priority for BBSRC

‘Excellence with impact’



Three major strategic priorities

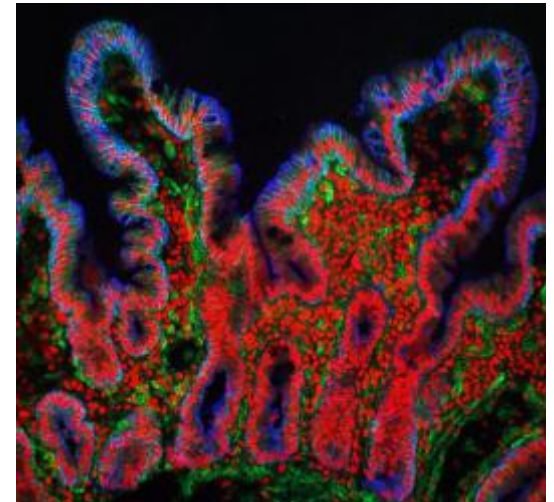
Agriculture and food security



Industrial biotechnology and bioenergy



Bioscience for health





Three crucial enabling themes

Enabling Innovation



Exploiting new ways of working



Partnerships

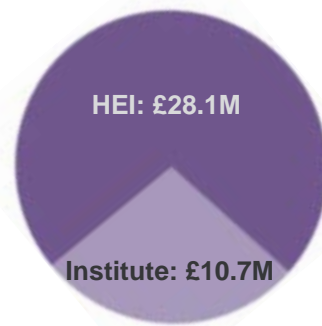
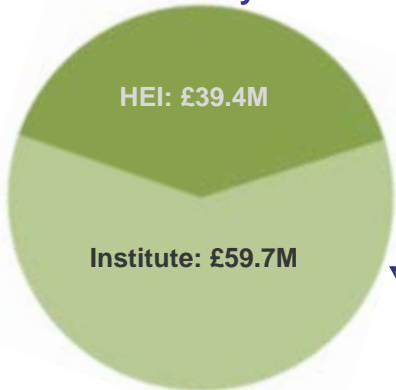




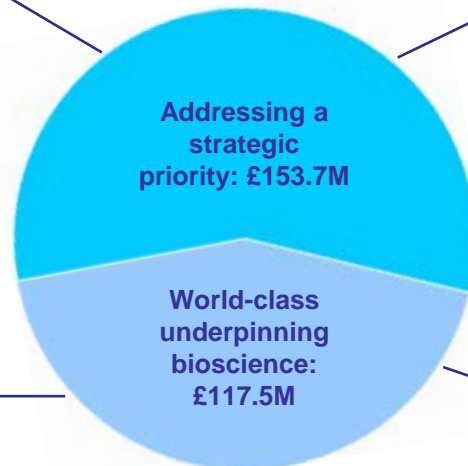
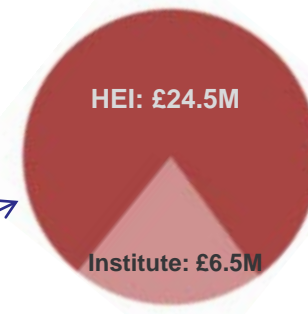
Research grants analysis 2013/14: £271M*

Bioenergy and Industrial Biotechnology (also including Synthetic Biology) £39M

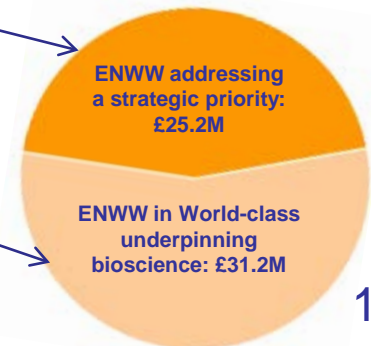
Food Security £99M*



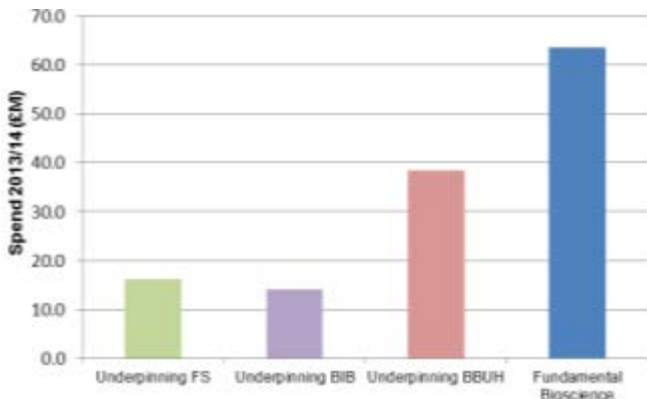
Basic Bioscience Underpinning Health £31M



Exploiting New Ways of Working £56M



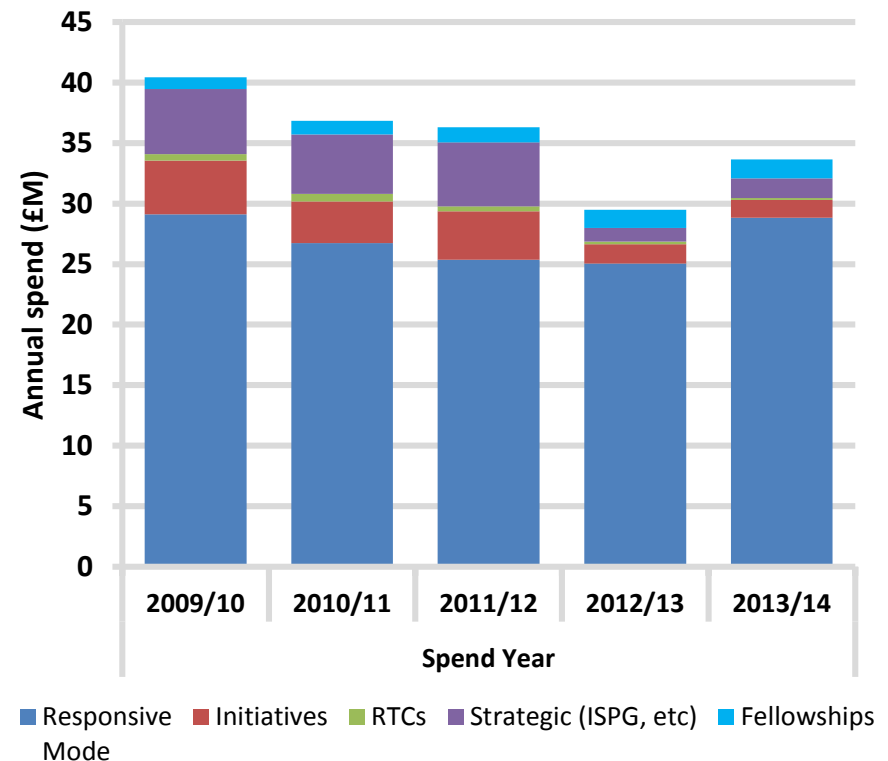
World-class Underpinning Bioscience £117M



Note: this includes £14.7M of overlap between underpinning FS, BIB and BBUH categories.

BBSRC support for neuroscience and behaviour

- £30-40M PA.
- Neuroscience community highly successful in BBSRC responsive mode funding mechanism, based on research excellence
- Encompasses human and animal studies (both models and farm animal sp.)





Encompasses:

- **Structure and function of the nervous system** (central and peripheral).
- **Cell biology and genetics** (neuro-transmission, synapses, development, hypothalamic/pituitary effects)
- **Mental processes** including cognition, behaviour, learning, memory and psychology, and health/welfare implications
- **Transmission** (impulse, sensitivity, pain)
- **Neurodegeneration** resulting from **normal ageing** processes
- **Stem cell / tissue engineering** (regeneration, plasticity).

BBSRC support for neuroscience and behaviour

- Around 1/3 of neuroscience funding addresses a BBSRC strategic priority area (mostly **Bioscience for Health**)
- Of the remaining 2/3:
 - ~ 60% classified as ‘**underpinning health**’ (indirectly underpinning the Bioscience for Health strategic priority area)
 - ~ 40% classified as ‘**fundamental bioscience**’

Bioscience for Health: The Challenge

- The **ageing society** is a major challenge for 21st century
- Ageing is a major risk factor for poor health & frailty, disease & disability; **lifespan increasing faster than healthspan**
- Increased **pressure on public services, welfare, health and social care** – current models are unsustainable



Image Credit: Thinkstock 2011

In the UK the percentage aged 65+ expected to reach 23% by 2034

Fastest growth is those aged 85+, expected to increase to 5% by 2034

Number of centenarians has tripled in the last 25 years to 11,600 in 2009



Bioscience for Health

Driving advances in fundamental bioscience for better health across the lifecourse, reducing the need for medical and social intervention.

- **Lifelong Health** – Maintain and develop health across the life course.
- **Nutrition and Health** – How nutrition affects health
- **One Health** – Dedicated to improving lives of all species(human and animal)
- **Biotechnology for Health** – New knowledge to advance regenerative biology and tissue engineering





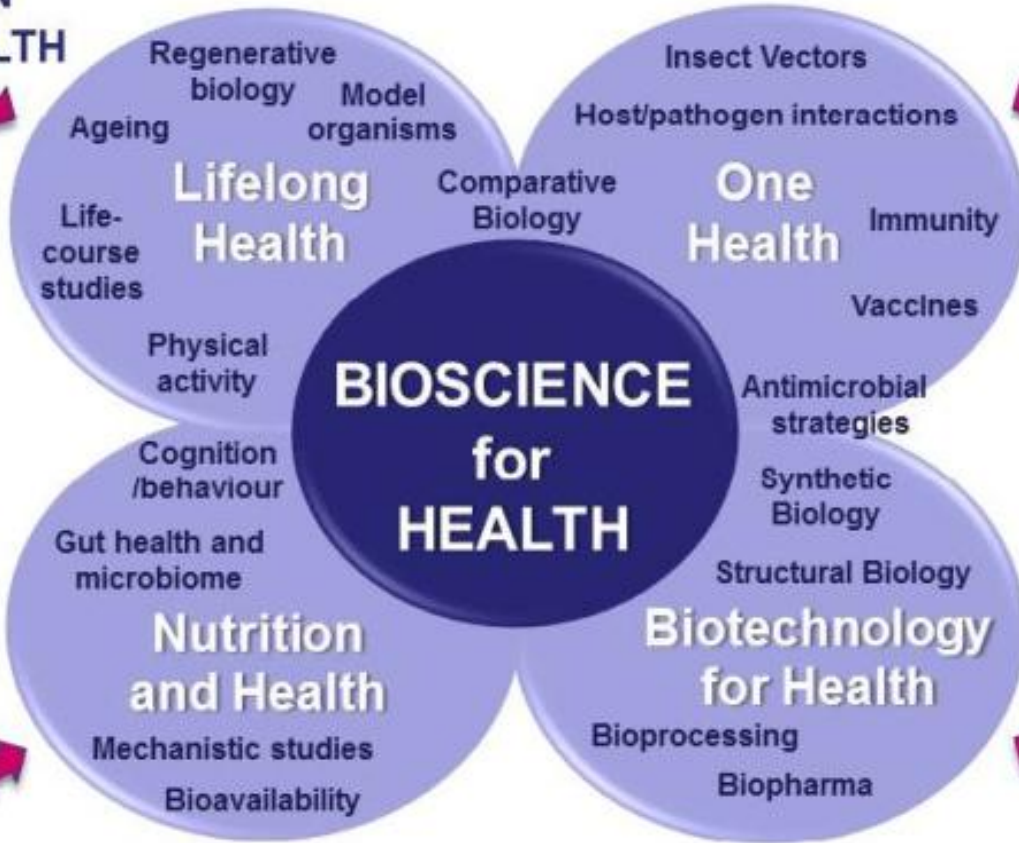
Refreshed strategic plan: what's new?

Bioscience for Health

- addressing the societal grand challenge of **maintaining health across the whole lifecourse**
- understanding of the **mechanisms by which nutrition impacts on development and health**
- **collaboration between human and veterinary sciences** to underpin improvements in both human and animal health
- supporting the translation of basic bioscience, and the role of **key partnerships to deliver impact**

**CROSS-FUNDER
RESEARCH IN
LIFELONG HEALTH**

**ANIMAL HEALTH &
WELFARE***



**AGRICULTURE
& FOOD
SECURITY**

**INDUSTRIAL
BIOTECHNOLOGY**



**Understanding fundamental mechanisms
Exploiting new ways of working**



Lifelong health – ‘healthy ageing across the lifecourse’

- **fundamental biological mechanisms of the ageing process** across the lifecourse,
 - modulation by nutrition, physical activity, developmental factors and impacts on health in later life
- **how ageing processes impact on homeostasis/physiological functions** (including **neurological**) and how this can lead to age-related frailty and poor health (and potential modifiers)
- **new knowledge to advance regenerative biology**, including stem cell and tissue engineering research to improve the quality of life for the ageing population



Lifelong health – ‘healthy ageing across the lifecourse’

- **Development of appropriate model organisms and systems** that provide insight into physiological processes that are key for maintaining health in humans; and understanding the biological basis of inter- and individual differences in the ageing process
- **The use of resources and data from cohort studies, biobanks and longitudinal monitoring** to increase the translation of research from model organisms and systems to the human population

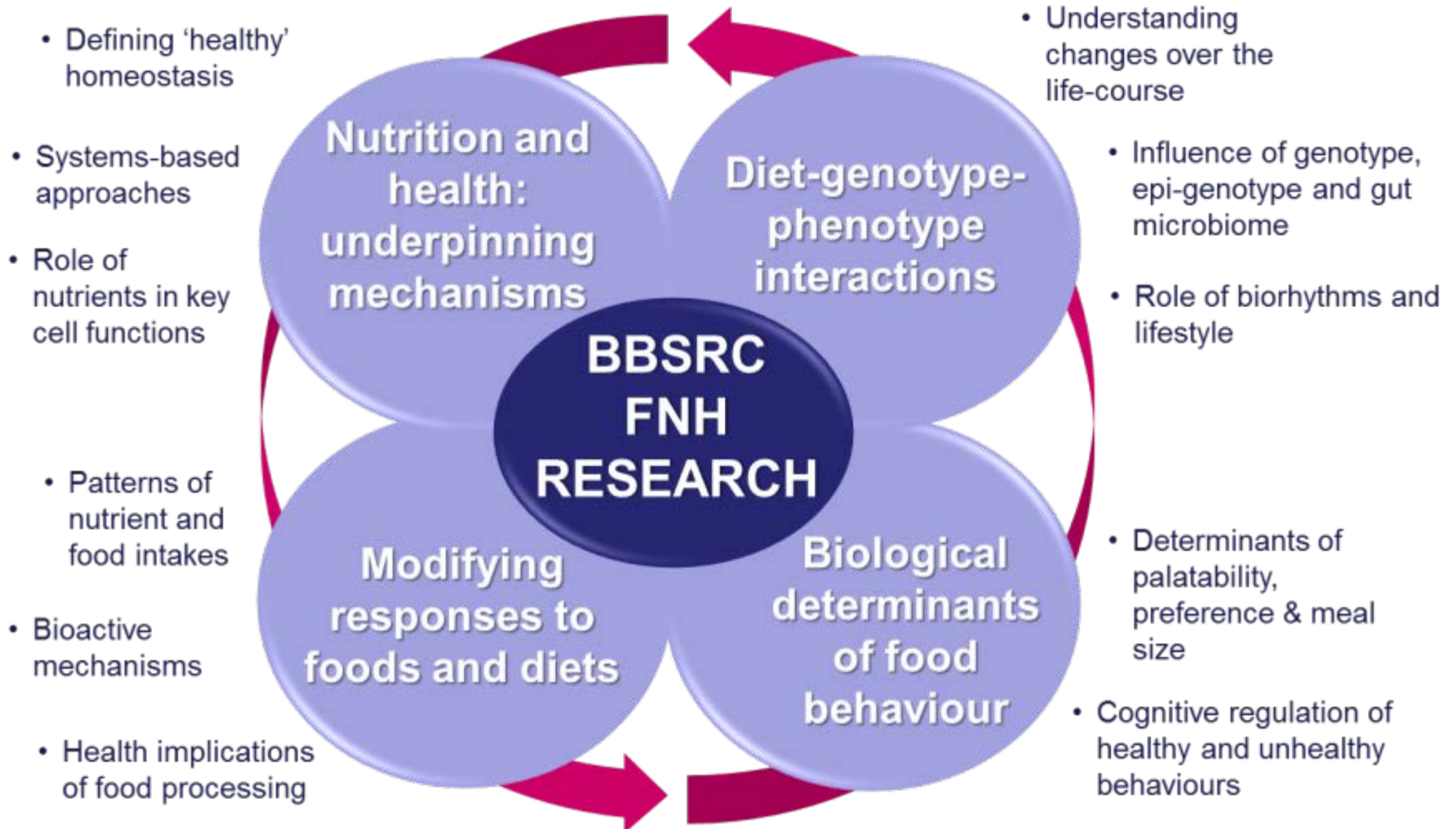


Role of epigenetic effects in development and ageing across the lifecourse

Interface with social sciences (ESRC) – e.g. recent joint initiative

- How differing **social and environmental experiences in early life** (e.g. emotional, nutritional and social) operate/interact/counteract to produce detectable epigenetic signatures
- Understanding **mechanisms involved in the transmission of life experiences into epigenetic signatures** and their functional relevance
- **Role of epigenetics in periods of plasticity in the brain**, and how this might relate to potential interventions: e.g. the role of imprinted genes in the brain and how they influence behaviour, are influenced by the environment in early development, and can be modified in later life.

BBSRC Food, nutrition and health research



New Cross-Council vision for food, nutrition and health research

- foster **better integration of research** across molecular mechanisms, integrative physiology, experimental medicine, population health and social sciences
- explore the **social and biological determinants of food consumption behaviour**, and how they influence long-term health
- support the generation of a **robust evidence base** which will drive development of **healthy food products**, inform **dietary advice** and underpin **public health policy**
- enable researchers to become **literate in multidisciplinary approaches**, and foster the next generation of integrative researchers





Animal welfare and 3Rs research

- Responsive mode priority areas that cross-cut high level BBSRC strategic research priorities



Animal welfare and 3Rs research

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Animal Welfare

- The basic behavioural, neurobiological, immune, metabolic, physiological and tissue responses of animals to their environmental conditions
- The consequences of human intervention, genetic selection and management for the normal function of animals
- The incidence/alleviation of disease, pain and mental disorders

Animal welfare and 3Rs research

3Rs

- **Replacement:** Methods that avoid or replace the use of animals defined as 'protected' under the Animals (Scientific Procedures) Act 1986 in an area where they would otherwise have been used.
- **Refinement:** Improvements that minimise actual or potential pain, suffering, distress or lasting harm and/or improve animal welfare in situations where the use of animals is unavoidable.
- **Reduction:** Methods that minimise animal use and enable more information from fewer animals, or more information from the same number of animals, thereby reducing future use.

Exploiting New Ways of Working

Enabling innovative working practices in an era of rapid technological advancement, multidisciplinary research, and high throughput technologies

- New tools and facilities – BBR and TRDF funds
- Data driven biology – TGAC, ELIXIR
- Integrative and systems biology – multidisciplinary, mathematical and computational modelling
- Synthetic biology - principles of engineering into classical biotechnology



Enabling Innovation

Maximising the impact of our science and skilled people in boosting the UK economy, informing policy and improving quality of life

- Skills and capabilities
- Knowledge exchange and translation
- Promoting innovation - academia/industry engagement; UK innovation ecosystem
- Capturing, celebrating and rewarding impact

From the research base to the user.....

Collaborative Research

(pre-competitive research with industry, moving towards proof-of-concept)

Collaborative Training

(equipping UK researchers with industrial skills/experience of the industry setting)

**Driving
Innovation &
Impact**

People Exchange

(exchanging ideas and experience with industry/accessing specialist facilities & equipment)

Commercialisation

(exploring commercial potential of bioscience & acquiring business skills)

Collaborative Training Opportunities



BBSRC Training Partnerships

 **BBSRC** Doctoral Training Partnerships

 **BBSRC** CASE Training Partnerships

 **BBSRC** Advanced Training Partnerships

 **BBSRC** Modular Training Partnerships

 **BBSRC** Industrial CASE Partnerships

 **BBSRC** Industrial CASE Studentships

Research Clubs and Initiatives

BRIC • BIOPROCESSING RESEARCH INDUSTRY CLUB



DRINC • DIET AND HEALTH RESEARCH INDUSTRY CLUB



CIRC • CROP IMPROVEMENT RESEARCH CLUB



IBTI • INTEGRATED BIOREFINING RESEARCH AND TECHNOLOGY CLUB



ARC • ANIMAL HEALTH RESEARCH CLUB



SARIC • SUSTAINABLE AGRICULTURE RESEARCH & INNOVATION CLUB



People Movement Schemes



Industry Fellowships



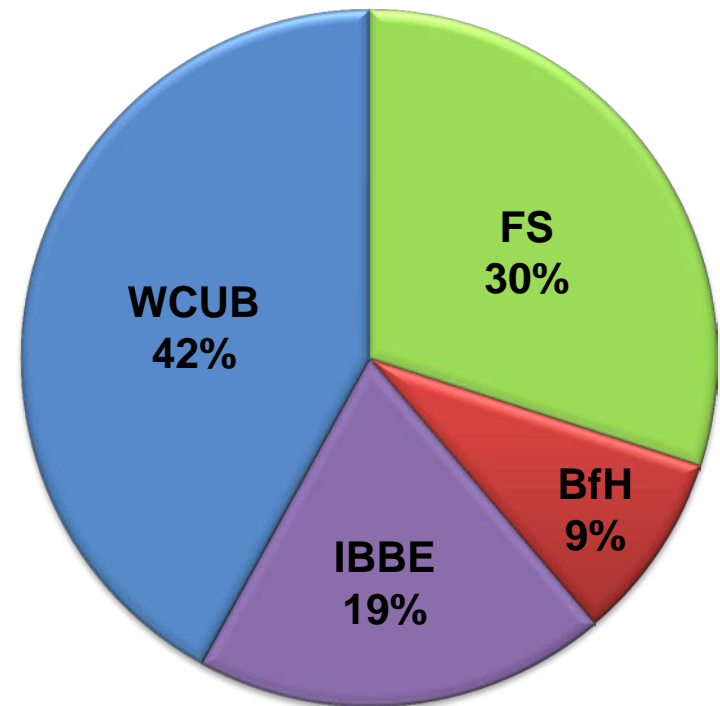
Knowledge Transfer Partnerships



BBSRC Doctoral Training Partnerships

- **12 Partnerships**, which include 55 research organisations
- Strategic approach to provide students with improved **training and relevant work experience**
- Training to meet major **social and economic challenges** and develop **highly skilled scientists** for academia, policy, industry
- Three month **professional internship**

DTP2 Portfolio (2015-2019)
(for 250 studentships p.a)



ENWW
50%

Total Recommended Allocation of
DTP Studentships (2015-19) 31
by BBSRC Strategic Research Area

Some BBSRC Industry Collaboration Schemes



IPA
industrial
partnership
awards

Industry Partnership Awards (IPA)

IPAs are academic-led research grants with a minimum of 10% cash contribution to project costs from an industrial partner



LINK collaborative
research

LINK projects

Collaborative, pre-competitive research between one or more companies and one or more research-base partners. BBSRC support limited to a maximum of 50% of total eligible costs



Industrial **CASE** Studentships

Industrial CASE

PhD studentships with an enhanced experience for the student through partnership with an industrial partner, which is a UK registered company. Overseas companies are considered on a case-by-case basis.

International Collaboration

BBSRC grant holders/institute staff can apply for:

Partnering Awards

- Japan, China, India, Brazil, Taiwan and the US
- 'Other Countries' and 'European' schemes launched 2013
- Aims to benefit BBSRC-funded research:
 - To establish new links
 - Promote exchange of scientists
 - Provide access to facilities
 - Enable UK scientists to access overseas funding
- Partnerships for up to 4 years
- £20k - £50k
- Annual Call: **mid September - mid November**

International Workshops

- Stimulate joint working in topics important to BBSRC
- Annual Call: **mid September - mid November**
- Typically up to £10k



Panel Membership

- **Pool of Experts** open for Expressions of Interest in April/May 2015
- To apply visit: <http://www.bbsrc.ac.uk/about/structures/committees/committee-pool-membership/>
- BBSRC has identified a number of **vacancies** and would in particular welcome expressions of interest **in the following areas:**
 - Animal Welfare
 - Agricultural Systems
 - Bacteriologists
 - Basic Cell Biology (all organisms)
 - Behaviour (non-human)
 - Bioenergy
 - Bioprocessing
 - Environmental Biotechnology
 - Food and Nutritional Science
 - Immunology
 - Industrial Biotechnology
 - Microbiology
 - Molecular Developmental Biology
 - Molecular Neuroscience
 - Photosynthesis
 - Soil Science
 - Tissue Engineering

Responsive Mode

Applications can be **submitted at any time** for consideration by one of the 4 Research Committees. The next Responsive Mode closing date is **4pm, 28th April 2015**.

- **Research Committee A** (Animal disease, health and welfare)
- **Research Committee B** (Plants, microbes, food and sustainability)
- **Research Committee C** (Genes, development and STEM* approaches to biology)
- **Research Committee D** (Molecules, cells and industrial biotechnology)









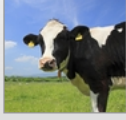



There is **considerable overlap** between Research Committees. We will **assess applications using the most appropriate expertise**.

The **New Investigator scheme** is run via Responsive Mode. This scheme assists early career researchers to secure their first major element of research funding.

*Science Technology Engineering and Maths - Committee C will consider generic STEM approaches to biology; specific applications will be considered by the Committee providing the appropriate biological context.






Current Funding Opportunities





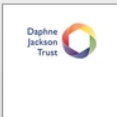
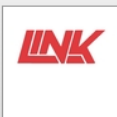
Please visit the **Special Opportunities Page** on the BBSRC website for a full list of open calls: <http://www.bbsrc.ac.uk/funding/opportunities/>

 <p>Strategic Longer and Larger Grants (sLoLas) Outline proposal deadline: 14 April 2015</p>	 <p>Future Leader Fellowship Application deadline: 4 June 2015</p>
 <p>Impact Awards for KEC professionals Application deadline: 16 April 2015</p>	 <p>Agri-Tech Catalyst Early and Late stage EoI deadline: 17 June 2015</p>
 <p>Enterprise Fellowships Application deadline (spring call): 27 April 2015</p>	 <p>Animal Health and Welfare (ANHWA) ERA Net Full proposal application deadline (invite only): 2 July 2015, noon (CET)</p>
 <p>A Healthy Diet for a Healthy Life Joint Programming Initiative (JPI HDHL) Pre-proposal application deadline: 28 April 2015, 3pm</p>	 <p>FLexible Interchange Programme (FLIP) Application deadline: 15 July 2015</p>
 <p>Developing non-animal technologies Registration deadline: 29 April 2015, noon Expressions of interests application deadline: 6 May 2015, noon</p>	 <p>Modular Training Partnerships Application deadline: 15 July 2015</p>
 <p>Biotechnology Young Entrepreneurs Scheme Application deadline: 29 May 2015</p>	 <p>BBSRC/EMBRAPA joint wheat call – pump-priming awards Full application deadline (invite only): 23 September 2015, 4pm</p>

Apply at any time

Please visit the **Special Opportunities Page** on the BBSRC website for a full list of open calls: <http://www.bbsrc.ac.uk/funding/opportunities/>

	<p>BBSRC-Brazil (FAPESP) joint funding of research</p> <p>Application deadline: as per next responsive mode</p>
	<p>FAPESP Pump-Priming Awards (FAPPA)</p> <p>Application deadline: apply at any time (at least 12 weeks before the proposed start of the project)</p>
	<p>Follow-on Funding Pathfinder</p> <p>Application deadline: apply at any time</p>
	<p>Industrial Partnership Awards</p> <p>Application deadline: as per next responsive mode</p>
	<p>International Scientific Interchange Scheme (ISIS)</p> <p>Application deadline: apply at any time (at least 6 weeks before travel)</p>

	<p>Knowledge Exchange and Commercialisation Seminars</p> <p>Application deadline: apply at any time</p>
	<p>Knowledge Transfer Partnerships</p> <p>Application deadline: apply at any time</p>
	<p>New Investigator Scheme</p> <p>Application deadline: as per next responsive mode</p>
	<p>Professional Internships for PhD Students</p> <p>Application deadline: apply at any time</p>
	<p>Returners to Research Fellowships</p> <p>Application deadline: apply at any time</p>
	<p>'Stand-alone' LINK</p> <p>Application deadline: apply at any time</p>



Thank you

Questions?