# BBSRC Response to the Cooksey Review of UK Health Research

## Executive Summary

- The drawing together of basic and applied research into a single health research fund provides great opportunities for encouraging and supporting the transfer of research outputs to clinical application.
- BBSRC's remit specifically excludes research into human disease and clinical-based studies. However, bioscience supported by the Council is often aimed at understanding normal (healthy) biological function.
- BBSRC supports underpinning bioscience that may complement work funded by the MRC. A strong interface also exists with work at the life sciences interface supported by EPSRC. The Councils operate closely in areas of joint interest through a variety of mechanisms that, wherever appropriate, should be maintained for any new funding body or arrangement.
- Any new funding body should be included within the RCUK family.
- Grant assessment processes employed by a new body should have at its centre a rigorous system of peer review applied to proposals across the spectrum of research, and based on existing Research Council methods.
- Accountable governance will be important. BBSRC suggests that an independent governing Council with an independent Chair will be necessary for a new organisation to operate effectively.
- A new organisation will need to provide funding to support infrastructure and clinical trials within the NHS

## Introduction

1. The Biotechnology and Biological Sciences Research Council (BBSRC) welcomes the opportunity to provide comments on Government plans for a single fund for health-related research in the UK.
2. BBSRC is the principal funding agency for basic and strategic life sciences research in the UK. Annually the Council invests around £336m in a wide range of underpinning and enabling bioscience. In addition to this, BBSRC delivers support for research training in universities and its sponsored institutes, knowledge transfer from academia to industry and policy development, and science in society activities.
3. BBSRC's Strategic Plan describes the Council's objectives for 2003 – 2008. Whilst the Council's mission is to fund excellent research across a broad bioscience research base the Strategic Plan identifies four leading science priority areas: Sustainable Agriculture, The Healthy Organism, Bioscience for Industry, all of which are underpinned by the central priority of Integrative (and Systems) Biology.
4. A number of these priorities contain elements of underpinning research that may inform work focussed on human health and well-being and therefore complement research covered by the remit of the MRC. The Healthy Organism priority includes research into stem cell biology (with BBSRC focussing on the fundamental understanding of cell differentiation and MRC focussing on the application of stem cells to treat disease), ageing, food and nutrition, and

neuroscience. Work in Integrative Biology includes genomic and post genomic technologies that underpin and inform much of today's bioscience research, and the burgeoning field of systems biology, which aims to take a holistic view of biological systems and has implications for understanding disease as well as 'normal' function. Bioscience for Industry priorities are directed towards providing research to support the needs of industry, including genomics to underpin healthcare and research to develop new pharmaceuticals for both veterinary and medical applications. Research to encourage Sustainable Agriculture that focuses on disease management in livestock also provides fundamental knowledge of pathogenicity, pathogenesis, immunology and vaccinology. These can complement and inform the study of human and animal infections, transfer of pathogens from animals to human (zoonoses), and the development of generic vaccine technologies.

**Interface with MRC**

5. As discussed above, there are many areas where basic biosciences funded by BBSRC can inform areas of research relevant to human health and well-being. BBSRC's remit specifically excludes research into *human* disease and clinical-based studies. However, work supported by the Council is often aimed at understanding normal (healthy) biological function and therefore has implications for studies of disease, as well as relevance to animal or plant science, and this is taken into account during assessment processes.

6. A strong interface also exists with work at the life sciences interface supported by EPSRC, particularly in the development and application of technologies relevant to healthcare that are underpinned by fundamental knowledge of biological systems.

7. The Councils operate closely in areas of joint interest. Examples include:
   - To maximise exploitation of the methods and outputs from genomics research, BBSRC and MRC co-chair the Cross-Council Genomics Coordinating Committee. There is a strong culture of coordination, extending to other Research Councils and a track record of successful infrastructure projects involving MRC, BBSRC, NERC, EPSRC and ESRC.
   - Recent initiatives focussing on pandemic influenza (MRC) and avian influenza (BBSRC) were developed and launched in a co-ordinated manner and with cross-representation on assessment panels. Influenza H5N1 is an animal pathogen with ability to transmit to humans under certain conditions, and not yet a cause of pandemic influenza in humans. It is important that both the animal and human health research communities understand the basic biology of the H5N1 virus and its interactions with its hosts.
   - A recent analysis of neuroscience research resulted in agreement between BBSRC and MRC to work together to strengthen large multidisciplinary programmes in areas of convergence such as the biological basis of behaviour.
   - Stem cell research is still in its infancy and significant progress has been made in the UK. Basic scientists in both BBSRC and MRC communities, including their institutes, have developed stem cell biology. Stem cells are important tools in understanding cell differentiation and cell function and are important to the basic science remits of both Councils. The therapeutic use of stem cells is aimed at addressing human disease; this is entirely within the remit of MRC and is not funded by BBSRC. Following the recommendations of the UK

Stem Cell Initiative (the Pattison report) BBSRC is working with MRC, DH, DTI and others to establish the UK National Stem Cell Network.

- The forthcoming Systems Biology initiative will be jointly reviewed and funded by the Councils in some areas. A systems approach is a generic approach applicable to the medical and non-medical biosciences, and requires the involvement of physical scientists, mathematicians and engineers. As such it is an area in which strong cross-Council working is required.

8. MRC and BBSRC have worked to the principle that liberal policies are better than restrictive ones in managing research at the interfaces, and have effective mechanisms for information sharing, transfer of grant applications and strategic development which avoid duplication of effort and funding, and promote synergy in complementary areas. These effective and well-tested mechanisms should be maintained if a new research fund or organisation is created and should accommodate existing fora for cooperation where these are deemed still to be relevant.

9. Furthermore, the added-value that is delivered by RCUK to UK research should not be ignored. Given that there will be an extensive commonality of interests between the Research Councils and any new health research funding organisation, there is a need to include any new funding body within RCUK deliberations, either through strong external links or as an integral member alongside the existing RCs.

**Funding Arrangements**

10. The single health research fund should span the range of health research from understanding disease mechanisms, to translational, clinical, practise, implementation and health economics. This will undoubtedly require a variety of funding mechanisms. BBSRC would suggest, however, that at the centre of the assessment process should be a rigorous system of peer review, necessary to ensure that the UK is home to world-leading biosciences related to human health. This should be applied to proposals across the spectrum of research, from basis research through to applied and clinical studies. The peer review process currently in use at the MRC (and other Research Councils) is a robust and appropriate mechanism for the assessment and this should be used as the basis for funding decisions for the proposed health research fund, rather than attempt to design and implement a new system. BBSRC also recognises that the new body must also provide funding to support infrastructure and clinical trials within the NHS.

11. In addition to a rigorous peer review mechanism, the new body needs to be independent and accountable, and we would suggest that a governing Council with an independent Chair is appointed to oversee the work of the organisation, and that this should operate at arms length from Government.

12. With the drawing together of MRC and DoH research there are excellent opportunities to further enable transfer of basic and strategic research to translational research and clinical application. In order to support research fully along a continuum from basic to clinical research it will be important to support efforts of researchers to transfer outputs of more fundamental research to clinical application through provision of some form of ‘follow-on-fund’. Through this, researchers could be provided with time and resources to take an idea and develop it into a tangible output.