

International Review of Chemistry

A response to the Engineering & Physical Sciences Research Council

February 2009

Introduction

The Biosciences Federation (BSF) is a single authority representing the UK's biological expertise, providing independent opinion to inform public policy and promoting the advancement of the biosciences. The Federation was established in 2002, and is actively working to influence policy and strategy in biology-based research – including funding and the interface with other disciplines - and in school and university teaching. It is also concerned about the translation of research into benefits for society, and about the impact of legislation and regulations on the ability of those working in teaching and research to deliver effectively. The Federation brings together the strengths of 45 member organisations (plus nine associate members), including the Institute of Biology which represents 39 additional affiliated societies (see Appendix). This represents a cumulative membership of over 65,000 individuals, covering the full spectrum of biosciences from physiology and neuroscience, biochemistry and microbiology, to ecology, taxonomy and environmental science. The Biosciences Federation is a registered charity (no. 1103894).

1. What is the impact on a global scale of the UK Chemistry research community both in terms of research quality and the profile of researchers?

The biological chemistry research community has a huge impact on a global scale, from genome mapping to molecular ecology. The UK punches well above its weight in this area, where it is second only to the US.

2. To what extent are UK researchers engaged in "best with best" science-driven international interactions?

At the Chemistry/Biology interface, UK researchers are engaged at the highest level with their international peers.

3. What evidence is there to support the existence of a creative and adventurous research base and portfolio?

Barriers to adventurous research include the current, highly structured funding mechanisms (including cross-boundary peer review), for research proposals that cut across the boundaries of the UK Research Councils.

4. To what extent is the UK chemistry community addressing key technological/societal challenges through engaging in new research opportunities?

Key societal challenges including climate change, ageing and bio-security demand biological responses that must be informed by good chemistry. Hence, sound chemical education and a ready supply of young people enthusiastic about entering the discipline are essential. The UK needs to address the attractiveness of the science curriculum at all levels from primary upwards. More 16 year olds need to choose the physical sciences (and mathematics) in addition to biology, but the foundation for this must be laid much earlier in the educational process.

5. To what extent is the chemistry research base interacting with other disciplines and multidisciplinary research?

The interaction of the chemistry research base with the biological sciences has strengthened considerably in recent years. However continued support for the fundamental research base of the subject is also important to facilitate future developments.

6. What is the level of knowledge exchange between the research base and industry that is of benefit to both sides?

There is good interaction between biological chemistry in many universities and research institutes and the biotechnology industries, big pharma and agri-foods. Many spin-out companies have been launched in these fields, but they generally need time to develop and become profitable.

7. To what extent is the UK Chemistry research activity focussed to benefit the UK economy and global competitiveness?

Within biological chemistry, at least, very much so.

8. To what extent is the UK able to attract talented young scientists and engineers into chemistry research? Is there evidence that they are being nurtured and supported at every stage of their career?

At the risk of repeating an earlier point, this process must start in school and specifically, in primary school. The primary school science curriculum is spiral and repetitive. It does not encourage the most gifted children to develop a real curiosity about science. Against this background, too many children subsequently choose biology as an easier option than the physical sciences when a good grounding in all science subjects (and mathematics) is essential to the formation of a successful biological/chemical scientist.

Contact

We should be happy to provide additional information to EPSRC. Any queries regarding this response should in the first instance be addressed to Dr Caroline Wallace, Policy Coordinator, Biosciences Federation, 3rd Floor, Peer House, 8-14 Verulam Street, London WC1X 8LZ email: cwallace.bsf@physoc.org.

Taskforce Members

This response was written by a BSF Task Force comprising Dr R Dyer (Biosciences Federation; Chair), Dr C Kirk (Biochemical Society), Dr I Spence (Royal Society of Chemistry), and Dr R Temple (Linnean Society).

Appendix

Member Societies of the Biosciences Federation

Association for the Study of Animal Behaviour	Experimental Psychology Society
Association of the British Pharmaceutical Industry	Genetics Society
AstraZeneca	Heads of University Biological Sciences
Biochemical Society	Heads of University Centres for Biomedical Science
Bioscience Network	Institute of Animal Technology
British Andrology Society	Institute of Biology
British Association for Psychopharmacology	Institute of Horticulture
British Biophysical Society	Laboratory Animal Science Association
British Ecological Society	Linnean Society
British Lichen Society	Nutrition Society
British Mycological Society	Physiological Society
British Neuroscience Association	Royal Microscopical Society
British Pharmacological Society	Royal Society of Chemistry
British Phycological Society	Society for Applied Microbiology
British Society of Animal Science	Society for Endocrinology
British Society for Developmental Biology	Society for Experimental Biology
British Society for Immunology	Society for General Microbiology
British Society for Matrix Biology	Society for Reproduction and Fertility
British Society for Medical Mycology	Syngenta
British Society for Neuroendocrinology	Universities Bioscience Managers Association
British Society for Plant Pathology	UK Environmental Mutagen Society
British Society for Proteome Research	Zoological Society of London
British Toxicology Society	

Associate Member Societies

Association of Medical Research Charities	Merck, Sharp & Dohme
BioIndustry Association	Pfizer
Biotechnology & Biological Sciences Research Council	Royal Society
GlaxoSmithKline	Wellcome Trust
Medical Research Council	

Additional Societies represented by the Institute of Biology

Anatomical Society of Great Britain & Ireland	Institute of Trichologists
Association for Radiation Research	International Association for Plant Tissue Culture & Biotechnology
Association of Applied Biologists	International Biodeterioration and Biodegradation Society
Association of Clinical Embryologists	International Biometric Society
Association of Clinical Microbiologists	International Society for Applied Ethology
Association of Veterinary Teachers and Research Workers	Marine Biological Association of the UK
British Association for Cancer Research	Primate Society of Great Britain
British Association for Lung Research	PSI - Statisticians in the Pharmaceutical Industry
British Association for Tissue Banking	Royal Entomological Society
British Crop Production Council	Royal Zoological Society of Scotland
British Inflammation Research Association	Scottish Association for Marine Science
British Marine Life Study Society	Society for Anaerobic Microbiology
British Microcirculation Society	Society for Low Temperature Biology
British Society for Ecological Medicine	Society for the Study of Human Biology
British Society for Research on Ageing	Society of Academic & Research Surgery
British Society of Soil Science	Society of Cosmetic Scientists
Fisheries Society of the British Isles	Society of Pharmaceutical Medicine
Freshwater Biological Association	Universities Federation for Animal Welfare
Galton Institute	

Additional Societies represented by the Linnean Society

Botanical Society of the British Isles

Systematics Association