Life Sciences

Genomics, and the post-genome challenge, is a huge priority for the British Government and for medical research charities such as the Wellcome Trust. It is also an area apt for international collaboration. After the Human Genome Project (HGP), the UK is focussing on areas such as functional genomics, proteomics, structural biology, model organisms (mouse, streptomyces, yeast, arabidopsis *etc.*) population genetics, and associated socio-economic issues. Britain is also making a concerted effort to improve its capacity in bioinformatics. In a recent visit to the UK by Genome Canada, opportunities were identified for possible Canadian participation in projects on; infectious diseases, population genetics, and structural genomics; and in international consortia on mouse mutagenesis and the chicken genome.

Stem cell research is also a high strategic priority in the UK, with British scientists enjoying one of the most supportive working climates in the world and the promise of generous additional funding. A multi-million-pound initiative to create a national network of stem-cell research units is currently being considered, which looks at their clinical potential as well as the fundamental science. The Wellcome Trust is also expected to shortly announce major grants for stem-cell science. Areas considered particularly promising include the production of cells that secrete insulin, research in heart and brain disease, and the genomics of stem-cells. There are also plans for the world's first stem-cell bank to be set up in the UK, with the possibility of the bank being opened internationally.

Cancer research has also been identified as a top Government priority, with a new National Cancer Research Institute being established to provide an over-arching view of cancer research in the UK, and to identify areas where further research and international collaboration is most likely to lead to progress. In addition, the recent merger of the Cancer Research Campaign and the Imperial Cancer Research Fund to form Cancer Research UK – the largest independent cancer research organisation in the world, with an annual research budget of over £130 million – will open doors for new partnerships.

In terms of ***Infectious Diseases,*** a new National Infection Control and Health Protection Agency has recently been created to provide an integrated approach to all aspects of human and animal health protection and to help combat the threat from infectious diseases and biological, chemical and radiological hazards. There is also increasing emphasis for Britain to fund research on infectious diseases in developing countries (malaria, AIDs epidemiology, TB, molecular parasitology *etc.*).

It is thought that dementia and diseases of the mind will rise significantly over the next 10-15 years, as a result of the ageing population, and therefore Britain is considering new approaches to research in ***mental health***, including work on the genetic and biological basis of mental health, brain imaging methods, cognitive science and basic neuroscience, plus support for clinical trials and other evaluative and public health research. Four of the UK's Research Councils have also recently come together to form the National Collaboration on ***Ageing*** Research, which aims to coordinate existing research initiatives and link research groups with international centres and the EU's 6th Framework Programme. Other research areas regarded as priorities for collaboration include: ***TSEs*** (epidemiological modelling, destruction of the organism and diagnostic testing), ***food safety*** (including work on foodborne illness, the chemical safety of food, nutrition, labelling, enforcement and consumer confidence), the ***health effects of mobile phones***, and ***GMOs***.

Energy/Environment