MRC Medical Research Council

Annual Report and Accounts 2005/06

Medical Research Council
Annual Report and Accounts 2005/06

Presented to Parliament by the Secretary of State, and by the Comptroller and Auditor General in pursuance of Schedule 1, Sections 2(2) and 3(3) of the Science and Technology Act 1965.

Sir Anthony Cleaver
Chairman

Professor Colin Blakemore
Deputy Chairman and Chief Executive

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The MRC

The Medical Research Council (MRC) was set up in 1913 to administer public funds for medical research. It was incorporated under its present title by Royal Charter in 1920. A supplemental charter was granted in 1993 describing the MRC's new mission following the 1993 government white paper on Science and Technology. The MRC's Royal Charter and Mission were amended in July 2003. The MRC receives an annual grant-in-aid from Parliament through the Office of Science and Innovation (OSI), formerly the Office of Science and Technology, and funds from other sources including government departments, international agencies, industry and medical research charities.

The MRC's strategic aims are developed in consultation with stakeholders and with reference to the mission enshrined in the MRC Charter and to the objectives set out in the Government Science Budget allocations for the period 2003/04 to 2005/06. They also contribute to the OSI Public Service Agreement target of improving the international performance of the UK's science and engineering base, exploitation of the UK science base, and the innovation performance of the UK economy.

The MRC's mission is to:

- **Encourage and support high-quality research with the aim of improving human health.**
- **Produce skilled researchers and to advance and disseminate knowledge and technology to improve the quality of life and economic competitiveness in the UK.**
- **Promote dialogue with the public about medical research.**

The Annual Report describes the MRC's progress between 1 April 2005 and 31 March 2006 in meeting our strategic aims set out in the MRC Strategic Plan 2004-2007 and the objectives set out in the Government Science Budget allocations for the period. A selection of outstanding achievements by MRC scientists during the period in highlighted in the MRC Annual Review 2005/06.

For more information about MRC activities and to view MRC publications visit **www.mrc.ac.uk**

MRC Council members 2005/06

The role of the MRC's Council is to decide on all issues of major corporate importance. These are principally issues of corporate strategy, objectives and targets or relating to the use of resources and personnel issues, including key appointments.

Council members share collective responsibility for the MRC's actions and performance. Responsibility for implementing the Council's strategy and decisions is delegated to the Chief Executive, Professor Colin Blakemore.

Sir Anthony Cleaver
Chairman

Professor Colin Blakemore
Deputy Chairman and Chief Executive

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King's College London

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Financial Management Consultant

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Scottish Executive Health Department

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Professor Kay Davies
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Mr Derek Flint
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Professor Genevra Richardson
King's College London

Professor John Savill
University of Edinburgh

Professor Herb Sewell
University of Nottingham

Professor Michael Wakelam
University of Birmingham

Professor Alan North
University of Manchester

[1] *appointed 1 April 2005.*
[2] *appointed 1 September 2005.*

Outgoing members:

Dr E Mac Armstrong[1]
Scottish Executive Health Department

Dr Ruth Hall[1]
Chief Medical Officer, The National Assembly for Wales

[1] *appointment ended 31 August 2005.*

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Foreword
from the Chairman and the Chief Executive

Sir Anthony Cleaver
Chairman

The end of my second and final term as Chairman in August this year marks a transitional point for the MRC. As this and previous Annual Reports/Reviews show, MRC has continued to fund the highest quality science which has delivered many benefits for national health and wealth. In recent years, there have also been improvements in administration and efficiency. Since Colin began as Chief Executive in 2003 we have new overall aims, and we are now looking forward to another major change: the forthcoming single health research fund.

It has been a real privilege to serve as Chairman on Council – a role I have greatly enjoyed – and I wish Sir John Chisholm every success in his term of office.

Professor Colin Blakemore
Deputy Chairman and Chief Executive

Over Sir Anthony's term, the MRC has evolved and flourished. The grants system has been through several changes and is now simpler and more flexible, an increasing volume of research has been funded and there have been important developments in our strategic planning. While maintaining strong commitment to basic research, the MRC has provided growing support for the translation of this research into clinical benefits for health of the public. Towards this goal, we have worked to build partnerships, which have improved the efficiency of processes and allowed us to achieve much more.

I use this opportunity to thank Sir Anthony for his huge contribution to the work of the MRC and to welcome his successor, Sir John Chisholm.

The MRC has given greater priority to clinical and public health research and to encouraging translational approaches over the last two years – many of these initiatives are highlighted in the 'Research' chapter of this report. Last year the MRC's spending on clinical research increased and we published a call for proposals worth £9m for new centres to strengthen translational research in the UK; which will make major contributions across a range of health issues. We have also established a new Regulatory Support Centre, to provide guidance to researchers on new legislation and good practice about the involvement of people, tissues and data in research.

Our call for proposals in experimental medicine indicated a huge demand for funding in this field. And we have committed £15m to support research in this area, focusing on early testing of treatments and therapeutics in a wide range of diseases. An international workshop convened by MRC this year has helped to shape a separate call for proposals related to biomarkers which are valuable tools for the diagnosis of disease and efficacy of treatments.

The MRC has also contributed substantially to the world effort to prepare for a flu pandemic. Following a workshop, organised by the MRC at the end of 2005, the Council made £15m of funds available for new research from 2006 to 2008. There was also an MRC mission to Vietnam and China to encourage research collaboration. Collaboration is a major part of the new draft strategy produced by the International Strategy Overview Group (ISOG), which advises the Chief Executive and the Council on the international portfolio. The strategy aims to define and promote our position in the international arena.

Notable examples of partnerships this year include completion of the piloting phase of UK Biobank (jointly funded with the Wellcome Trust and the Health Departments); a new £6.7m initiative in prostate cancer with CRUK and the health departments; and the launch of projects funded with the health departments and medical charities under the National Prevention Research Initiative (NPRI), which will have a major impact on our understanding of health behaviour. Joint working in administration is also a priority – for example, the MRC is actively working with the other research councils to develop mechanisms for achieving full harmonisation of administrative services.

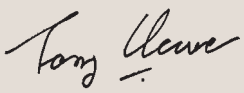
While promoting clinical research, the many new programmes funded this year, and detailed in this report, show that we have not neglected non-clinical biomedical research. We also reviewed our overall support for early career non-clinical scientists during the year, and made changes to the fellowship schemes that support better development of long-term research careers for MRC Fellows. The New Investigator Award – which gives new researchers the opportunity to establish their independence as investigators – entered its second year following its integration with the Career Establishment Grant scheme with an increased budget of £11m.

The MRC continues to support our own units and institutes, which play a vital role in enabling key strategic goals to be achieved in a way that would be more difficult through extramural funding. Quinquennial reviews of the Laboratory of Molecular Biology in Cambridge and the National Institute for Medical Research in London were excellent: 95 per cent of the LMB's programmes and 90 per cent of NIMR's programmes received the highest ranking possible. New criteria for establishing units and institutes were published during the year.

We continue to be successful in turning basic science findings into commercial products for the benefit of patients and to use receipts to fund new research. A highlight of the year was a £108m buy-out of the MRC's future royalty stream on the monoclonal antibody Humira®, which represents one of the largest deals ever between industry and academia. In consultation with researchers and with industry, we have developed a new programme of showcase events to encourage greater exchange between them in particular areas of science, with a view to encouraging new collaborations and partnership working.

Public engagement continues to be a priority. We now have four regional communication managers working directly with MRC-funded scientists to support and facilitate their public engagement activities. In the first of a series of initiatives to explore public attitudes to research we have commissioned, with the Biotechnology and Biological Sciences Research Council (BBSRC), a survey on attitudes to scientific research into ageing, which will inform the future direction of research.

There is growing evidence that the MRC's increased spending, enhanced efficiency and commitment to long-term research continues to improve the UK's and the world's health. We are excited about the opportunity offered by the Government's announcement of a single fund for health research and believe we are well-positioned to play a leading role in its implementation.



Chairman

Deputy Chairman and Chief Executive

Executive summary

Research

- Our priorities during 2005/06 included clinical and public health research, infections and vaccine research, global health, biomarkers and capacity building in strategic areas; we also continued to build on programmes initiated in previous Spending Review periods.
- We launched calls for proposals to encourage and strengthen research in methodological research and implementation, experimental medicine and pandemic influenza.
- We spent £279.4m (£237.6m resource and £41.8m capital) on intramural support. Our three institutes and 29 units published over 2,000 papers in peer-reviewed journals in the calendar year 2005. All programmes are reviewed by the research boards in competition with applicants for grant support.
- We spent £172.4m on grants for research in universities and teaching hospitals.
- We spent £51.8m on training awards for postgraduate students and fellows (intramural and extramural).
- We have published information on application and awards rates, including for the first time information on the overall quality of proposals received from research institutions.

Partnerships

- We are working with the other UK research councils to deliver cross-council programmes in a number of areas of research including ageing, e-science and integrative mammalian biology, and have issued joint highlight notices.
- We manage, and participate in, a number of funders forums and coordination groups, with stakeholders in government departments, the charity sector and other funding bodies.
- We have increased our partnership funding, supporting a new MRC/Asthma UK Centre in Allergic Mechanisms of Asthma and increasing our investment in other jointly funded initiatives such as two National Cancer Research Institute collaboratives in prostate cancer and the Edward Jenner Institute for Vaccine Research.
- We are working more closely with partners outside the UK, participating in joint activities and signing Memoranda of Understanding with organisations in Europe and China.

People

- We employ more than 4,000 people, working in the UK and overseas, and we are making good progress towards full Investors in People accreditation.
- We are continuing to redesign our system for rewarding people with the aim of being more responsive to individual performance and specialisation, and to build stronger management and leadership capabilities across the organisation.
- We introduced the new Doctoral Training Account system for funding postgraduate studentships in universities and in MRC units and institutes in October 2004, with the aim of increasing flexibility over stipend levels and duration of awards.
- We have allocated research studentships, and expanded support for clinical fellowships, for our units in The Gambia and Uganda and have broadened our fellowships schemes to better support capacity building into tropical medicine in Africa and in the UK.

Bringing discoveries to the market

- A highlight of the year was the £108m buy-out of MRC's future royalty stream on the monodonal antibody Humira®. This represents one of the largest deals ever between industry and academia.
- Income from licensing increased to £34m in 2005/06; licensing revenue was dominated by the antibody portfolio but revenue from other sources continues to rise year on year.
- We have improved the way we manage our patent portfolio. 25 new filings were made during 2005/06 and MRCT now manages 138 patent families.
- We are planning a series of 'Showcase Days' involving scientists from the intramural and extramural programmes and from industry, to enhance opportunities for collaboration.

Engaging with people

- MRC scientists and students, supported by regional communication managers, participated in a number of science festivals to explain our work to members of the public.
- In partnership with the Biotechnology and Biological Sciences Research Council, the MRC has commissioned a survey into public experience, understanding and attitudes on scientific research into ageing.

Doing research in the right way

- The MRC Council agreed to establish a Regulatory Support Centre to support translational research in providing guidance to the MRC and the wider UK research community on new legislation and good practice on research involving people.
- We continue to play an important role in the Global Forum in Bioethics and other collaborative networks including an EU-funded project to involve African countries in the international debate.
- The National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs) awarded £1m for grants for hypothesis-driven and applied research that will advance knowledge and application of the 3Rs and laboratory animal welfare. NC3Rs's first Annual Report was published in January 2006.
- We established a Shared Service Centre to provide more effective support and to deliver administrative efficiencies to our units and institutes across the UK.

Finance

- The MRC's Departmental Expenditure Limit (DEL) allocation for 2005/06 was £444.2m for Resource expenditure (£427.1m in 2004/05) and £36.6m for Capital expenditure (£28m in 2004/05).
- Actual DEL expenditure exceeded the annual allocation by £14.4m (Resource) and £5.2m (Capital). This was funded from brought forward surpluses.
- A further £8.3m of Capital expenditure was funded by the Commercial Fund.
- The total Resource expenditure, net of external income, was £458.6m (£394.5m in 2004/05).

Research

The MRC's strategic objectives for research:

- To invest in high-quality research related to human health.
- To fund partnerships and promote collaboration.
- To promote the translation of research into practice, including disseminating information, providing scientific advice and facilitating implementation within health service policy and practice.

Government Science Budget research objectives

- To contribute to improve the excellence, relevance and impact of the knowledge created from research council funded programmes.
- To increase research capacity and international competitiveness for the UK in strategic areas.
- To increase the dynamism and flexibility of research council programmes to respond to changing requirements and opportunities and to support effectively multidisciplinary research, new researchers and higher-risk research proposals.
- To maintain access for scientists working in the UK to the necessary major facilities and supporting infrastructures to enable world-class research.

Funding research and evaluation

Government Spending Reviews

The financial allocation for 2005/06 was made under the 2002 Spending Review (SR2002) and represented a significant increase compared with 2004/05 (£73m extra). This allowed the MRC to make awards worth over £200m during the year. There were also the final commitments under the cross-research council programmes on stem cell research.

The allocation under the 2004 Spending Review was announced in March 2005 and covers the years 2006/07 and 2007/08. The MRC is currently working with Office of Science and Innovation (OSI) in preparation for the next Comprehensive Spending Review (CSR2007).

The Delivery Plan and performance management framework

The MRC, along with other research councils, developed a Delivery Plan as part of the SR2004 allocation process, setting out how the MRC will contribute towards the Department of Trade & Industry's (DTI) Public Service Agreement targets of improving the relative performance of the UK research base and of the UK economy. The MRC Delivery Plan, published in May 2005 (and since updated) gives details of the MRC's spending priorities over the SR2004 period. The plan is a key part of the performance management system through which the MRC will be held accountable for the extent to which deliverables are achieved. It takes account of key partnership issues, for example the UK Clinical Research Collaboration (UKCRC) and the Joint Health Delivery Group agenda, as well as the interests of other stakeholders, and the MRC's own strategic priorities.

The other elements of the performance management system consist of a 'Scorecard' of objectives, targets and milestones and an 'Outputs Framework' of metrics and other performance information. The MRC has, along with other research councils, been reporting quarterly to the OSI on progress against milestones in the Scorecard, the first data under the Outputs Framework will be published later in the year.

The MRC's Council reviewed progress against the 2005 Delivery Plan in February 2006, and agreed that considerable progress had been made in advancing the clinical and public health research agenda. These and other achievements are set out later in the Annual Report.

Evaluation

A subcommittee has been established by the MRC's Council to provide advice on evaluation of the MRC's performance. The new subcommittee will develop a programme of evaluation activities of MRC's performance, keeping national and international developments under review. It will advise on resourcing of evaluation activities. Membership is drawn widely from the clinical academic and university sectors, and includes industrial, scientific, and lay members.

Scientific strategy

There are two priorities for the next decade. First, advances at the molecular level will rapidly be extended to increase understanding of cell, organ and organism function in health and disease. Second there will be a far greater focus on translating the results of such work into improved healthcare, products and services.

The MRC is well placed to deliver health benefits from research, through strong research and training programmes, access to the NHS's unique infrastructure, and effective partnerships with key stakeholders such as the health departments and research charities. The MRC provides vital support for research and skills, while promoting the link between basic and clinical research and reinforcing efforts in experimental medicine and the population health sciences.

Scientific priorities during 2005/06 included:

- Clinical and public health research.
- Infections and vaccine research.
- Sustaining capability in areas of strategic importance.
- Global health.
- Biomarkers.
- Ageing.

These programmes are not considered as discrete entities and the delivery mechanisms ensure an integrated approach, for instance some clinical work will be concerned with infectious disease and some of this will have public health implications. Activity also continues on SR2002 programmes such as regenerative medicine, systems and integrative biology and brain sciences. Progress towards these priorities and examples of cross-board activities and partnerships with other bodies are described later in this report.

Delivering discovery science for health

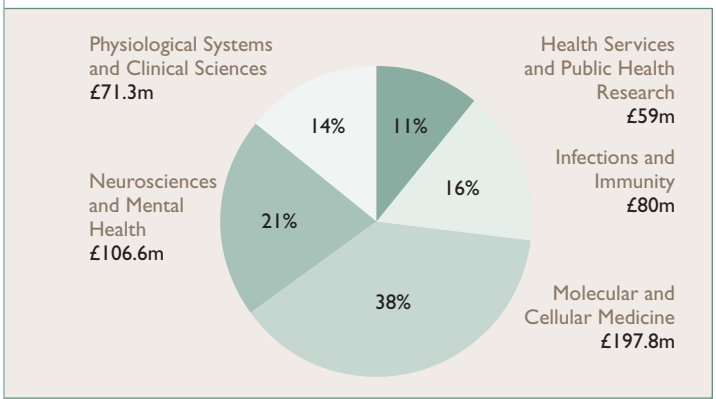
The MRC's Council is supported by five research boards, the Training and Career Development Board and a number of overview groups, which advise on the development of strategy and priorities and make funding decisions.

MRC research boards

The five research boards, which span the MRC's portfolio, have ownership of the scientific portfolio and make decisions about which applications to fund. The MRC's Council decides on the annual budgets for each of the research boards, retaining a proportion of funds as a 'Strategic Budget' for cross-cutting initiatives and core funding for renewing institutes. Budgets are developed taking into account broad strategic objectives as well as specific research and training priorities.

The estimated gross spend by scientific area in 2005/06 is shown in the following diagram:

Fig 1: Estimated gross spend by scientific area



Strategy portfolio overview groups

The research boards receive advice from Strategic Portfolio Overview Groups (SPOGs). During 2005/06, these overview groups conducted further portfolio analyses to highlight strengths, weaknesses and gaps, contributed to the development of board budget bids and helped develop bottom-up strategic approaches – for example in respiratory medicine (PSCSB), genetic epidemiology (IIB), and in mental health (NMHB). In addition they influenced the development of initiatives in experimental medicine and biomarkers.

Research overview groups

The MRC's Council convenes other overview groups to advise on the implementation and development of the MRC's research strategies in particular areas. In 2005/06 there were overview groups for clinical research, population health research, basic research and international strategy.

Major research developments and partnerships

This section outlines the MRC's activities across the five scientific areas of our portfolio and highlights new and ongoing partnerships with other research councils, government departments and research charities, and the contribution that these partnerships make to our research objectives. Our work with industry is outlined in 'Bringing discoveries to the market' (page 28) and joint consultation and communication activities in 'Engaging with people' (page 32).

Some of the programmes are undertaken by more than one of the research boards and examples of cross-board activities, such as the experimental medicine initiative, are also included.

Health services and public health research

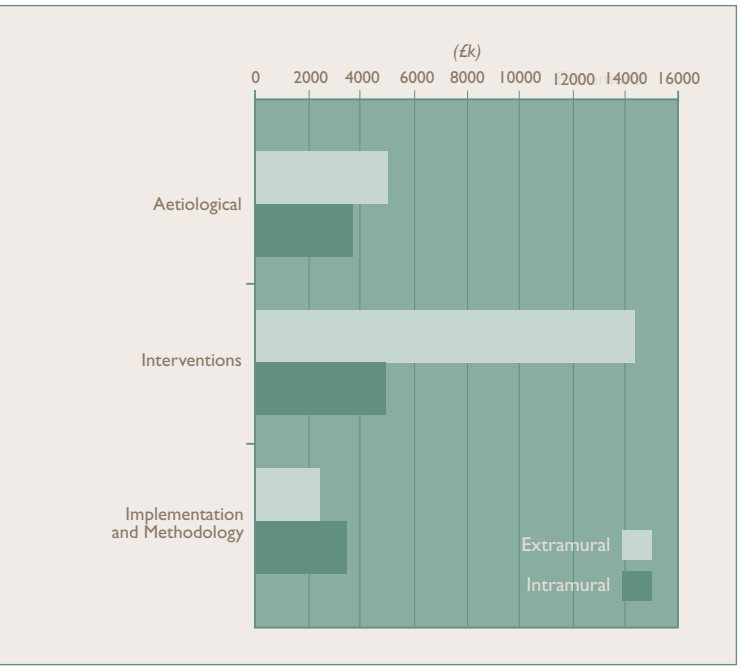
The estimated gross spend in this area was £59m.

The portfolio of the Health Services and Public Health Research Board (HSPHRB) comprises four areas:

1. The development and evaluation of healthcare interventions.
2. Population-based aetiological studies, which consider the factors involved in disease progression with particular emphasis on environmental and psychosocial factors.
3. Implementation studies, which look at how to put research findings into practice.
4. Methodological developments – the study of methods that underpin health research.

The chart overleaf shows the estimated profiled commitment to the health services and public health research portfolio, in MRC units and institutes (intramural) and universities and teaching hospitals (extramural). This includes awards made in 2005/06.

Fig 2: Health services and public health research portfolio by science area



Intervention research

A significant part of the HSPHRB's portfolio of research are studies that evaluate interventions – clinical trials. The MRC funds clinical trials that are designed to provide high-quality evidence on the efficacy and effectiveness of interventions in medicine and the health services. The focus of this support is primarily on trials that break new ground in terms of research questions or methodologies, or that add significantly to our understanding of biological or behavioural mechanisms and processes in human health and healthcare. Some major awards made in 2005/06 and examples of trials reporting are outlined in key awards (below).

Key priorities within the health services and public health research portfolio

Public Health Research

The MRC's public health research looks at the wider influences on physical and mental well-being and ill-health and includes all aspects of health promotion, disease prevention and healthcare provision. A key aim is to understand how and why ill-health varies within the population, and how to improve public health through interventions and improvements that address these inequalities.

In the Delivery Plan, the MRC highlighted a commitment to public health research including cohort studies. During the year, the MRC awarded a further five years of funding to both the European Investigation of Cancer (Professor KT Khaw) and, in partnership with the Wellcome Trust, to the Avon Longitudinal Study of Parents and Children, which together amounted to a spend of approximately £6.5m.

The MRC's Council also conducted a Strategic Review, which is the case to consider future investment, of the National Survey of Health and Development. The survey aims to map biological and social pathways to health and disease from early life to ageing. The review, which followed the retirement of the current Director, Professor Michael Wadsworth, concluded that this was a scientifically and strategically important cohort that should continue to be funded as a national resource. A new leader will be identified in 2006.

The MRC's commitment to increasing public health research was also implemented through some key awards, including one on Risk Communication in Preventive Medicine to Professor Teresa Marteau at Guy's, King's & St Thomas' Schools of Medicine & Dentistry (£600k), and one to Professor Francis Creed at the University of Manchester, to test the feasibility of conducting a population based study for chronic fatigue syndrome, irritable bowel syndrome and chronic widespread pain. In addition, the Council awarded about £4m to two new centres in the field of public health: Dr Sheila Bingham, MRC Centre for Nutritional Epidemiology in Cancer Prevention and Survival, and Professor Carol Dezateux, MRC Centre of Epidemiology for Child Health in London.

Methodology and Implementation call for proposals

The board allocated £4m of its budget specifically to support research in underpinning methodologies (£3m) and implementation (£1m). A call for proposals was published in January 2006. The intention was to encourage and strengthen research in the HSPHRB portfolio of methodological research. Over 130 applications were received, and funding decisions will be announced in July 2006.

Cross-board activities

MRC Population Health Sciences Research Network (PHSRN)

The board is leading an MRC research network for population health sciences. The funding for the network, which includes most of the board's units and three from other boards, is £2.5m over five years.

The aim of the network is to bring together and add value to the MRC's existing investments in public health, health services and epidemiology research, by focusing on the methodological approaches to population health sciences research and strengthening research expertise intramurally by combining and sharing resources, especially in underrepresented disciplines. It will also provide a platform for voicing a unified opinion on research and policy issues.

Key partnerships within the health services and public health research portfolio

MRC Sexual Health and HIV Scientific Research Committee

This year the Sexual Health and Research Strategy Committee, jointly funded by the MRC and government health departments, awarded £1.4m to research in the management of patients with sexually transmitted infections/HIV, service delivery options, and new approaches to improving the health and sexual behaviours of groups at risk. The MRC has contributed an extra £700k to be spent over the next three years. The committee has also commissioned a review of UK-supported sexual health research since 2000, being undertaken by Professor Helen Roberts and her team at City University, London. The intention is for the results from this review to inform the next call for proposals expected to be advertised in Autumn 2006.

UK Biobank

The MRC continues to work with the Wellcome Trust, the Department of Health (DH) and the Scottish Executive to continue to develop the UK Biobank (**www.ukbiobank.ac.uk**). UK Biobank was established as a charitable company limited by guarantee in November 2003.

UK Biobank is a long-term project aimed at building a comprehensive resource for medical researchers to study the progression of illnesses such as cancer, heart disease, diabetes and Alzheimer's disease. Following consent, volunteers will be asked to donate a blood and urine sample, have some standard measurements (such as blood pressure) and complete a confidential lifestyle questionnaire.

During the year, under the leadership of the new Chief Executive Professor Rory Collins, Biobank has made significant advances. An initial phase of pilot studies was completed to demonstrate the feasibility and acceptability of the participant assessment processes. A second phase of piloting was initiated early in 2006 to test the complete processes of UK Biobank from participant recruitment through to storage of the biological samples. The outputs of these pilot studies will inform the final design of UK Biobank which will be reviewed during 2006 prior to full launch of project.

New Dynamics of Ageing

The new Dynamics of Ageing is a cross-research council programme, worth approximately £18m, aimed at developing interdisciplinary research approaches to advance the understanding of the dynamics of ageing, including health and well-being of older people. The programme is led by the Economic and Social Research Council (ESRC), in partnership with the MRC, the Engineering and Physical Sciences Research Council (EPSRC), the Biotechnology and Biological Sciences Research Council (BBSRC), and more recently the Arts and Humanities Research Council (AHRC). In Spring 2005 the first call for proposals was announced. Full proposals under this first call were considered by a cross-research council panel in April 2006 and awards announced during the summer.

The MRC continues to support high quality research in the area of ageing, for example, Professor Tom Kirkwood at Newcastle University, who was co-funded by the BBSRC in June 2005 for 'Biological, clinical and psychosocial factors associated with healthy ageing'. Also, the board awarded funding to three stroke trials in March 2006.

e-Science Initiative

The board leads the MRC contribution to this cross-research council initiative to develop technology solutions to enable e-Science:

- Large scale science that will increasingly be carried out through distributed global collaborations enabled by the internet. This year, the board organised workshops, initiatives and steering groups in key areas of particular importance to MRC-funded projects.
- Health Informatics, Consent and Confidentiality and the NHS National programme for IT/Connecting for Health.

National Prevention Research Initiative

The National Prevention Research Initiative (NPRI) is a multidisciplinary collaboration supporting high quality research aimed at the primary prevention of chronic diseases. The NPRI is managed by the MRC and sponsored by a broad consortium of funders: British Heart Foundation, Cancer Research UK, DH, Diabetes UK, ESRC, Food Standards Agency, MRC; Research and Development Office for the Northern Ireland Health and Social Services, Chief Scientist Office (CSO), Scottish Executive Health Department, the Welsh Assembly Government and World Cancer Research Fund.

Phase I funded 26 research projects in December 2005. The projects explore a range of approaches to encourage positive health behaviour to prevent or minimise smoking or alcohol consumption, and to encourage physical activity and good diet. The projects are based in a number of settings such as schools, neighbourhoods, homes, the work place and GP surgeries. They explore a range of approaches to encourage positive health behaviour, from the use of personal mentors through the health services to the internet.

Infections and immunity

The estimated gross spend in this area was £80m.

The infections and immunity portfolio supports basic immunology and microbiology as well as research translating this to clinical benefits. The Infections and Immunity Board (IIB), which leads in this area, has prioritised vaccines, bacterial infections of health importance and genomic epidemiology, under the Delivery Plan. It also funded five Experimental Medicine proposals as part of the MRC's Council's Experimental Medicine initiative. The intramural programme contributed significantly to the MRC's Council's translational priorities through the MRC Human Immunology Unit and to basic research in immunology, virology and parasitology.

A main focus was global health. The MRC's Council has strengthened the MRC's spending on Africa, coinciding with the UK's Commission for March 2005 Africa report on the continent's health and development. The extra spending has funded a range of studies, training initiatives and our own units in Uganda and The Gambia. The board reviewed programmes in the MRC/UVRI Uganda Research Unit on AIDS and the MRC Laboratories, The Gambia, and the MRC Council funded them. The MRC made additional funds available for flu research.

The chart beneath shows the estimated profiled commitment to the infections and immunity portfolio, in MRC units and institutes (intramural) and universities and teaching hospitals (extramural). This includes awards made in 2005/06.

Fig 3: Infections and immunity portfolio by science area

Key priorities within the infections and immunity portfolio

Global infections

The board reviewed and renewed funding for the MRC/Uganda Virus Research Institute Research Unit on AIDS. It also reviewed the future research programmes proposed by Dr Sarah Rowland-Jones, Scientific Director of the MRC Laboratories, The Gambia. The unit had completed a period of significant operational reorganisation designed to increase its impact and efficiency. Its strong infrastructure and scientific programmes placed the unit among the foremost in sub-Saharan African for research on the mechanisms of infectious disease and for developing and testing effective interventions to improve health and lives in Africa.

Vaccines

A board strategy & portfolio overview group considered the MRC's contribution to accelerating vaccines research. It identified the MRC's strengths as being able to find novel targets and immunological strategies and in Phase III clinical trials. But it also suggested that the translation of laboratory findings into early clinical studies should be improved. The board subsequently funded two HIV- and one malaria-related experimental medicine proposals under the MRC's Council's Experimental Medicine call (see section for the PSCSB below).

The overview group also acknowledged the challenges for the research community in early clinical trials of vaccines, for example, in prioritising candidates to take forward, and of meeting regulatory requirements. Following meetings with the vaccines research community, the MRC received two vaccines-related proposals in response to its call for centre grant funding. In addition, the MRC and the Wellcome Trust continued discussions with the research community on coordinating and accelerating HIV vaccines research.

The Edward Jenner Institute for Vaccine Research (EJIVR) was funded from 1995 through a public-private partnership between the MRC, the DH and GlaxoSmithKline. Following a review by the sponsors, the Jenner Institute was re-launched in 2005/06 under the leadership of Professor Adrian Hill. The new institute brings together expertise from the University of Oxford and the Institute for Animal Health (IAH), and it will focus on human vaccine development from fundamental research to clinical trials and field efficacy studies. The MRC contributed £1.25m in 2005 to 2006 to support the transition and relocation to a new building within Oxford. With its enhanced translational focus, the new institute will accelerate vaccine development for global infectious diseases such as HIV, malaria, and tuberculosis.

Immunology

The board brought together members of the UK infections and immunity community with counterparts from the German Research Centre for Biotechnology for a small, focused workshop in November 2005, to discuss the development and use of genetic mouse models and to explore potential collaboration.

Microbiology

The bacteriology research community has suggested that its research proposals to the MRC are not as successful as expected. A board strategy & overview group considered this perception and found no bias against bacteriology proposals. For instance, in 2005/06, 23 per cent of the board's grant awards were in bacteriology, which indicates that IIB is making substantial awards in this area. The group also considered strengthening research on antimicrobial drug resistance, healthcare-associated infections and methicillin resistant *Staphylococcus aureus* (MRSA). As a result, the MRC began discussions with the Health Protection Agency (HPA) and the academic community on how to coordinate and stimulate high impact research in these areas.

Genomic epidemiology

A board strategy & portfolio overview group met in May 2005, with members of other MRC research boards and the research community, to consider the potential of genomics and epidemiology in discovering mechanisms of acquired immunity and natural resistance. The group emphasised the need for strong prior evidence of a significant genetic contribution to susceptibility to infection, or to the severity of the outcome of an infection or to the effectiveness of people's responses to vaccine or drug treatments. In addition, it was important for there to be a strong clinical infrastructure, to ensure adequate numbers of samples with high-quality clinical information.

Pandemic influenza

Recognising the emerging global threat of pandemic influenza, the MRC sponsored an international workshop on pandemic flu research needs called *"Pandemic Influenza: maximising the contribution of research"* in December 2005. The Council subsequently made £15m of additional funds available, via the board, for new influenza research over 2006/07 and 2007/08 from its strategic budget and a call for proposals in pandemic influenza, published in January 2006. The first 'fast track' awards from the call will be made in May 2006.

To encourage research collaboration with South East Asia, a mission led by the board chairman Professor McMichael and including Sir John Skehel who is recognised internationally as an authority on influenza biology, visited research teams and officials in Vietnam and China in October 2005. This activity was undertaken in parallel with a broader MRC mission to stimulate broader collaborative links between scientists in the UK and China (see International Collaboration section).

Key partnerships within the infections and immunity portfolio

Global infections

The MRC is contributing to a major international study to develop safe and effective microbicides to reduce the sexual transmission of HIV virus. Through the MRC Clinical Trials Unit, it also provided clinical trial leadership and management to enable the launch of a phase III trial of the potential microbicide, PRO2000/5. In this partnership with the UK Department for International Development (DfID) and Imperial College London, the trial will enrol nearly 10,000 women in six clinical trial sites across three Sub-Saharan Countries in Africa. This is one of the largest trials of its kind with results expected early in 2009.

As part of the Anglo-French alliance of funding agencies, the MRC co-sponsored a collaborative, three-week training course on clinical trials in Cape Town, South Africa, in January 2006. It was developed by Dr Arnaud Fontanet at the Institut Pasteur, Paris, with support from researchers at the London School of Hygiene and Tropical Medicine. There were over 200 applicants from across Africa and 25 of those gained places.

The need to increase research capacity in developing countries was an important theme for the MRC's Council in 2005/06. The Directors of MRC units in The Gambia and Uganda prepared papers outlining activities that the MRC could lead to better training and retention of African scientists. Some challenges are country-specific. For instance, The Gambia has only recently established its first university. The MRC's Training and Career Development Board (TCDB) agreed to allocate to both units research studentships open to African candidates. The TCDB also approved support for clinical research fellowships for the Gambia unit, enabling the best graduate of the medical school of the new university to gain research experience at the unit. Restricted to West African graduates of the medical school, the fellowship will otherwise be similar to the UK-based Clinical Research training fellowship. To increase the opportunities for UK scientists interested in developing a research career in tropical medicine, the TCDB agreed to open up all the fellowship schemes to enable candidates from the UK or Africa to be based fulltime in either of the MRC Units in Africa. The MRC's Council awarded £2m to the London School of Hygiene and Tropical Medicine to strengthen clinical trials capacity at Mwanza, Tanzania.

The MRC continued to play an important role in the European and Developing Countries Clinical Trials Partnership, (EDCTP). This year Dr Diana Dunstan was elected as chair of the General Assembly and has worked closely with the new executive director, Dr Odile Leroy, to re-establish an effective working agreement between participating member states. The EDCTP aims to coordinate European funding and research activities to support phase III intervention studies against HIV, tuberculosis and malaria in Sub-Saharan Africa, and a number of awards have now been made to support clinical trials and capacity building initiatives within the strategic framework of the EDCTP.

The MRC has made contributions to the EDCTP to support a call for fellowships and to support a call in capacity building for HIV vaccine studies. Dr Abraham Alabi, from MRC Laboratories, The Gambia, was one of the first successful recipients of an EDCTP fellowship for his work on the development and evaluation of high throughput, cheap and reliable assays for monitoring HIV-1 and HIV-2 viral loads in antiretroviral programmes and clinical trials in developing countries. The MRC participates in all the EDCTP bodies including the Partnership Board, Developing Countries Coordinating Committee and on scientific review committees. Dr Mark Palmer (Programme Manager for Global Health Research) represents the UK within EDCTP's European Network of National Programmes.

Molecular and cellular medicine

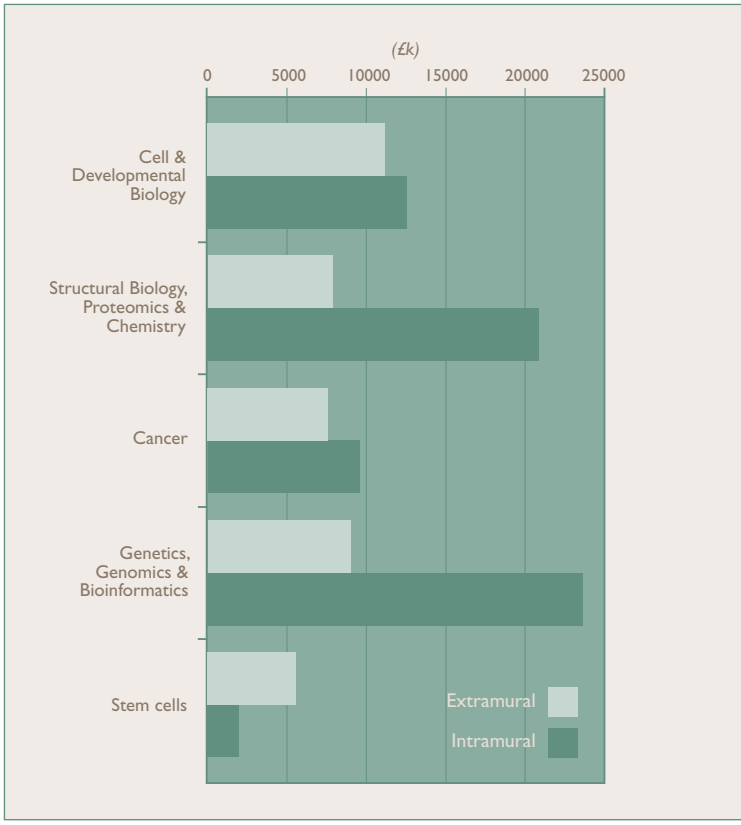
The estimated gross spend in this area was £197.8m.

The molecular and cellular medicine portfolio supports research on cancer biology, genetic mechanisms, methodology development for gene therapy, bioinformatics, biotechnology and structural studies, nanotechnology, cell biology, and developmental and stem cell biology excluding neurobiology.

The Molecular and Cellular Medicine Board (MCMB), which oversees this portfolio area, identified cancer research, which is reflected by the MRC's European partnerships, and stem cell research as priorities in 2005/06.

The chart beneath shows the estimated profiled commitment to the molecular and cellular medicine portfolio, in MRC units and institutes (intramural) and universities and teaching hospitals (extramural). This includes awards made in 2005/06.

Fig 4: Molecular and cellular medicine portfolio by science area



Key priorities within the molecular and cellular medicine portfolio

Radiotherapy and radiobiology research

Radiotherapy is one of the main elements of cancer treatment and the MRC, Cancer Research UK (CRUK) and Oxford University are trying to increase the scientific knowledge base in order to realise the treatment's full potential. The MCMB has funded a new world-class Centre for Radiation Biology Research at Oxford under the leadership of Professor Gillies McKenna, an internationally-renowned scientist recruited from the University of Pennsylvania. This new centre is designed to encourage translational research and collaboration between scientists from different areas of expertise. It will unite newly-recruited research teams with existing groups from the MRC Radiation and Genome Stability Unit (RAGSU) at Harwell and the CRUK-funded Gray Cancer Institute (GCI) at Mount Vernon.

Areas of research at the new centre will include delivering radiation to tumours in more sophisticated and precise ways, using new imaging techniques to restrict radiotherapy to tumours and reducing side effects for patients and finding new ways of making tumours more sensitive to radiation, using molecular targets and other forms of treatment.

Key partnerships within the molecular and cellular medicine portfolio

Prostate cancer

Prostate cancer is a major health problem and there is a need to strengthen the UK's research base in this area in order to prevent and treat the disease more effectively. To this end, in March 2001, a number of National Cancer Research Institute (NCRI) members, DH, Cancer Research UK and the MRC, agreed to jointly provide £6.7m over five years for two NCRI prostate cancer collaboratives.

The South of England collaborative, directed by Professor Colin Cooper, is based at the Institute of Cancer Research, London, and the ProMPT Collaborative – Prostate Cancer: Mechanisms of Progression and Treatment, directed by Professor David Neal, comprising the Universities of Cambridge, Newcastle, York, Sheffield, Manchester and Bristol. Both collaboratives are working to find the origins and causes of prostate cancer in order to lead to better treatment and to develop diagnostics to predict different forms of the disease.

During 2005, the progress of the collaboratives was reviewed by an international expert panel. The panel agreed that in addition to particular research strengths, the progress of the collaboratives to date had been notable in a number of areas, including the development of significant numbers of researchers in the field, networking, training and education and the establishment of shared resources. The shared resources, in particular, had been extremely valuable, expanding the accessibility and impact of new technologies to the prostate cancer research community and promoting the effective interaction between applied/clinical and basic researchers. On the basis of the review, the DH, CRUK and the MRC agreed to jointly provide the two collaboratives with funding (£3m) for a further three years (2006-2009) for the maintenance and further development of a fully integrated and coordinated set of resources (biorepositories, databases, and other central resources), and to consolidate a number of scientific programmes.

Stem cell research

During the year, the MRC continued to develop strategies and priorities for stem cell research and banking, working closely with key stakeholders including other research councils, charities, industry, the health departments, the Human Fertilisation and Embryology Authority and the Medicines and Healthcare products Regulatory Agency. For the MRC, this work included global coordination of the International Stem Cell Forum, chaired by Professor Colin Blakemore. The forum held its fourth meeting in Paris where issues addressed included characterisation of stem cell lines, developing best practice for deriving and using embryonic stem cell lines and development of a global registry of clinical trials involving stem cells.

The UK Stem Cell Initiative Report, commissioned by the Treasury and conducted by DH/DTI, provided a comprehensive overview of stem cell research in the UK, and made recommendations aimed at keeping the UK at the forefront of stem cell research. Issues addressed included the need to develop the UK's research capacity, to maintain and improve the current level of funding support, to ensure translation of stem cell research and to improve coordination and communication.

The MRC has been key in taking forward a number of the recommendations. It worked closely with the UK Stem Cell Foundation to develop a collaboration with the aim of building a UK portfolio of high-quality translational research and clinical trials to develop potential stem cell therapeutic interventions. It has also reconvened the UK Stem Cell Funders Forum to identify new opportunities and areas that would benefit from joint funding and has explored the possibility of collaborations with pharmaceutical companies in the area of stem cells and predictive toxicology.

Funding for the UK Stem Cell Bank has been renewed for the next five years, to allow the construction of a permanent Good Manufacturing Practice facility for the derivation of clinical grade lines. The bank stores, characterises and supplies ethically approved, quality-controlled stem cell lines derived from embryonic, fetal and adult tissue, and it leads the world in this activity. The first stem cell lines are now accessible from the bank.

Genetics/genomics

In August 2005, following the MRC's Council approval of the management buy-out, MRCgeneservice was transferred into a new company Geneservice Ltd based in the Cambridge Science Park. The MRC had supported the activities of MRCgeneservice for a number of years and it played an important role in ensuring there was widespread access to new biological reagents, tools and services as the UK genomics effort grew. Geneservice Ltd will operate as a genomic reagents provider and continue to offer existing services that include sequencing, genotyping, microarray expression analysis and whole genome amplification.

Structural biology/structural genomics

A project board, representing all of the research councils and chaired by the MRC, has now developed the business case for a research complex alongside the new synchrotron (DIAMOND) in Harwell, Oxfordshire. This new facility will provide laboratories and shared facilities for both life and physical research groups ensuring that scientists in the UK are able to exploit the opportunities that DIAMOND, and other facilities on the RAL site offer. Research Councils UK (RCUK) will consider the business case in Spring 2006.

European cancer research

The MRC has worked with the World Health Organisation's International Agency for Research on Cancer in France, the Federal Ministry for Education and Research in Germany and individual cancer scientists from across Europe to form a consortium that has won funds for a Specific Support Action from the European Commission's 6th Framework Programme. The project, entitled EUROCAN+PLUS, will examine the feasibility of coordinating national cancer research activities across Europe and contribute to the development of the 7th Framework Programme.

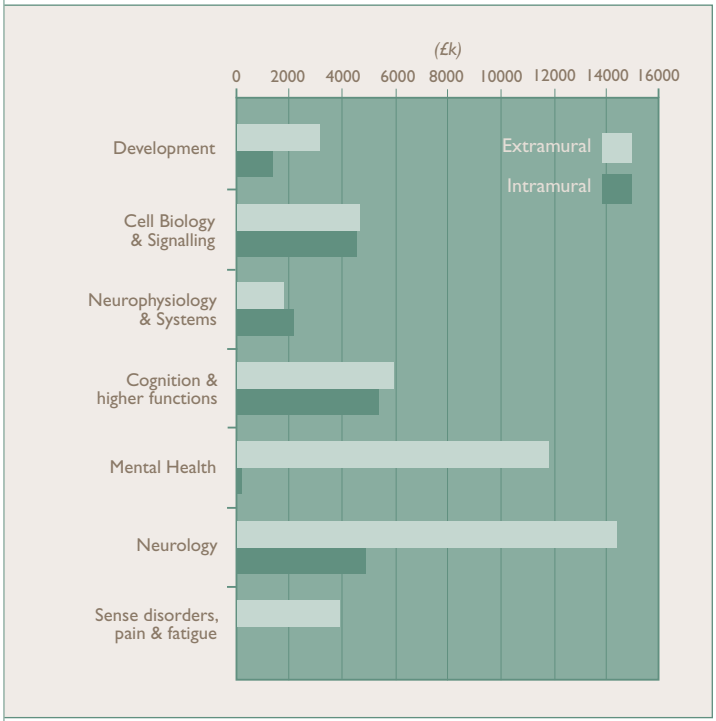
Neuroscience and mental health

The estimated gross spend in this area was £106.6m.

The Neuroscience and Mental Health Board (NMHB) is responsible for research in all areas of neuroscience, from basic neurobiology, including genetics, developmental biology and pharmacology, through to systems-based research, neuroinformatics, cognition, behavioural neuroscience, psychology and clinical neurology. The MRC has continued to support the development of mental health research, which also remains a key priority for the DH.

The chart beneath shows the estimated profiled commitment to the neuroscience and mental health portfolio, in MRC units and institutes (intramural) and universities and teaching hospitals (extramural). This includes awards made in 2005/06.

Fig 5: Neuroscience and mental health portfolio by science area



Key priorities within the neuroscience and mental health portfolio

Mental health

In 2005, the MRC renewed its Social, Genetic and Developmental Psychiatry Research Centre at the Institute of Psychiatry, Kings College London, for another five years. It further supported research in mental health at the centre through a number of major new grants – the awardees included Robert Plomin for studies using the UK twins birth cohort to better understand the basis for language and behavioural disorders, Barbara Maughan to study antisocial behaviour in teenagers, and Francesca Happe for work on cognitive deficits in autism.

The UK Mental Health Research Network (UK MHRN), which provides the infrastructure for clinical research and aims to coordinate the delivery of large-scale research projects, has received further funding from the DH. Last year, the MRC awarded two major clinical trials that will run on the network. The first, from Professor Tony Morrison from the University of Manchester, will investigate early detection and psychological intervention for individuals at high risk of psychosis. The second, the COMMAND study from Max Birchwood's team at the University of Birmingham, is on the effect of a psychological intervention on hallucinations in schizophrenia.

The MRC has contributed to a strategic portfolio analysis undertaken by the Mental Health Research Funders' Group, published in early 2006, which has mapped out the current research spend by government departments, the research councils and research charities. This should improve the coordination of activities across the funders, as well as highlighting gaps, needs and opportunities for the future.

Mental health was also a major topic for discussion at the MRC Biomarkers workshop in January 2006, a forum at which academic and industrial researchers attempted to establish priorities for future research in this rapidly-expanding area (see section on the PSCSB).

Increasing research capacity in psychiatry is a key objective, and the board provided funding for six early-stage investigators from the UK to attend a two-week workshop on the biology of schizophrenia in the USA, hosted by Cold Spring Harbor Laboratories. MRC also met representatives from the Royal College of Psychiatrists to explore what additional efforts were needed to encourage the entry of increased numbers of psychiatrists into research.

Centres of Excellence

The board is keen to train and recruit more researchers in important areas for UK medical research. It has recently funded two Centres of Excellence: one with a focus on neurodegeneration and the other in behavioural and clinical neuroscience.

The MRC Centre for Neurodegeneration Research at the Institute of Psychiatry is directed by Professor Brian Anderton. It has a remit to pursue a greater understanding of the mechanisms involved in neurodegenerative diseases and to translate this knowledge into new treatments and diagnostic approaches. The wide range of expertise at the centre allows a multidisciplinary approach for a number of related disease areas, with a principal focus on Alzheimer's Disease and motor neurone disease. The centre has a productive collaboration with Proteome Sciences plc, which already this year has identified new biomarkers for Alzheimer's disease and possible new drug targets.

The MRC has also just awarded a £2m grant to Professor Nigel Leigh at the centre to conduct a clinical trial studying the therapeutic effects of minocycline in 1,000 patients with motor neurone disease. This study will result in information on the mechanisms of disease, response to therapy (including riluzole), and the development of diagnostic markers for the disease.

The MRC has also increased its support of the University of Cambridge Behavioural and Clinical Neurosciences Institute (BCNI), in partnership with the Wellcome Trust, with which it has set up a novel process for making decisions about joint funding. The institute (formerly the MRC Centre for Behavioural and Clinical Neurosciences) is directed by Professor Trevor Robbins and brings together scientists from the Departments of Experimental Psychology and Anatomy, working in conjunction with the Departments of Psychiatry and Clinical Neuroscience within the University Clinical School at Addenbrooke's Hospital, with scientists at the MRC Cognition and Brain Sciences Unit, Cambridge.

Researchers at BCNI study disorders of mental health, such as schizophrenia, depression, addiction, attention-deficit hyperactivity disorder (ADHD), and neurological diseases such as Alzheimer's, Parkinson's and Huntington's diseases. The institute's scientific approach links basic work on brain function to its clinical application and aims to improve understanding of the factors causing the diseases, the brain systems involved and therapeutic strategies, including the discovery and evaluation of new drugs.

Cross-board activities

Experimental Medicine

In February 2005, the MRC's Council committed £15m to support research in experimental medicine (see section for the PSCSB below). Of the 193 full applications received, 49 were within the NMHB portfolio. Of the 28 applications were funded under this call one related to mental health, three to stroke and two involved the use of stem cells.

Key partnerships within the NMHB portfolio

Brain sciences

As part of the Government's 2002 spending review, the MRC, the BBSRC, the EPSRC, and the Council for the Central Laboratory of the Research Councils (CCLRC) were jointly awarded £15 million to fund additional research into brain sciences. As a result, a total of 68 new projects were funded in 2003 and 2004, and the board handled applications on behalf of the MRC. This coordinated approach to brain sciences provides a springboard for further interdisciplinary research into brain sciences and fostered closer collaborative working between the research councils.

These four research councils, the ESRC and many charities contributed to a detailed portfolio analysis of brain sciences research, highlighting areas that may benefit from coordinated initiatives. Representatives met in November 2005 and identified new areas that could benefit from joint funding, including neurobiology of mental health and behaviour, computational neuroscience and the interface between social science and neuroscience. The BBSRC and the MRC will issue a highlight notice for proposals addressing the neurobiological basis of mental health and behaviour early summer 2006, evaluation workshops with many of the initial award-holders will be held later in the year.

The MRC and the ESRC have also been working together to develop the area of society, social behaviour and the neurosciences. A joint highlight notice, launched in March 2006, aims to encourage innovative and multidisciplinary research proposals that link basic or health-related neuroscience to social factors and social behaviour. Providing opportunities for greater communication between social and medical researchers.

Following the sponsorship of UK early stage researchers to attend last year's Cold Spring Harbour Laboratory (CSHL) workshop on schizophrenia, the MRC and the ESRC are jointly funding a small number of places for UK-based, early career investigators at the CSHL workshop on social biology to be held in July.

Autism

One of the key aims of the MRC's strategy for autism research has been to improve research collaboration and coordination to increase the quality and multi-disciplinary nature of studies undertaken. The board worked towards this goal by helping to set up the Autism Research Co-ordination Group (ARCG) in 2005. The ACRG, which is chaired by Department for Education and Skills (DfES), brings together for the first time a number of relevant government departments, research funders (both public and charitable), Royal Colleges and voluntary sector groups. It aims to coordinate research efforts in autism, identifying gaps in research and the evidence base for policy development, as well as communicating efforts in this area to enhance research, the quality of public debate and the involvement of consumers.

The MRC continues to build on links to charities. The MRC and the National Autistic Society worked together in September 2005 to host their second research forum aimed at encouraging dialogue between scientists and the concerned public. Over 150 parents and other members of the public with an interest in Autism Spectrum Disorder met a group of MRC-funded autism researchers to learn about the six new studies funded with the aid of the DH/CSO funding allocation which had followed the 2001 MRC review of autism. Discussions also explored how the needs of parents and carers fitted into the autism research agenda, and feedback from participants added support to MRC's commitment towards open communication between the public and researchers.

The MRC has also established a good relationship with two new autism research charities formed in the past year – the UK-arm of Autism Speaks (formerly NAAR) and Research Autism, with discussions about establishing mechanisms to allow potential co-funding of autism research projects in the coming year.

Physiological systems and clinical sciences

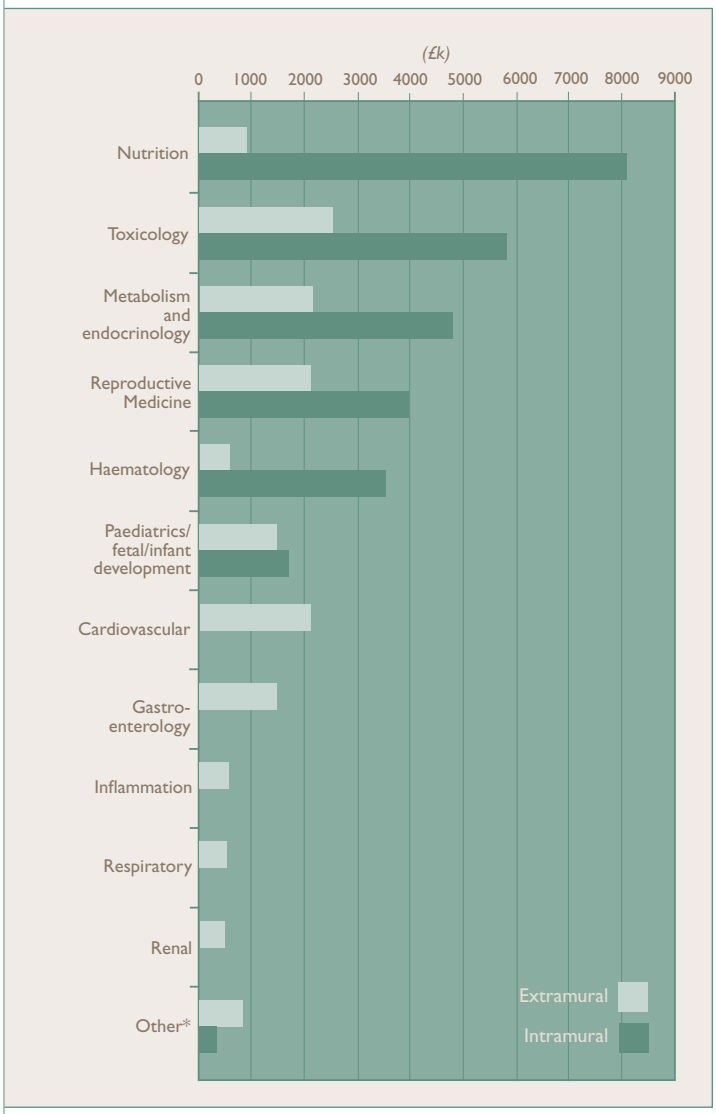
The estimated gross spend in this area was £71.3m.

The Physiological Systems and Clinical Sciences Board (PSCSB) has a broad remit to support basic and applied research on health and disease, including major public health challenges, such as diabetes, obesity, cardiovascular disease and respiratory conditions, such as asthma. The board's portfolio also includes major investments in molecular cell regulation, such as protein phosphorylation, which underpin drug discovery, toxicology, energy metabolism and nutrition, hormone function, reproductive health and pregnancy and the links between environmental exposures and health.

Research into diagnosis and treatment is also covered by the PSCSB and includes medical imaging, anaesthesia and surgery, intensive care, molecular medicine and gene therapy. The board has a major responsibility for promoting translation and clinical research – converting scientific discoveries into innovations in healthcare.

The chart overleaf shows the estimated profiled commitment to the physiological systems and clinical sciences portfolio, in MRC units and institutes (intramural) and universities and teaching hospitals (extramural). This includes awards made in 2005/06.

Fig 6: Physiological systems and clinical sciences portfolio by science area



** Includes Environment and Health, Bone and Joint, Trauma and Intensive Care/Sepsis, Clinical Pharmacology, Dentistry and Dermatology.*

Key priorities within the physiological medicine and clinical sciences portfolio

Respiratory research

At the start of the year, the PSCSB identified respiratory research as a priority area. The board drew its concern to the attention of the research community by issuing a Highlight Notice requesting proposals in the area. The board also jointly funded a workshop with the leading charities and learned societies in the field with the objective of encouraging high quality grant applications in respiratory research. Mark Walport, the Director of the Wellcome Trust, Sally Davies, Director the DH's R&D Programme, and Colin Blakemore, the MRC's Chief Executive, made keynote speeches.

This partnership approach has been effective in stimulating new interest. The number of applications to the board increased markedly between April 2005 and March 2006. The quality of these proposals was also generally high and the board's portfolio of research rose from six awards (£0.5m pa) to 15 awards (£2m pa).

The MRC has made major investments in asthma research during the course of the year. The new MRC-Asthma UK Centre in Allergic Mechanisms of Asthma, at King's College London and Imperial College, London, will make a major contribution to translational research into the allergic mechanisms of asthma and the development of new and targeted treatments. It will also engage the public by providing authoritative public information on asthma and allergy in conjunction with stakeholders and partners. Asthma UK, Imperial College London and King's College London all contributed significant support.

Subsequently, the board awarded a £2.3m research grant to Professor Brian Sutton, who is based in the new centre, to study the genetic basis of the immune response in asthma and allergic disease.

The board also renewed support for the Edinburgh Centre in Inflammation Research (CIR), which focuses on understanding key points in the inflammatory process with the aim of limiting subsequent tissue injury. the CIR has successfully attracted world-class researchers especially in under represented clinical specialties.

Cross-board activities

Mutagenesis

Animal models are very helpful in understanding and treating human disease. In July 2005, the MRC – led by the board – held an international workshop to explore how the UK might best capitalise on emerging opportunities and complement international research. Following this meeting, the MRC's Council agreed to provide £4m for high quality mutagenesis projects and launched a call for research proposals. Awards will be made in Summer 2006. The report of the meeting (available from our website) highlights the issues applicants and referees should consider when developing or assessing proposals in this area.

Experimental medicine

In February 2005, the MRC's Council committed £15m to support research in experimental medicine. The call for proposals was preceded by a well-subscribed exercise in which researchers were invited to share, in outline, their research ideas. Following the detailed analysis of these 'expressions of interest', the MRC agreed that for practical reasons and to help manage demand, the focus of this call should be on the early testing of treatments and therapeutics. Twenty-eight awards totalling £15.1m were made across a wide range of areas, most of which were relevant to the PSCSB. Board-related panels considered the applications according to topic. About 50 per cent of the awarded applications involved collaborations with industry.

Biomarkers

Biomarkers, such as cholesterol and troponin, are valuable tools for the diagnosis of disease and the efficacy of treatments. Proposals in the area of biomarker research were a major component of the experimental medicine expression of interest exercise, in light of the significant levels of interest in biomarker studies it was decided that should not be covered by that call, but that the board would lead a specific cross-board initiative in this area. Early in 2006, the PSCSB held a two-day workshop: "Disease, drugs and patient benefit – can biomarkers deliver?" to help identify UK and MRC priorities for research. Nearly 300 people attended the meeting, including major funders and experts with academic, industrial and regulatory backgrounds, which highlighted a gap in the 'pipeline' between biomarker discovery and application and the need for evaluation of existing biomarkers for use in clinical studies.

The meeting emphasised the importance of an interdisciplinary approach and collaboration between industry, academia and the regulatory authorities. Following the symposium, the DTI Technology Programme announced its initiative on biomarkers of drug safety. The MRC's Council will be considering how best to follow up this opportunity in the coming year.

Key partnerships within the physiological medicine and clinical sciences portfolio

Joint Call for Capacity Building Awards in Integrative Mammalian Biology

The MRC is participating in a unique strategic partnership on integrative physiology with partners from industry, research and funding councils, learned societies and the DTI. The partnership aims to equip the next generation of physiologists and pharmacologists with the expertise and skills to turn scientific knowledge into advances in prevention, diagnosis and treatment, including best practice in the use of animals in research, high quality experimental design and the application of a broad range of techniques and approaches in integrative mammalian biology. A call for proposals attracted interest from 20 centres of which six were invited to submit full proposals. These will be assessed in May 2006.

Other MRC Partnerships

UK Clinical Research Collaboration

The UK Clinical Research Collaboration (UKCRC) brings together the MRC, the health departments, the NHS, medical charities, patient organisations and industry representatives to coordinate and transform clinical research, to help speed up the translation of scientific discoveries into improved healthcare. The UKCRC's initial priorities are to build up the NHS research infrastructure and a skilled clinical research workforce, to streamline regulatory and governance processes, and to coordinate approaches between funding bodies. The partnership also aims to enhance career opportunities at all levels within clinical research. During the year the MRC has worked closely with its UKCRC partners to help deliver these aims, including the implementation of the report on clinical careers produced by the Academic Affairs subcommittee of the UKCRC and the DH's Modernising Medical Careers (MMC) initiative, chaired by the Wellcome Trust's Director, Dr Mark Walport.

DH/MRC Primary Care Research Infrastructure Working Party

This joint funders' working group, set up by the MRC and the DH, has developed concrete proposals for maximising MRC and DH investments in primary care research infrastructure in the UK to ensure a strong and coordinated research infrastructure, and which also contributes to the objectives of the UKCRC (see above).

Joint Health Delivery Group

The Joint Health Delivery Group was set up as one of the recommendations of the Government's 10-year Investment Framework for Science and Innovation, published in July 2004, with the aim of increasing the coordination of medical research between public sector funders. Progress throughout the year has been good, with many areas being taken forward in a coordinated manner (for example, working towards UKCRC objectives, early planning on joint spending reviews bids, implementation of research findings and working with industry).

Medical charities

The MRC's partnership activities with medical charities provides an efficient and flexible mechanism for developing and strengthening research areas of high priority and mutual interest. Notable examples during 2005/06 include joint funding with The Multiple Sclerosis Society and The MS Trust for a study to examine cannabinoids in progressive inflammatory disease (Professor John Zajicek – Peninsula Medical School and Derriford Hospital, Plymouth), a partnership with the Stroke Association to support an international carotid stenting study (Professor Martin Brown, Institute of Neurology, London), and discussions with respiratory charities to explore opportunities for joint research activities (see PSCSB section).

The MRC continues to work alongside autism charities to aid the involvement of the parent/care community in the research agenda (see NMHB section).

Stem cell research continues to be an important area for the MRC and partner organisations (see MCMB section). The MRC has recently set up a joint Advisory Board with the UK Stem Cell Foundation, which aims to build a high-quality portfolio of translational research and clinical trials in stem cells, aimed at developing new therapeutics.

Information on how the MRC works with industry can be found in 'Bringing discoveries to the market' (page 28).

Supporting excellence

The MRC is the only public funding agency in the UK that covers the whole spectrum of medical research, from basic and translational research to the application of new treatments. We achieve this by funding:

- National medical research infrastructure over the long term; existing facilities and new research centres in topics of strategic importance.
- Scientists in universities and our own research centres.
- Research proposals by scientists.

The main factors taken account in the MRC's funding decisions are the quality of the research and its potential significance in terms of improving human health. All proposals for intramural and extramural funding are reviewed by a core of scientific experts, including our research boards and other external expert referees both in the UK and abroad. Our annual research spending is split broadly between:

- Grants to researchers in universities and medical schools, including training awards for postgraduate students and fellows; this amounted to £172.4m in 2005/06.
- Funding for the MRC's own research institutes and units, amounting to £279.4m in 2005/06.

Increased clinical research spend was a Delivery Plan objective. Last year, the MRC increased reported spend on clinical research by £3m excluding specific initiatives. It also launched two major initiatives to expand its clinical research portfolio from 2006, through the award of an additional £15m for research in the field of experimental medicine; and the publication of a call for proposals worth £9m for new centres to strengthen translational research in the UK. The MRC has also established new fellowships (worth £400k in 2005/06) to build on the new research programmes from the SR2002 initiatives.

MRC grant funding schemes

The MRC's grants schemes are designed to:

- Provide funds for:
  - High-risk and high-impact work related to human health.
  - Studies which may act as a springboard for longer-term research.
  - Enhanced clinical research training.
  - Better support for 'early career' researchers.
  - Simpler, more flexible support for collaboration between grant-holders.
- Encourage multidisciplinary working, greater emphasis on overall objectives and national needs, and greater transparency of funding and accountability.
- Target funds towards the most productive individuals and groups through a smaller number of grant schemes with flexible scale and duration – driven by research needs and not by funding and duration limits.
- Fund individual centres of excellence.

Review of grant schemes

The MRC monitored the impact of the changes to the funding schemes and decision-making bodies during 2004/05 – reporting the outcome to the MRC's Council in May 2005 and in the Summer 2005 edition of *MRC Network*. The MRC noted that the new grant schemes and the speedier decision-making had been well received by the scientific community.

To help manage demand and to allow applicants to assess the competition for funding applications, award rates are displayed on the MRC website (**http://www.mrc.ac.uk/index/funding/funding-research-organisation_success_rates.htm**). This was the first time that data on application and awards rates by research organisation has been published. The MRC also published information on the quality of applications received from research organisations.

The MRC continued to monitor numbers of applications submitted to the research boards, the balance of long-term and short-term support and the load on the refereeing community during 2005/06, to identify trends. It will report the outcome to the MRC's Council in July 2006.

Full Economic Costs

The MRC, along with the other research councils, successfully implemented the changes required for the introduction of full economic costing in the universities during 2005/06. The MRC's Electronic Application and Assessment forms and guidance were revised to support full economic cost applications. All applications made to the MRC after 1 September 2005 were on a full economic costs basis. The final round of board meeting for 2005/06 considered applications costed on an FEC basis, with MRC contributing 80 per cent of the awarded costs.

All the research councils are involved in a joint monitoring exercise on the impact of FEC and will publish a report during 2006/07.

Key awards made in 2005/06

Research Grants

The new-style research grant remained the principal scheme used by scientists during 2005/06. These grants aim to support the full range of researchers' needs, from short and long term focused projects to broad based programmes of work. They can also be used to support method development, development and continuation of research facilities and collaborations involving MRC funding of more than one group or more research organisation. This flexible form of support covers a wide variety of work, from a two-year pilot project to a programme of research for five years. During 2005/06, 224 research grants were awarded.

Collaboration Grants

These are awarded as supplements to research grants, to provide infrastructure support for networks of collaboration with research groups that are supported by other funding agencies. They can be used to support cooperative research with high core costs, to support complex cooperative links across several higher education institutions, and to develop research networks, promote international 'twinning' and collaborations. Collaboration grants may be awarded for any period of between two to five years, and funds from £50k to £1m (if involving large capital items) can be requested. During 2005/06, four collaboration grants were awarded.

Trial Grants

The MRC funds clinical trials designed to provide high-quality evidence on the efficacy and effectiveness of interventions in medicine and the health services (see HSPHRB section).

The MRC funded two feasibility studies through the Trial Development Grant Fund and 11 new clinical trial grants during 2005/06, covering neurosciences, respiratory disease, pregnancy/childbirth and primary care. During the year, the results of the following trials were reported, all with major implications for healthcare: UKPACE – UK-wide trial shows simple pacemakers are as good as complex ones for elderly patients; Spine Stabilisation Trial – trial of surgery versus exercise treatments for chronic low back pain has found that patients may obtain as much benefit from an intense physical exercise programme as from spinal surgery; MRC PT-1 – a new drug used for the treatment of Essential Thrombocythemia (ET) is less effective and more expensive than the drug it is designed to replace; trial in testicular cancer shows that a single dose of a drug called carboplatin is as effective as two to three weeks of daily radiotherapy.

Centre Grants

The MRC centre grants support research partnerships between the MRC and host institutions. They fund multidisciplinary research environments in partnership with universities and involve significant spending by the MRC and the host university, with full-time scientific leadership. There is an annual call for proposals for new centres.

During 2005/06, the MRC funded four new centres (from the 2004/05 competition) – the MRC Asthma UK Centre in Allergic Mechanisms of Asthma (KCL & Imperial), the MRC Centre of Epidemiology for Child Health (Institute of Child Health), the MRC Centre for Neurodegenerative Research (Institute of Psychiatry & KCL), and the MRC Centre for Nutritional Epidemiology in Cancer Prevention and Survival (University of Cambridge) – increasing the total number of MRC-funded centres to 15 (see Autumn 2005 *MRC Network* for more information).

There were three centre reviews completed during 2005/06, in each case the future proposals were assessed as 'internationally

competitive' and were awarded funds for a further five years – MRC/University of Edinburgh Centre for Inflammation Research, MRC Centre for Developmental Neurobiology (King's College London GKT & Schools King's College London), and MRC Social, Genetic & Developmental Psychiatry Research Centre (Institute of Psychiatry, King's College London).

The 2005/06 competition was targeted at translational centres, in line with the Delivery Plan objectives, and received 35 intentions to apply with 22 full proposals submitted. Awards will be announced in December 2006.

New Investigator Awards

Following its integration with the Career Establishment Grant, and with an increased budget of £11m made available for awards, the New Investigator Award entered its second year. The scheme is designed to give new researchers the opportunity to establish their independence as investigators. Thirty-two New Investigator Awards were made during 2005/06. Following a further review of the scheme in March 2006, the scheme will change its name to the New Investigator Research Grant and certain areas of the eligibility information will be clarified. From 2006/07 onwards the New Investigator Research Grants will be assessed through the research boards, rather than through a separate panel. Funds of £8.5m have been set aside for new awards in 2006/07.

Discipline Hopping Awards

The MRC made its fifth round of Discipline Hopping Awards during the year to encourage established physical sciences researchers to apply their expertise to life science problems. The awards of up to £85k (to allow for increased costs under the new FEC regime) for a one-year period, are aimed at stimulating new interdisciplinary collaborations. The MRC, the EPSRC and the BBSRC jointly funded the programme, enabling 18 new projects to be supported across physics, chemistry and engineering.

The Discipline Hopping Award (DHA) scheme was evaluated during the Summer of 2005 with a questionnaire sent to all current holders of DHAs. Due to the disbanding of monitoring and Evaluating Steering Committee in late 2005, it was not possible to approve the recommendations made from the data collected during 2005/06. The recommendations will be approved and put into practice for the next DHA competition, due to be launched in late 2006.

Institutional Discipline Bridging Awards

The MRC ran its second round of the Institutional Discipline Bridging Award (IDBA) during 2005/06. The scheme is aimed at supporting institutions to develop sustainable collaborative research programmes between the physical and life sciences. Four awards were made with matched funding from EPSRC providing a total of £1.4m support. The IDBA scheme will be reviewed during 2007/08, once the first awards have come to an end.

Strategic Appointment Scheme

This scheme helps universities and MRC units to attract scientists of the very highest research calibre, usually from overseas, who can make a significant contribution to advancing university and MRC strategy. There were four awards made during 2005/06. To date the scheme has helped universities and units to attract 22 senior scientists to the UK.

LINK

The LINK scheme offers strategic grant support to high-quality, pre-competitive research collaborations between academia and industry. All LINK projects involve at least one UK company and one research organisation. There were no new grants during 2005/06. The DTI is no longer using the LINK mechanism to fund research with industry, but is developing alternative approaches. However, the MRC has been franchised with the LINK marque so LINK projects may be funded across its own research areas without the need for specific DTI sponsored LINK programmes.

Number of live grants on 1 April 2006

Grant scheme	No. of live grants on 1 April 2006
Centre Grants	13
Collaboration Grants	2
Co-operative Group Grants (including component grants)	148
Discipline Hopping Awards	20
Institutional Discipline Bridging Award	6
Strategic Appointment Scheme	4
LINK Grants	3
Career Establishment grants/New Investigator Awards	82
Programme Grants	156
Research Grants	223
Strategic Grants	140
Trial Grants	54
Total	851

Information on all MRC funding awards made from 2003/04 to 2005/06 is available at **www.mrc.ac.uk**

MRC research institutes and units

The MRC's intramural programmes continue to play a vital role in enabling key strategic goals to be achieved in a way that would be more difficult through extramural funding. This is because they allow the MRC to nurture areas of importance to health that are not well represented in universities, for example, in toxicology. They also enable more long-term support and more of a focus on research as opposed to other academic duties.

There are 29 MRC units and three MRC institutes, which are located all over the UK and span the spectrum of medical research. The three institutes, which are multidisciplinary, are the Laboratory of Molecular Biology (LMB) in Cambridge, the Clinical Sciences Centre in London and the National Institute for Medical Research (NIMR) in London.

Review of MRC intramural support

During 2005/06, and building on activity in the previous year, the MRC has developed definitions and criteria for the intramural programme and proposed new approaches to the assessment and funding of programmes. The review has involved extensive consultation with key stakeholders, including directors, staff representatives and independent expert reviewers.

The new published criteria for intramural support centres around the national need, at the strategic and scientific level, creating and sustaining environments in which long-term support can flourish. Intramural programmes may be centred on specific fields or disease areas, creating the potential to respond rapidly to health development and challenges, and providing special capacity for translation of research into health practice. The MRC also has an important role in supporting essential resources, services or facilities for a range of stakeholders, particularly where there is a need which can only be met by national public sector investment.

The new approaches to the assessment of programmes build on this criteria assessing both scientific excellence and scientific need. Following further consultation the new approaches will be implemented during 2006/07.

Quinquennial reviews of MRC units and institutes

Quinquennial reviews of two MRC units were completed during 2005/06: the Human Genetics Unit and the Human Reproductive Sciences Unit (Edinburgh). 31 programmes of past work were assessed as 'internationally competitive', as were the future proposals, and funds were awarded for a further five years.

During the year two institute reviews were completed – the Laboratory of Molecular Biology (LMB), Cambridge, and the National Institute for Medical Research (NIMR), London.

Laboratory of Molecular Biology
The LMB's mission is to study biology at the molecular level by a wide range of studies on the structure and functions of proteins, nucleic acids and macromolecular assemblies, and by research on the mechanisms and control of gene expression especially as related to cell differentiation and other developmental processes. The LMB had 41 programmes of past work assessed; 39 (95 per cent) received the highest ranking, and the MRC awarded funds for a further five years. LMB was recognised as an unique national resource and as one of the world's most productive and prestigious scientific institutes.

The strategy for the next five years includes three main components:

- The continuation and development of existing strands of work.
- Expansion of programmes using mouse models, which will be possible following the construction of the new mouse house. This will increase the medical relevance of discoveries made at LMB in the areas of cancer, immunology and neurobiology, and allow discoveries made in invertebrate model organisms to be translated to mammalian systems.
- Increase in the number of LMB research staff during the latter part of the quinquennium, following the move to the new building. A substantial extra commitment to neurobiology research has been proposed, but will be dependent upon the priorities of Dr Richard Henderson's successor as institute Director. Dr Henderson will retire from the directorship in October 2006.

National Institute for Medical Research
The NIMR's emphasis is on fundamental non-clinical studies, although staff at the institute collaborate in clinical research programmes in the UK and the tropics. The organisational structure is based on four major research groups: Genetics and Development; Infections and Immunity; Neurosciences; and Structural Biology. The World Influenza Centre, based in the Division of Virology, and the Division of Mycobacterial Research are recognised as WHO Collaborating Centres for reference on influenza and *M.leprae*. The NIMR had 47 programmes of past work assessed; 42 (90 per cent) received the highest ranking. The MRC awarded funds for the next two years – 2006/07 and 2007/08 – with further spend being reviewed, in 2008, in light of the next Director's research plans.

As reported last year, the MRC's Council has agreed a vision for NIMR which is to renew the institute as a basic and translational research centre relocated to the University College London (UCL) campus in close proximity to a major hospital and to a wide range of university departments including physics, chemistry, engineering and social sciences. In May 2005, the MRC's Council approved an outline business case for the renewed NIMR in partnership with UCL and this formed the basis of an application to the Large Facilities Capital Fund and for discussions with other possible funders.

In March 2006, the MRC completed the purchase of the site for the new NIMR – the National Temperance Hospital in Hampstead Road, London, near to the UCL Hospital. A more detailed business case, with a full options appraisal, is now being overseen by a project board with membership drawn from MRC Head Office, NIMR and UCL and by a Council Steering Committee chaired by Mike Brooks. The business case will be submitted to the MRC's Council at its meeting in October 2006 before going to the OSI and the Treasury.

In February 2006, the MRC's Council considered the outcomes from the quinquennial review of NIMR. The institute continued to achieve a very high standard of research demonstrated by the significant impact of NIMR's work at an international level. Institute-wide collaboration involving a wide range of scientists and support staff, as well as extensive external collaborations with leading research teams, had all contributed to the NIMR's successful performance.

International collaborations

There is growing acknowledgement among scientists, funders and coordinators of research of the need for multinational research approaches to global health issues. New opportunities for research are being offered by emerging new economies and the continued development of the European Research Area (ERA), which was proposed by the Commission in 2000 to create a genuine 'internal market' in research to increase pan-European cooperation and coordination of national research activities.

Current major challenges to world health arise from diseases linked to poverty, such as tuberculosis, HIV, malaria and childhood infections; diseases associated with a developed country lifestyle and globalisation, including cardiovascular disease, stroke, cancer and respiratory diseases; and the ever increasing threat of emerging infectious diseases, such as SARS and pandemic flu.

International Strategy Overview Group

In recognition of the changing international landscape, the MRC has established a new international advisory group, the International Strategy Overview Group (ISOG), to advise the Chief Executive and the MRC's Council on the development of a new international strategy and overview of MRC's international portfolio.

The early discussions of the group focused on the complex portfolio of the MRC's international activities and have led to the development of a new draft international strategy. This aims to define, strengthen and promote MRC's position in the international arena, support strategic decision-making, and aid communicate and disseminate MRC's international portfolio of activities. It highlights the value to medical research of international collaboration in rapidly developing areas such as stem cells, in studying diverse populations, rare diseases, and threats to global health from emerging diseases and climate change. On a more practical level, it acknowledges the fact that some infrastructure may simply be too expensive for one country to provide.

ISOG has begun to consider how best to implement this strategy increasingly providing advice to MRC Office staff on specific aspects of MRC's international portfolio. The group has also been capturing the MRC's international activities for wider communication, debating how and where funding and strategic decisions are best made on different international issues.

Collaborations with China

The MRC has undertaken a number of activities with organisations in China to stimulate greater collaborative links between UK and Chinese scientists. In the cancer field, China's scientific strengths include research on liver cancer, oesophageal cancer and adult leukaemias. There is also potential for collaboration in drug screening, gene therapy, immunotherapy, as well as a large patient base for clinical trials.

Memoranda of Understanding: Memoranda of Understanding (MoU) were signed between the MRC and the National Natural Science Foundation of China (NSFC), the Chinese Academy of Sciences (CAS), and the Chinese Academy of Medical Sciences (CAMS). A mission led by Professor Blakemore in October/ November 2005 formed a significant part of this programme and, through a series of activities in Beijing and Shanghai, the MRC aims to create formal relationships with its partner organisations in China and identify additional opportunities for close working. The mission formed part of the 'UK-China Partners in Science Initiative, 2005', which was sponsored by the Foreign & Commonwealth Office (FCO), the British Council and the Chinese Ministry of Science and Technology (MOST). It included three separate delegations in specific areas: cancer, led by Professor Ron Laskey from the MRC Cancer Cell Unit in Cambridge; biotechnology, led by Dr Roberto Solari from MRC Technology; and neurosciences, led by Professor Brian Anderton from the Institute of Psychiatry in London.

MRC Technology (MRCT) has agreed on terms for collaboration with the National Centre for Drug Screening (NCDS) in Shanghai to screen MRC targets against their compound collection (see MRCT section). The first target to be screened as part of this collaboration is a malarial proteinase and it is hoped that targets from other MRC units and institutes may be screened in due course.

A workshop on cancer biology with UK and Chinese scientists was held in Beijing. This was the first event to be held formally under the MRC/NSFC MoU. The aim of the workshop was to exchange information about the progress of cancer research in each country, and thereby to explore areas of possible collaboration. There were between 30 and 40 attendees. The programme covered carcinogenesis, diagnosis and prevention, gene expression and cancer and new drugs and possible gene therapy. There are plans for a further workshop, to be held in the UK.

The delegation also visited three laboratories in Beijing: Cancer Research Institute; the National Centre for Pharmaceutical Screening, Institute of Materia Medica; and the Institute of Medicinal Biotechnology (CAMS).

During the MRC mission to China, Dr Judith Devons held two art-science workshops in schools in Beijing, coordinated in conjunction with the British Council. The workshops mirrored activities that the MRC has supported in the UK, and elsewhere in China earlier in the year. They aimed to increase public awareness and support of the aims and achievements of the MRC and UK science, and to encourage students to develop art-science links.

In parallel, there was a separate MRC mission on emerging infections, led by Professor Andrew McMichael (Director, MRC Human Immunology Unit, Oxford), which visited Vietnam, mainland China and Hong Kong (see IIB section).

Ethical review in China and the UK: Following the mission to China in the Autumn, the MRC is planning a joint project with colleagues in China on ethical review policies and practices. The aim is to enable MRC scientists to acquire a greater understanding of the Chinese approach to ethical issues in medical research, and to know how to address ethical issues that may arise in collaborative research. Reciprocal activity, which will enable Chinese funding agencies to gain a better understanding of UK policies and practices, is also planned.

Exchange of administrative staff: In July 2005, two members of MRC Head Office staff spent a week in Beijing at the NSFC to observe the Foundation's peer review process in action. The NSFC Life Sciences Department had received 15,000 proposals for the annual funding round. The visit was reciprocated in October 2005 when Dr Ruijuan Sun, from NSFC, visited the MRC for two weeks. Her activities included visits to MRC units as well as participating in various activities at MRC Head Office.

Collaborations with Europe

Max Planck Gesellschaft: In February 2006, Professor Colin Blakemore and Professor Peter Gruss, President of the Max Planck Society for the Advancement of Science in Germany, signed an agreement to promote cooperation between the two organisations. Activities covered by the agreement include organising joint workshops for young researchers, supporting junior research groups, exchanging scientific information, and promoting joint use of equipment and facilities.

European Science Foundation: The MRC is one of the nine UK members of the European Science Foundation (ESF). Following the appointment of Professor Bertil Andersson as ESF Chief Executive in 2004, the ESF has been developing its strategic plan for the next five years. A key point of this plan is to review governance and membership. Together with the other UK members, the MRC has been active in ensuring that the strategy meets UK needs. The MRC has also participated in several ESF activities, including the ESF European Collaborative Research 'EUROCORES' programme, which aims to enable researchers in different European countries to develop collaboration and scientific synergy in areas in which Europe could lead globally.

EU Framework Programme: The Framework Programme is the European Commission's main mechanism for funding research across Europe. The MRC has been an active participant in promoting the EU's 6th Framework Programme (FP6). The programme is now coming to an end. The MRC has been involved in discussions at many forums, including RCUK and various European structures, where key topics in the development of the 7th Framework Programme have been discussed. These have included the establishment of a European Research Council (ERC). The MRC's aim has been to ensure that the ERC will support high-quality investigator-led research, as free as possible from political influence.

One of the biggest EU collaborations in FP6 in which the MRC was involved has been the EDCTP (see IIB section).

EuroHORCs: In Europe, the EuroHORCs forum – European Heads of Research Councils – continues to play a major role in developing the concept of the ERA. The MRC joined an agreement allowing researchers to transfer grants to host institutes in other European countries, to enable them to move more freely around Europe and assist with their career development.

Other international activities

DEMOS – Atlas of Ideas project: The MRC signed an agreement to be part of the DEMOS 'Atlas of ideas', a project coordinated by the UK think-tank Demos, which is reviewing activities in China, Korea and India. The project runs from May 2005 to November 2006. It aims to map emerging trends in the globalisation of science and innovation, with a focus on China, India and South Korea, and forecast how such trends might evolve over the next 10 to 15 years. It will also identify new models of networking and collaboration between scientists, policymakers and companies in China, India, South Korea and the UK, analyse the implications of these trends for science policy and spending in the UK and Europe and produce an agenda-setting publication that initiates widespread policy and media debate.

Heads of International Research Organisations: The recent development of Asian flu, and the continuing rise in infectious diseases such as tuberculosis and HIV/AIDS, have prompted high level forums such as 'HIROs' – Heads of International Research Organisations, comprising the major funders of biomedical research – to consider new approaches to tackling global health issues.

This year, there have been early discussions on how the significant efforts already taking place can be better coordinated and targeted for greater effect. The MRC, which coordinates HIROs, hosted a Global Health Meeting in June 2005, with partners from Africa. The aim of the meeting was to advise HIROs on the research capacity needs of Africa. During the year, HIROs also discussed strategies adopted by research agencies to address emergency situations – for example, SARS, novel approaches to early diagnosis and prevention research, and universities in the 21st century. In December 2005, a HIROs meeting was held in China for the first time.

FCO science and innovation network: The FCO science and innovation network has about 50 posts worldwide. The MRC continued to work with the network to facilitate scientific collaborations between the UK and other countries. During 2005, this has been particularly valuable with respect to China (see above), and also with the USA, for example, concerning stem cell research in California.

International Subscriptions: The MRC provides the UK subscription to a number of international organisations, including the ESF, the Human Frontiers Science Program (HFSP), the European Molecular Biology Laboratory (EMBL), the European Molecular Biology Organisation (EMBO) and the International Agency for Cancer Research (IARC). The MRC is represented on the relevant governing bodies that influence the international agenda, and subscriptions to these agencies also allow the UK biomedical research community access to training, funding opportunities and facilities that these organisations provide. The breakdown of support to these organisations is outlined in the Notes to the Accounts (note 12).

Publication output indicators

The quality of MRC funded research is demonstrated by our scientists' output of publications and peer review ratings for awards.

The first annual report against the Government's 10 year Science and Innovation Framework, published in July 2005, has shown that in scientific areas where the MRC is one of the major funders, the UK's share of world citations is second only to the USA. Moreover, the UK achieves a higher level of scientific returns in terms of investment per research at twice the USA value and ahead of the rest of the G8 nations.

For the second consecutive year (calendar year 2005) scientists in MRC units and institutes published over 2000 papers in peer reviewed journals. Around 34 per cent involved researchers or funders from outside the UK, over 23 per cent involved researchers or funders from the charity sector and over 5 per cent involved researchers or funders from the private sector.

MRC intramurally supported publications	2003	2004	2005
Total refereed publications	1814	2011	2025
Number co-authored with overseas partners	529	632	687
% co-authored with overseas partners	31	33	34
Number co-authored with industrial partners	127	146	86
% co-authored with industrial partners	7	8	5

People

The MRC's strategic objective for people:

- To attract and retain first-rate people to meet the UK's scientific and broader labour needs.

The Government's Science Budget training objectives:

- To raise the standard of postgraduate and post-doctoral researchers, and increase their numbers in priority fields experiencing shortfalls or recruitment difficulties.
- To enhance their training to better fit them for careers requiring research skills and experience and increase their attractiveness to future employers.

Human Resources

The MRC employs more than 4,000 staff, both in the UK and overseas, through its intramural programme and in scientific training. It also supports capacity building – increasing the number of scientists – for example, clinical researchers. The Strategic Plan of 2004–2007 set out an aim to develop human resources (HR) policies, procedures and partnerships to ensure competitiveness and effectiveness in attracting the best researchers. This must be achieved as units are created, repositioned or closed.

During 2005/06, the MRC:

- Continued to design remuneration systems that are more responsive to specialisation and individual performance.
- Designed an effective system for coaching and appraising directors to maximise their effectiveness in people management.
- Continued to build the network for senior HR professionals across the MRC and extended their developmental programme to enhance leadership capabilities.
- Conducted stress audits across the MRC to assess capacity for and responses to change; continued the commitment to employee health and safety by evaluating and extending an employee assistance programme which provides a confidential advice and counselling support to employees and their families.
- Extended the corporate learning and development curriculum to include a more extensive programme of facilities and operational management skills training.
- Developed the Investors in People initiative across the MRC.
- Developed the Women in Science initiative under the chair of Professor Ann Prentice, from the MRC Human Nutrition Research (HNR) in Cambridge, by identifying actions in relation to employment, management and career development to advance MRC achievements in this area and agreeing on specific plans to implement these.
- Used corporate communication technology, for example the MRC portal, to ensure wider coverage and reliability of MRC employee communications, and focused on the style of communication.
- Continued to define the HR administrative efficiency programme and requirements for an improved HR information system to shape future MRC HR knowledge and information management practices.
- Continued to conduct employee consultations relating to the establishment of an MRC-wide Shared Service Centre in Swindon to improve administrative efficiency (see 'Doing research in the right way', from page 36), ensuring full consultation with the trade unions.
- Continued to manage the existing cadre of MRC external scientific staff following extensive consultation with them around changes to the programme of support.
- Began work to introduce equality issues across all policies and practices within MRC.
- Worked jointly with other research councils on the harmonisation of the administrative support agenda.

Diversity and equal opportunities

The MRC values the diverse skills and experiences of its employees and is committed to achieving equality of treatment for all. It is the our policy to ensure that no applicant for employment by the MRC, and no employee of the MRC, receives less favourable treatment than another or is disadvantaged by requirements or conditions, which cannot be shown to be justifiable, on the grounds of gender, gender re-assignment, race, creed, ethnic or national origin, colour, disability, sexual orientation, marital status, religion or similar philosophical belief. The average number of disabled persons employed during the year was 54.

We have an equal opportunities subcommittee, which audits our employee data annually to ensure that the aims of the MRC's policies and practices are being achieved in a fair and equal manner, and to identify any imbalances that may need to be addressed.

MRC policies and schemes are regularly monitored to ensure that they are sufficiently flexible to accommodate all researchers, male and female, and all careers. We aim to offer a competitive employment package that allows an appropriate balance between work and non-work commitments.

Research training

In addition to the training available to MRC employees at all stages of their careers, there is also a portfolio of award schemes, providing opportunities for research training for both clinical and non-clinical scientists in universities. The schemes are overseen by Training and Career Development Board, which also advises the MRC's Council on research training and career development policies.

During 2005/06, the MRC spent £51.8m on research career awards, and made new commitments of £26.7m for studentships and £29.9m for fellowships, funding 96 new fellowships. The MRC has been building capacity specifically in clinical and public health research.

Clinical and public health research

The MRC reviewed its funding for Advanced Course Masters studentships, which provide early research training in areas of public health and health-related research that are not well served by undergraduate courses. It increased the number of studentships by 20 per cent, making 51 new awards in each of the next three academic years for studentships on MSc courses in Health Services Research, Medical Statistics, Health Economics, Public Health Research, Epidemiology, Quantitative Biology and Bioinformatics.

Having been closely involved in the implementation of the recommendations of the UK Clinical Research Collaboration/ Modernising Medical Careers working group on Clinical Academic Careers (the Walport report), the MRC aims to increase the number of clinical fellowships available to help provide clinical academics with more opportunities to develop a research career. It has set up a group to review all the MRC clinical fellowship schemes during 2006/07. This will ensure that appropriate opportunities for support are available for those following the new integrated clinical academic training programmes due to start in 2006.

During 2005/06, the MRC awarded 37 new clinical research training fellowships and nine clinician scientist fellowships, which included three new joint funding partnerships with charities and a private healthcare provider. Two new partnership agreements have been negotiated for MRC joint fellowships in 2006/07, with the Royal Colleges of Radiologists and Physicians, to promote research training in areas where there is a shortage of clinical researchers. The MRC also committed additional funding for training fellowships in Health Services Research and Health of the Public Research, making 10 new awards in 2005/06.

Postgraduate studentships

The Roberts Review of 2002 contained a number of recommendations aimed at improving the attractiveness of research careers. The Government accepted the recommendations and provided funding for increases to stipends for PhD students. Following this, in 2004, the MRC implemented the Doctoral Training Account system for PhD studentship funding, which gives universities the flexibility to offer higher stipends to attract high quality students into research training.

An initial review of the impact of Doctoral Training Accounts showed that several universities were offering higher stipends, but that few had taken advantage of the new flexibility available to set up jointly funded PhD studentships with part-MRC funding. A more detailed review of the impact of Doctoral Training Accounts will take place during 2006/07.

Together with the other research councils, the MRC now obtains data on next destinations of the students it funds from the Higher Educations Statistics Agency.

Completion data for students finishing in 2004 indicates that MRC met the overall research council target of more than 80 per cent of PhD students successfully completing their research project and submitting their theses within four years.

Dorothy Hodgkin Postgraduate Awards for overseas students.

This scheme, administered on behalf of the Office of Science and Innovation by the Engineering and Physical Sciences Research Council (EPSRC), is designed to bring outstanding students from India, China, Hong Kong, South Africa, Brazil, Russia and the developing world to come and study for PhDs in top-rated UK research facilities. The MRC agreed to continue supporting the scheme for the third round, with a further £450k of funding over three years.

Joint Economic and Social Research Council / MRC studentship and fellowship schemes

This aims to train researchers to undertake interdisciplinary work in the social and medical sciences. The MRC spent £1.55m on ten post-doctoral fellowships and 20 postgraduate studentships in the second round of the scheme in 2005/06. The MRC has agreed to continue the pilot for a further two years, during which time there will be a full evaluation. The ESRC and MRC contribute equal funding to this scheme.

Review of MRC support for early career non-clinical scientists

The review was completed in 2005, and some changes to the fellowship schemes have been made to help support better development of long-term research careers for MRC fellows. The duration of support available under the Career Development Award scheme has been increased to five years to allow the non-clinical scientists more time to develop their independent research teams. The first of the new longer awards will be offered in 2006/07.

Bringing discoveries to the market

The MRC's strategic objective for commercialisation:

- To encourage commercial exploitation for the benefit of national health and wealth.

Government Science Budget knowledge transfer objectives:

- To increase the performance of the science and engineering base in exploiting the results of its research.
- To increase the effectiveness of knowledge transfer from research council institutes in line with the recommendations of the Baker Review of public sector research establishments and the national Audit Office report on commercialisation of public sector science.

The Department of Trade & Industry (DTI) defined its objectives in its report in December 2003: 'Competing in the global economy: the innovation challenge'. The report initiated discussions between the Director General of the Research Councils and the research councils (RCs), to agree on plans for increasing the rate of knowledge transfer and increasing the level of interaction with business. The level of interaction with business will be subject to peer review within Research Councils UK (RCUK) and to scrutiny by an external group that includes business representatives.

The MRC works with industry and inventors to expand exploitation of its research, primarily through its affiliated company MRC Technology (MRCT). The MRC has direct responsibility for technology transfer with respect to its own units and institutes. To achieve even more effective knowledge transfer, the MRC and MRCT are developing a new strategy which forms part of the MRC's Delivery Plan and is coordinated with other RCs through the RCUK Knowledge Transfer Group.

Last year, MRCT improved the way it deals with its patent portfolio, and the MRCT's Drug Discovery Group (DDG) began new programmes. There was a new MRC start-up company, based on technology developed at the MRC Laboratory of Molecular Biology (LMB) Cambridge. Another major achievement was a large royalty deal – a gross payment of over £100m to the MRC for a monoclonal antibody drug, Humira®.

Patent portfolio

MRCT has continued to rigorously manage its patent portfolio and reviews all cases to decide if they are developed commercially or abandoned. It has increased the number and experience of staff, has new database tools and can implement more rigorous due diligence procedures to assess the commercial potential of new IP. This includes review of competing technologies, market analysis and identification of potential licensees and development partners.

This has resulted in fewer new patents, but a more commercially robust portfolio. There has been a progressive reduction in the cost of maintaining the patent portfolio, with costs for the 2005/06 financial year estimated at £1.1m. Twenty-five new filings have been made during the year and MRCT is now responsible for managing 138 patent families, a number of which are non-exclusively or field-exclusively licensed and others which are either being actively marketed or are the subject of deals under negotiation.

Development Gap Fund

Managed by MRCT and using revenues from previous commercial activities, the Development Gap Fund (DGF) is 'pre-seed' money, operating at the earliest possible stage of technology transfer. It is intended to strengthen new patent filings or to support the application of patents from good, commercially interesting, ideas. Now in its third year, the DGF continues to be an invaluable tool in stimulating the transfer of ideas from MRC labs into a more commercially attractive format.

In the last year, DGF funded five projects from 12 submissions with an associated cost of £0.31m. To date, DGF has approved 23 projects and committed just under £2.15m. Perhaps the greatest success so far has been the formation of a new start-up company Raindance Technologies Inc (see later) based on the 'emulsion technology' invented by Dr Andrew Griffiths at the Laboratory of Molecular Biology (LMB) in Cambridge. This technology received two awards from the DGF.

DGF held a symposium in London in September 2005 and 26 MRC scientists from 11 different units attended as well as delegates from MRCT and MRC Head Office. MRC scientists presented scientific and commercial updates for 14 projects, highlighting the scope of the high-quality commercially relevant science funded by DGF as well as the synergy between MRC and MRCT.

Drug Discovery Group

Since the MRC's Council's approval of funding for the Drug Discovery Group (DDG) in December 2004, MRCT has been active in implementing the agreed business plan. It has recruited a team of 12 medicinal chemists and created two new chemistry laboratories with state-of-the-art instrumentation. The first MRC 'hit-to-lead' chemistry programmes, which take 'hits' from a chemical screen and optimise them by medicinal chemistry to more refined 'lead' molecules, are underway against novel targets for tuberculosis and malaria.

The biology and screening team has also been expanded and a rigorous system of target appraisal and selection established. Last year, the DDG completed six screening campaigns and a further 10 screens are in development.

The Therapeutic Antibody Group (TAG) in MRCT has a long tradition of working with monoclonal antibodies, and two approved medicines, Tysabri® for multiple sclerosis and Actemra® for Castleman's disease, were both engineered in our laboratories. TAG is currently working to humanise new monoclonal antibodies for the MRC.

During a visit to China in 2005, the MRC discussed the possibility of collaboration with the National Centre for Drug Screening (NCDS) in Shanghai. In February 2006, MRCT signed an agreement with NCDS to work on a novel anti-malarial drug target identified by Dr Mike Blackman at the National Institute for Medical Research (NIMR), London. MRC, MRCT and NCDS scientists will join to explore the NCDS chemical library, which includes many extracts from traditional Chinese herbal medicines, for anti-malarial drugs.

Start-up companies

One new start-up company, Raindance Technologies Inc (**www.raindancetechnologies.com**) was formed in the year. Raindance is based on the microdroplet 'emulsion' technology invented at the LMB in Cambridge combined with 'microfluidics' technology. It is a unique combination of engineering and biotechnology devoted to developing novel microfluidics devices that may be used for a variety of applications.

Licence income

A highlight of the year was the buy-out of the MRC's Humira® royalty stream by Cambridge Antibody Technology (CAT) as part of CAT's settlement of a legal action with Abbott. This deal, a gross payment of £108m to MRC, is one of the largest royalty deals ever between industry and academia.

During 2005/06, income from licensing increased yet again to £34m from the 2004/05 figure of £28m. Once again licence revenue was dominated by the antibody portfolio. However, revenue from other sources continues to rise year on year. This brings the total income received since 1998 to an excess of £200m, making the MRC one of the world's leading research funders in terms of commercial exploitation.

The MRC has been actively involved in the formation of biotechnology companies. Two of the UK's most successful companies, Celltech (now UCB-Celltech) and Cambridge Antibody Technology, were MRC spin-outs. To date, the MRC has been involved with the formation of 16 new companies that employ over 1,000 staff (excluding Celltech).

Revenues

Year	Income *(resource[1])* from exploitation of intellectual property *(£k)*
2001/02	13,469
2002/03	15,118
2003/04	15,043
2004/05	28,516
2005/06	34,286

[1] *These figures differ from the cash income in the table below particularly as they include some royalties earned on product sales in the year preceding actual receipt. The figures include interest received on balances in the Commercial Fund.*

Year on year trends in MRC exploitation activity

Year	New Patent Filings	New Licences *(cumulative totals)*	Cash Income *(£k)*	Interest *(£k)*
2001/02	50	42 (379)	11,713	nil
2002/03	41	32 (411)	14,128	53
2003/04	28	26 (437)	15,219	701
2004/05	24 (adjusted)	24 (457)	20,812	1,193
2005/06	25	40 (497)	138,822	3,134

Licensing and agreement activity

MRCT deals with a wide range of licensing and agreement activities including assignments to partners (12), material transfer agreements with companies or academics other than those dealt with locally (>60), collaboration, evaluation and option agreements (44), licences (35, excluding standard reagent licences but including material use licences), and advice on a number of major clinical trial agreements (6). It provides advice and support to units and the MRC, relating to 32 agreements for European Framework consortia and other major international projects. The funding to MRC units of these consortia projects is nearly £7m out of total project funding of approximately £120m.

Notable projects include:

- Licence of *in vitro* compartmentalisation technology developed by Andrew Griffiths to Raindance Technologies Inc, a company start up based on the microfluidics application of the technology.
- Completion of the GE Healthcare/Imanet Scan Services Agreement for the MRC Clinical Sciences Centre, London.
- Evaluation and Licence option for 'happy mapping' (gene mapping) technology (Paul Dear, LMB, Cambridge) with Keygene NV, a Dutch company that provides genetic analysis of plants, animals and micro-organisms.
- Translational Medicine Alliance Agreement with Affymetrix (and Imperial College, London) to enlarge activities at the CSC Hammersmith MicroArray Facility to help facilitate translation of clinical research into the genetics of major diseases.
- Conclusion of key agreements for the Department for International Development (DfID) -funded Microbicide Development Programme.
- Consortium agreement for tuberculosis Biomarkers Project funded, by the Bill and Melinda Gates Foundation, involving MRC Laboratories, The Gambia.

Optical projection tomography (OPT)

This imaging technology, invented at the MRC Human Genetics Unit in Edinburgh, has immediate applications in developmental biology research. The MRC commissioned the design and manufacture of an instrument that could be sold commercially. The first OPT scanner for sale was shipped to MRCT in January 2006 and the first customer delivery took place in March 2006. In the meantime, MRCT is holding discussions with a number of companies interested in licensing and is further developing the technology.

Working with industry

Over the past year, MRCT conducted a survey with senior executives from the pharmaceutical and biotechnology industries to understand the issues relating to their ability to work effectively with the MRC. As a result of this consultation, the MRC and MRCT are planning a series of 'Showcase Days'. These will be scientific conferences where scientists from the intramural MRC units and institutes, as well as extramural MRC-funded programmes, will give presentations on their innovative science. The MRC will invite scientists from industry to participate to enhance opportunities for collaboration.

Engaging with people

The MRC's strategic objective for public engagement:

- To engage the public in medical research, including dialogue about its implications for society and health.

Government Science Budget science in society objectives:

- To enhance public awareness of the outcomes from and the priorities for publicly funded science and increase openness over its management and use through greater engagement and dialogue with the public.
- To increase the reach and impact of activities undertaken by the research councils and other bodies funded through the science budget by improving joint working between them and other organisations.

In 2005, the MRC adopted a new three-year corporate communications strategic plan, which was informed by the views of a wide range of MRC stakeholders including the general public, external partner organisations and MRC advisory groups and staff.

Three main strategic aims emerged from discussions with stakeholders. These were to foster dialogue and stakeholder involvement to help inform MRC decision-making, to support and encourage scientists to engage with the public and to explain and promote the link between research and the health of the public.

Over the year, the MRC implemented a number of programmes and activities to meet these aims. We commissioned two public consultations on issues of relevance to the MRC's work, established four regional communication manager posts to work directly with our scientists in their public engagement activities and began a major redevelopment of the MRC website to make it more accessible to the public and other key stakeholders.

Fostering dialogue

Listening to the public is important to the MRC. This year we built on existing programmes and mechanisms to enable us to capture public and other stakeholders' opinions and incorporate these views in to our decision making.

Public consultations

Two major public consultations were commissioned in 2005/06:

The MRC and the Biotechnology and Biological Sciences Research Council (BBSRC) commissioned the opinion research organisation Ipsos MORI to undertake a public survey on attitudes to scientific research into ageing. The findings will provide a depth of insight into public experiences, understanding and attitudes towards this topic and the relative importance of ageing research.

The outcomes of the consultation, which will be announced in July 2006, will inform the future direction of research supported by BBSRC and MRC.

The MRC is also using similar survey methods in a second consultation which will identify public perceptions, understanding and concerns on the secondary use of personal health information in medical research.

Public involvement

The MRC Advisory Group on Public Involvement (AGPI) advises the MRC on ways of promoting effective and appropriate lay involvement in its activities to ensure that it is responsive to the public's interest in and concerns about research.

In 2005/06, AGPI representatives sat on the steering groups of the research into ageing consultation and the use of personal and health information for research consultation, and joined the MRC Subcommittee on Evaluation.

The MRC reviewed the structure of the group to assess whether the model used is the most effective one for MRC business needs. It has reinforced the position of AGPI within the organisation by asking the Chief Executive to chair the group, and has created a new part-time staff post to increase support and liaison. Discussions continue with AGPI members about how the MRC can build on lay expertise, drawing from external partnerships and the wider research environment within which MRC is now operating.

The MRC is also working with other organisations under the banner of UK Clinical Research Collaboration (UKCRC) (see 'Research' section) to identify best practice and opportunities for joint working in the area of patient and public involvement.

Working with parliamentarians

The MRC continued to contribute to public policy in matters relating to medical research through written submissions and oral evidence to parliamentary enquiries.

As part of our efforts to build sustainable dialogue with parliamentarians in both houses, the MRC has played an active part in the establishment of an All-Party Parliamentary Group on Medical Research. The all-party group brings together some of the main organisations involved in medical research in the UK. The first meeting of the group took place in December 2005 with clinical research as the theme, with the second in February 2006 on the use of patient information in research.

The MRC is also developing a programme of briefing meetings and events for parliamentarians. An exhibition to help explain the science around stem cells was recently launched at a parliamentary event hosted by Lord Patel and attended by the Health Minister, Andy Burnham. The exhibition sponsored by MRC and the BBSRC will tour the country this year.

Parliamentary Questions and enquiries

During 2005/06 the MRC has dealt with over 70 Parliamentary Questions and enquiries from MPs and SMPs; also providing information for a number of Ministerial briefings to the Office of Science and Innovation (OSI), the Department of Health (DH) and the Scottish Executive.

Evidence to committees

The MRC has provided submissions to a number of Select Committee Inquiries under the auspices of Research Councils UK (RCUK) and as an individual respondent.

House of Commons Science and Technology Select Committee Inquiries

Research Council Support for Knowledge Transfer – The MRC contributed to the RCUK's written evidence in February 2006.

Avian Influenza – Professor Colin Blakemore, MRC Chief Executive; Dr Alan Hay, Director, WHO Influenza Reference Centre at MRC National Institute for Medical Research; Professor Andrew McMichael, Chairman MRC Infections and Immunity Board (IIB) and Director of MRC Human Immunology Unit and Professor Anne Johnson, Deputy Chairman MRC IIB presented oral evidence to the committee in November 2005.

Scientific Advice, risk and evidence: how the Government handles them – MRC submitted written evidence to this ongoing Inquiry in January 2006.

House of Lords Science and Technology Select Committee Inquiry:

Pandemic Influenza – The MRC contributed to the RCUK's written evidence in September 2005

Transcripts of the evidence received by the committees and their published reports are available at **www.parliament.uk**

Supporting the MRC's scientists in public engagement

Each year our scientists take part in a wide range of events and activities aimed at the general public. Last year, with the help of our new regional communications managers, we were able to support and encourage our scientists to play an even greater role in public engagement activities. To prepare for their public engagement work, several of the MRC's younger scientists participated in communication training workshops held in Cambridge and London.

Events and activities

The Edinburgh Science Festival is the UK's largest public celebration of science and is widely accepted as one of the most successful public science events in the world. In 2006, PhD students from the MRC Human Genetics Unit and the MRC Human Reproductive Sciences Unit worked together to run a series of activities at 'Wonderama', the Science Festival's flagship venue for families. Visitors to the MRC stand learned about science and about the work of the units by extracting pea DNA, scraping their cheek cells and examining them under a microscope, and taking part in a measuring activity to assess the impact of hormones on the body.

Our scientists also participated in events during the Cambridge Science week and at the Cheltenham Science Festival. In March, during National Science Week, scientists from the Oxford area participated in workshops where children and their parents created paintings inspired by our scientists' microscope images.

Working in partnership

The MRC took part in a host of activities as partners in communication coalitions in the areas of stem cell research, the use of animals in medical research and clinical research.

We also built on the successful RCUK partnership by contributing to the development of a new RCUK Science and Society strategy. The strategy sets out several main strategic areas in which the research councils will combine resources and expertise to provide authoritative information to inform public engagement with science, promote dialogue with the public and encourage our scientists to become involved with the public and promote dialogue with the wider public.

Explaining the link between research and the health of the public

Print and web communications

The print communications team produced more then forty publications and events support materials and advised a range of MRC head office groups on their publications needs. Key examples include the *MRC Annual Review 2004/05*, which set out MRC scientists' achievements and the collaborations that help speed translation of such discoveries into benefits for health, and *MRC Network*, our quarterly newsletter for MRC-funded scientists and opinion-formers, which we relaunched in a new, 20-page design format in Summer 2005.

Work has begun on two new publications aimed at the public and other key stakeholders – one on MRC research in Africa, *Improving Health, Improving Lives*, which is about the important work of MRC units in The Gambia and Uganda; the other on stem cells which will cover both the science and the potential health benefits.

We also produced a series of MRC achievements and case studies, which have contributed to a research council achievements portfolio for use by the OSI.

During the second half of 2005/06, the web communications team moved into the main phase – the building – of the corporate website redevelopment. This work included external user testing, specification of the functional requirements, design of a completely new information architecture and graphic interface and stage one of development of page content for the new site. Other web projects included developing an online stem cell line registry for the International Stem Cell Forum website, advising on the design and content of an online staff induction area in the MRC portal and development of an online MRC image library.

Media

The MRC has continued to achieve high levels of coverage in print, broadcast and online media about its work and achievements. For example, research that produced a mouse model for human Down's syndrome received wide coverage and was heralded in the media as one of the biggest scientific discoveries of 2005. MRC experts gave a news conference at short notice to inform the public about H5N1 when the first cases of bird flu were found in Europe, which was given widespread coverage across the media. Other reported topics included clinical trials, the benefits of statins and the effects of nutrition on health.

The MRC press team has taken a proactive approach to working with the media and with our scientists – developing relationships with researchers in units to uncover research of potential interest to the press and by working closely with the regional communications managers who provide support and contacts across the country daily. The regional communications managers are also helping the press office offer media training opportunities to researchers and other staff, which include introductions for the novice, as well as honing the skills of seasoned performers.

Doing research in the right way

The MRC's strategic objectives for its operation:

- To provide leadership in the governance of research and operate according to rigorous principles.
- To promote good practice, and strive for improvements in effective organisation, including appropriate methods for the evaluation of all aspects of performance.

Government Science Budget operational objectives:

- To complete work on implementation of the recommendations of the 2001 quinquennial reviews.
- To meet the Government's requirements and targets concerning freedom of information, e-business, the modernisation of public services, and the promotion of social and gender equality of opportunity.
- To have established the systems to support a coordinated performance management system for the Science Budget and the research councils in time for the next spending review.

The MRC contributed to these objectives through joint working with the other research councils (RCs) under the auspices of Research Councils UK, and by pursuing a number of internal operational objectives.

Good research practice and ethics

The MRC is a world leader in the governance of research and in setting standards on how research is carried out. It also promotes good practice in research regarding ethics and business organisation, including the evaluation of all aspects of performance.

It is involved in ethics overseas, ensuring that clinical trials benefit the countries in which they happen, encouraging debate on needs of medical research ethics committees in Africa and developing an ethics relationship with China. Good practice in animal research is also a priority for the MRC – the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs), which is funded by the MRC, continues to fund and raise the profile of the humane use of animals in scientific research.

Data preservation and sharing

Data preservation is an archiving activity, in which data – which can be digital, paper or material-based – are maintained over time so that they can still be accessed and understood through changes in technology. To gain maximum benefit from public spend on research data generation and collection, the MRC aims to ensure that research data are properly preserved to enable new, ethical research.

Data sharing provides an opportunity to increase the value of these sources of information through new research, and also reduces unnecessary duplication of data collection. Incorporation of preservation strategies into routine data management is good research practice. It strengthens quality, enables replication and audit, and provides a sound basis for data sharing.

From January 2006, all funding applications to MRC are required to include a statement explaining how data, arising from the research proposed, may be preserved and shared. The MRC's Data Sharing & Preservation Initiative consists of a range of actions, set out as follows, involving the research community and other stakeholders:

- In December 2005, the MRC published a Joint Data Standards Study. The study, co-sponsored by the Biotechnology and Biological Sciences Research Council (BBSRC), the Natural Environment Research Council (NERC), the Wellcome Trust, the Joint Information Systems Committee (JISC) and the Department of Trade & Industry (DTI), examined data-sharing practices across the life sciences.
- A report published in March 2006, commissioned by the MRC and the Wellcome Trust, analysed the access to a range of their own collections of data and material, such as DNA and tissue samples. The sponsors will continue to work together to develop guidance for researchers on access to such collections.
- Web-based guides for MRC researchers in data curation activities – managing and promoting the use of data to ensure it is fit for contemporary purpose and available for re-use – are currently being developed for the MRC by the UK Data Archive at the University of Essex. With a particular focus on population-based research, the guides will also provide practical advice on generic data issues. A consultation with the target audiences on the content of the guides is to be launched in Summer 2006.
- Under strict conditions of confidentiality, personal health-related data originally collected with consent for one purpose can be used for new and unforeseen research purposes. The MRC has commissioned a market research agency to conduct a public consultation on attitudes towards the secondary use of personal health information for research. The consultation will look at specific issues of consent for research use, with the aim of developing further governance. A steering group has been established with representatives from patient and public groups, the regulatory agencies and academic epidemiologists.

Regulatory Support Centre

In December 2005, the MRC Council decided to establish a Regulatory Support Centre (RSC) to provide guidance to the MRC and the wider UK research community on new legislation and good practice about the involvement of people in research. The RSC will support translational research, in particular experimental medicine, by focusing on research involving human tissues or data.

During the year, the RSC has begun to and is continuing to:

- Develop new web-based tools, which include colour-coded route maps, to provide an overview of requirements and guidance illustrated with practical examples of good practice (modelled on the Clinical Trials Tool Kit, which in 2005/06 had over 5000 regular users). Current projects include:
  - A web-based Data and Tissues Tool Kit on good practice in consent procedures and data confidentiality.
  - A similar approach for experimental medicine, in particular Microbial Challenge Studies – in which healthy volunteers agree to take part in research for vaccines and new therapies.
  - Taking forward the recommendations in a report in July 2005 by the Academy of Medical Sciences: 'Microbial Challenge Studies of Human Volunteers'.
- Develop guidance by and for MRC units on practical ways to manage requirements; in particular, to assist units with the requirements of the health departments Research Governance Frameworks and the Human Tissue Act of 2004.
- Establish an MRC Advice Service as part of the UK Clinical Research Collaboration Advice Network to answer specific regulatory and governance queries through a dedicated email line, in conjunction with the UK Clinical Research Network in Leeds.

Ethics of research overseas

When a clinical trial takes place overseas, a variety of difficulties can arise in applying the results to benefit clinical practice in the region where the trial was undertaken. This was the focus of the annual meeting of the Global Forum on Bioethics in Research, in March 2005, in Malawi, which was called 'What happens when the research is over?'. The MRC was involved in the planning and follow-up to the meeting. An application has since been made to the EU for a grant to cover the costs of having a secretariat to maintain continuity between annual meetings.

The MRC also played an important role in the 2006 meeting of the Global Forum in Karachi, Pakistan, which focused on ethical issues arising in health services and public health research such as those raised by cluster randomised trials – in which groups rather than individuals are randomised to one management group or another – and by research in the post-disaster situation. The Forum welcomed the MRC guidance on cluster randomised trials, and discussed a case study of MRC-funded cluster trial in Uganda.

Also, the MRC (The Gambia and Head Office) continued to work on the EU-funded collaborative initiative, 'Networking for Ethics on Biomedical Research in Africa (NEBRA)', to establish the priorities and needs of medical research ethics committees in 15 African countries. The strategy developed as a result of this analysis should help these committees review clinical research in Africa and promote the integration of these African committees in international debate on relevant ethical issues.

Ethics and animal research

The MRC is the major funder of the National Centre for the Replacement, Refinement and Reduction of Animals in Research (NC3Rs), an independent scientific organisation established by the Government in 2004.

The NC3Rs promotes the advancement of the 3Rs – the principles that underpin the humane use of animals in scientific research and testing. Bringing together stakeholders in academia, industry, Government, regulatory authorities and animal welfare organisations, the centre has focused on increasing its spending in 3Rs research, improving access to existing information on the 3Rs and establishing a network of partnerships to maximise efforts and resources in this area.

In 2005/06, the NC3Rs awarded £1 million of grants covering biological, medical and veterinary research. Of the eight grants awarded, six were for the replacement of animals. The centre also launched, with the Laboratory Animal Science Association (LASA), a small awards scheme to provide funds of up to £2,000 for small scale research projects, exchange visits and training. Fourteen awards were made under this scheme in 2005/06.

Providing access to key information on the 3Rs is a priority for the NC3Rs. In September 2005 it launched its website (**www.nc3rs.org.uk**), an interactive, comprehensive and contemporary resource covering all aspects of the 3Rs. To complement this, the NC3Rs organised a range of workshops and symposia, collated and reviewed information, and proposed guidelines.

A range of partnerships between NC3Rs and other organisations, such as the Association of the British Pharmaceutical Industry (ABPI), the US National Institutes of Health (NIH) and the Biosciences Federation, which represents the UK's biological expertise, to promote the 3Rs have been established during 2005/06. This includes a programme manager post, funded by ABPI, based at NC3Rs. In collaboration with the ABPI, the NC3Rs has developed an ambitious project to review the scientific rationale for the use of non-human primates in drug discovery and development, focusing on opportunities for replacement and reduction. Also, working with European pharmaceutical companies, the NC3Rs is coordinating a project to challenge the regulatory guidelines that require the use of rodents in single dose acute toxicity studies.

In some sectors there is a need to raise the profile of 3Rs research. As part of its strategy to address this, the NC3Rs awarded its first 3Rs prize in 2005. Sponsored by GlaxoSmithKline, the inaugural prize was presented by Lord Sainsbury, the Science minister, to a researcher from Imperial College London for work to refine a mouse model of bacterial transmission and infection by reducing the total number of animals used and the number subjected to unpleasant infection procedures.

The NC3Rs also receives funding from the BBSRC, Home Office, Wellcome Trust and the ABPI. Its first annual report was published in January 2006.

Effective business practice

Concerned with improving business efficiency, the MRC is working towards a shared administration system and its information systems have been refined.

RCUK Administration strategy

In January 2006, the RCUK Operational Management Group (OMG) published a paper reporting the agreement of all RC representatives to conduct an annual exercise requiring an explicit report, from all research organisations receiving RC funding, on whether any issues of scientific misconduct have arisen during that year concerning researchers funded by the RCs. The OMG concluded that the current guidance on good scientific practice was reasonably clear and did not require further action. It did agree, however, that there should be an annual letter to all funded organisations requiring a positive return on whether or not any scientific misconduct issues had arisen in their institution.

Administrative Efficiency

The MRC is always trying to incorporate improved working practices to improve efficiency. In May 2005, the MRC's Council approved the Administrative Efficiency Project (AEP) business case, which proposed the establishment of an MRC-wide Shared Service Centre in Swindon (SSC). Responding to the objectives of the Gershon report and the Lyons Review, the SSC will deliver a highly professional, cost effective and efficient service in support of the MRC units and institutes. The proposal was developed during 2005/06 by undertaking a thorough review of the business processes in Finance and Human Resources (HR) and the preparation of detailed definitions of the processes known as Standard Operating Procedures.

New premises in Swindon will accommodate the SSC and the MRC has recruited new staff to work there. As a consequence of the creation of the SSC, approximately 120 posts will be lost from the MRC Head Office and MRC units. Some of the staff affected by the relocation of work to the SSC have been relocated to vacancies within the MRC, including a small number who are moving to the SSC bringing with them valuable experience of the MRC's operations. However, in March 2006, 37 members of staff received notice of redundancy and further redundancies will follow as the migration of work from units to the SSC continues during the current year.

In December 2005, the AEP was subjected to a 'Healthcheck' review by the Office of Science and Innovation (OSI). This resulted in a highly favourable report, which included a number of recommendations to improve reporting on the project. Acting on one of these recommendations, the project steering group set up by the MRC conducted a review of the original business case and concluded that the case for the SSC remained valid and that the project would deliver efficiencies while generating cash savings in administration costs.

The MRC is also working with the other RCs to respond to a request from the Director General of the Research Councils that they move quickly to develop mechanisms for achieving full harmonisation of all common transactional services. In response, the councils are preparing a detailed 'roadmap' setting out plans for the integration of administrative services by 2009, covering all eight research councils and incorporating all their sites, including headquarters and institutes.

The opening of our own SSC will put MRC in a strong position to demonstrate to other research councils that a SSC is an effective and efficient service delivery model.

Information Systems

LogicaCMG provides services for MRC on the basis that LogicaCMG is rewarded when there are tangible business benefits, such as improved communication or reporting, from the relationship. Throughout the year, the partnership, which is called Auris, has continued to operate and support the MRC's corporate information needs primarily through the SAP enterprise resource planning system software and also through a MRC-wide 'portal', to which all MRC staff have access. The service exceeded what the MRC contracted LogicaCMG to do during the year.

The partnership developed a business information warehouse, which contains key elected financial and scientific information to make reporting easier, to aid the reporting of management accounts. This warehouse has now been extended to provide a tool to bring together scientific and financial information on extramural research. The portal has been extended to provide a range of additional functionality for staff. These include a recruitment module to aid Human Resources (HR) staff, an induction training module, and the ability of each MRC unit to configure the portal to reflect their own identity and communication needs. The portal has also been extensively modified to improve ease of use.

The Auris Partnership has also been heavily involved in the Administrative Efficiency Project and the Shared Service Centre. In addition to building the infrastructure for the centre, the partnership has developed a number of services which will add the efficient operation of the centre, particularly the development of e-procurement – the ability to procure goods online.

A project to replace and redesign the MRC's website has begun and is due to go live in the Autumn. Another project to implement the SAP Human Resources and Payroll system is likely to start during 2006.

Audit

In addition to fulfilling its remit with respect to issues of corporate governance, during 2005/06 the Audit Committee:

- Approved the rolling programme of compliance and systems audits performed by the research councils' Internal Audit Service and reviewed the audit reports.
- Oversaw the continuing use of the Directors' Annual Statement of Internal Control across MRC establishments.
- Monitored business critical projects and reviewed reports from the MRC's management.
- Continued to monitor the risk-management practices within the MRC, in line with Treasury requirements.

Risk Management

As a non-departmental public body, the MRC is required to set a policy and framework for the management of risk so that the Chief Executive and Accounting Officer is able to give assurance on the system of internal control that supports the achievement of the MRC's objectives. During 2005/06 the risk management framework was enhanced:

- Risk management strategy was updated and approved by the Executive Board in September, with establishment of Risk Management Steering Committee with Executive Director Nick Winterton as Chairman.
- Risk category framework was broadened in order to improve assurance that risk management practices address the key risks faced by the MRC, including scientific misconduct.

Environment Policy

The MRC is committed to continuous improvement of its environmental performance. MRC units must meet all relevant current and forthcoming statutory regulations and official codes of practice, and must specify that contractors do the same when working on MRC premises. Each unit is required to develop its own environmental policy, based on the MRC's central policy but adapted according to its local circumstances, and to report progress regularly.

As part of its work to achieve optimum environmental performance, the MRC continues to educate, train and motivate its staff and contractors to work in an environmentally responsible way and to play a full part in developing new initiatives. We also aim to cooperate with other bodies in the public and private sectors to develop and promote environmentally responsible practices.

The MRC actively encourages units to make continuing efforts to address the need to reduce any possible negative impact of MRC premises on the environment, by reducing the consumption of power wherever possible (including the implementation of 'turn off' policies) and by employing modern laboratory design methods in new premises. The projects planned during the next five years to design very large buildings to re-house NIMR and LMB respectively will pay particular attention to the likely environmental impact of the premises.

The MRC's Council will review progress in meeting the MRC's environmental management strategy in July 2007.

Health & Safety

Business continuity planning has been the main focus of the Corporate Health and Safety Section activity during 2005/06. In the latter half of the year the emphasis has been on assessing the risk of an influenza pandemic to the MRC's research programmes and ensuring robust plans are in place at both unit and corporate level. This work will continue into the first half of the coming year.

We continue our rolling programme of auditing the standard of health and safety management in our research units. Our objective is to audit each unit every three years. In response to the audit findings unit directors produce a plan with prioritised objectives for improvement.

Once again the MRC's accident rate remains at a low level compared to the academic research sector organisations it benchmarks against. The MRC's lost time accident frequency rate per 1,000 employees for the calendar year 2005 was 1.23.

Scientific misconduct

The MRC is required to record incidences of scientific misconduct. One allegation was reported among MRC researchers in 2005/06: this allegation was not substantiated.

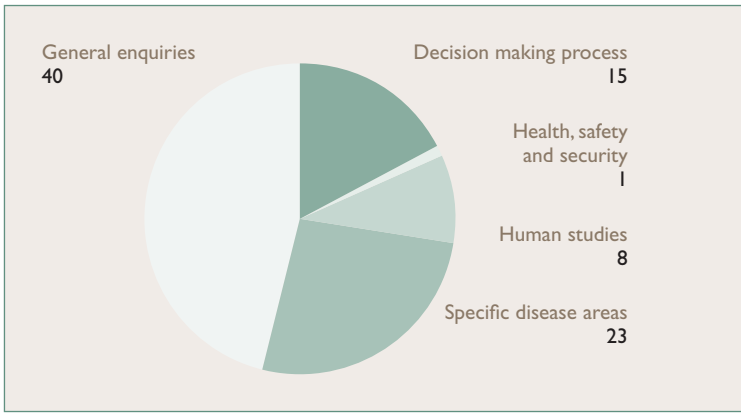
Register of members interests

Like others who serve the public, individuals working with the MRC need to follow the **Seven Principles of Public Life** as set out by the Committee on Standards in Public Life (The Nolan Committee). Members of the MRC Council, boards and overview groups are required to declare any private, professional or commercial interests that might, or that might be perceived to, conflict with MRC's interests. A register of declared interests is published on the MRC website.

Freedom of Information

The MRC is committed to providing information to the public on how we carry out our duties, why we make the decisions we do and how we spend public money. The MRC publication scheme which is available on our website outlines the information available to the public and acts as a guide to how that information can be obtained. In addition, between 1 April 2005 and 31 March 2006, the MRC received 87 requests for information which were dealt with under the Freedom of Information Act. Ninty-eight percent were answered within the required 20 working days.

Fig 7: Number of requests made under the Freedom of Information Act during 2005/06



Standards of Service

MRC Head Office is committed to providing a high quality, accessible and responsive service, monitoring its standard of service against key performance areas. These areas are regularly reviewed and additional measures are identified where necessary. The MRC undertakes to:

- Abide by equal opportunities and anti-discrimination legislation.
- Ensure that procedures exist for consulting users proactively for example, concordats with the health departments and other government departments, the work of the Advisory Group on Public Involvement (AGPI) formerly the Consumer Liaison Group and EAA roadshows in universities.
- Provide contact details (addresses, telephone numbers, fax numbers, email addresses) on all external documents.
- Uphold high standards of integrity in all areas of our operations.
- Operate a complaints procedure including name of contacts to which complaints should be directed.
- Maintain an up-to-date website.

The MRC publishes performance figures against the following measures:

Standards of service performance

Area and target	Achievement in 2005/06
Grant applications	
Receipt of all grant applications will be acknowledged within 15 working days and applicants given an indication of the timetable for consideration	100% through the Electronic Application and Assessment system
Grant applications will be considered by the MRC's peer review process within 26 weeks of the submission date	94%
Feedback will be provided to grant applicants within seven working days of a decision being made	88%
General correspondence	
Replies to general correspondence will be sent within 20[2] working days.	99%[3]
Payment of invoices	
Payment of bills will be within 30 days of presentation	91%

[1] *The December 2005 New Investigator Awards Panel meeting was rescheduled to February 2006. Had the meeting gone ahead as planned the achievement is expected to have been 100%.*

[2] *The deadline stated by the Freedom of Information Act 2000.*

[3] *This figure relates to requests for information received through the general corporate email account during a three-month sample period from 1 January to 31 March 2006.*

Management Commentary

The MRC's business and priorities

The MRC receives a grant from Parliament, through the Office of Science and Innovation (OSI) and funds from other government departments, international agencies, industry and research charities. The financial allocation for 2005/06 was made under SR2002 and has enabled the MRC to make awards worth over £200m in the year.

As with the other research councils (RCs), the MRC operates against a Delivery Plan which describes how the MRC will contribute towards the **Department of Trade & Industry's** (DTI) Public Service Agreement targets of improving the relative performance of the UK research base and of the UK economy.

The MRC Delivery Plan, published in May 2005 (and since updated) reports activities against the following Key Performance Indicators (KPIs):

- Towards a healthy UK science and engineering base.
- Better exploitation: exploiting intellectual property and promoting translation of research into clinical practice and health policy.
- Working in partnership.
- Science in society.
- Leadership in research governance.
- Operational objectives.

The MRC reports quarterly to the OSI on progress against milestones in a Scorecard of objectives, targets and milestones, and also through an 'Outputs Framework' of metrics and other performance information. The first data under the Outputs Framework were submitted to OSI in June 2006 and will be published later in the year.

A subcommittee has been established by the MRC's Council to provide advice on evaluation of the MRC's performance. The aim is to develop a programme of evaluation activities covering important aspects of performance, keeping national and international developments under review. Due to report in Autumn 2006, the subcommittee will also advise on the resourcing of evaluation activities.

Other factors that will affect the performance and development over the coming year are: discussions towards a single health research fund, as announced in the 2006 Budget; development of the MRC's administrative efficiency programmes; implementation of financial and accounting IT; and the wider implications of the harmonisation of administrative processes across the RCs.

Financial results

A summary of the MRC's financial results for 2005/06 and the preceding two years is shown in the table overleaf. The table shows our results using the accounting conventions required for reporting to central Government. Although still produced on an accruals basis, this form of accounting differs in a number of significant ways from that required for our formal audited accounts. A reconciliation between the two sets of accounts is shown on page 46.

Each year we receive a budgetary allocation from the OSI determining how much we can spend; this is in the form of a Departmental Expenditure Limit (DEL)[1]. The DEL is split into a number of categories and rules exist which place certain restrictions on the use of each type. The main subdivision is between Resource DEL and Capital DEL. Resource DEL is further divided into Cash DEL and Non-Cash DEL; Cash DEL can be used for Non-cash and Capital Expenditure, but other types of DEL cannot be used for Cash Resource Expenditure. Income resulting from our Commercial activities is not subject to DEL control.

[1] *Departmental Expenditure Limit (DEL) is the primary control of resource accounting and budgeting. It includes an amount for EU DEL which acts as an expenditure control on EU funded activities.*

Resource *Financial Year*	2005/06 *£000's*	2004/05 *£000's*	2003/04 *£000's*
External Income	*67,161*	*53,430*	*55,252*
Pay and operating costs	253,192	223,503	225,084
Depreciation	17,274	16,954	23,898
Cost of capital	6,899	6,599	6,515
Provision movement	7,940	4,048	3,442
Research grants	195,464	171,489	171,200
Capital grants to private sector	29,877	16,505	9,922
International subscriptions	9,884	8,828	6,899
Loss on disposal of fixed assets	5,262		
Total Expenditure	*525,792*	*447,926*	*446,960*
Net Income & Expenditure	*458,631*	*394,496*	*391,708*
DEL	444,236	427,105	406,589
Underspend (overspend)	(14,395)	32,609	14,881
Underspend (overspend) brought forward	70,518	37,909	23,028
Adjustment to brought forward[1]	1,067		
Underspend(overspend) carried forward – cash and non-cash	*57,190*	*70,518*	*37,909*
of which:			
Cash	55,835	50,830	31,099
Non-cash	1,355	19,688	6,810

Capital *Financial Year*	2005/06 *£000's*	2004/05 *£000's*	2003/04 *£000's*
Expenditure	41,785	28,437	26,421
Capital DEL	36,573	28,034	24,057
Underspend (overspend)	(5,212)	(403)	(2,364)
Underspend/(overspend) brought forward	4,902	5,305	7,669
Adjustment to brought forward[1]	1,769		
Underspend(overspend) carried forward	*1,459*	*4,902*	*5,305*

Commercial fund *Financial Year*	2005/06 *£000's*	2004/05 *£000's*	2003/04 *£000's*
Income	34,283	28,516	15,043
Expenditure	15,647	9,376	7,629
Gain on disposal of intangible fixed asset	73,029		
Gain on disposal of investment	150		
Capital expenditure	8,293		
Surplus/(deficit)	83,522	19,140	7,414
Surplus/(deficit) brought forward	47,051	27,911	20,497
Surplus/ (deficit) carried forward	130,573	47,051	27,911

[1] *Classification change agreed with OSI.*

Review of the year

The MRC is required by the DTI and the OSI to control its budgets within a Departmental Expenditure Limit (DEL) under the Resource Accounting and Budgeting regime.

In any one year we are normally expected to spend our DEL allocation. However some flexibility is allowed in practice in the form of a carry forward of previous years' underspends. These underspends can be called upon to supplement our annual DEL, subject to agreement by the OSI and Treasury in any given year. Although a restriction on the use of the carry forward was applied in 2005/06 it did not prevent us from meeting our expenditure plans.

In 2005/06 we incurred £458.6m of resource expenditure. This was £14m more than our Resource DEL for the year of £444.2m, reducing our carried forward Resource underspend from £71.6m to £57.2m. Capital Expenditure charged to DEL at £41.8m was £5.2m more than our Capital DEL of £36.6m, reducing our carried forward Capital underspend from £6.7m to £1.5m. Further Capital Expenditure of £8.3m was incurred and charged against the Commercial Fund.

In 2005/2006, we increased our resource expenditure by 16 per cent compared with the previous year, and increased external grant payments by 20 per cent. Substantially more money was also committed to new grants. The value of new grants awarded to universities rose from £94m in 2003/04 to £170m in 2004/05 and to £194m in 2005/06. Over this period, we have also been able to maintain our support for scientists' training and for our own units and institutes.

The commercial fund increased significantly during the year, largely due to the sale of the future royalties from Humira®. A large proportion of this balance has been set aside as a contribution towards the costs of rebuilding the Laboratory of Molecular Biology (LMB) and the National Institute for Medical Research (NIMR). The royalty income we will continue to receive in the future will also allow us greater flexibility in smoothing our expenditure over time by allowing us, if necessary, to provide temporary funding for any overspends against our DEL allocation.

Subject to the outcome of future spending reviews, overall spend over the next six years is anticipated to increase by a third, spending on grants will double, and spending on fellowships and studentships will increase by over 70 per cent. Plans also include commitments to large projects; last year over £190m was set aside for new buildings for NIMR and LMB.

A more balanced view of risk, together with good modelling and careful planning of commitments, means that the MRC will have a greater ability to fund the best science, consistently and efficiently, and capitalise on the growing OSI contributions that reflect the Government's strong focus on science. Further commentary on performance during the year is given in the Annual Accounts.

Accounting for grant-in-aid

Grant-in-aid income is recognised when the cash is received. Expenditure is recognised on an accruals basis (i.e. when the recipient has fulfilled its obligations, such as carried out a period of research). Cash income is not drawn down until the cash expenditure is due to be paid. This means that there is an inherent, internal inconsistency in the accounts of non-departmental public bodies such as the MRC: expenditure can be recognised in the accounts before the related income is received, and this gap may occur over the change in financial year.

The balance sheet at 31 March 2006 shows provisions for liabilities and charges of £16.7m. This reflects the inclusion of liabilities falling due in future years which, to the extent that they are not to be met from the MRC's other sources of income, may only be met by future grant-in-aid from the DTI, the MRC's sponsoring department. This is because, under the normal conventions applying to parliamentary control over income and expenditure, such grants may not be issued in advance of need.

Grant-in-aid for 2005/06, taking into account the amounts required to meet the MRC's liabilities falling due in that year, has already been included in the department's estimates for that year, which have been approved by Parliament.

The figures shown in the financial summary tables are those after adjusting for the differences between statutory presentation and those scoring under the DEL. A reconciliation of the finance tables is shown on the next page. These show the derivation of each of the lines above from the Annual Accounts.

Reconciliation of finance tables to Annual Account

	Notes	£000's
External Income		
Contributions from other government departments	3	31,202
Contributions and grants from other bodies	4	30,840
Other income	5	5,059
Interest receivable	6	342
Amount payable to OSI	14	(282)
External Income per Finance Table		67,161
Pay and operating costs		
Annual Account		
Staff costs	7	169,841
Less FRS17 current service costs		(5,290)
Less increase in provision	21	(14,643)
Plus release of provision	21	5,308
Plus transfer of provision to accruals	21	1,626
Other operating costs	8	96,448
Less contribution for licence fees	I & E	(98)
Pay and operating costs per finance table		253,192
Depreciation		
Depreciation per Annual Account	I & E	17,365
Less release from donated asset reserve	22	(91)
Depreciation per finance table		17,274
Cost of capital		
Cost of capital	I & E	13,465
Less adjustment for commercial fund		(6,566)
Cost of capital per finance table		6,899
Provision movement		
Amount provided in year	21	14,643
Less amount expended in year per Annual Account	21	(5,308)
Less transfer to accruals per Annual Account	21	(1,626)
Unwinding of the discount	21	231
Provision movement per finance table		7,940
Research grants		
Annual Account		
Research grants	9	149,902
Less capital grants to private sector	10	(28,755)
Other research		22,513
Postgraduate training awards	11	51,804
Research grants per finance table		195,464
International subscriptions		
International subscriptions per Annual Account	12	11,006
Less capital grants to private sector		(1,122)
International subscriptions per finance table		9,884
Capital grants to private sector		
Research grants		28,755
International subscriptions		1,122
Capital grants to private sector per finance table		29,877

Reconciliation of finance tables to Annual Account

	Notes	£000's
Capital expenditure		
Fixed asset additions per Annual Account	16	61,750
Less donated asset	22	(269)
Less addition financed by commercial fund	22	(8,293)
Less net book value of disposals	16	(11,403)
Capital expenditure per finance table		41,785
Commercial fund		
Income from commercial activities	13	34,283
Expenditure on commercial activities	13	15,647
Gain on disposal of intangible fixed asset	15	73,029
Gain on disposal of investment	17 (a)	150
Capital expenditure	22	8,293

Remuneration Report 2005/06

Remuneration Subcommittee

The salaries of the Directors of MRC units and institutes, institute divisional heads and head office group directors are reviewed by the MRC Council Remuneration Subcommittee. The membership during 2005/06 was:

Professor Colin Blakemore (CEO, MRC)
Professor Alan North (Council Member)
Dr Peter Fellner (Council Member)
Mr Nick Winterton (MRC Executive Director): by invitation for staff other than Head Office

Remuneration Policy

No formal pay scale exists for MRC's senior staff (Band 1) beyond a stated minimum pay point set at £55,000 (2005/06 rate). Band 1 pay is based on the concept of 'personal pay' and is reviewed annually by the Remuneration Subcommittee.

In determining appropriate pay levels for Band 1 staff, the Remuneration Subcommittee pays reference to annual appraisal against annual or 3-5 year objectives; the scientific (or other) performance of a unit or group; the breadth of Band 1 responsibilities as reflected in staffing, budgetary and other resource management issues; contributions to the delivery of wider corporate objectives (e.g. in areas of ethics, corporate governance, public communication, strategic partnerships); and external market data. Market data are used to inform the competitiveness of remuneration packages in order to secure or retain world class scientists as a corporate and national asset.

All Band 1 remuneration is subject to a minimum acceptable level of performance. Pay adjustments are informed by both the general pay award rate and the provisions of the Additional Salary Reward scheme, which allows for a maximum 10 per cent annual increase in salary, paid either as a one-off bonus or consolidated base-pay component, for exceptional employee contributions.

Band 1 scientific staff are appointed on open-ended contracts until normal retirement age, subject to quinquennial review in accordance with MRC's scientific peer review system. Notice periods in the event of redundancy are a minimum of six months. Termination payments are in accordance with MRC's Early Severance and Compensation Scheme.

Senior Staff Remuneration

The following section provides details of the remuneration and pension interests of the Chief Executive, the Executive Board and Council members.

Chief Executive

The performance management and remuneration arrangements for the Chief Executive are established and managed by the MRC's sponsor department, the Department of Trade and Industry, through the Office of Science and Innovation. In summary, research council Chief Executives are paid both a basic salary and performance pay comprising an annual and an appointment term bonus. The basic salaries are derived from three pay bands, which reflect the differing sizes and responsibilities of the research councils. Each band has four increments and, subject to at least satisfactory performance, Chief Executives receive an increment each year until they reach the top of the scale. In addition it is practice that all amounts are revalorised in line with the Senior Civil Service.

At the beginning of each year, the Director General Science and Innovation (DGSI) and the relevant Council Chair agree with the Chief Executive a set of annual performance objectives for the year. In addition a set of appointment term objectives are agreed early in the appointment and are reviewed annually. At the end of the year the Chief Executive, chair and an independent Council Member write an assessment of performance over the year, and the DGSI, with advice from colleagues, agrees an OSI assessment of overall performance and specific achievements against objectives for annual and appointment term objectives.

A Remuneration Committee comprising the DGSI, the chairs of all the research councils and two independent members, then meets to review Chief Executives' performance and agree pay recommendations, taking into account the assessments and any comments in the papers. These recommendations are subject to ratification by the Permanent Secretary of the DTI.

The appointment term bonus is assessed each year and the amounts agreed are retained and are then paid out at the end of the appointment term. If the Chief Executive leaves early the Remuneration Committee may recommend a reduced bonus be paid depending on the circumstances.

The Chief Executive is an ordinary member of the MRC's pension scheme. His entitlements under his conditions of service are the same as those for other members of staff and, should his contract be terminated early, he would be entitled to compensation under the terms of the MRC early retirement and severance compensation scheme. His fixed-term appointment expires on 30 September 2007.

	Chief Executive	Executive Director	Director of Research Management Group	Director of Corporate Affairs Group	Director of Human Resources Group	Director of Finance Group
	Prof C Blakemore	Mr N H Winterton	Dr D R Dunstan	Mrs J M Lee	Mrs F Green[1]	Mr N W R Watts
Age	61	58	63	57	43	47
Salary, including performance related pay, from 1 April 2005 to 31 March 2006	£142,894	£115,484	£111,598	£89,837	£30,294	£88,995
Salary, including performance related pay, from 1 April 2004 to 31 March 2005	£118,800	£106,127	£84,559	£76,630	-	£78,354
Real increase in pension at age 60[2]	£0-5,000	£0-5,000	£0-5,000	£5,001-10,000	£0-5,000	£0-5,000
Total accrued pension at age 60 at 31 March 2006[3]	£0-5,000	£50,001-55,000	£40,001-45,000	£30,001-35,000	£15,001-20,000	£0-5,000
Cash equivalent transfer value at 1 April 2005	£26,000	£770,000	£552,000	£473,000	-	£9,000
Cash equivalent transfer value at 31 March 2006	£49,000	£841,000	£638,000	£596,000	£213,000	£22,000
Real increase in cash equivalent transfer value	£23,000	£71,000	£86,000	£123,000	-	£13,000

[1] Mrs Green has undertaken the role of HR Director since 17 October 2005 and was confirmed in this role on 17 January 2006 and salary disclosed relates to the period 17 October 2005 to 31 March 2006. Mrs E Sideris left the MRC's employ on 14 October 2005. Consent to disclosure of salary has been withheld.

[2] Or at retirement age.

[3] Details of the MRC Pension Scheme appear in note 7(d) of the Annual Account.

Salary including performance related pay

Salary including performance related pay covers both pensionable and non-pensionable amounts and includes: gross salaries; performance pay or bonuses and allowances. It does not include amounts which are reimbursement of expenses directly incurred in the performance of an individual's duties.

Cash Equivalent Transfer Values

A Cash Equivalent Transfer Value (CETV) is the actuarially assessed capitalised value of the pension scheme benefits accrued by a member at a particular point in time. The benefits valued are the member's accrued benefits and any contingent spouse's pension payable from the scheme. A CETV is a payment made by a pension scheme or arrangement to secure pension benefits in another scheme or arrangement when the member leaves a scheme and chooses to transfer the benefits accrued in their former scheme. The pension figures shown relate to the benefits that the individual has accrued as a consequence of their total membership of the pension scheme, not just their service in a senior capacity to which disclosure applies. They also include any additional pension benefit accrued to the member as a result of their purchasing additional years of pension service in the scheme at their own cost. CETVs are calculated within the guidelines and framework prescribed by the Institute and Faculty of Actuaries.

Real Increase in Cash Equivalent Transfer Values

This reflects the increase in the CETV and takes account of the increase in accrued pension, contributions paid by the employer and contributions paid by the employee, which includes the voluntary purchase of additional years of pensionable service and the value of any benefits transferred from another pension scheme or arrangement.

Conflict of Interest

Senior staff are required under the staff Code of Conduct to declare details of any company directorships and other significant interests which may conflict with their management responsibilities. No declarations have been made in the year.

MRC's Council members

Council members are appointed by the Science Minister, in accordance with the code of practice of the Office of the Commissioner for Public Appointments. The normal period of appointment is four years, members may be reappointed for one further four year term.

The positions of Council members are non-pensionable and there is no entitlement to compensation for loss of office. The Chairman's fixed term appointment will end on 30 September 2006. Emolument comprises an honorarium, set annually by OSI; enhanced honoraria are paid to some members such as board and Audit Committee chairs to reflect additional responsibilities; details of amounts paid to each member during the year were:

Name		Emolument
Sir Anthony Cleaver	*Chairman*	£14,900
Professor David Armstrong	*King's College London*	£8,265
Mr Michael Brooks	*Financial Management Consultant*	£6,200
Professor Kay Davies	*University of Oxford*	£6,200
Professor Carol Dezateux	*Institute of Child Health, University College London*	£6,200
Dr Peter Fellner	*Vernalis plc*	£6,200
Mr Derek Flint	*Non-executive Director of Alliance & Leicester Insurance plc*	£8,265
Professor Andrew McMichael	*John Radcliffe Hospital, Oxford*	£7,568
Dr Lefkos Middleton[1]	*GlaxoSmithKline*	£0
Professor Michael Wakelam	*CRUK Institute of Cancer Studies*	£7,568
Professor Alan North	*University of Manchester*	£9,065
Professor Genevra Richardson	*Queen Mary and Westfield College, University of London*	£6,200
Professor John Savill	*University of Edinburgh*	£8,265
Professor Herb Sewell	*University of Nottingham*	£6,200

[1] *Dr Middleton has chosen not to draw the honorarium.*

The following *ex officio* members did not receive an honorarium:
- Dr E Mac Armstrong (Scottish Executive Health Department)
- Dr Harry Burns (Scottish Executive Health Department)
- Dr Henrietta Campbell (Department of Health Social Services & Public Safety)
- Professor Sally Davies (Department of Health)
- Dr Ruth Hall (Chief Medical Officer, The National Assembly for Wales)
- Mr John Neilson (Observer, Office of Science and Innovation)

Colin Blakemore

Chief Executive and Accounting Officer

13 July 2006

Annual Accounts 2005/06

Details of current activities are to be found in the Annual Report.

Financial results for the year

- The income and expenditure account records a surplus of £55.3m.
- The parliamentary grant-in-aid totalled £459.5m.
- Total income excluding grant-in-aid amounted to £101.5m, staff costs totalled £169.8m, other operating costs excluding depreciation totalled £96.4m and expenditure on research grants totalled £149.9m.
- Total asset values increased by £152.2m, whilst creditors increased by £49.3m.
- Reserves, excluding the general reserve, showed a net increase of £31.8m.
- General reserves increased by £86.7m, mainly due to profit on disposal of intangible fixed asset.
- Total government funds at 31 March 2006 stood at £506.4 (Note 22).
- Amounts payable to the Consolidated Fund during the year were £0.3m (2004/05 = £0.4m). (Note 14).

Creditor payment policy

The MRC observes The Confederation of British Industry's Code of Practice. It adheres to the principles of the Prompt Payers Code, and makes every effort to comply with the agreed terms of payment of creditors' invoices, endeavouring to settle invoices within 30 days of receiving them or earlier if supplier terms dictate. In 2005/06 the MRC paid 91 per cent (2004/05 = 98%) of invoices within supplier terms. The prompt payers code can be found at **www.payontime.co.uk**

Audit Committee

An MRC Audit Committee, chaired by Mr Derek Flint (MRC Council member), meets four times a year to review internal and external audit matters and the MRC's accounts.

Auditors

The MRC's accounts are audited by the Comptroller and Auditor General under the terms of paragraph 3(3) of Schedule 1 of the Science and Technology Act 1965. The audit fee for 2005/06 was £50k.

So far as the Accounting Officer is aware, there is no relevant audit information of which the MRC's auditors are unaware. The Accounting Officer has taken all the steps that he ought to have taken to make himself aware of any relevant audit information and to establish that MRC's auditors are aware of that information.

Statement of the Council's and Chief Executive's responsibilities with respect to the financial statements

Under paragraph 3 of Schedule 1 to the Science and Technology Act 1965 the Secretary of State for Trade and Industry, with the consent of the Treasury, has directed the Medical Research Council (MRC) to prepare for each financial year a statement of accounts in the form and on the basis set out in the Accounts Direction. The accounts are prepared on an accruals basis and must give a true and fair view of the state of affairs of the MRC and its income and expenditure, recognised gains and losses and cash flows for the financial year.

In preparing the accounts, the Accounting Officer is required to comply with the requirements of the *Government Financial Reporting Manual* and in particular to:

- Observe the Accounts Direction issued by the Secretary of State for Trade and Industry, including the relevant accounting and disclosure requirements, and apply suitable accounting policies on a consistent basis;
- Make judgements and estimates on a reasonable basis;
- State whether applicable accounting standards as set out in the *Government Financial Reporting Manual* have been followed, and disclose and explain any material departures in the financial statements;
- Prepare the financial statements on a going concern basis.

The Secretary of State for Trade and Industry has appointed the Chief Executive as Accounting Officer of the MRC. The responsibilities of an Accounting Officer, including responsibility for the propriety and regularity of the public finances for which the Accounting Officer is answerable, for keeping proper records and for safeguarding the MRC's assets, are set out in the Accounting Officers' Memorandum, issued by HM Treasury and published in *Government Accounting*.

Statement on internal control

1. Scope of responsibility

As Accounting Officer and Chief Executive, I have responsibility for maintaining a sound system of internal control that supports the achievement of the MRC's objectives whilst safeguarding the funds and assets for which I am personally responsible in accordance with the responsibility assigned to me in Government Accounting.

2. The purpose of the system of internal control

The system of internal control is designed to manage rather than eliminate the risk of not achieving business objectives and can only provide reasonable and not absolute assurance against misstatement and loss. The system of internal control has been in place for the year ended 31 March 2006 and up to the date of approval of the Annual Report and Accounts and accords with Treasury guidance.

3. Capacity to handle risk

The system of internal control is based on an ongoing process designed to identify and prioritise the significant risks to the achievement of MRC's objectives and implement controls that may mitigate but cannot eliminate risks. Improvements to internal control have been undertaken during the year and include:

- Implementation of recommendations arising from the review of budgeting and forecasting procedures by KPMG.
- Significant progress has been made with business continuity planning. The policy statement and guidance have been rewritten and published and a comprehensive training programme implemented to embed them. Testing of business continuity arrangements will start in autumn 2006.
- Updated risk management strategy approved by Executive Board in September with establishment of Risk Management Steering Committee with Executive Director Nick Winterton as Chairman.
- Broadening of the risk category framework in order to improve assurance that risk management practices address the key risks faced by the MRC including scientific misconduct.
- A comprehensive programme of audits by the Research Council's Internal Audit Service (RCIAS) of procedures and processes throughout the MRC.

4. The risk and control framework

Improvements to the risk and control framework are continuously sought. Currently the risk management process is being strengthened by:

- Clearly assigning responsibility for each risk category to an Executive Board member. Members will be required to report at least half yearly on risk areas for which they are accountable.
- Embedding risk management more effectively into strategic and operating planning ensuring that it is fully integrated into the Delivery Plan and Operating Plan design and delivery.
- Undertaking more frequent risk assessments with the top '10' risks being discussed at least quarterly by the Executive Board.
- Completing the work on the enlarged risk category framework. This process will be assisted by the appointment of a risk manager within the next few months.

The MRC Executive Board and Audit Committee will continue throughout 2006/07 to:

- Review the risk management framework and revised risk register.
- Receive reports on business critical projects.
- Consider the output from dipstick testing procedures in respect of Research Councils' projects at universities and other research bodies.
- Monitor the Directors' Annual Statement of Internal Control (DASICS).
- RCIAS will continue to review its programme of audits based on Risk register returns.

5. Review of effectiveness

The effectiveness review is informed by the work of the internal auditors, the Audit Committee and Executive Board who have responsibility for developing and maintaining the MRC's internal control framework. Additionally comments made by the external auditors in their management letter and other reports are also taken into account.

The Chief Executive holds regular stewardship reviews with directors of major business functions which include consideration of risk management as it relates to ongoing scientific and operational activity. Each Unit Director submits an Annual Statement of Internal Control. These are analysed and appropriate actions taken, where significant risks or weak controls are highlighted.

There is also an annual review of external risks associated with research grants using dipstick testing procedures which are operated in conjunction with other research councils. An analysis of spend by individual research councils at each of the institutions visited during 2005/06 provide a reasonable level of collective assurance. The MRC's internal audit is provided by research councils Internal Audit Service (RCIAS) which operates to Government Internal Audit Standards. The work of the internal auditors is informed by an analysis of risk to which the MRC is exposed and annual internal audit plans are based on this analysis. The risk analysis and internal audit plans are endorsed by the MRC Audit Committee and approved by me. The Head of Internal Audit's annual report includes an independent opinion on the adequacy and effectiveness of the MRC's system of internal control.

6. Control issues

The establishment of the MRC's Shared Service Centre (SSC) providing transactional finance, HR and procurement services for the whole organisation has led to greater clarity in the definition of the respective roles and responsibilities of Head Office, units and SSC in MRC administration. This work in clarifying governance arrangements will be further facilitated by the decision to establish an Operational Management Board for the intramural programme and will be further developed in 2006/07. Also in 2005/06 we completed a major exercise of reviewing and agreeing improvements to our unit quinquennial review process by which our units account for the research that they are undertaking and bid for future funding. There will also be additional resource put in place during 2006/07 to improve the controls over final instalments of research grant payments. Further work will also be undertaken to enhance the programme of dipstick testing.

The Head of Internal Audit has given a positive reasonable assurance concerning the adequacy of the risk management, control and governance systems established by management. All major corporate systems reviewed received substantial assurance and in a number of areas where issues were reported in the 2004 /05 Annual Report (the implementation of FAMIS for example), there were significant improvements. The Administrative Efficiency Review has successfully completed the first project, the setting up of the Shared Service Centre in Swindon. Migration of posts and functions commenced early in 2006/07 and this process will be reviewed by RCIAS as part of the 2006/07 Audit Plan.

Chief Executive and Accounting Officer

13 July 2006

The Medical Research Council

The certificate and report of the Comptroller and Auditor General to the Houses of Parliament

I certify that I have audited the financial statements of the Medical Research Council for the year ended 31 March 2006 under the Science and Technology Act 1965. These comprise the Income and Expenditure Account, the Balance Sheet, the Cashflow Statement and Statement of Total Recognised Gains and Losses and the related notes. These financial statements have been prepared under the accounting policies set out within them.

Respective responsibilities of the Council, the Chief Executive and Auditor

The Council and Chief Executive are responsible for preparing the Annual Report, the Remuneration Report and the financial statements in accordance with the Science and Technology Act 1965 and the Secretary of State for Trade and Industry directions made thereunder and for ensuring the regularity of financial transactions. These responsibilities are set out in the Statement of Council's and Chief Executive's Responsibilities.

My responsibility is to audit the financial statement in accordance with relevant legal and regulatory requirements, and with International Standards on Auditing (UK and Ireland).

I report to you my opinion as to whether the financial statements give a true and fair view and whether the financial statements and the part of the Remuneration Report to be audited have been properly prepared in accordance with the Science and Technology Act 1965 and Secretary of State for Trade and Industry directions made thereunder. I also report whether in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them. I also report to you if, in my opinion, the Annual Report is not consistent with the financial statements, if the Medical Research Council has not kept proper accounting records, if I have not received all the information and explanations I require for my audit, or if information specified by relevant authorities regarding remuneration and other transactions is not disclosed.

I review whether the statement on page 52 – 53 reflects the Medical Research Council's compliance with HM Treasury's guidance on the Statement on Internal Control, and I report if it does not. I am not required to consider whether the Accounting Officer's statements on internal control cover all risks and controls, or form an opinion on the effectiveness of the Medical Research Council's corporate governance procedures or its risk and control procedures.

I read the other information contained in the Annual Report and consider whether it is consistent with the audited financial statements. This other information comprises only the Executive Summary, Research, People, Bringing discoveries to the market, Engaging with people, Doing research in the right way, the unaudited part of the Remuneration Report and the Management Commentary. I consider the implications for my report if I become aware of any apparent misstatements or material inconsistencies with the financial statements. My responsibilities do not extend to any other information.

Basis of audit opinions

I conducted my audit in accordance with International Standards on Auditing (UK and Ireland) issued by the Auditing Practices Board. My audit includes examination, on a test basis, of evidence relevant to the amounts, disclosures and regularity of financial transactions included in the financial statements and the part of the Remuneration Report to be audited. It also includes an assessment of the significant estimates and judgements made by the Council and Chief Executive in the preparation of the financial statements, and of whether the accounting policies are most appropriate to the Medical Research Council's circumstances, consistently applied and adequately disclosed.

I planned and performed my audit so as to obtain all the information and explanations which I considered necessary in order to provide me with sufficient evidence to give reasonable assurance that the financial statements and the part of the Remuneration Report to be audited are free from material misstatement, whether caused by fraud or error and that in all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them. In forming my opinion I also evaluated the overall adequacy of the presentation of information in the financial statements and the part of the Remuneration Report to be audited.

Opinions

In my opinion:

- The financial statements give a true and fair view, in accordance with the Science and Technology Act 1965 and directions made thereunder by the Secretary of State for Trade and Industry, of the state of the Medical Research Council's affairs as at 31 March 2006 and of its surplus for the year then ended.
- The financial statements and the part of the Remuneration Report to be audited have been properly prepared in accordance with the Science and Technology Act 1965 and Secretary of State for Trade and Industry directions made thereunder.
- In all material respects the expenditure and income have been applied to the purposes intended by Parliament and the financial transactions conform to the authorities which govern them.

I have no observations to make on these financial statements.

John Bourn
Comptroller and Auditor General
18 July 2006

National Audit Office
157-197 Buckingham Palace Road
Victoria, London, SW1W 9SP

Income and expenditure account

for the year ended 31 March 2006

	Notes	2005/06 £000	2004/05 £000
Income			
Parliamentary grant-in-aid	2	406,354	352,455
Release of deferred income	22	25,329	14,273
Contribution for licence fees	2	98	98
Contributions from other government departments	3	31,202	21,002
Contributions and grants from other bodies	4	30,840	23,381
Commercial activities	13	34,283	28,516
Other income	5	5,059	9,047
Total income		**533,165**	**448,772**
Expenditure			
Staff costs	7	169,841	151,872
Other operating costs	8	96,448	85,785
Research grants	9	149,902	121,964
Other research	10	22,513	14,560
Postgraduate/training awards	11	51,804	50,394
International subscriptions	12	11,006	9,906
Commercial activities	13	15,647	9,376
Amortisation of intangible fixed assets	15	8,107	10,511
Depreciation of tangible fixed assets	16	17,365	16,954
Total expenditure		**(542,633)**	**(471,322)**
Deficit on operations		(9,468)	(22,550)
Interest receivable	6	342	407
Notional cost of capital	1j	(13,465)	(10,562)
Amounts payable to the Office of Science and Innovation	14	(282)	(400)
Other finance income	7d	10,485	11,890
Unwinding of discount on provisions	21	(231)	(241)
Loss on disposal of tangible fixed assets		(5,262)	(1,744)
Gain on disposal of intangible fixed asset	15	73,029	-
Gain on disposal of fixed asset investment	17	150	-
Surplus/(deficit) for the financial year		55,298	(23,200)
Reversal of notional cost of capital		13,465	10,562
Surplus/(deficit) for year after reversal of notional cost of capital		**68,763**	**(12,638)**

All activities are regarded as continuing.

The notes at pages 60 to 76 form part of these Accounts.

Balance sheet

as at 31 March 2006

	Notes	2005/06 £000	2004/05 £000
Fixed assets			
Intangible assets	15	79,137	110,255
Tangible assets	16	253,484	215,391
Investments	17	7,271	5,990
		339,892	**331,636**
Current assets			
Stocks	18	2,006	2,543
Debtors	19	46,727	33,525
Cash at bank and in hand	24	189,805	58,566
		238,538	94,634
Creditors: amounts falling due within one year	20	(101,069)	(51,784)
Net current assets		137,469	42,850
Total assets less current liabilities		477,361	374,486
Provisions for liabilities and charges	21	(16,733)	(8,793)
Net assets excluding pension asset		460,628	365,693
Pension asset	7d	45,819	22,230
Net assets		**506,447**	**387,923**
Capital and reserves			
Deferred grant-in-aid reserve	22	155,320	149,792
Revaluation reserve	22	68,170	65,218
Capital land reserve	22	36,612	5,896
Intellectual property reserve	22	79,137	110,255
Donated asset reserve	22	653	475
		339,892	**331,636**
Accumulated surplus on general reserve excluding pension reserve	22	120,736	34,057
Pension reserve	22	45,819	22,230
Accumulated surplus on general reserve including pension reserve		166,555	56,287
Government funds	22	**506,447**	**387,923**

The notes at pages 60 to 76 form part of these Accounts.

Colin Blakemore

Chief Executive and Accounting Officer

13 July 2006

Cash flow statement

for the year ended 31 March 2006

	Notes	2005/06 £000	2004/05 (Re-stated) £000
Net cash inflow from operating activities	23	42,326	9,545
Returns on investments and servicing of finance			
Interest received	6	342	407
Payments to the Office of Science and Innovation	14	(282)	(400)
		60	7
Net cash inflow from returns on investments and servicing of finance		42,386	9,552
Capital expenditure			
Payments to acquire tangible fixed assets and investments		(58,314)	(24,835)
Capital income			
Receipts from sale of tangible fixed assets		672	28
Net receipt from sale of intangible fixed assets	15	92,887	-
Receipt from sale of investment	17a	150	-
Net cash inflow/(outflow) from capital expenditure		35,395	(24,807)
Net cash inflow/(outflow) before financing		77,781	(15,255)
Financing			
Capital grant-in-aid received	22	53,189	28,464
Other capital funding received	22	269	538
Net cash inflow from financing		53,458	29,002
Increase in cash	24	**131,239**	**13,747**

The prior year figures have been re-stated to exclude capital creditors of £4,167,000 (see note 23).

The notes at pages 60 to 76 form part of these Accounts.

Statement of total recognised gains and losses

for the year ended 31 March 2006

	2005/06 £000	2004/05 (Re-stated) £000
Surplus/ (deficit) for the year	55,298	(23,200)
Reversal of notional cost of capital	13,465	10,562
Gains on revaluation of fixed assets	3,415	42,114
Movements in deferred grant-in-aid and donated asset reserve:		
- Capital grant-in-aid and other capital funding received	53,458	29,002
- Release of deferred grant-in-aid reserve and donated asset reserve included in the surplus/deficit for the year	(25,329)	(14,273)
Actuarial gain/(loss) in pension scheme	18,217	(39,458)
Total recognised gains and losses for the year	118,524	4,747

The prior year figures have been re-stated to include the movements in deferred grant-in-aid and donated asset reserve, as required by the new Government Financial Reporting Manual.

Analysis of actuarial gain/(loss) recognised in the statement of total recognised gains and losses

	2005/06 £000	2004/05 £000	2003/04 £000	2002/03 £000
Actual return less expected return on pension scheme assets	111,067	13,226	78,378	(169,759)
Experience gains and losses arising on the scheme liabilities	3,448	5,988	9,429	(209)
Changes in assumptions underlying the present value of liabilities	(96,298)	(58,672)	(29,799)	(9,185)
Actuarial gain/(loss) recognised in statement above	18,217	(39,458)	58,008	(179,153)

Analysis of actuarial gain/(loss) expressed as a percentage of the scheme's assets and liabilities at the balance sheet date

	2005/06 %	2004/05 %	2003/04 %	2002/03 %
Actual return less expected return on pension scheme assets	14.37	2.14	13.83	(37.13)
Experience gains and losses arising on the scheme's liabilities	0.47	1.00	1.87	(0.47)
Actuarial gain/(loss) recognised in the statement above	2.51	(6.61)	11.51	(39.87)

The notes at pages 60 to 76 form part of these Accounts.

Notes to the Accounts

1. Accounting policies

a. Basis of accounting

The accounts have been prepared in accordance with a direction given by the Secretary of State for Trade and Industry, with the approval of the Treasury, in pursuance of Section 2(2) of the Science and Technology Act 1965 and in accordance with the *Government Financial Reporting Manual.*

The accounts have been prepared under the historical cost convention, modified to include the revaluation of tangible and intangible fixed assets and investments, and the valuation of stock to reflect current costs. Without limiting the information given, the accounts meet the accounting and disclosure requirements of the Companies Act 1985 and accounting standards issued or adopted by the Accounting Standards Board so far as these requirements are appropriate. The Accounts Direction exempts the MRC from the requirement to produce a note of historical cost profits, assets and losses.

b. Tangible fixed assets and depreciation

Expenditure on fixed assets includes the purchase of land, buildings and equipment costing £3,000 or more. Tangible fixed assets are included at cost or at valuation. Equipment, excluding computers and software, is revalued annually using appropriate indices. Land and buildings are professionally revalued every five years and in the intervening period relevant indices are used. (Buy-back lease arrangements are valued every five years only.) The basis of valuation for land and buildings is open market value for existing use where this can be established. However, because of the specialised nature of the MRC's properties, most valuations are on a depreciated replacement cost basis. Any surplus or temporary deficit on revaluation is taken to a revaluation reserve. Any permanent impairments in value are charged to the income and expenditure account in the year in which they arise.

Increased depreciation charges arising from revaluations are matched by transfers from the revaluation reserve to the general reserve. On disposal of a revalued asset, the resulting element of the revaluation reserve that is realised is transferred directly to the general reserve.

Provision is made for depreciation on all tangible fixed assets at rates calculated to write off each asset evenly to its residual value over its expected useful life, as follows:

Freehold land	Not depreciated
Leasehold land	Not depreciated
Freehold buildings	Up to 60 years
Leasehold buildings	Up to 60 years (subject to length of the lease)
Leasehold buildings (buy-back)	Up to 60 years
Major facilities (items costing over £50,000)	11 years
Other scientific equipment	5 to 15 years
Computers and software	3 years
Engineering, office and catering equipment	8 years
Motor vehicles	5 years
Assets under construction	Not depreciated until brought into use

c. Intangible fixed assets and amortisation

The values of patents, licences and royalties held by the MRC are capitalised as intangible fixed assets based on their expected income streams. Income from these patents, licences and royalties is generated from agreements between the MRC and companies engaged in the commercial exploitation of MRC inventions and research. The values of these intangible fixed assets are amortised over the period these agreements are in force. For most cases this is between seven and 15 years, and such assets are not capitalised until the income stream is reasonably certain. Income streams are reviewed each year. Any surplus or temporary deficit on valuations following such reviews is taken to a revaluation reserve.

d. Ownership of equipment purchased with MRC research grants

Equipment purchased by an institution with research grant funds supplied by the MRC belongs to the institution and is not included in MRC's tangible fixed assets. Through the Conditions of Grant applied to funded institutions, the MRC reserves the right to determine the disposal of such equipment and of the proceeds of any sale.

e. Grant-in-aid

Grant-in-aid for revenue purposes is credited to income in the year to which it is received. Grant-in-aid applied for the purchase of land is credited to the capital land reserve and that applied to the purchase of tangible fixed assets is credited to the deferred grant-in-aid reserve and released to the income and expenditure account over the estimated operational lives of the related assets.

f. Other income

Other income is shown net of trade discount, value added tax and other taxes and is recognised on an accruals basis.

g. Investments

Listed investments are shown at market value. Unlisted investments are shown at cost. Any surplus or temporary deficit on revaluation is taken to a revaluation reserve. Any permanent impairment in value is charged to the income and expenditure account in the year in which it arises.

h. Stocks

Livestock and consumable stores are included in the balance sheet at cost.

i. Research and development

As a research organisation, all MRC's research and development expenditure is charged to the income and expenditure account when it is incurred.

j. Notional costs

In line with HM Treasury requirements, a notional interest charge is included in the accounts to reflect a charge for the use of capital in the business in the year, as the MRC has no specific interest bearing debt. In accordance with Treasury guidance, the calculation is based on a 3.5 per cent rate of return on average net assets employed. Notional cost of capital charged during the period of the Account was £13,465,000 (2004/05 = £10,562,000).

k. Foreign currencies
Monetary assets and liabilities denominated in foreign currencies are translated at the rates of exchange ruling at the balance sheet date. Transactions in foreign currencies are recorded at the rate ruling at the time of the transaction. All exchange differences are taken to the income and expenditure account.

l. Value added tax (VAT)
As the MRC is partially exempt for VAT purposes, all expenditure and fixed asset purchases are shown inclusive of VAT where applicable. Residual input tax reclaimable by the application of the partial exemption formula is taken to the income and expenditure account as negative expenditure.

m. Pension costs
Employer superannuation costs are based on an actuarially derived calculation under Financial Reporting Standard No. 17 (FRS17). See note 7d.

n. Early retirement costs
Compensation payments are provided for in the income and expenditure account. Obligations relating to those former members of staff aged 50 or over are provided for until their normal date of retirement.

Unwinding of discount: the provision for early retirement costs is discounted at 2.2%. The unwinding of the discount has been charged to the income and expenditure account.

o. Operating Leases
Operating lease charges are recognised in the income and expenditure account in the year to which they relate.

2. Parliamentary grant-in-aid and contribution to licence fees

The grant-in-aid, and contributions in respect of (Animal) Licence Fees of £98,000 (2004/05 = £98,000), are provided by the Department of Trade and Industry (DTI) for the financial year 2005/06. The parliamentary grant-in-aid for 2005/06 was £459,541,726.

	2005/06 £000	2004/05 £000
Grant allocation for recurrent expenditure	412,319	342,235
Grant allocation for capital expenditure	47,223	38,684
	459,542	380,919
Transferred to deferred grant-in-aid reserve and capital land reserve for purchase of tangible fixed assets (note 22)	(53,188)	(28,464)
Credited to income and expenditure account	406,354	352,455

3. Contributions from other government departments

	2005/06 £000	2004/05 £000
Department of Health	24,947	14,439
Department for International Development	3,926	3,593
Ministry of Defence	398	621
NHS Executive	195	103
Department of Trade and Industry	31	86
Foods Standards Agency	917	1,009
Scottish Home and Health Departments	365	271
Other	423	880
Total	31,202	21,002

4. Contributions and grants from other bodies

	2005/06 £000	2004/05 £000
Other research councils	3,350	4,041
Charities	14,804	6,983
Collaboration with industry	1,095	1,720
European Commission	3,189	3,451
World Health Organization	103	181
Human Frontiers Science Program	253	435
Health Authorities and NHS Trusts	1,529	1,213
Universities	2,834	2,094
Other sources	3,683	3,263
Total	30,840	23,381

5. Other income

	2005/06 £000	2004/05 £000
Sales and other income	5,059	9,047

The MRC's sales income is derived from laboratory and library services and proceeds from sales of radioisotopes, and other items.

6. Interest receivable

	2005/06 £000	2004/05 £000
Interest earned on the MRC's Euro and other foreign currency accounts	60	23
Interest earned on the MRC's Sterling bank balances	282	384
Total	342	407

7. Staff costs

	2005/06 £000	2004/05 £000
Employee costs (note 7b)	159,684	147,576
Non-permanent staff	6,048	4,054
Remuneration to the MRC's Council and committee members (note 7c)	249	221
Early retirement costs (note 21)	8,215	1,794
Gross staff costs	174,196	153,645
Less commercial activities (note 13)	(4,355)	(1,773)
Staff costs for general activities	169,841	151,872

7a. Staff numbers

The average number of employees during the year was made up as follows:

	2005/06	2004/05
Job functions		
Science	1,222	1,233
Research project support	1,057	1,085
Management administration and policy	551	566
Technical services	422	443
Infrastructure	172	165
Locally employed staff (overseas)	983	933
Total	4,407	4,425

7b. Employee costs

	2005/06 £000	2004/05 £000
Salaries and wages	132,973	124,145
Social security costs	10,395	10,415
Other pension costs (note 7d)	16,316	13,016
Total	159,684	147,576

7c. Remuneration to the MRC's Council and committee members

	2005/06 £000	2004/05 £000
Fees and honoraria	242	215
Social security costs	7	6
Total	249	221

Further details are included in the Remuneration Report (page 48).

7d. Other pension costs

	2005/06 £000	2004/05 £000
Total pension costs		
Current service costs (net of employee contributions relating to MRCPS)	16,290	12,990
Other schemes	26	26
Total	16,316	13,016

MRCPS

The MRC operates a funded pension scheme (MRCPS) providing benefits based on service and final pensionable pay at a normal retirement age of 65. The scheme is a defined benefit scheme that prepares its own scheme statements. Benefits accrue at the rate of 1/80th of pensionable salary for each year of service. In addition a lump sum equivalent to three years' pension is payable on retirement. Members pay contributions of six per cent pensionable earnings in the principal section. In addition to the principal section, the supplementary benefits section exists to provide additional benefits in the event of ill-health retirement or death-in-service. It is solely funded by members' contributions.

The required MRCPS contribution rate is assessed every three years in accordance with advice of the Government Actuary; the present MRCPS employers' contribution rate is 11%. The latest actuarial assessment of the MRCPS was as at 31 December 2004 at which the market value of the assets of the MRCPS was £890m (2001 = £758m). The actuarial value of the assets was sufficient to cover 106 per cent of the benefits that had accrued to members after allowing for expected future increases in earnings. On a minimum funding requirement basis, the scheme is more than 120 per cent funded.

FRS17: the valuation used for FRS17 disclosures has been based on the data for the most recent actuarial valuations as at 31 December 2004, updated to take account of the requirements of FRS17 in order to assess the liabilities of the scheme at 31 March 2006. The mortality assumptions included within the figures are that male (female) members who retire at typical ages will live to approximately age 90 (93).

Financial assumptions used to calculate scheme liabilities	2005/06 %	2004/05 %	2003/04 %	2002/03 %
Rate of increase on pensionable salaries	4.60	4.30	4.30	3.90
Rate of increase on pension payments	3.00	2.80	2.80	2.40
Discount rate	4.90	5.40	5.40	5.40
Inflation rate	3.00	2.80	2.80	2.40
Long Term Expected return on equities	6.84	7.25	7.36	7.20
Long Term Expected return on bonds	4.23	4.63	4.69	4.52
Long Term Expected return on overall fund	6.60	6.90	7.10	6.80

The assets and liabilities in the scheme	2005/06 Market value £000	2004/05 Market value £000
Assets		
- Equities and property	696,566	544,794
- Bonds and cash	76,210	74,205
	772,776	618,999
Actuarial value of liability	(726,957)	(596,769)
Surplus in scheme	45,819	22,230

The movements in the scheme surplus	2005/06 £000	2004/05 £000
Surplus at beginning of year	22,230	62,788
Current service cost (including employee contributions)	(22,197)	(19,341)
Employee contributions	5,907	6,351
Current service costs net of employee contributions	(16,290)	(12,990)
Employer contributions	11,177	-
Other finance income	10,485	11,890
Actuarial gain/ (loss)	18,217	(39,458)
Surplus at end of year	45,819	22,230

Other finance income	2005/06 £000	2004/05 £000
Expected return on pension scheme assets	42,711	39,100
Interest on pension scheme liabilities	(32,226)	(27,210)
Net return	10,485	11,890

Other schemes

The total superannuation contributions paid by the MRC in 2005/06 were £26,110 (2004/05 = £25,822). These amounts represent employers' contributions at five per cent and 10 per cent for a small number of long-serving members of the National Health Service Superannuation Scheme (NHSS) and Federated Superannuation Scheme of Universities (FSSU) respectively.

The NHSS is a multi employer unfunded scheme, and the MRC is unable to identify its share of the underlying assets and liabilities on a consistent and reasonable basis for inclusion in its financial statements.

The FSSU is a multi employer funded scheme, where the benefits are secured by assurance policies. Due to the conditions of the annuity market, the MRC do not consider any surplus/deficits accruing to the employer to be material.

8. Other operating costs

	2005/06 £000	2004/05 £000
Rent and rates	5,286	4,311
General maintenance, cleaning, heating and lighting	7,721	6,600
Maintenance of buildings	7,531	6,925
Office supplies, printing and stationery	2,778	2,959
Laboratory supplies	24,279	25,878
Management consultancy and other professional fees	12,870	10,337
Postage and telephone	2,539	2,187
Audit fee	50	48
Travel, subsistence and hospitality	6,976	6,249
Computing	3,582	3,511
Equipment servicing	4,375	4,988
Minor equipment	2,276	2,093
Miscellaneous	12,002	8,891
Transport costs	620	582
Exchange rate gains	(407)	(166)
Bad debts charge	87	392
Decommissioning costs (see note 21)	3,883	-
Total	96,448	85,785

9. Research grants

	2005/06 £000	2004/05 £000
Research Grants	84,952	80,863
Centre Grants	3,664	3,493
Collaboration Grants	12,474	14,431
Discipline Hopping Awards	1,330	1,004
Link Award	727	641
New Investigator Award	1,512	125
Trial Grant	9,794	6,641
Hearing Screening Programme	15,394	7,657
European Bioinformatics Institute Capital Grant (note 16)	5,468	-
Other	14,587	7,109
Total	149,902	121,964

10. Other research

	2005/06 £000	2004/05 £000
Contributions to special research programmes	£22,513	£14,560

11. Postgraduate/training awards

	2005/06 £000	2004/05 £000
Research studentships/advanced course studentships	24,058	21,820
Post-doctoral fellowships	27,746	28,574
Total	51,804	50,394

12. International subscriptions

	2005/06 £000	2004/05 £000
International Agency for Research on Cancer	697	680
European Molecular Biology Conference	1,386	1,290
European Molecular Biology Laboratory	7,977	7,178
Human Frontier Science Program	790	758
European Science Foundation	156	-
Total	11,006	9,906

13. Commercial activities

	2005/06 £000	2004/05 £000
Income during the year	34,283	28,516
Expenditure during the year:		
Staff costs (note 7)	4,355	1,773
Other expenditure	11,292	7,603
	(15,647)	(9,376)
Net income for the year	18,636	19,140

The MRC requires a financial return from successful commercial exploitation of original MRC research. Such income arises from royalties, equity stakes and other forms of receipts as a result of licensing agreements of MRC inventions and know-how.

Income and expenditure relating to commercial activities is credited and charged to the income and expenditure account and its cumulative balance represented within the general reserve on the balance sheet. The cash surplus on such activities as at 31 March 2006 was £147,567,000 (2004/05 = £41,552,000).

14. Amounts payable to the Office of Science and Innovation

	2005/06 £000	2004/05 £000
Interest earned on the MRC's sterling bank balances (note 6)	282	384
Unspent animal licence fee contribution	-	16
Surrendered to Office of Science and Innovation	282	400

Interest earned on the MRC's sterling bank balances together with any underspend for licence fees payable under the Animal Licences Act 1986 are surrendered to the consolidated fund through the Office of Science and Innovation.

15. Intangible fixed assets

Intangible fixed assets include patents and licences generated by MRC research.

	2005/06 £000
At valuations	
Net book value as at 1 April 2005	110,255
Additions	4,267
Disposals	(19,858)
Revaluations	(7,420)
Charge for the year	(8,107)
Net book value as at 31 March 2006	79,137

Net asset values suffered a decrease in value due mainly to a fall in future estimated income, and the disposal of our investment in Humira®.

	£000
Disposal of Humira®	
Receipt from sale of Humira® licence	107,637
Payments relating to the sale	(14,750)
	92,887
Net book value of disposed licence	(19,858)
Profit on disposal	73,029

The proceeds and associated payments are reflected in the cash balance in note 13.

16. Tangible fixed assets

	Land and buildings[1]	Assets under construction	Equipment and vehicles	Total
	£000	£000	£000	£000
Cost or valuation				
At 1 April 2005	300,877	14,067	159,985	474,929
Reclassification	44	-	-	44
	300,921	14,067	159,985	474,973
Additions	30,275	17,281	14,194	61,750
Reclassification	1,800	(3,459)	1,659	-
Disposals[2]	(10,096)	-	(13,767)	(23,863)
Revaluation	11,819	-	3,653	15,472
At 31 March 2006	334,719	27,889	165,724	528,332
Depreciation				
At 1 April 2005	147,509	-	112,029	259,538
Reclassification	44	-	-	44
	147,553	-	112,029	259,582
Provided during the year	5,218	-	12,147	17,365
Disposals[2]	(978)	-	(11,483)	(12,461)
Revaluation	6,954	-	3,408	10,362
At 31 March 2006	158,747	-	116,101	274,848
Net book value				
As at 31 March 2006	175,972	27,889	49,623	253,484
As at 1 April 2005	153,368	14,067	47,956	215,391
At historical cost	203,521	27,889	139,373	370,783
Depreciation	(57,417)	-	(92,165)	(149,582)
Net book value	146,104	27,889	47,208	221,201

The net book value of land and buildings comprises:	2005/06 £000	2004/05 £000
Freehold	59,958	39,788
Long leasehold	103,475	98,976
Short leasehold	12,539	14,604
	175,972	153,368

[1] *Tangible fixed assets include £48,237,137 in respect of land, which is not depreciated.*

[2] *The disposals include The Rosalind Franklin Centre building (net book value of £5,468,364). The asset was transferred to the European Bioinformatics Institute in order to discharge our obligation under the funding agreement, and is included in research grant at note 9.*

Land and buildings were valued using relevant indices to establish valuations at 31 March 2006 and in accordance with Statements of Asset Valuation Practice (SAVP) and Royal Institute of Chartered Surveyors (RICS) guidance notes.

The last professional revaluation of land and buildings in the UK was performed by Powis Hughes and Associates, Chartered Surveyors, at 1 December 2003. Professional revaluations of land and buildings at the MRC's Laboratories in The Gambia and Uganda were performed locally by Sphinx Associates, Chartered Quantity Surveyors in association with BB Barry Consultancy Service (Land Economist) at 31 October 2003, and BBL (U) Chartered Quantity Surveyors in December 2003 respectively.

17. Fixed asset investments

	Subsidiary companies	Joint ventures	Other investments	Total investments
	£000	£000	£000	£000
Valuation as at 1 April 2005	-	227	5,763	5,990
Additions	-	-	266	266
Revaluation	-	(227)	1,242*	1,015
Valuation as at 31 March 2006	-	-	7,271	7,271

* Represented by increases in value.

17a. Subsidiary companies

MRC Technology

MRC Technology Ltd (MRCT) is a company registered in England and Wales, limited by guarantee and a registered charity which was set up to provide a laboratory-base for project management of applied research funded by industrial partners, and offer infrastructure to 'spin-out' companies. Since April 2000 it has also managed the exploitation of MRC intellectual property under a service agreement with the MRC.

MRCT is a separate legal entity that prepares its own accounts under a different format. Due to its charitable status, the risks and rewards of MRCT do not lie with the MRC and the MRC cannot exercise control over its decisions. MRCT has therefore been excluded from consolidation.

For the year ended 31 March 2006 the accounts of MRCT revealed a profit for the year of £4,335,162 (2005 = £252,180 loss, as re-stated) and net assets of £10,113,457(2005 = £5,573,234).

During the year ended 31 March 2006 the MRC provided goods and services to MRCT to a value of £4,280,384 (2004/05 =£3,625,130). These goods and services were costed on the same basis on which they would be provided between departments within the MRC. As at 31 March 2006, the MRC was owed £2,062,152 (2004/05 = £1,804,399) and owed £161,694 to MRCT (2004/05 = nil).

MVM Limited

MVM Limited were a non- consolidated subsidiary of the MRC as at 31 March 2005. On 23 December 2005, MVM Ltd bought back the ordinary shares previously owned by MRC at a cost of £150,000. Safeguards were written into the sale and purchase agreement to protect MRC's original investment in the company in event of a follow on sale of MVM Ltd by its new owners. This is calculated on a sliding scale over 5 years from date of sale.

MVM Limited are venture capital fund managers. MVM Limited manages the UK Medical Ventures Fund (Fund 1) and the International Life Sciences Fund (Fund 2). Both funds were formed to establish and invest in new companies to exploit biotechnologies, the primary source of technologies originating from the MRC's intramural research programme. MRC stands to receive "carried interest of" 9% of the profits of Fund 1 and 3% from Fund 2.

17b. Joint ventures

Hammersmith Imanet Limited

The MRC holds 25 per cent of the ordinary shares of the company whose capital and reserves were valued at (£2,476,546) at 31 December 2005. The profit and loss account for the period then ended recorded a loss of £3,562,206 (2004/05 = £109,729 profit). This joint venture with Amersham plc contains a number of agreements on scanning services and a research award.

Scanning services: Hammersmith Imanet Limited provides scanning services to the MRC. In consideration for this service the MRC agrees to pay £2,232,500 (including VAT) per year for a contract period from February 2001 to December 2005. During the year to 31 March 2006 this amounted to £1,116,250 (2004/05 = £2,232,500). A new agreement was signed on 6 April 2006.

Research award: The MRC approved an award as a special contribution. This was a cash limited award of £1m per year from February 2001 to December 2005. During the year to 31 March 2006 this amounted to £500,000 (2004/05 = £1,000,000).

The investment in Hammersmith Imanet Limited is shown as nil to reflect the net negative liability arising from loss for the year. The MRC's share of Hammersmith Imanet Limited's results has not been included in the accounts in accordance with FRS9 on the grounds of materiality. As at 31 March 2006, Hammersmith Imanet Limited owed MRC £1,080,893 (2004/05 = £56,754) in respect of goods & services.

17c. Other investments

Description of holding	Number of shares held	Holding %	Market value at 31 March 2006 £000
Quoted			
Ardana Ltd	416,460	0.75	525
Cambridge Antibody Technology plc#	660,000	1.28	5,129
Galapagos NV (formerly Biofocus plc)	59,919	0.47	398
Innovata plc (formerly M L Laboratories plc)	204,190	0.04	51
Natus Medical Inc	7,066	0.04	83
Sangamo Biosciences Inc	165,255	0.54	566
Topo Targets A/S	113,916	0.28	266
Vernalis plc	310,392	0.14	253
Amylin Pharmaceuticals Inc	20,000 (warrants)	-	-
			7,271
Private unquoted			
ASM Scientific Ltd	27,000		
Avidis S.A.	594		
CMP Therapeutics Ltd	93,600		
D-Gen Ltd	13,162		
Domantis Ltd	2,500,000		
Iclectus Ltd	6,400		
Oxxon Therapeutics Ltd	10,332		
Rain Dance Technologies Inc	200,000		
Senexis Ltd	10		

 # Original purchase price £100.

At the close of business on 31 March 2006 the price per share of MRC's shareholdings listed on the London Stock Exchange, the AIM, the Nasdaq and the Danish Stock Exchange were as follows:

Ardana Ltd	126p
Cambridge Antibody Technology plc	777p
Galapagos NV	665p
Innovata plc	25p
Natus Medical Inc*	$20.5
Sangamo Biosciences Inc*	$5.95
Topo Targets A/S ~	DKK 24.9
Vernalis plc	81.5p

** The share prices of the two listed US companies, were converted at a rate of US $1.7386 = £1.00.*
~ The share price of the listed Danish company was converted at a rate of DKK 10.684 = £1.00.

These companies represent the MRC's interest in enterprises engaged in the commercial development of MRC inventions and know-how. These equity positions were received in return for company access to MRC intellectual property. The MRC also has the option to purchase shares in Amylin Pharmaceuticals Inc at any time up to 8 May 2007.

MRC's shares in Cambridge Antibody Technology plc were sold after the year-end for £8,712,000.

18. Stock

	2005/06 £000	2004/05 £000
Consumable stores and livestock	2,006	2,543

19. Debtors

	2005/06 £000	2005/06 £000	2004/05 £000	2004/05 £000
Trade debtors	9,540		8,520	
Less provision for bad debts	(364)		(308)	
		9,176		8,212
Other debtors		3,307		2,944
Accrued income		23,228		17,576
Prepayments		11,016		4,793
Total		46,727		33,525

Intra-government balances

At the end of the year, the MRC had debtor balances with other government bodies totalling £1,641k (2004/05 = £2,006k) comprising the following: Government Agencies: £1,455k (2004/05 = £1,839k), Local Authorities: £14k (2004/05 = £58k), NHS Trusts and Hospitals: £172k (2004/05 = £109K).

20. Creditors: amounts falling due within one year

	2005/06 £000	2004/05 £000
Trade creditors	52,280	11,714
Accruals	29,028	26,993
Taxation and social security	3,528	3,360
Income received in advance	14,919	7,752
Others	1,314	1,965
Total	101,069	51,784

Intra-government balances

During the year, the MRC had creditor balances with other government bodies totalling £226k comprising the following: Government Agencies: £104k (2004/05 = £79k), Local Authorities: £2k (2004/05 = nil), NHS Trusts and Hospitals: £120k (2004/05 = nil).

21. Provisions for liabilities and charges

	Early retirement compensation scheme £000	Redundancy costs £000	Other costs £000	Total provisions £000
At 1 April 2005	6,780	1,930	83	8,793
Amount provided in year	8,215	2,545	3,883	14,643
Transfer to accruals	-	(1,586)	(40)	(1,626)
Unwinding of discount	231	-	-	231
Amount expended in year	(3,378)	(1,930)	-	(5,308)
At 31 March 2006	11,848*	959	3,926	16,733

**This figure represents the MRC's liability for annual compensation payments up to the year 2021.*

Early retirement compensation scheme

There are two categories of early retirement: compulsory and flexible. Both are applicable to all members of staff but different terms apply depending on whether the staff member is under or over age 50.

Aged 50 or over: Annual compensation payments are made, equivalent to enhanced pension benefits, from the date of early retirement to normal retirement date. In the case of compulsory retirement only, there is also a lump sum compensation payment of up to six months salary.

Aged under 50: Compensation takes the form of a lump sum payment based on age, length of service, and final salary; payment levels are higher in the case of compulsory retirement.

Methods of early retirement: Compulsory retirement is imposed where a redundancy situation is identified following either a management review of support services or quinquennial peer review of the science, and redeployment to other MRC work is not possible.

Flexible early retirement is voluntary and is available at the invitation of management on grounds of limited efficiency or structure.

The increase in the year is due to the closure or restructuring of several research units and the set up of the Shared Service Centre.

Redundancy costs

A provision has been made during the year for the restructuring due to set up of Shared Service Centre.

Other costs

These include legal obligations, £43k relating to an employee compensation claim and estate obligations, £3,883k relating to the decommissioning of a Cyclotron and associated apparatus from the former MRC Cyclotron Unit at Hammersmith Hospital. The lease expires in 2052. The liability has been discounted at 2.2% over 25 years, which is when the obligation is expected to be settled.

22. Capital and reserves

	Deferred grant-in-aid reserve	Revaluation reserve	Capital land reserve	Intellectual property reserve	Donated asset reserve	Pension reserve	General reserve	Total government funds
	£000	£000	£000	£000	£000	£000	£000	£000
At 1 April 2005	149,792	65,218	5,896	110,255	475	22,230	34,057	387,923
Capital grant-in-aid and other capital funding received	30,766	-	22,423	-	269	-	-	53,458
Released to income and expenditure account	(25,238)	-	-	-	(91)	-	-	(25,329)
Additions during year	-	266	-	4,267	-	177	-	4,710
Revaluation during year	-	6,125	-	(7,420)	-	-	-	(1,295)
Actuarial gain/(loss) in the pension screen	-	-	-	-	-	18,217	-	18,217
Transfer to general reserve-depreciation	-	(3,562)	-	(8,107)	-	-	11,669	-
Transfer to general reserve-disposals	-	*123	-	*(19,858)	-	-	19,735	-
Transfer to pension scheme	-	-	-	-	-	5,195	(5,195)	-
Transfer to capital land reserve	-	-	8,293	-	-	-	(8,293)	-
Surplus for the year	-	-	-	-	-	-	55,298	55,298
Reversal of notional cost of capital	-	-	-	-	-	-	13,465	13,465
At 31 March 2006	155,320	68,170	36,612	79,137	653	45,819	120,736	506,447

** In respect of the revalued element of disposed fixed assets and investments in the year.*

23. Reconciliation of the operating deficit to net cash inflow from operating activities

	2005/06 £000	2004/05 (Re-stated) £000
Operating deficit	(9,468)	(22,550)
Depreciation charge	17,365	16,954
Amortisation charge	8,107	10,511
Other non-cash items – FRS17 pension costs	5,290	12,990
Transfer of asset (note 16)	5,468	-
Unwinding of discount provisions	(231)	(241)
Release of deferred income	(25,329)	(14,273)
Increase in provision for liabilities and charges	7,940	1,164
Decrease/(Increase) in stocks	537	(177)
Increase in debtors	(13,202)	(9,082)
Increase in creditors*	45,849	14,249
Net cash inflow from operating activities	42,326	9,545

** The prior year figures have been re-stated to exclude capital creditors of £4,167,000.*

24. Reconciliation of movement in cash to movement in net funds

	2005/06 £000	2004/05 £000
Net funds at 1 April	58,566	44,819
Increase in cash	131,239	13,747
Balance at 31 March	189,805	58,566

Balance includes £147,567,000 (2004/05 = £41,552,000) of Commercial Fund deposits and £23,215,000 (2004/05 = £11,315,000) held at the office of HM Paymaster General.

25. Contingent liabilities

There were no contingent liabilities this year.

26. Commitments

Capital

The MRC had estimated future commitments to capital expenditure, which had been contracted but not provided for at the balance sheet date of £35,675,000 (£31,823,000 at 31 March 2005).

Research awards

Forward commitments on research awards to higher education institutes:	£000
2006-2007	138,234
2007-2008	106,325
2008-2009	74,933
2009-2010	39,204
2010-2014	20,674

27. Related party transactions

The MRC is a non-departmental public body sponsored by the DTI. For the purposes of *Financial Reporting Standard 8*, the DTI is regarded as a related party. During the year, the MRC has had various material transactions with the DTI and other bodies for which the DTI is regarded as the parent department; namely the Economic and Social Research Council, the Engineering and Physical Sciences Research Council and the Biotechnology and Biological Sciences Research Council.

Council members act as Trustees for two registered charities collectively known as the MRC Charitable Funds. The Charitable Funds are administrated by the MRC, and therefore regarded as a related party. The MRC provided free resources to the charity in respect of administration, to the value of £30.4k.

See note 17 for transactions with subsidiary and joint venture undertakings. During the year, the following material transactions with the MRC's Council, board and committee members took place in respect of awards funded by the MRC.

Name	**Number of awards**	**Value (£)**
Dr H Hearnshaw	1	70,556
Dr M K Parmar	1	6,747,929

Name	Number of awards	Value (£)
Dr M Larche	1	667,892
Dr N J Wareham	1	2,151,427
Professor D Armstrong	1	879,376
Professor A Burchell	1	309,856
Professor A Carr	1	200,003
Professor A Jacoby	1	163,071
Professor A M Johnson	4	745,678
Professor A Silman	1	118,263
Professor A V S Hill	2	975,228
Professor C May / Professor C R Donaldson	1	174,048
Professor D Crossman	1	753,924
Professor D Sharp	1	167,063
Professor E J Jenkinson	1	1,000,004
Professor F Gotch	1	845,780
Professor G Davey Smith	1	229,532
Professor G Smith	1	1,400,382
Professor I Harvey	1	242,896
Professor J J Belch	1	172,809
Professor J Savill	1	1,017,824
Professor K Cheng	1	336,167
Professor L S Young	1	520,888
Professor M Husain	2	1,925,364
Professor M Wilkins	1	176,276
Professors P Burton	1	4,471,052
Professor P J Harrison	1	662,544
Professor P Jeggo	1	1,498,355
Professor P Johnson	1	163,832
Professor P M Matthews	1	167,660
Professor P M Stewart	1	298,512
Professor R D Patterson	1	377,923
Professor R Trembath	1	308,116
Professor S Lewis	2	1,852,539
Professor T J Peters	1	4,471,052
Professor Y R Mahida	1	651,214

None of the above were involved in the approval of these awards. In addition, the MRC made the following aggregate awards to institutions where senior members of staff are also MRC's council, board and committee members.

Related party	Institution	Number of awards	Aggregate amount (£)
Professor K Fox Professor J Williams Professor B P Morgan	Cardiff University	9	3,506,556
Professor D Balding Professor M Dallman Professor F Gotch Professor G Smith Professor P Elliott Professor S Johnson Professor C Pusey Professor M Wilkins Dr M Larche Professor M Ritter	Imperial College of Science, Technology & Medicine	28	12,544,751
Professor D Barford	Institute of Cancer Research	1	460,809
Professor A El Haj	Keele University	3	1,398,298
Professor G Thornicroft Professor J Scott Dr D Armstrong Professor S Amiel Professor M Yianneskis Professor P Doherty Dr L Ridsdale	King's College London	19	18,932,260

Related party	Institution	Number of awards	Aggregate amount (£)
Professor D Leon Professor H Dockrell	London School of Hygiene and Tropical Medicine	2	1,153,194
Professor N Lemoine Professor A Clark Professor M Caulfield	Queen Mary and Westfield College	7	2,564,780
Professor G Reynolds	Queen's University Belfast	2	717,045
Professor C M Kielty Professor A North Professor R Grencis Professor S Lewis Professor A Silman Dr S Hubbard Professor N Rothwell Professor A White Professor H Waterman	The University of Manchester	12	7,313,479
Professor C Dezateux Professor D Goldblatt Professor N Newell Professor A Copp Professor C Power Professor A Johnson Professor M Fitzgerald Professor W Richardson Professor A Schapira Professor V Walsh Dr A Gibb Professor D Jones Dr A J Bain Professor M Husain Professor G Hart Professor M Marsh	University College London	27	12,772,284
Professor M Smith Professor A Grant	University of Aberdeen	5	1,206,889
Professor M Wakelam Professor L Young Dr K Cheng Professor P Johnson Professor E Jenkinson Professor L Piddock Professor G Humphreys Professor J McKeating Dr L Macaskie Professor P Stewart	University of Birmingham	13	5,174,214
Professor T Peters Professor Z Bashir Professor J Tavare Professor M Miles Professor D Sharp	University of Bristol	10	12,407,349
Dr S Efstathiou Professor E Bullmore Professor C French-Constant Professor N Wareham Dr J Clarke Professor S Bray	University of Cambridge	27	21,529,220
Professor J Belch Professor C Watts Professor M Chaplain Professor A Burchell	University of Dundee	4	1,859,132
Professor D Finnegan Professor JSavill Professor P Ghazel	University of Edinburgh	14	7,795,082

Related party	Institution	Number of awards	Aggregate amount (£)
Professor I Gheer Professor R Brown Professor J Mottram Professor J Cooper Professor D Saxon Dr A Page	University of Glasgow	4	2,083,838
Professor D Bonthron Dr N Hooper Dr J Colyer	University of Leeds	6	3,175,889
Professor P Burton Professor S Nahorski Professor P Nicotera Professor R Trembath Professor B Williams Professor G Roberts	University of Leicester	5	1,844,485
Professor P Trayhurn Professor A Jacoby Professor K Park	University of Liverpool	5	1,415,902
Professor C R Donaldson Professor J Mathers Professor C May Professor A McCaskie	University of Newcastle-upon-Tyne	14	7,395,312
Professor H Sewell Professor Y R Mahida Professor J D Brook Professor P O'Shea Professor K Shakesheff	University of Nottingham	7	5,553,756
Professor E Sim Professor K Davies Professor A McMichael Professor A Hill Professor R Phillips Professor F Powrie Professor P J Harrison Professor P Matthews Professor A Vincent Professor H Watkins Professor D Higgs Professor Y Jones Professor M McCarthy Dr R Mott	University of Oxford	26	18,385,563
Professor D Berry	University of Reading	1	331,367
Professor P Andrews Professor J Nicholl Professor D Crossman Professor R Eastell Professor J Brazier	University of Sheffield	6	2,880,118
Professor R Oreffo	University of Southampton	7	2,907,782
Professor A Carr Professor J Cohen Dr P Jeggo	University of Sussex	6	5,231,964
Dr H Hearnshaw Professor S R Weich	University of Warwick	3	553,821
Professor E Roman Professor N Cullum Professor D Smith	University of York	1	271,327

28. Financial instruments

FRS13, *Derivatives and Other Financial Instruments*, requires disclosure of the role which financial instruments have had during the period in creating or changing the risks a body faces in undertaking its activities. Because of the largely non-trading nature of its activities and the way it is financed, the MRC is not exposed to the degree of financial risk faced by businesses. Moreover, financial instruments play a much more limited role in creating or changing risk than would be typical of the listed companies to which FRS13 mainly applies. The MRC has limited powers to borrow or invest funds; financial assets and liabilities are generated by day-to-day operational activities and are not held to change the risks facing the MRC in undertaking its activities.

Liquidity risk

The MRC's net revenue resource requirements are largely funded by the grant-in-aid from its sponsor department. The capital expenditure is also financed through the grant-in-aid. The MRC is therefore not exposed to significant liquidity risks.

Interest rate risk

The MRC is not exposed to any interest rate risk.

Foreign currency risk

The MRC maintains US dollar and Euro bank accounts in order to deal with day-to-day transactions. There is a risk attached to holding foreign currency denominations but this is not considered to be material.

The MRC also holds certain balances in overseas bank accounts to help manage day-to-day business transactions of its overseas operations. During the year ended 31 March 2006, the average monthly float levels were £900,000 (2004/05 = £700,000).

29. Post balance sheet events

MRC's shares in Cambridge Antibody Technology plc were sold after the year-end for £8,712,000.

There have been no other events since the end of the financial year which would affect the understanding of the Accounts.

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