A guide to translation
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Weaving Nobel science into design
page 12
The MRC is now well placed to meet the challenge of translating the findings of a very strong science base to ensure that people and the economy reap the benefits as quickly as possible.

The MRC’s priorities include encouraging and supporting research to improve health, producing skilled researchers, promoting dialogue with the public about medical research and advancing and disseminating knowledge and technology to improve the quality of life and economic competitiveness of the UK.

The MRC has a strong working relationship with the National Institute for Health Research (NIHR) as well as the devolved administrations. New joint funding programmes are in place – not just with NIHR but with other health departments, universities, research councils, industry, government agencies and charities.

Strategic coordination in key areas between NIHR and MRC under the Office for the Strategic Coordination of Health Research (OSCHR) has led to a closer, more coherent approach to publicly funded health research. There’s also been an improvement in the coordination of the translation of basic research into health and economic benefit (see page 6). There has been a steady stream of new calls and programmes from the MRC (see page 7).

This edition of Network reflects on the changes made within the organisation over the past year and a half and looks ahead at what comes next: delivering the highest quality basic science and converting it into health and economic benefits as efficiently as possible.

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Sir Leszek Borysiewicz – a year at the helm

Reflecting on his first year in charge of the MRC, Sir Leszek Borysiewicz has spoken to Network about the “huge amount of change” that has taken place: the emphasis on translation; securing the rebuild of the Laboratory of Molecular Biology; the ongoing programme to develop the UK Centre for Medical Research and Innovation; strengthened funding for basic, response mode research; more diverse and different funding schemes; and changes to the development and implementation of the MRC’s strategy.

Sir Leszek’s arrival at the MRC coincided with a significant increase in the organisation’s budget from £543 million in 2007/08 to £682 million a year by 2010. He told Network: “We’ve talked a lot this year about translational research but at all times, the success of UK biomedical science has been absolutely dependent on our continued excellence in basic research. One of the things that thrilled me most of all was that within days of starting, I was able to announce that we could achieve the translational changes without detriment to our basic science programme. If we do not continue to support basic science there will be nothing to translate in ten years’ time.”

In the drive to push forward basic research into benefits as quickly as possible, Sir Leszek has pursued the shared agenda for health research which is being developed across the UK. He has helped to foster a close working relationship with the National Institute for Health Research (NIHR) – the research and development arm of the NHS in England, as well as the devolved administrations, under the auspices of OSCHR (the Office for the Strategic Coordination of Health Research). “I’m quite delighted about how OSCHR has developed,” he says. “It has enabled and supported the interface that has developed actively between NIHR and MRC. By establishing leads in certain areas, we’re able to achieve good coordination between our two organisations and ensure that applicants do not fall into the trap of double jeopardy which was the thing I wanted to avoid most of all.”

The MRC has created new schemes to enable investigators to take developments from basic science forward into clinical or commercial exploitation: “You come in with an application...”

You can hear the whole interview with Sir Leszek at: www.mrc.ac.uk/NewsViewsAndEvents/Podcasts

CONTINUED >> next page
once and once only. And between us [NIHR and MRC], we work out the best way to handle that application. And we’re trying to ensure that there are no gaps in the funding stream as we move into that translation agenda such that investigators can have confidence that if they’ve got a good idea, and if it passes the quality and excellence test, we will be looking for the optimum way that it can be funded into the future.”

But he also wants to develop new ways of working with major partners including universities, charities, and industry: “They are stakeholders in the MRC operation,” he says. “We want to engage with them more actively in this process. And that extends to the National Health Services in Wales, Scotland, Northern Ireland as well as NIHR in England to make sure that we can really achieve the endpoints that were outlined in the Cooksey Report but also because they are the right things for the UK.”

### Changing faces on the senior team

Over the past few months the management board of the MRC has been undergoing substantial change. John Jeans will start as Chief Operating Officer in January (see Network July/August 2008). Two other appointments include:

**Wendy Ewart** became the Director of Strategy on 11 August. Formerly the Head of Research Strategy in the Faculty of Medicine at Imperial College, Wendy’s primary role now is to provide high-level support to the MRC’s chief executive in developing and communicating our research strategy and its impact. She will also direct the overall approach to planning and evaluation across MRC.

Wendy will be a member of the MRC’s Management Board and Strategy Board, working closely with all other directors in the corporate headquarters including the Chief Executive of MRC Technology.

In January, **Declan Mulkeen** took up the post of Director of Research and Training to help steer the MRC as it begins to implement its translational research strategy.

The MRC’s research management group is the main link with the scientific community and with the health departments and the NHS, and manages MRC research strategy development and processes for stimulating research proposals in priority areas. Declan leads the delivery of the MRC’s research strategy, research training and career development for scientists, and developing ethics and research governance.

### Jim Smith to lead NIMR

Professor Jim Smith, Director of the National Institute for Medical Research.

Following an international search for an exceptional scientist and leader, Professor Jim Smith, a developmental biologist, has been appointed to head the world-renowned National Institute for Medical Research (NIMR). Professor Smith has been the Director of the Wellcome Trust/Cancer Research UK Gurdon Institute in Cambridge, and the John Humphrey Plummer Professor of Developmental Biology.

Taking up this post on 1 January 2009, Professor Smith will build on NIMR’s world-class reputation and excellent track record, taking the institute to the next stage in its development – becoming part of the UK Centre for Medical Research and Innovation (UKCMRI).
The Medical Research Council has awarded a total of £10.6 million to fund research to develop better models of human disease. The successful grantholders are based in universities across the UK, and look at a wide range of diseases, including diabetes, stroke, heart disease and age-related macular degeneration.

Dr Chris Watkins, who leads the MRC Translational Research Theme, said: “High quality models of human disease are invaluable in understanding disease processes, how they progress, and how to develop effective therapies. The studies were chosen to provide immediately relevant ways to discover new treatments and understand disease.”

The awards are one component of a strategic initiative to target bottlenecks in translational research, as part of the MRC’s Translational Research Strategy. Supported projects include those in vitro, in cell cultures or test tubes, in vivo, in a live animal or person, and in silico, computer-based models that use experimental data from animal and human studies. The funding has been split between 20 research groups. Several of the supported projects involve collaborations with industry. For more details, visit www.mrc.ac.uk.

Image:
Computer graphic showing a part of the molecule of human insulin.

Benefiting people through partnership

The MRC and NIHR are coordinating plans under the auspices of OSCHR to work together to build the health research environment for the twenty-first century. This will be delivered in five key areas: translational research, public health research, e-health records research, research methodology and human capital.

The two organisations want to ensure that the best possible care is delivered from the best research so that advances in basic science are swiftly identified, promising interventions developed, and their effectiveness evaluated. The organisations want to create a pathway along which research can be developed and the mechanisms are in place to encourage innovation and application of discovery.

To do this, the MRC and NIHR will continue to fund the very highest quality research. But they also want to ensure that researchers use the best possible methods in their research and that the strengths of information available through the NHS are available to researchers.

The coordinated vision will lead to an environment which is highly attractive to private sector investment because of the quality of researchers and the science they carry out.

For more details visit www.mrc.ac.uk/opportunities.
Creating benefit

The MRC’s increased allocation of funding over the current spending review period has allowed a substantial increase in the number and range of initiatives and activities to deliver its translational research commitments, while continuing to support the basic research that drives it.

Over the past year a new translational strategy has been put in place and a new way of coordinating the overall strategy with the National Institute for Health Research (NIHR) under the Office for the Strategic Coordination of Health Research (OSCHR) and its Translational Medicine Board has been developed. Great steps have been taken in underpinning key areas such as methodology, training, stem cells and partnership working. The stage is now set for scientists across the spectrum of medical research to contribute to the translational agenda.

“Translational research is not a new concept for the MRC,” explains Declan Mulkeen, Director of Research and training at the MRC. “There are plenty of examples of where the MRC has not only supported the basic science, but has played a key role in enabling that basic knowledge to be used to benefit people. What the current translational strategy aims to bring in is much more active support and oversight of the translational processes targeting discovery and clinical evaluation.”

Crick and Watson’s famous elucidation of the DNA double helix, Peter Mansfield’s MRI research, and Greg Winter’s monoclonal antibody humanisation are all examples of world-class basic research, but they are also the starting points for a range of life-saving drugs and techniques that bring both health and prosperity. Key to the MRC’s translational strategy is the ability to not only sustain discovery and exploration research, but to ensure that application and delivery times are as short and effective as possible.

By working closely together, the MRC and NIHR have developed a coherent approach to public funding of translational medicine research (see box) that will provide ample opportunities for those choosing to move basic medical research discoveries towards commercialisation or healthcare.

“We are taking a holistic approach to delivering translational research,” comments Chris Watkins, the MRC’s translational theme leader. “By looking at the system as a whole we have been able, for example, to target investment in bottlenecks, and develop a system for actively managing projects so that they progress along the translational pathway.”
MOST RECENT HIGHLIGHTS INCLUDE

• The Developmental Pathway Funding Scheme, a completely new, milestone-driven funding stream, which will facilitate and accelerate the process of research and development of promising research discoveries towards utility.

• Addressing bottlenecks through a series of targeted initiatives in translational research – patient-based resources, biomarkers and models of human disease – with three calls for proposals having been undertaken already.

• A focus on stem cells and regenerative medicine. This will build on the MRC’s commitment to basic research in this area by furthering translation towards application and therapeutic development, in partnership with the Technology Strategy Board, NIHR and academic/industry cooperation.

• The creation of the Efficacy and Mechanism Evaluation funding scheme (managed by NIHR and funded by MRC) which will support clinical trials and evaluative studies that evaluate clinical efficacy of interventions, and add significantly to our understanding of biological or behavioural mechanisms and processes.

• The Methodology Research Programme, managed by MRC and the main mechanism by which MRC and NIHR will fund methodological research in the future. The programme will fund investigator-led and commissioned research and develop strategic initiatives to help deliver the joint MRC/NIHR vision for translational research.

AIMS OF THE TRANSLATIONAL RESEARCH STRATEGY

To increase the scale and speed of progress from discovery into new clinical studies, through public funding for tightly managed, goal-oriented projects.

To strengthen R&D in areas which underpin and enable translation, where there are currently bottlenecks.

To strengthen the quality and scale of infrastructure for translational research.

To define and support priority research areas effectively.

To develop a strong, internationally unique programme in research methodology.

To improve progression of innovative interventions into late phase II and phase III clinical trials.

To improve peer review and evaluation of research proposals and projects with translational elements, throughout MRC’s response-mode programmes.

To improve partnership working.

To enhance skills and capacity underpinning all of these areas.
Nine innovative research and development projects are to receive investment from a partnership of research councils (the MRC, Biotechnology and Biological Sciences Research Council, Engineering and Physical Sciences Research Council) and the Technology Strategy Board.

The £6.3 million investment follows a call for proposals to encourage the exploitation of recent advances in cell-based therapies which have the potential to treat conditions such as chronic wounds without scarring and degenerative illnesses affecting the spinal cord, brain, and other organs.

The projects include research and development of a novel wound healing device incorporating both a biodegradable tissue scaffold and a removable hydrogel layer to enable detailed and rapid evaluation of a wound; a cell therapy designed to stimulate and sustain tissue regeneration in bones and cartilage; and a robust manufacturing process for a biomembrane technology that controls the movement of stem cells between two tissue surfaces. (For more details visit www.innovateuk.org).

Commenting on the announcement, Sir Leszek Borysiewicz said: “The potential of these projects demonstrates the importance of the partnership between business and academia. We are pleased to be able to support this investment which is at the heart of driving forward the translation of research discoveries into improvements in healthcare and patient benefits.”

The funding will encourage the projects to overcome current obstacles in commercial exploitation, including application methods such as patches or dressings, finding ways to move from small to large scale production, increasing product shelf-life and ensuring products don’t cause an immune reaction.

The Technology Strategy Board’s Chief Executive, Iain Gray, said: “The worldwide market for regenerative medicine is estimated to reach US$500 billion by 2010. The UK has a significant presence in this field. But for the full potential to be realised will require the successful development and application of bio-processing technologies.”
TACKLING DISEASE TOGETHER

Five of the world’s leading pharmaceutical companies have renewed funding for a groundbreaking partnership to tackle major global diseases.

AstraZeneca, Boehringer Ingelheim, GlaxoSmithKline, Merck-SeronoMerck KGaA (through its Merck Serono division) and Pfizer, will provide core support of £10.8 million to the Division of Signal Transduction Therapy (DSTT) over the four-year period from 2008 to 2012. The DSTT is a partnership between the pharmaceutical companies and thirteen research teams based at the University of Dundee, eight of which are within the MRC Protein Phosphorylation Unit.

The DSTT was founded in 1998 and expanded in 2003, and over that period has attracted funding of £23 million. It is thought to be the largest collaboration between the UK academic community and the pharmaceutical industry.

The funding will enable the DSTT to translate recent research findings and ideas into potential new drug therapies for the treatment of cancer, hypertension and Parkinson’s disease.

The aim of the DSTT is to accelerate the development of improved drugs to treat global diseases such as cancer, diabetes and rheumatoid arthritis, and which exert their effects by targeting two types of enzymes, ‘kinases’ and ‘phosphatases’. The market is estimated to be worth £7 billion a year and projected to reach £33 billion per annum in 2010.

The three co-directors of the DSTT are Sir Philip Cohen and Professors Dario Alessi and Peter Downes. Commenting on the renewal of the agreement, Sir Philip said: “Collaborations between academic laboratories and the pharmaceutical industry typically last a few years. Therefore to maintain and expand support until 2012 when three of the participating companies will have been funding the DSTT for 14 years is unprecedented; we must be doing something right!”

On behalf of the pharmaceutical companies, Dr Malcolm Skingle of GlaxoSmithKline and Chairman of the Programme Management Group said: “This has been a very successful collaboration over the past ten years and we are delighted to see it continue. This project has shown the benefits that can come from pharmaceutical companies like ourselves working hand-in-hand with top-flight research.”
Professor Amanda Fisher has been appointed as the new Director of the MRC Clinical Sciences Centre (CSC) at Imperial College London. She has acted as interim Director since January 2008 and has now been appointed on a permanent basis. Professor Fisher is joint head of the Lymphocyte Development Group and was Chair of the Epigenetics and Development Section. Her research investigates cell commitment and gene regulation during development.

On her appointment, Professor Fisher said: “The challenge now for the CSC is to realise the global opportunities and demands for improved clinical, translational and basic science.” Sir Leszek Borysiewicz said: “I am delighted that Professor Fisher has agreed to lead the CSC and look forward to her building on the institute’s world-leading reputation.”

Dr Tom Manly, of the MRC Cognition and Brain Sciences Unit in Cambridge, has been awarded the 2008 Spearman Medal for his work linking basic cognitive neuroscience to clinical applications. He said: “I am delighted to have been offered the award, both personally and for those of us working in brain injury rehabilitation. For me, good ideas tend to happen between people rather than in any individual and I am indebted to the many colleagues who have contributed to the work.”

Say it with verse
The MRC wished a poetic goodbye to Frances Green, director of human resources, who left the organisation in August. Frances’s career at the MRC began in 1985 as an executive officer in the medical division at head office but she soon decided she wished to specialise in HR. Her path to director included two secondments to the National Institute for Medical Research where she worked both in HR and in technology transfer.

Frances’s farewell event took the form of a poetry exhibition entitled ‘Rhyme and reason’ which she herself curated. All of the poems had a science or medical research theme, and included writing by Ogden Nash, Wendy Cope and Simon Armitage, as well as a number of poems penned by Frances herself.

Nick Winterton, Executive Director of the MRC, paid tribute to Frances’s tireless energy, warmth and total commitment to supporting the MRC’s research programmes.
Immunochemistry unit celebrates 41 years of outstanding research

The MRC Immunochemistry Unit (IU) in Oxford recently celebrated its 41st and last birthday. Professor Ken Reid was director for 23 of those 41 years and with his retirement the unit closed in September.

The IU was established in 1967 by Professor Rodney Porter, Whitley Chair of Biochemistry at Oxford University. Professor Porter moved to Oxford from St Mary’s Hospital Medical School in London, where he had been carrying out Nobel Prize-winning research on immunoglobulin structure.

Immunoglobulin structure was the initial focal point of research at the unit, but by the early 1970s the proteins of the complement system became the focus. Early major success on the characterisation of lymphocyte cell surface proteins led to the concept of the immunoglobulin superfamily. In the early 1980s, the unit moved into using molecular biology techniques to clone the genes for human complement proteins.

Sadly, in 1985 the unit’s prolific successes were tragically offset by the early death of Professor Porter in a car accident. This led to the appointment of Professor Ken Reid as director. The last decade has seen the unit continue to develop its excellent scientific programmes – which will all continue elsewhere.

To celebrate the unit’s achievements, Professor Reid recently hosted a three-day meeting in Oxford to unite many of the 300 staff, visiting scientists and students who had worked there over the past 41 years. Ken said: “Their participation demonstrated the influence the unit has had in setting up a wide range of ongoing structural and cellular immunology research programmes.” Following his retirement, Ken will remain in Oxford and continue his connection with the university through his fellowship at Green-Templeton College.
If by chance you found yourself walking along The Mall during the London Design Festival this September, you may have noticed five greenhouses perched at the edge of St. James’s Park opposite the Institute for Contemporary Arts. Each of these ordinary garden structures served as a temporary home for an exhibition of unique textiles and a fashion collection, inspired by Nobel Prize-winning scientific research. ‘Nobel Textiles’ is the result of a two-year collaboration between five MRC Nobel laureates and five textile designers from Central Saint Martins College of Art & Design. This partnership was destined to be productive; both have a reputation for innovation and a passion for breaking new ground.

Nobel Textiles set out to be a journey along the boundaries of science and design; a dialogue between leading researchers in both fields. Professor Amanda Fisher, Director of the MRC Clinical Sciences Centre, pioneered the project with Carole Collet, who is a course director at Central St Martins College of Art & Design in London. Amanda Fisher explained: “Science is more than just a way of thinking. It has become a cultural force – a part of the fabric of our lives. Several years ago I began to think about ways to explain and celebrate scientific discovery. Writing about discovery is a very direct way to communicate scientific endeavour, but engaging people in science should be about getting them involved in exploration.”

Carole was equally enthusiastic about the possibilities of design outcomes based on a conceptual translation of scientific principles. She describes one of her key drivers for the partnership as “a hope that the project will engage a wide audience and help to demystify the scientific process, inspiring new generations of designers and scientists. Above all, I hope that Nobel Textiles will pave the way for further science-design collaborations in the realm of future textiles, be they material, conceptual or playful.”

The scientists and designers who signed up for the project admitted to being somewhat sceptical, even slightly intimidated by each other at first, but more than a little intrigued. The relationships that the five pairs developed over the two-year period they worked together has both surprised and delighted them all.

Sir Tim Hunt, who was awarded the Nobel Prize for Physiology or Medicine in 2001 for his work with Lee Hartwell and Sir Paul Nurse on the ‘key regulators of the cell cycle’, describes the project as “a deliciously silly idea… To combine
The Fat Map Collection, Sir Peter Mansfield and Shelly Fox, a fashion collection inspired by magnetic resonance imaging technology.

Suicidal Textiles, Sir John Sulston and Carole Collet, a collection of garden textiles and furniture inspired by the discovery of ‘programmed cell death’ in *C. elegans*.

Now you see it, now you don’t, Sir Tim Hunt and Rachel Kelly, a collection of wallpapers inspired by the discovery of a disappearing protein called ‘cyclin’.

Metabolic Media, Sir John Walker and Rachel Wingfield, an architectural textile proposal inspired by the enzyme ‘ATP synthase’ and energy metabolism.

Self Assembly, Sir Aaron Klug and Philippa Brock, a collection of woven textiles inspired by the translation of 2D information into 3D structures.
Nobel laureates with textile designers is so utterly mad it’s quite attractive”. Tim worked with designer Rachel Kelly, who created “Now you see it, now you don’t”; a series of wallpapers based on the protein Tim discovered and called cyclin. Cyclin appears as cells prepare to divide but disappears when the chromosomes separate at the end of cell division. After a crash course in biology from Tim, Rachel had a greater understanding of the link between the concepts driving both science and design: “The themes of changeability and this immense reproduction, that cells are duplicated and duplicated, links through my work as a printmaker. Being a designer, I often reproduce a single unit; the more reproductions, the more exciting it gets.” Rachel also describes how the project has challenged the way she works: “I have explored techniques to remove patterns rather than adding them. So they are revealed or concealed depending on the light.” And she sums up her involvement with the project as “a wonderful experience.”

Sir John Walker, Director of the MRC Dunn Human Nutrition Unit in Cambridge, who was awarded a Nobel Prize in 1997 for his work describing how enzymes make ATP (adenosine triphosphate), worked with Nobel Textiles designer Rachel Wingfield. Rachel, whose recent work has involved looking at energy in biological systems, was excited to be paired with John. “Science is something people can do at home” she explained. “We want to empower people with examples of how they can use science to improve their environment. We’re addressing the more global context, which John talks about: food, nutrition and energy, in a bid to understand how these ecologies work around us. Following several visits to the Dunn Human Nutrition Unit in Cambridge, I wanted to use this project to address health and energy and to promote ‘cyclical’ thinking.” The result of Rachel and John’s collaboration was an urban ecosystem, ‘Metabolic Media’, made up of textile structures and solar cells that facilitate plant growth. The ecosystem incorporates a high-tech agricultural technique called aeroponics that was pioneered in the 1960’s and tested by NASA scientists for use in space. For Rachel, one of the highlights of the project was the opportunity to work with the scientific community more broadly. “Through our collaboration with John, we’ve been able to go to many different science labs… I don’t think we could have done that before without the right language,” she explains. “Textiles is an extremely scientific field and so this collaboration with one of the stars of the science world has been a real privilege.”

Part of the week-long celebration of the fruits of the ‘Nobel Textile’ partnerships included a series of events organised in tandem with the exhibition. Ahead of the official launch, a panel including some of the Nobel laureates and their designer partners debated the symbiotic or parasitic relationship between science and design. A number of activities also made full use of the exhibition’s unique outdoor location, including a guided tour by Tim Hunt and a composting workshop by Carole Collet. Further information about Nobel Textiles can be found at www.nobeltextiles.co.uk.
## OPPORTUNITIES

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### Joint MRC/A*STAR Initiative in infectious diseases
A major joint research fund worth six million Singapore dollars has been set up by Singapore’s A*STAR and the MRC. The initiative, the first of its kind, will directly fund collaborative research projects between the two countries. The scope of the call is being developed by the partners and details will become available in due course. The first step is likely to be a workshop in Singapore in early 2009 to bring together researchers from both countries.
Alexander Technique helps reduce back pain

The results of an Alexander Technique study suggest the method can provide long-term benefit for people with chronic or recurrent low back pain, one of the most common conditions seen by general practitioners. The results are published in the British Medical Journal.

The research was led by Professor Paul Little of the University of Southampton in collaboration with Professor Debbie Sharp, of Bristol University and was funded by the Medical Research Council and the NHS Research and Development fund.

The multi-centre clinical trial involved 579 patients. Participants were split into groups to compare three methods to alleviate pain: a series of 24 Alexander Technique lessons, a course of six Alexander Technique lessons, six sessions of classical massage and normal GP care.

The results showed that patients who followed the series of 24 Alexander Technique lessons benefited most. They had improvements in function, quality of life and a reduction in the number of days they suffered pain. One year after the trial started, the average number of activities limited by back pain had fallen by 42 per cent, and the number of days in pain was only three a month compared with 21 days in the control group.

British Medical Journal 2008; BMJ Online First

Halting memories could prevent drug-addict relapse

Researchers led by Professor Barry Everitt of the University of Cambridge have shown that disrupting the brain’s ability to retrieve memories associated with drug-taking could make it possible to prevent relapse. A paper published in the Journal of Neuroscience describes how drug-seeking behaviour in rats was reduced by blocking the receptors in the brain involved in recall of drug-associated memories.

The researchers targeted an NMDA subtype glutamate receptor important in learning and memory. The rats were trained to associate a light switching on with cocaine. This drug association memory was reactivated by switching on the light without the cocaine. Later in an effort to get more cocaine, the rats continued to perform behaviours that turned on the light, or learned to perform new behaviors.

When the rats were given a chemical that interfered with the action of the NMDA-subtype glutamate receptor prior to the reactivation session, the rats subsequently showed reduced cocaine-seeking behaviour. A single treatment was found to reduce or, in some cases, stop drug-seeking behaviour for up to one month. In contrast, blocking NMDA-type glutamate receptors after or without the reactivation session had no effect on subsequent drug-seeking.

Journal of Neuroscience 2008; 28(33):8230-8237
**Fresh hope for malaria vaccine by piggy-backing it onto viruses**

An international collaboration of scientists funded by the Medical Research Council and the Wellcome Trust are moving into phase 1 trials for a new malaria vaccine. The move follows success in animals and the lab using a recombinant adenovirus-poxvirus immunisation regime. The research, led by MRC scientist Dr Simon Draper and Professor Adrian Hill at Oxford University, is published in *Nature Medicine*.

The new method has proved completely protective in mice and has been shown to reduce the growth of plasmodium, the protozoan that causes malaria in humans, in laboratory tests by between 70 and 85 percent, depending on the strain. It involves using two viruses, an optimised adenovirus (the common cold) and eight weeks later the pox virus (used to eradicate smallpox and in many vaccines since), both of which are genetically-engineered to express a plasmodium protein. The results were startling. Not only did the vaccines generate a strong T-cell response, as might have been predicted for these virus technologies, it also induced a very strong antigen-specific antibody response. This means it created large numbers of antibodies targeting the malaria protein specifically.

Although there are other malaria vaccine trials ongoing throughout the world, this is the first which will use this delivery method to target blood-stage malaria.

*Nature Medicine* 2008; 14 (8) p 819

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**Why the common cold poses an extra threat for people with asthma**

New research has identified ways in which rhinovirus infection mimics symptoms typical of an asthma attack in people susceptible to the condition. The findings are published in the *Proceedings of the National Academy of Sciences*.

Professor Sebastian Johnston of Imperial College London investigated how rhinovirus infection can cause a reaction within the human body that is typical of an asthma attack.

In the study 10 people with asthma and 15 volunteers without were given a standard dose of the virus, their reactions were then monitored and recorded.

After administering the virus both groups had colds of similar severity, but it was found that the volunteers with asthma had a clear increase in asthma symptoms compared with the control volunteers who developed only minimal symptoms.

People with asthma also experienced a reduction in lung function and increased airway sensitivity in response to the infection; however this was not seen in the control group.

After further analysis, it became apparent that the reaction seen in people with asthma was related to a deficiency in anti-viral immune responses which normally restricts the replication of a virus within the lung. With an impaired response, the virus replicates to higher levels, meaning that airway inflammation, and therefore asthma symptoms, are increased.

*Proceedings of the National Academy of Sciences* 2008; Advanced online publication

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*Left*: Malaria infected red blood cells. Coloured scanning electron micrograph (SEM) of an infected human red blood cell (orange) surrounded by three normal red blood cells (red).
Constraints on the food choices of young women

A ground-breaking research project in Southampton is translating epidemiological observations on diet into health interventions in the hope of reducing the risks of illnesses such as coronary heart disease, diabetes and osteoporosis in later life.

The Southampton Women's Survey (SWS), run by the MRC Epidemiology Resource Centre (ERC) at the University of Southampton, is using data that shows a link between educational attainment and the diets of women of child-bearing age to help plan an intervention to improve the diets of women and their children across the city.

The data revealed that women with no educational qualifications ate particularly bad diets. However, as the educational attainment of these women increased, so did the quality of their diets; of those with a degree only three per cent were eating similarly unbalanced diets. Professor Hazel Inskip, Survey Co-ordinator and Deputy Director of the ERC, says: “Although it wasn’t surprising that educational attainment is associated with quality of diet, what was striking was the strength and the graded nature of the relationship. This prompted us to try to find out what motivates food choice among women from different educational backgrounds.”

Researchers created the SWS Nutrition and Wellbeing Study and ran a series of focus groups with under-privileged young women from local support centres and family projects to investigate and compare the historical, environmental, social and psychological factors that influence the food choices of educated and less-educated young women. The results suggested that those with lower educational attainment might need extra information, engagement and support from health workers, family and social networks in order to change their dietary routines.

So, how to produce successful interventions that will help these women? After all, as Wendy Lawrence, a psychologist on the study, explained, it’s a tough crowd to convince: “Bringing about behavioural change is no easy task, and in disadvantaged populations who are traditionally hard to reach, it is even harder. But it is within this population that the young women who are most in need of help to make improvements can be found.”

As a starting point, the team has produced a colourful and factual poster on the study’s findings to highlight how the women’s input will help to inform future support strategies. These posters are being displayed at all centres where the women were first interviewed.

Researchers also came up with the idea of producing an informative tea towel that staff can distribute to women attending the centres or take to hard-to-reach populations who are visited at home. The tea towel shows a plate of different food groups, divided into nutritionally balanced proportions.

Professor Cyrus Cooper, Director of the MRC Epidemiology Resource Centre, said: “The most important challenge to researchers addressing the developmental origins of adult disease is the translation from epidemiological observations to interventions which clearly improve human health. Modifying nutritional behaviour in young women represents just such a challenge, and this unique program of work will help improve the diets of young women and thereby reduce the burden of chronic disease in their offspring.”
OBITUARY

Professor Janet Askham, 1941–2008
A leading medical sociologist whose work influenced government policies for elderly people died in July.

Janet Mary Askham was professor of social gerontology at King's College London and director of research at the Picker Institute, Oxford. She was also scientific adviser to the Department of Health for its policy research programme on older people, and a member of Ofcom's advisory committee on older and disabled people.

Professor Askham was born in Cambridgeshire. She studied at the Perse school and graduated in sociology from the London School of Economics in 1963. In 1967 she gained a master's degree at Essex University, and joined the Medical Research Council's social science research unit at Aberdeen University, working under its director, Raymond Illsley. She remained there until its closure in 1983, apart from 1970-72, when she was at the Social Science Research Council's survey unit in London.

Next she became involved with Age Concern's research institute at King's College London. She became research director at the Picker Institute at Oxford in 2004. She led research on the experiences and needs of users in their relationships with health and social care services, but she retained her chair at King's. She also served on government committees on ageing. She is survived by her husband, Byron, a daughter and a stepson.

EVENTS DIARY

International Conference on Genomics and Society: Reinventing Life?
Encouraging knowledge exchange between policy makers, academic researchers, industry, media and NGO representatives and citizens’ groups, an international conference on 27 and 28 October in London will showcase research evidence from across the Economic and Social Research Council's genomics network. It will reflect on many applications of genomics research and will consider the implications of the life sciences for policy and practice - from innovation and global competitiveness to what this might mean for our personal identity and the ethics of genomics research. Find out more at www.genomicsandsociety.org.

2008 NIHR DeNDRoN conference
"Joining Forces, Improving Outcomes" is the theme of the DeNDRoN conference in Newcastle on 14 October. The conference is open to stakeholders from across the dementias and neurodegenerative diseases community, and provides an opportunity for information exchange, collaboration and evaluation. Visit www.ncl.ac.uk for more information.
MRC annual review

This year’s MRC annual review, Medical research: benefiting people, has been published. The review provides a summary of the most important discoveries of our scientists from the past year. Stacy Mohan, who wrote this year’s review, told Network: “The review aims to show people the direct link between their own health and what MRC scientists do. The science has been interspersed with profiles of members of the public who help researchers in their quest to improve health, for instance, by taking part in research, providing samples and inspiring researchers, as well as those affected by the outcomes.”

“The review aims to show people the direct link between their own health and what MRC scientists do.”
Stacy Mohan, Science Writer

The review uses strong portrait shots taken by photographer Noel Murphy to draw readers in to the personal experiences of the contributors. The MRC’s graphics manager, Lou Dunn explained: “Noel used the last stocks of Polaroid film in Europe for this project. The resulting photography is intense and unique. I wanted visually to give a sense of how valuable members of the public taking part in research are to us through the striking portraits, alongside the clean, considered layout of text. I hope the reader can really connect and engage with the imagery and the stories behind the faces.” To order a copy of the MRC annual review, email newsletter@headoffice.mrc.ac.uk.
**MRC heads to Welsh National Eisteddfod**

Heavy rain and muddy fields did not deter visitors to the National Eisteddfod in Cardiff. At the annual cultural festival in August, the MRC teamed up with the Biotechnology and Biological Sciences Research Council to host a Welsh-language version of the ‘Hope not Hype’ stem cell exhibition in the festival’s science tent; sharing space with astronomers, satellites and the Daleks.

Eisteddfod is a mixture of daily talent competitions, evening concerts, gigs, plays and exhibitions. Competitions in the main pavilion vary from dance to recitation, singing to brass bands. Young scientists from the University of Wales Institute Cardiff ran an MRC-sponsored activity called the Stem Cell Challenge that involved visitors making stem cells out of modelling clay, learning about cell differentiation and designing their own specialised cells. Prizes were awarded for the most original designs.

**An engaging afternoon**

MRC-funded scientists in Oxfordshire swapped pipettes for paint brushes when they took part in an art/science afternoon at a special needs school in the county. The Fitzwaryn School in Wantage is a school for children from three to 16 years whose special needs range from moderate learning problems to profound and multiple learning difficulties. The students listened to a science talk entitled ‘Waterworld’, which explored how and why our bodies need water to keep us healthy. Then they got inventive: using paints and modeling clay to create water molecules, blood cells and viruses.

Andrew Savoury, a scientist in the Chromosome Integrity Group at the Radiation Oncology and Biology Unit at the University of Oxford, enjoyed the opportunity of working with the students. He said: “It was a fun and rewarding experience bringing science to a totally different audience. It was great seeing the kids enjoying their learning. Definitely something I’d recommend to others.”

*Below*: Molecular structure of water vapour.
Unlocking the secrets of age

The MRC Unit for Lifelong Health and Ageing officially opened its doors in September. Many research partners involved in the study of ageing attended a gathering at the unit’s brand new offices in central London to celebrate its launch. The unit will continue to house the National Survey of Health and Development (NSHD), which has been funded by the MRC since 1962 and is one of the world’s longest running cohort studies. Birth cohorts are a rich scientific resource that hold the key to unlocking many important questions about the ageing process. Research into ageing and lifelong health has been a long-standing priority for the MRC and other research councils. The MRC currently leads on the Lifelong Health and Wellbeing initiative, which is one of the major cross-council research priority areas.

Commenting on the launch event, the unit’s Director Professor Diana Kuh said: “This was a wonderful opportunity for the team to celebrate our success with colleagues from across the whole spectrum of ageing research. We are now looking forward to continuing our work with past collaborators from the NSHD and to forging new ones as the MRC unit for lifelong health and ageing.”

MRC Centre for Regenerative Medicine launch symposium

The Director of the newly established MRC Centre for Regenerative Medicine, Sir Ian Wilmut, is to welcome 300 delegates to the centre’s forthcoming launch symposium.

The speakers include Professor Irving L Weissman, Director of the Stanford Institute for Stem Cell Biology and Regenerative Medicine. Talks will also be delivered by the centre’s own scientists, highlighting the strength of research undertaken there. Other speakers are drawn from the centre’s International Advisory Board, set up to guide the direction of research. After the symposium, the board will retreat for a two-day strategic planning meeting.

In addition, each research group within the centre will give a strategic overview of their work and its relevance to the translational agenda.

The centre manager Dr Gordon McLean, who is involved in organising the event, told Network: “As you might expect, the delegate list is representative of this fast-growing and exciting area of science, and includes our key stakeholders – the research councils, health charities, Scottish Enterprise, the pharmaceutical and biotech industries, and stem cell scientists from throughout the UK.”

The symposium is being held in Our Dynamic Earth, Edinburgh, on Monday 24 November 2008. For more information or to register, please visit www.scrm.ed.ac.uk.
Tackling the growing threat from obesity

The University of Cambridge, the MRC and Cambridge University Hospitals NHS Foundation Trust have come together to create the unique, innovative Institute of Metabolic Science (IMS). Led by co-directors Professors Steve O’Rahilly and Nick Wareham, the IMS aspires to become a world-leading centre focused on understanding the biological basis of diabetes, obesity and related disorders and translating those scientific discoveries into improved patient care and disease prevention.

“The new institute will enable us to bring together scientists and clinicians to focus on obesity, diabetes and other metabolic diseases, which pose a growing threat to the public.”

Professor Steve O’Rahilly (pictured far right)

Professor O’Rahilly said:
“Obesity is one of the fastest growing epidemics in the world, and it is increasing rapidly, including in vulnerable groups such as children and individuals living in the developing world. Obesity increases the incidence of not only diabetes but heart disease and cancer as well – the implications on public health are significant. The new institute will enable us to bring together scientists and clinicians to focus on obesity, diabetes and other metabolic diseases, which pose a growing threat to the public.”

A major aim of the institute is to encourage daily interaction between basic and clinical scientists, epidemiologists and clinicians to maximise the impact of research into the prevention and treatment of these diseases and to improve the quality of patient care.

Housed in a new facility on the Cambridge Biomedical Campus, the IMS brings together the Metabolic Research Laboratories (MRL) of the University of Cambridge, the MRC Epidemiology Unit, the Wolfson Diabetes and Endocrine Clinic and the Weston Centre for Childhood and Adolescent Diabetes and Endocrinology.

Read more about this institute at www.mrc.ac.uk/NewsViewsAndEvents/News or visit www.ims.cam.ac.uk.