Research

UNIVERSITY OF LEICESTER GRANTS FROM EXTERNAL SOURCES

PRESS COVERAGE OF RESEARCH GRANTS

The *Bulletin* is sent to the media as well as other external contacts. As a result, details of grants appearing in this section may stimulate press interest. The Press Office may also actively seek media coverage of particular grants detailed in this section. It is therefore the grantholder's responsibility to request that any grant of a sensitive/confidential nature be excluded from the *Bulletin*.

This can be done by contacting the Research Office, which has responsibility for compiling this Research section (2495).

BIOCHEMISTRY

Prof A Maxwell

DNA Gyrase and DNA Topoisomerase II: Mechanism of Action and Interaction with Drugs

DNA topoisomerases are enzymes that control the topological state of DNA in cells. Many topoisomerases have been shown to be essential in key cellular processes, such as DNA replication and gene transcription. In this proposal we aim to carry out an integrated research programme on the structure/function and drug targeting aspects of DNA gyrase from Escherichia coli and DNA topoisomerase II_ from human cells. Specifically this will involve applying x-ray crystallography to determine the structures of gyrase and topo II, studying their mechanisms of action utilising a range of mechanistic tools, and determining the mode of action of various anti-bacterial agents and anti-tumour drugs against these enzymes. The hope is that this information will be useful in the design of new and more effective drugs.

£711,596 Wellcome Trust

Dr J C Norman, Prof D R Critchley

Role of ARFs in Paxillin Recruitment to Focal Adhesions

£139,904 Wellcome Trust

BIOCHEMISTRY (CMHT)

Prof G C K Roberts

NMR Studies of Ligand-Induced Conformational Switches in Proteins

The regulation of cell growth, division and differentiation depends upon a network of tightly regulated protein/protein interactions within the cell. Among the molecules involved in this are the so-called small GTP binding proteins which are characteristically "switched" between two conformational states by the binding of GTP or GDP. In these two states they interact with different sets of proteins and hence regulate signalling pathways in the cell. Our work involves structural studies of some of these proteins by NMR spectroscopy in an effort to understand in detail how this molecular switch operates. In the long-term this will contribute to the possibility of designing drugs to interfere selectively with these cellular processes.

£14,800 (supp) Wellcome Trust

BIOLOGY

Dr M Sheehy, Dr P Shelton

Analysis of Stock Age Structure and Population Parameters in Edible Crab, Cancer Pagurus using Lipofuscin Age Pigment: Data for Resource Management

The edible crab, Cancer pagurus, is the most commercially important decapod in Western Europe. In this project, the novel application of cellular ageing biomarkers will be used to circumvent critical problems associated with conventional studies of population dynamics in the Crustacea. Age-dependent deposition of autofluorescent lysosomotropic compounds (neural lipofuscin) will provide otherwise elusive age compositions for various English crab populations. This demographic information will then generate new population parameters on a regional basis that are likely to lead to revised stock assessments and advice to government on the suitability of the current fishery management practices. For effective management of aquatic living resources, we need to be interpreting the influence of recent decades of heavy human exploitation in the context of the preceding millenia of adaptive evolution. The study should provide unique insights into life history optimization strategy, environment and spawning stock recruitment relationships, selective fishing impacts, metapopulation/ source-sink dynamics and refuges for the crab.

£243,348 MAFF

CELL PHYSIOLOGY & PHARMACOLOGY

Dr A B Tobin

Identification, Cloning and Characterisation of Inositol Polyphosphate-Regulated Protein Kinases and their Protein Substrates

£195,670 Wellcome Trust

CENTRE FOR MASS COMMUNICATION RESEARCH

Prof A Sreberny

Minority Ethnic TV Production

£20,000(supp) Broadcasting Standards Council

EPIDEMIOLOGY & PUBLIC HEALTH (UKCCSG)

Dr S Ablett

Treatment of Mature-B-Cell Lymphoma in Children – Supp. Year 3

The Cancer Research Campaign have given a grant towards the running of an international randomised trial of treatment for B-Cell Non-Hodgkin's Lymphoma in children. This is a highly malignant disease which in the past was almost uniformly fatal. Advances in treatment over the last few years have dramatically improved the outcome so that most children with this disease are cured. Unfortunately this is at the risk of developing potentially serious long-term side effects, particularly affecting fertility and cardiac function, and this study is aimed at identifying whether it is possible to safely reduce treatment and maintain the excellent survival with less long term problems.

The study is being run in conjunction with the UK Children's Cancer Study Group, the Societe Francaise Oncologie Paediatrie, based in France, and the Childhood Cancer Research Group based in the United States. Children's cancer specialists from these 3 countries are entering patients on to the trial which has been running since 1996 and is the first international co-operative study between these 3 countries. As childhood cancer is extremely rare, it is only by involving groups from other countries in a trial of this kind that best treatment with the least long term consequences for children and their families can be identified.

£17,731(supp) Cancer Research Campaign

GEOLOGY

Prof J Tarney

Characterisation of the Structure and Geochemistry of Oceanic Crust at the Izu-Mariana Convergent Margin: Implications for Geochemical Fluxes and Mass Balance at Subduction Zones

£35,191 NERC

MATHEMATICS & COMPUTER SCIENCE

Dr N Snashall

Research Group Support

£1,000 London Mathematical Society

Research

MEDICINE & THERAPEUTICS

Prof N Samani

Determining the Role of the Renally-Expressed SA Gene in Blood Pressure Regulation by In Vivo Gene Modification

£5,800 Glenfield Hospital NHS Trust

MEDICINE & THERAPEUTICS, PATHOLOGY

Dr P Bradding, Dr E Conley

Supplementary – Immortalisation of Mast Cells

£6,939(supp) AstraZeneca

NEPHROLOGY

Prof J Walls

Funding of Research Associate, Renal Unit (supplement)

£126,515(supp) Leicester General Hospital

PATHOLOGY

Dr R Walker

Hedgehog Pathway Deregulation and Cancer Invasion – BMA Helen Tomkinson and Albert McMaster Award – Dr G Saldahna

£6,540 British Medical Association

PRE-CLINICAL SCIENCES

Dr C Ockleford

Molecular and Cellular Mechanisms of Involvement of Extracellular Matrix Degradation in the Process of Implantation and Parturition – Research Training Fellowship – Dr Q Feng

£13,353(supp) Wellcome Trust

PSYCHIATRY

Prof P Vostanis

Primary Care Training Co-ordinator Research Expenses

£9,132 Leicestershire & Rutland Healthcare NHS Trust

Development of a Multi-Agency Training Package for Staff Working with Children with Mental Health Problems and their Families

£3,000 NHS Executive Trent

This is a joint summary for the two research grants above:

The Training Co-ordinator in Child Mental Health has been appointed for three years in the first instance, to develop, co-ordinate and deliver multi-agency training in child mental health. Training days are being organised in the 12 Primary Care Group areas in Leicester, Leicestershire and Rutland. They target primary health, education, social services and voluntary agencies staff. The postholder is a Leicestershire NHS Trust employee based at the Greenwood Institute. The above grant is a proportion of total funding towards the University infrastructure costs.

In addition, the Challenge Fund Bid has supported the development of a training booklet for multi-agency use in the Trent region.

PSYCHOLOGY

Prof G Davies

Provision of Revision of the Memorandum of Good Practice for Investigative Interviewing of Child Witnesses and Vulnerable and Intimidated Adults

The existing Memorandum of Good Practice was published in 1992 and was designed as a guide for police officers and social workers who were charged with interviewing children who were suspected as having been sexually or physically abused. The Memorandum offers advice on the interviewing style which is most likely to produce accurate answers from children while offering the maximum of support and assurance. Professor Davies has been commissioned to lead a team of experts who will extend the Memorandum to cover the interviewing of vulnerable or intimidated witnesses of all ages. The opportunity will also be taken to revise the guidance offered on interviewing children in the light of recent research, some of it conducted at University of Leicester University, and to include advice on safeguarding witnesses at court.

£77,978 Home Office

Prof C Hollin, Dr E Palmer

Reducing Re-Offending by Racially Motivated Offenders

£31,964 Home Office

Dr R B Stammers

Studentship Support – Lorraine Bell

£4,000 DERA

SCARMAN CENTRE FOR THE STUDY OF PUBLIC ORDER

Dr M A Rowe, Dr J Garland, Prof J Benyon

Evaluation of Police Community and Race Relations Training and Consultancy

A team led by Mike Rowe, also involving Jon Garland and John Benyon, has been awarded over £150,000 by Ionann Ltd to conduct research into policing, ethnic minorities and community relations. This project is scheduled to last for three years.

£160,956 Ionann Management Consultants Ltd

SOCIOLOGY (SIR NORMAN CHESTER CENTRE FOR FOOTBALL RESEARCH)

Mr J Williams

Football Trust Information Centre

£15,000 The Football Trust

SURGERY

Mr P D Hayes

Dextran-40 and Stroke Prevention in Patients undergoing Carotid Endarterectomy

Some patients with narrowed arteries in their neck are at increased risk of stroke. This risk can be reduced by an operation to clear out the narrowed arteries, carotid endarterectomy. However, one complication of this operation can be a stroke. A number of these strokes are due to the operated artery clotting up after the surgery. We now have an effective medicine (Dextran-40) to help prevent this clotting and so reduce the number of strokes. Since using Dextran-40 the Department of Surgery has performed over 600 operations without a patient having a stroke due to their artery clotting off after the operation. Although Dextran-40 is very effective, we know only a small amount about the way it affects certain parts of the blood clotting system and this grant will enable us to find out more about this very effective medication.

£3,084 European Society for Vascular Medicine

SURGERY, PATHOLOGY (CHEMICAL)

Mr P D Hayes, Mr A R Naylor, Dr A Goodall

Reducing Complications after Stroke Prevention Surgery

The Department of Surgery at Leicester Royal Infirmary has undertaken a number of very successful projects studying methods to reduce complications after stroke prevention surgery (clearing out blocked blood vessels in the neck). Many of these successful projects have been kindly supported by the Stroke Association. Most patients undergoing stroke prevention surgery are taking aspirin to thin the blood, and for many of these patients this is all that is needed prior to surgery. However, a small number of patients clot off the blood vessel that we operate on, causing them to have a stroke after the operation. Recent work performed in conjunction with colleagues from Pathology, supported by the Stroke Association, has shown that aspirin only thins the blood one way, and that there are methods that the body can use to bypass the effect of aspirin and cause the blood to clot. A new "super-aspirin" has now been developed that can more effectively block blood clotting. We plan to look at the potential of this "super-aspirin" to prevent strokes after surgery and so make the operation more successful. This work may be important in helping to prevent blood clotting after other operations where blood vessels are damaged, for example on the heart or in the legs.

£70,328 Stroke Association