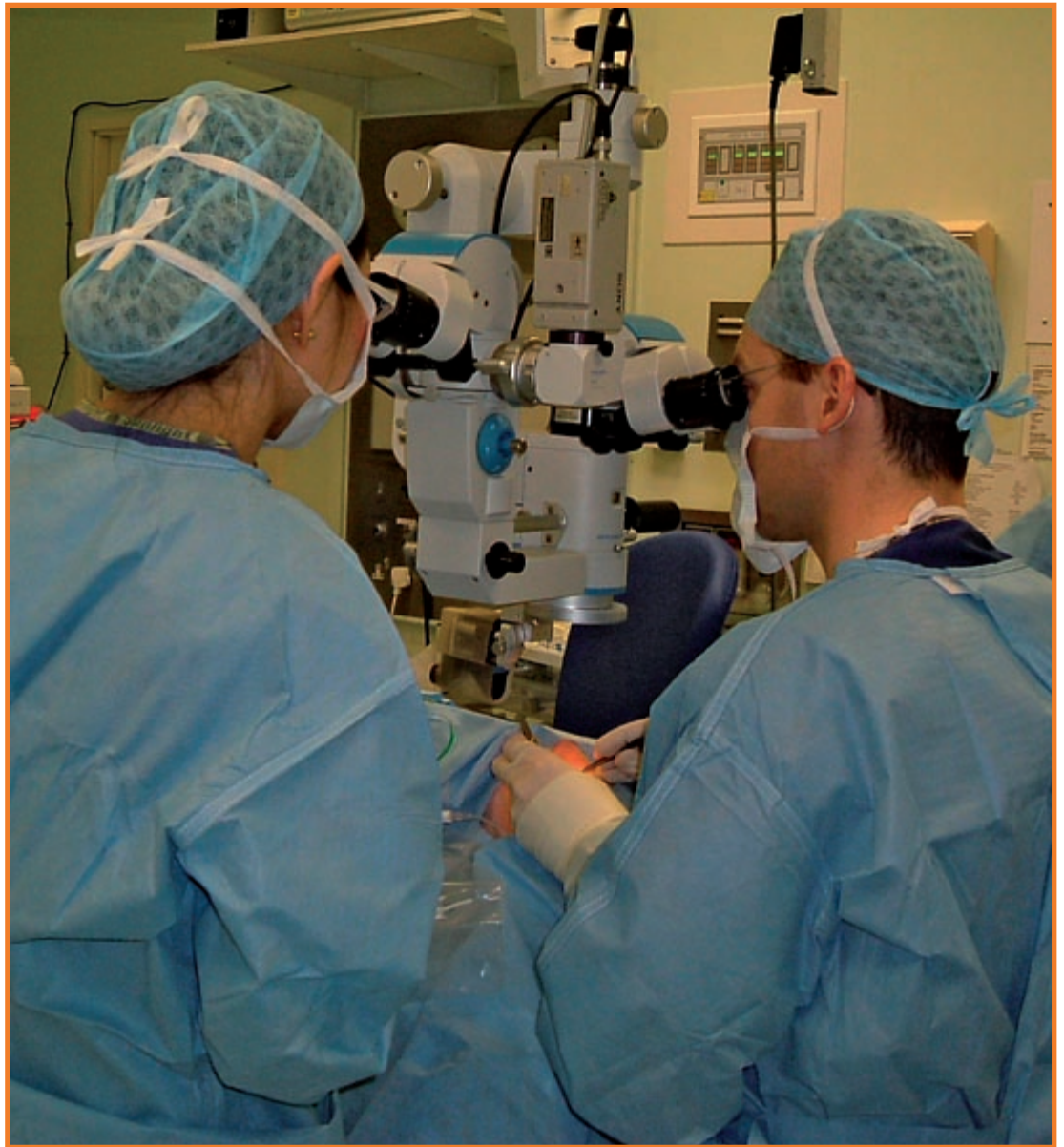


NATIONAL  
**EYE**  
RESEARCH  
CENTRE  
YOUR SIGHT  
OUR VISION

NEWSLETTER

Spring • 2008



A successful eye operation following successful eye research

## PUBLICATIONS IN SCIENTIFIC JOURNALS BENEFIT EYE RESEARCH

The Centre enters its third decade as a leader in the field of eye research. With its close association with the Division of Ophthalmology within the University of Bristol, Yorkshire Eye Research funding eye research in Yorkshire, as well as PhD students being supported in eye research establishments countrywide, the Centre goes from strength to strength. An important part of the Centre's role is to promulgate the results of the research it supports.

The past year has been particularly noted for the number of presentations made at meetings and work published in scientific journals. A highlight of the year was the election of Professor Andrew Dick, the Director of Research, as a Fellow of the Academy of Medical Sciences in recognition of his leadership in research into immunology of the eye.

Despite all the progress made in eye research there is still much to be learned about the workings of the eye and the need to develop new treatments, and this can only be achieved by the ongoing help of our supporters, whether by a direct gift of cash or shares or by a gift in our supporters' wills.

# PUBLICATION OF PAPERS TO ADVANCE EYE RESEARCH

## THE DIRECTOR OF RESEARCH, PROFESSOR ANDREW DICK WRITES:

The valued support from all **NERC** donors is translated into research that we hope will benefit ultimately our patients. How? By increasing our understanding of disease processes, developing better therapies, improving how we deliver treatments and identifying patients in the population at risk. This all takes considerable time and effort on behalf of the clinical and scientific community. Asking research questions to get a handle on all these issues generates knowledge that is then critically appraised and scrutinised by clinical and scientific colleagues. This is often in the form of presentations at meetings and ultimately by publishing work in scientific journals (science papers - the hard currency of scientific success, prowess and output). These papers have gone through a long process of what is known as peer-review; where colleagues assess whether our data is good and fairly reflects any conclusions drawn. If exciting, the paper will attract editorial commentary in the same issue to highlight its importance. There are many papers written a year world wide and in many journals. Some papers make substantial breakthroughs and others remain important, to lesser and greater degrees, in building our knowledge base, so that together the clinical and scientific community can, with time, improve patient care. In 2007 we had a very successful output and I would like to expose some of our journal highlights.



Researcher examining tissue

### INFLAMMATORY EYE DISEASE

In the field of ocular inflammation and uveitis we have published articles in American Journal of Pathology on potential new therapies for uveitis by inhibiting directly the activation and damage to the eye caused by a particular immune cell, the macrophage. This data also was subject to a commentary discussing the excitement of our results and the wider implications this treatment may have to other diseases outside the eye. Understanding immune responses is important in developing better ways to treat inflammatory disease and we have published on a simulation of immune response in Immunology which has highlighted possible reasons for why disease may become prolonged (chronic). Treating patients with ocular inflammation currently still relies heavily on steroids and some patients require very large doses and for a prolonged period of time to respond (so called steroid resistance), and this has a problem of side effects.

What causes steroid resistance and how do we predict this in a patient? In another publication in Journal of Immunology we have shown that in steroid resistant patients there is a subpopulation of immune cells that suppress the possibility of responding to steroids. So we are now left with looking to see if we can now predict this in routine practice (in our current studies in the clinic) and continuing back in the laboratory to look for ways we can switch steroid resistant patients to be sensitive and respond to their treatment. How do we improve the benefit of current therapies? By looking at patient responses to drugs that treat inflammation (immunosuppressants) we can see how best to treat with what drugs are currently available. Following on from our previous published clinical trials, we have now published our work looking at what transpired to be successful long term outcomes with an immunosuppressant called tacrolimus in a leading clinical ophthalmic journal Ophthalmology. We were also invited to write two reviews on best current therapies in leading review journal Current Opinions in Ophthalmology.

### DISEASES OF THE RETINA

Regenerating the retina remains a goal in order to develop a cure for macular degeneration, diabetic retinopathy and other causes of retinal failure. Last year our group published further forwarding our understanding of human retinal stem cells in British Journal of Ophthalmology and our understanding of turnover of cell populations within the retina in a publication in Glia. Together these advances move us closer to an ability to use and adapt such cells to help regenerate the damaged retina.

### CORNEAL TRANSPLANTATION

From a strong international recognition of the corneal tissue bank, we are able to collaborate with other workers worldwide. Last year this group together with Scandinavian colleagues published two articles in Ophthalmology and one in Journal of Refractive Surgery highlighting from our data how to improve outcomes from corneal transplant surgery.

### CONCLUSION

There have been many other papers, all in their way contributing to our knowledge of disease or response to therapy or identifying patients at risk. I would like to highlight the value of interdisciplinary collaboration. With physicists and chemists, we have published in Glycobiology and Journal of American Chemical Society allowing us to understand the scaffold of our tissues and their physical and chemical properties and how these are affected in disease. With such collaboration we can open many doors to show us new ways of treating our patients. The publication of the results of research supported is an important part of the role of the **NATIONAL EYE RESEARCH CENTRE**.

## DUKE ELDER LECTURE 2007

THIS PRESTIGIOUS LECTURE WAS GIVEN BY PROFESSOR ANDREW DICK TITLED:

“MODULATING THE MACROPHAGE AND RESCUING THE RETINA”



Professor Andrew Dick

### A SUMMARY OF THE LECTURE FOLLOWS:

Recently there has been an explosion of promising immunotherapies in many medical fields that can and have been harnessed by all disciplines. Research in experimental models of ocular inflammation has facilitated the current use of such treatments in severe uveitis.

However, if we are to combat retinal inflammation, either in context of non-infectious autoimmune ocular inflammation or as a contributor to diabetes, age related macular degeneration, proliferative vitreoretinopathy and neurodegenerative diseases we need to understand how the retina (in most cases) remains unaffected and functional throughout life.

Now we enter a period of developing therapies which exploit the retina's natural way of combating inflammation and maintaining the steady-state. Experimental targets for future therapeutic intervention include tissue infiltrating macrophages, resident tissue macrophages and retinal microglia which are required to maintain normal tissue homeostasis while preserving an ability to quickly adapt to tissue environmental change. In many disorders, persistent change to microglial and macrophage behaviour may contribute to the overall phenotype we observe, by contributing to photoreceptor and neuronal loss in proliferative vitreoretinopathy, choroidal neovascular membranes and ischaemia and failure to regenerate via impairment of retinal progenitor cell turnover.

Our increased understanding of immunology has led to a rapid expansion of specific immunotherapies changing the outlook of patients with blinding ocular inflammatory disease. Such knowledge can now be used to develop treatments for many other retinal disorders where inflammation is a significant contributor.

## BRISTOL VISION RESEARCH MEETING

DR LINDSAY NICHOLSON WRITES:

This meeting, which is sponsored by **NERC**, entered its third year with a full day of presentations that took in a wide range of topics, from the genetics of inherited eye disorders, through the treatment and study of glaucoma, to the role of inflammation in uveitis and age related macular degeneration.

The meeting held in Bristol has always been greatly enhanced by the high calibre of speakers, drawn from the United Kingdom and Europe. Presentations by such experts, to an audience of their peers as well as to scientists and ophthalmologists in training, allows for cross-fertilization between disciplines that is rarely achieved in larger meetings, where researchers stick to their own field.

The morning sessions took the audience through the details of genetic mutations that produce several different ocular disorders, that may appear in childhood, or may develop as the sufferers age. We learned about the damage that glaucoma does to the nerve cells that transmit signals from the eye to the brain, of prospects there might be to rescue these damaged nerve cells and of the linking of clinical observational skills to laboratory research to dramatically improve the outcome of glaucoma surgery.

In the afternoon, work was presented exploring the mechanisms that control inflammation in the retina that causes uveitis, and how this might be treated by gene therapy. Finally, we explored inflammation in age related macular degeneration. This condition is increasingly recognised to depend in part upon the action of cells of the immune system. It is associated with the disposition of proteins that belong to the complement family, defects in which are already known to be critical in a broad range of immune deficiencies. Professor Paul Morgan from Cardiff, a world expert on complement proteins, talked about their role in eye disease and Professor John Forrester from Aberdeen completed the day by explaining how these findings might link together to explain the causes of age related macular degeneration.

## CLINICAL TRIALS

### FOR AGE-RELATED MACULAR DEGENERATION AND DIABETIC RETINOPATHY AT BRISTOL EYE HOSPITAL CLINICAL RESEARCH UNIT

Miss Clare Bailey, a Consultant in the Bristol Eye Hospital who has become a Trustee of the **NATIONAL EYE RESEARCH CENTRE** writes:

### AGE-RELATED MACULAR DEGENERATION

Age-related macular degeneration is the leading cause of blindness in the Western world. The wet (neovascular) form of the disease can cause a rapid loss of central vision due to the growth of abnormal blood vessels under the central vision that may leak and bleed. There have been very significant advances in its treatment recently by the development of treatment to inhibit the effects of one of the major angiogenic and permeability factors on the eye (VEGF A). The clinical research unit at Bristol Eye Hospital has been actively involved in

clinical trials for wet AMD over a number of years, trying to improve visual outcomes and the treatment regimes required. We are currently involved in a trial combining a drug treatment known as ranibizumab (which is a monoclonal antibody against VEGF A given by injection into the vitreous cavity of the eye), in combination with a form of laser treatment known as photodynamic treatment. The aim is to see whether this can improve visual outcomes and also whether this can reduce the number of repeat treatments required. We are also involved with clinical trials into the safety and efficacy of a similar drug called bevacizumab, and also another drug called pegaptanib sodium, both of which are given by injection into the vitreous for the treatment of wet AMD. A number of other trials are currently being developed, looking at ways of inhibiting the growth and leakage of the abnormal blood vessels in wet AMD.

## DIABETIC RETINOPATHY

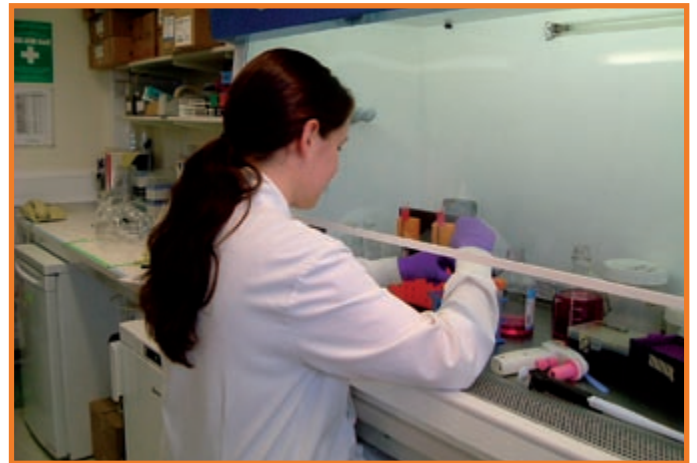
Diabetic retinopathy remains the leading cause of blindness in the working –age population. The clinical research unit at Bristol Eye Hospital is involved in a number clinical trials for the treatment of diabetic macular oedema (where there is fluid reducing the central vision). In one trial a long-acting steroid implant is inserted into the eye, to see whether this can safely reduce the fluid and improve the vision. We are also involved in a clinical trial of an oral medication that may slow the rate of progression of diabetic retinopathy.

## RESEARCH SUPPORTED 2007/2008

### UNIVERSITY OF BRISTOL

- Dowry for Head of Department of Ophthalmology for consumables and equipment for laboratory research
- Salary and research expenses for Senior Research Fellow in Ophthalmology, Head of Immunology Research Group and Research Assistant's salary and equipment
- Salary of Research Scientist and PhD students in Immunology Group
- Salary and research expenses for Senior Research Fellow investigating corneal graft rejection
- Salary and research expenses for Research Assistant conducting corneal graft follow up study
- Research expenses of developing an animal component free corneal storage medium
- Genetic research expenses, Research Assistant's and Technician's salary
- Research into children's eye diseases including expenses and equipment
- Research consumables for mucins research
- Funding of Optical Tomography & Retinal Camera for Clinical Trials Unit
- Expenses for Stem Cell Research Group, Research Assistant's and PhD Student's salary
- Funding of Clinical Trial staff and research expenses developing new treatments and therapies
- Salary, equipment and research expenses for Clinical Research Fellow investigating thyroid eye disease

- Salary and expenses for Bristol Lens Opacification Care Pathway Study



Researcher in the laboratory

### UNIVERSITY OF CARDIFF

- PhD studentship relating to implications for retinal ageing
- PhD studentship relating to macular degeneration
- PhD studentship identifying genes during corneal development
- PhD studentship investigating retinal plasticity in experimental glaucoma
- PhD studentship investigating the role of inhibitors of apoptosis and caspases in retinal ganglion cells
- PhD studentship studying genetic and environmental risk-factors for myopia

### UNIVERSITY OF MANCHESTER

- PhD studentship relating to eye development

### UNIVERSITY OF ABERDEEN

- Project examining chemokines and their receptors as therapeutic targets in autoimmune uveitis

### UNIVERSITY OF LEICESTER

- Project developing educational intervention for amblyopia treatment

### UNIVERSITY OF NOTTINGHAM

- PhD studentship investigating stem cells

### NOTTINGHAM TRENT UNIVERSITY

- PhD studentship researching immunological therapeutic vaccines

## YORKSHIRE EYE RESEARCH

The Centre's branch based in Leeds continues to fund eye research in Yorkshire and it's long term aim is to establish a Chair of Ophthalmology in Leeds.

Mr Andy Cassels-Brown has joined the Management Board and has also become a Trustee.

The administrator heading the fundraising department is Miss Susannah Voke.

## PLEASE GIVE GENEROUSLY TO HELP SAVE SIGHT

YES, I would like to support the National Eye Research Centre in the following way.

Mr/Mrs/Miss/Ms/Other

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Postcode: \_\_\_\_\_

Here is my gift of: (please tick)

£1,000  £500  £250

£100  £50  £25

Other £ \_\_\_\_\_

Or debit my Access/Visa/CAF Charity Card

Account Number:

Expiry Date \_\_\_\_\_ / \_\_\_\_\_

I want the charity to treat all donations I have made since 6 April 2000 and all donations I make from the date of this declaration until I notify you otherwise as Gift Aid donations.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Please make your cheque/postal order payable to:

The National Eye Research Centre

I would like further details about: (please tick)

Tax efficient ways of giving

Giving regularly by Banker's Order

Making or changing my will

The value of Payroll Giving

Share Giving

Please detach and return your completed form to:

The Appeal Director,  
National Eye Research Centre,  
FREEPOST, Bristol Eye Hospital,  
Bristol BS1 2BR

Tel: 0117 9290024 Registered Charity No. 294087

## FUNDRAISING NEWS

Another good year of fundraising has enabled more and more research to be supported in Bristol and across the United Kingdom.

We are particularly grateful to an increasing number of people who leave a gift in their will to fund eye research. Gifts of this sort, together with 'in memoriam' gifts, have enabled the Centre to fund innovative research projects which are leading to cures for various eye conditions which hitherto have been incurable.

As a member of the Association of Medical Research Charities, the Centre demands the highest professional standards from the researchers it supports and all applications for funding are scrutinised through a thorough peer review process.

The Centre is a member of the Fundraising Standards Board which has enlarged its membership and commits its members to the highest standards in fundraising practice. We aim to adhere to the Fundraising Standards Board's Fundraising Promise ([www.fsboard.org.uk](http://www.fsboard.org.uk)) and the Codes of Practice, as established by the Institute of Fundraising ([www.instituteoffundraising.org.uk](http://www.instituteoffundraising.org.uk)).

We thank all our supporters who enable our charity to thrive, be they private individuals giving a donation, making a gift of shares or making a gift in their will, trusts, businesses or those who run fundraising events. It is particularly helpful to have support on a regular basis by Standing Order, or Direct Debit or Payroll Giving.

The 2007 Garden Party was held at Highnam Court near Gloucester by kind permission of Mr & Mrs Roger Head. The very extensive gardens and grounds were much appreciated as was the display of classic cars. We were most grateful to our principal sponsor, Gerrard Investment Managers and to Bruton & Knowles, Estate Agents who also supported the day, together with Simon Chorley Art & Antiques who ran a popular valuation service. The day made over £8,000 for eye research and a donation was made to the Pied Piper Appeal.

In the autumn many of our supporters enjoyed a performance of 'Il Trovatore' at the Bristol Hippodrome preceded by supper in the Bristol Royal Marriott Hotel.

Another regular major fundraising event is the Carol Singing by the Owls of Pill, which raises a significant sum for eye research and other good causes.

Our supporters are reminded that their gifts have hitherto been enhanced by 28p in the £1 through 'Gift Aid' and this will reduce to 25p in the £1 from 6 April 2008 but they will be better off with the reduction of Income Tax to 20p. Benefits for higher rate taxpayers remain whether donating cash or shares. Those donating shares can claim tax relief on the value of their shares and no capital gains tax is payable.

## FORTHCOMING EVENTS

### GARDEN PARTY 2008

Sunday 29 June 2008 3:00 to 6:00 pm  
at Acton Court (north of Bristol on the B4059 – Latteridge Road, Iron Acton)

Acton Court is beautifully conserved and believed to be the most original Tudor house in Britain. It was built for the pleasure of Henry VIII and has attractive gardens and grounds. There will be a variety of interesting stalls, Tudor music for entertainment and tea will be served.



# LEGACIES AND IN MEMORIAM GIFTS

The charity benefits greatly from those who leave a gift in their Will. These gifts have funded much needed research equipment and the salaries of research workers. Remember, a legacy can reduce on estates liability to Inheritance Tax.

**JOIN OUR SUPPORTERS WHO ARE REGULARLY WINNING PRIZES IN THE GREAT WEATHER LOTTERY**

## WIN £10,000 DAILY

with the

# NATIONAL EYE RESEARCH CENTRE

**HOW TO PAY**

Please complete the following payment options  
Please do not detach this part of the application form.

**BANKERS STANDING ORDER**  
Please note each 6 number entry costs £4.34  
Every Month

TO THE MANAGER OF \_\_\_\_\_ Bank  
ADDRESS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

POSTCODE \_\_\_\_\_

Please pay: Prize Provision Services Ltd.  
A/C No. 22438844 Sort Code 40-27-15

The amount of

£4.34	£8.68	£13.02
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Please delete as appropriate

Starting immediately from:  
\_\_\_\_\_

For Office Use Only

**My Account Name** \_\_\_\_\_

**Account Number**  
\_\_\_\_\_

**Sort Code**  
\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

And thereafter until further notice quoting my membership number of  
\_\_\_\_\_

For Office Use Only

**Signature** \_\_\_\_\_

**Print Name** \_\_\_\_\_

\* Note: Please remember to make sure the cost of your entries indicated in your standing order application matches the number of entries you intend to play.

**Check you numbers online at [www.theweatherlottery.com](http://www.theweatherlottery.com) to see if you have won**

- For just 20p a day you can win up to £10,000 •
- 31.5% of the funds come back to the National Eye Research Centre, even after all the prize payouts •
- Prizes are posted to your door • You can pay by standing order or cheque •
- The top prizes are insured at Lloyds of London •

**HOW TO PLAY**

The Lottery is really fun to play. Simply select six single lucky numbers (between 0-9) to play in our daily game (4 days a week, Monday - Thursday).

Every day we will take the last digit of the recorded temperature (in Fahrenheit) as reported in the Daily Telegraph for six locations and scan all the entries to see who has won! You can check your numbers daily through The Daily Telegraph.

**CORFU 93      ISTANBUL 84**  
**TENERIFE 90    INNSBRUCK 70**  
**EDINBURGH 55   STOCKHOLM 61**

The £10,000 winning combination is: **340051**

So if you pick numbers: **340051**

**THEN YOU MATCH 6 AND WIN £10,000**

**HOW TO WIN**

Although it's fun, you don't even need to read the papers to check your numbers. We check your numbers via our computers and prizes are paid automatically. Match 3 or more numbers in the correct position to win.

**MATCH 3 NUMBERS AND YOU WIN £2.00**  
**MATCH 4 NUMBERS AND YOU WIN £20.00**  
**MATCH 5 NUMBERS AND YOU WIN £200.00**  
**MATCH 6 NUMBERS AND YOU WIN £10,000.00**

To play simply complete all 3 sections and return your completed form in its entirety to us at Lottery Services Providers, Freeport NEA 12220, Leeds, LS6 2YY

**EACH ENTRY COSTS £1 A WEEK - THAT'S JUST 20P A DAY**

**HOW TO ENTER**

**CHOOSE YOUR LUCKY NUMBERS**

Enter a single digit number (0-9 inclusive) in each box. Match 3 or more numbers in the correct position to win.

Locations	Corfu	Istanbul	Tenerife	Innsbruck	Edinburgh	Stockholm
Example	3	4	0	0	5	1
Entry 1						
Entry 2						
Entry 3						

Tick one box only below to show how many entries you wish to play. Each 6 number entry costs £4.34 a Month (equal to just 20p a day).

Entries	Cost per Month	Tick your choice here
1	£4.34	<input type="checkbox"/>
2	£8.68	<input type="checkbox"/>
3	£13.02	<input type="checkbox"/>

**YOUR DETAILS** (PLEASE PRINT IN BLOCK CAPITALS)

Complete your personal details and sign below.

Title \_\_\_\_\_ Initial \_\_\_\_\_

Surname \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Postcode \_\_\_\_\_

Telephone Number \_\_\_\_\_

Email \_\_\_\_\_

Signature \_\_\_\_\_

I am aged 16 years or over and agree to abide by the full rules.

**Remember, if you are a tax-payer please ensure we have a 'Gift Aid Declaration' so that we can claim back tax and boost the value of your gift by 28p in the £1, dropping to 25p after 6 April 2008. Higher rate tax-payers can obtain further relief.**



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You can also reach NERC by...  
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Email: [nerc-charity@bris.ac.uk](mailto:nerc-charity@bris.ac.uk)  
Website: <http://www.nerc.co.uk>



Member of the Association of Medical Charities