The Brain Research Trust
Charity Registered in England and Wales No. 263064
the brain research trust
summer 2008
Funding research into neurological diseases and conditions

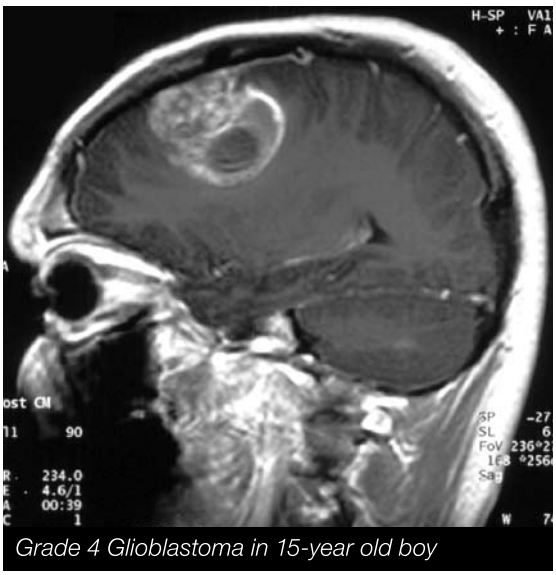
Brain tumour news

Many of our supporters contributed to the funding of the five-year Brain Tumour Fellowship which supports Grand Charity Fellow, Dr Nick Henriquez. Dr Henriquez has now been working in the Division of Neuropathology at Queen Square for several months. Here is his report on the research he has been doing during that time.

"The research team have developed a model to test whether neural stem cells can cause brain cancer. These stem cells can self-renew: even in adults, they stay in the brain, divide and produce neurons. We have investigated the possibility that such stem cells can also turn rogue and form a brain tumour. We have tested that possibility experimentally, by turning on growth genes in these stem cells. We found that indeed stem cells can cause brain cancer. Most strikingly, we found that we can predict the type of cancer depending on the type of growth signal we activate. A certain combination of genes (Rb and p53 gene loss) causes PNET, malignant brain tumours similar to medulloblastoma. Another combination (PTEN and p53 loss) induces gliomas, which are similar to the human glioblastoma, a malignant brain tumour in adults with poor prognosis.

The research focuses on two aspects of the development of these experimental brain tumours:

1) Is there a genetic and molecular "fingerprint" that defines a certain type of tumour? Because we can generate two types of tumour in the same model system, we are now interested in finding out what actually makes them so different. We have used special chips on which thousands of different genes can be examined in a single experiment (so called expression microarrays) to analyse these brain tumours. We found that there are genes that are unique to one or the other form of brain of cancer. We will now deepen our analysis to identify which of the changes are most relevant to the cancer. This will give us a "short list" of potential new therapeutic, prognostic or diagnostic markers. These then can and will be used to help future cancer research in humans.



Grade 4 Glioblastoma in 15-year old boy

2) Can we establish a test system which can also be used for human brain tumours? One of the greatest challenges in the treatment of brain tumours is to identify effective treatment with drugs. Using a mouse model, we have now found a method to analyse the response of tumours to treatment. We have compared the primary tumours that develop in the model (similar to human brain tumours) and tumours derived from mouse stem cells (similar to human tumour cell lines). Using the microchips mentioned above, we found a very similar expression profile.

Future projects: The similarity of the grafted and primary tumours is very encouraging and we plan to extend this approach to study human brain tumours. We will derive primary cells and cell lines from patient tumours (e.g. malignant gliomas) at the National Hospital of Neurology and Neurosurgery, and graft them in to special (immuno-suppressed) mice which will not reject the human cells. If the human primary and transplanted tumours show the same similarity as the re-implanted mouse cells this may significantly improve our ability to test cancer treatments in model systems.

Ruby weddings

We have received the proceeds from two Ruby Weddings recently. One of the weddings celebrated in April was that of the Chairman of our Trustees, **Mr Neil Payne and his wife, Linda**.

The other Ruby Wedding celebration was that of **Duncan and Sylvia Cowrie**, brother and sister-in-law of one of our long-standing supporters, Mrs Elizabeth Wooding.

Neil and Linda held a party for 90 guests at Wrotham Park in Hertfordshire. But in lieu of gifts, friends had already sent gift-aided cheques.

These two celebrations of 40 years of marriage raised £3,255 for our research.

The Chairman of the BRT Trustees, Mr Neil Payne and his wife, Linda

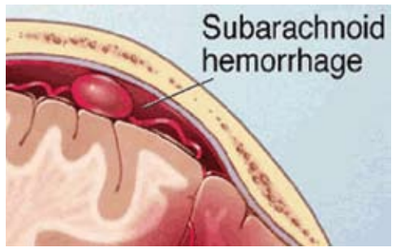
Duncan and Sylvia Cowrie celebrate 40 years together

Rasheed Afinowi using his flow cytometer

Stroke research

Rasheed Afinowi, a PhD student supported through the BRT, has just completed his three-year studies researching Subarachnoid Haemorrhage.

Subarachnoid Haemorrhage is a distinct subtype of stroke. It is most often caused by the rupture of cerebral aneurysms, abnormally enlarged balloon-like blood vessels.



Approximately 8,500 people in the UK each year are affected by this sudden and severe condition where patients bleed on the brain surface. Sadly, it affects mainly younger people in the prime of life and results in disability or death.

As little can be done about the initial primary brain injury, Rasheed's research was to find out how to prevent secondary brain injury arising from complications such as delayed cerebral ischaemia (secondary stroke) and rebleeding. Secondary strokes are poorly understood and therefore, it is vital to facilitate the development of new therapies for patients with this type of stroke.

Rasheed's research project follows on from research previously funded by the BRT into abnormal clotting patterns (thickening of blood) in patients who had experienced subarachnoid haemorrhage. His work focuses on studying the function of platelets using a technique known as flow cytometry.

Platelets are small blood cells normally present in all individuals. They are multi-functional and help to mediate blood vessel spasm and blood clotting - processes thought to play important roles in the pathophysiology of subarachnoid haemorrhage. Flow cytometry measures the response of individual cells using a combination of fluorescent-antibody binding and laser excitation to elicit a response that can be directly measured on the cell surface.

Rasheed has obtained some very interesting results which demonstrate significant platelet activation in acute subarachnoid haemorrhage. His work has improved our understanding of this condition. Later this year, he will be presenting his findings at an international conference in the USA.

We wish Rasheed well when he takes up his new Foundation 2 post in West Yorkshire. He will be specialising in neurology, stroke medicine, haematology and surgery, building on the experiences gained during his BRT-funded multidisciplinary PhD project.

We would like to thank the Harold and Daphne Cooper Charitable Trust, and Mr PJ Short of Prestwich for their generous help in funding Rasheed's research.

Fundraising in the Community

Mrs Diana Parkes named the BRT as her charitable cause for her year as the Lady Captain of Ramsay Golf Club in the Isle of Man. With a number of events held throughout her year as Captain, Diana and her ladies raised a whopping £3,700 for our Alzheimer's Appeal.

We sent out details of our Alzheimer's Appeal to **Rotary Clubs** throughout the British Isles. Donations are still coming in, but we would like to thank the Rotarians in **New Malden**, **Aberdeen**, **Blandford**, **Evesham**, **Bournemouth**, and **Coulsden** for cheques totalling £1,550.

Similarly the **Townswomens' Guilds** have also responded most generously to our Alzheimer's Appeal letter. A big thank you to all the Townswomen Guild members of **Upminster Park**, **Havant & Emsworth**, **Leamington Spa** and **New Milton** for gifts totalling £916.

Our thanks must also go to the other church and community groups that have sent unsolicited gifts: **Reading Hebrew Congregation** made a collection of £935, in thanks for the successful brain tumour operation in 1978, of Mr and Mrs Andrew Sinclair's daughter, Jacqueline. The **SW Essex and Settlement Reform Synagogue** raised £506.10 with their High and Holyday Appeal. **Tonbridge Methodist Church** makes a collection every year in memory of Robert Botterman, a young member of their congregation who sadly died of a brain tumour. The **Women's Guild of Dundee Congregational Church** donated £50 to the Institute of Neurology's work. **A big thank you to all these groups for their generous donations.**

Mrs Diana Parkes (left) handing the cheque from Ramsay Golf Club to Jenny Cooper, BRT (right)

We'd also like to thank the young pupils from Humberston School, especially **Thomas Jones** and **Callum Finch**, who researched and put the case to the class that the BRT was the best charity for the form's Christmas fundraising.

Class teacher, **Pat Holland**, told us that her pupils were particularly interested in Alzheimer's and brain tumours "because of problems experienced by their grandparents". The class raised £155 from their Christmas cake sale.

Pictured above are the two boys, Thomas Jones and Callum Finch, with the rest of their class.

I am interested in:

- Giving to research into brain tumours ☐
- Giving to research into stroke ☐
- Giving to research at Queen Square ☐
- Giving to research into _____ ☐
- Receiving information about BRT events ☐
- Receiving a BRT legacy leaflet ☐

I am a UK taxpayer and wish The Brain Research Trust to reclaim tax under the Gift Aid Scheme ☐

Name .....

Address .....

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Postcode .....

Please return to: **The Brain Research Trust, 15 Southampton Place, London WC1A 2AJ**

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Charity Registered in England and Wales No. 263064

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15 Southampton Place
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Tel: 020 7404 9982
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Web: www.brt.org.uk

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The BRT has opportunities to undertake one of many exciting treks, cycles or walks, in the UK or abroad, to support our research. Why not go to **www.brt.org.uk/events** to see the superb range of challenges of varying lengths and degrees of difficulty that our event organisers have on offer, as well as case studies from some of our previous challengers.

If any of our events sound like they might appeal to you, give Nick a call on 0207 404 9982 or email nick@brt.org.uk

Events

When **Gemma Leach** (left), **Karla Lee** (below right) and **Keren Williams** (below left) decided to do a 2.5km swim followed by a 7-mile walk, they didn't have far to look to find a cause close to their heart. As each of the ladies knew someone who had Parkinson's disease, Alzheimer's disease, stroke or migraine, they chose to raise funds for the BRT.

Money raised from this event will go to UCL's Institute of Neurology to fund research into all of these conditions. The arduous challenge was something that friends, family and colleagues were happy to sponsor, resulting in a total of over £2,500.

Mike Chappels and Richard Monson of Beaconsfield Squash Club

Reg Lewthwaite (right) from Beaconsfield Squash Club presenting the cheque to Nick Cantwell, BRT (left)

Dave Jee fulfilled an ambition in April when he took on the challenge of diving out of a plane from 13,000ft (albeit with a parachute attached!). Happily for him – and for the BRT – he loved it so much he managed to go up (and, rather more quickly, down) twice more. Dave chose to raise funds for The Brain Research Trust and, with sponsorship expected to reach around £1,300, we're very glad he finally took the plunge. Thanks, Dave. Great achievement!

As ever, we had a number of people running the London Marathon for us in April, and with sponsorship still coming in, income is expected to top £20,000 for the third successive year. We've also had people raising money for us in the Great East Anglia 10K, the Great South Run, the Great Student Run and the daunting-sounding 'Vitruvian Triathlon'. And as we are now fully into the 'run season' we have people signed up to do the British 10k in London, the London Triathlon and the Great North Run.

There are still a few places available for these events so if you're interested, don't hesitate to send us an email or give us a ring. You may find yourself hooked – as is the case with John Lake who, following his hugely successful London Marathon last year, has well and truly got the bug and will be competing in the Ironman Triathlon in Sherborne this September. We wish him and all our intrepid event participants the best of luck.

Reg Lewthwaite and his friends at Beaconsfield Squash Club came up with an original idea: a 24-hour squash-a-thon! This became a "Racketathong" thanks to a suggestion of the committee chair that they make it a fancy-dress event. A great time was had by all – even those playing in the middle of the night – and they surpassed their expectations by raising over £6,500 for the BRT.

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