



**SAMANTHA DICKSON
BRAIN TUMOUR TRUST**

Information about MGMT methylation and 1p/19q testing

Part 1 – Press release

The following press release was published on 1st October 2008. If individuals are considering whether these tests might be appropriate or relevant to them, the information in part 2 of this document may help them to consider this further.

Please note that the Samantha Dickson Brain Tumour Trust is unable to advise individuals on whether these tests might be appropriate in their circumstances, and encourages you to seek the advice of your neurooncologist on this matter.

Brain tumour breakthrough now benefiting patients

3rd October 2008 – For immediate release

The National Hospital of Neurology and Neurosurgery (NHNN), London, is implementing a molecular brain tumour test to improve diagnosis and treatment thanks to funding from the Samantha Dickson Brain Tumour Trust.

The Hospital, which is part of University College London Hospitals (UCLH), will become the first in the country to routinely offer this test, which investigates the genetic background of the tumour. The results of each test will be used in diagnosis and treatment decisions for the individual, improving their care and outcomes. Meanwhile, the information gained across the initiative will be used to better understand the role and importance of two genetic changes in brain tumours.

Paul Carbury, Chief Executive of the Samantha Dickson Brain Tumour Trust, commented that:

“We are very pleased with this advance in diagnosis, and this is an excellent example of a scientific breakthrough being used for the benefit of people with brain tumours. It is also a good example of how our partnership with UCL and

UCL Hospitals to form the first centre of excellence for brain tumour treatment is already starting to pay dividends.”

The ‘MGMT methylation’ test will be performed on tumour samples from all patients at the Hospital with a glioblastoma, one of the most common and aggressive types of brain tumour, and those with certain other serious types of brain tumour. The test detects a chemical change in the DNA that shows how sensitive the cells are to certain chemotherapy drugs. The tumour samples will also in some cases be tested for a ‘1p/19q’ genetic change in the chromosomes that may provide information about tumour type and severity.

At present, only around 1 in 5 people with a glioblastoma live for more than 2 years following their diagnosis. Improving the diagnosis, treatments and outcomes decisions for individuals with this devastating condition is an important goal for the Samantha Dickson Brain Tumour Trust.

Research into brain tumours receives a fraction of the funding of higher profile cancers, but the Samantha Dickson Brain Tumour Trust is working hard to rectify this. The Trust is the biggest brain tumour charity in the UK, and currently spends around £750,000 per year on much-needed research in the area. The Trust was set up in 1996 by Neil and Angela Dickson, whose daughter died from a brain tumour at the age of 16.

The initiative, which has been jointly funded by the Hospital and the Samantha Dickson Brain Tumour Trust, will also build up the infrastructure at the centre in order to provide the test to many external hospitals. This will put the Hospital at the forefront of diagnosis and treatment for brain tumours.

Professor Sebastian Brandner, of the Division of Neuropathology at the National Hospital of Neurology and Neurosurgery, explained:

“We are very grateful for the support we have received from the Samantha Dickson Brain Tumour Trust to conduct this work, which will make our site one of the leading centres in the UK providing such tests on a routine basis to patients with brain tumours. It will also enable us to develop further new tests.”

Part 2 - Information about MGMT and 1p/19q testing

Eligibility for testing

The MGMT and 1p/19q tests will only be relevant to some people with brain tumours.

Firstly, they can only be performed where a biopsy has been performed, and biopsy material can be obtained and analysed (it does not matter how long ago the biopsy was performed).

Secondly, they are each only relevant to certain tumour types. These are indicated by 'X' in the table below.

MGMT methylation test relevant to all anaplastic gliomas (WHO Grades III and IV)

1p/19q test is relevant to certain tumour types as below.

Diagnosis	Grade	MGMT	1p/19q
Pilocytic astrocytoma	WHO grade I		
Diffuse astrocytoma	WHO grade II		
Anaplastic astrocytoma	WHO grade III	X	
Oligodendroglioma	WHO grade II		X
Anaplastic Oligodendroglioma	WHO grade III	X	X
Oligoastrocytoma	WHO grade II		X
Anaplastic Oligoastrocytoma	WHO grade III	X	X
Glioblastoma	WHO grade IV	X	(X*)

* In some circumstances, 1p/19q test will be carried out on glioblastomas.

What the tests are for and why they might be useful

The MGMT gene encodes a protein that is involved in DNA repair, and this protein interferes with the action of certain chemotherapy drugs. The new test will determine the activity levels of the protein, and therefore can indicate whether these drugs are likely to be effective or not.

The 1p/19q test – this looks at two genetic changes on two chromosomes (numbers 1 and 19), to see whether they are complete or whether they have lost one of the two alleles (Loss of heterozygosity, LOH). Loss of these sections of the chromosomes in tumour cells is associated with improved outcomes. It can also be used to aid diagnosis (for example sometimes where there is ambiguity over the tumour type), and in treatment decisions (because sensitivity to chemotherapy can be affected).

The tests might provide information that can be used to influence your treatment and diagnosis, but the research on these is still at an early stage and correlations with the success of different treatments are still being established.

What is the process for having the test(s) done?

The first step is to speak to your neuro-oncologist and ask if s/he thinks the test(s) might be of benefit.

They might then refer you for the test at the NHNN on the NHS - for this your biopsy sample will be sent to the NHNN. (The neuro-oncologist has to contact the neuropathologist at the hospital where the biopsy operation was carried out. The pathologist holds the preserved tissue and will be asked to send material (paraffin blocks) to the Division of Neuropathology at the NHNN and arrange for the test to be undertaken.)

If the neurooncologist decides not to refer you, you may need to think about whether you would like to pursue the test by other means. Ask the neurooncologist what they think about you having the test, as they may have good reason for thinking the test would be inappropriate or not beneficial in your case.

If you wish to pursue the test outside the NHS, you could investigate whether it would be covered by any private medical insurance that you may have –contact the insurer and proceed from there. Otherwise, you could be tested privately and pay yourself. The costs at NHNN are:

The fees for patients with private insurance (e.g. BUPA):

- £760 for 1p/19q
- £400 for MGMT

The fees for patients who pay themselves or for patients with NHS insurance:

- £400 for 1p/19q (“provider to provider”, i.e. within the NHS)
- £280 for MGMT methylation (“provider to provider”, i.e. within the NHS)

If proceeding as a private patient, the Samantha Dickson Brain Tumour Trust can put you in touch with Professor Sebastian Brandner to proceed further. The contact details for the Samantha Dickson Brain Tumour Trust are below - please speak to either your usual Patient Support Manager or Roz Osborne, Head of Patient Support, who will give you Professor Brandner’s contact email address.

(Please note that if you do go ahead with the test privately, you will need to provide relevant information, including full details of the pathology department that holds the biopsy specimen, which you may need to ask your oncologist for.)

NB: NHNN is the only centre in the UK that can conduct MGMT methylation test on brain tumours at present, but for the 1p/19q there are some other centres performing this.

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