

## TEST SELECTS THE 60 PER CENT OF WOMEN WITH INHERITED OVARIAN CANCER WHO COULD BENEFIT FROM 'SMART' DRUG

Scientists have developed a new test to select which patients with ovarian cancer will benefit from new drugs called PARP inhibitors, according to research presented at the NCRI Cancer Conference in Liverpool today\* (Monday).

PARP inhibitors\*\* are the first targeted treatment to be developed for women with inherited forms of breast and ovarian cancer carrying faults in a BRCA gene. Early results from clinical trials are showing promise for patients with the rare inherited forms of these cancers.

But this new test shows that even more patients - 60 per cent of all patients with ovarian cancer - may benefit from PARP inhibitors.

Inherited ovarian cancer accounts for up to 15 per cent of all cases of the disease. Ovarian cancer is the fifth most common cancer in females in the UK. There are around 6,850 new cases of ovarian cancer diagnosed each year in the UK - around 130 women every week.

Dr Asima Mukhopadhyay\*, presenting the results, said: "Our results show that this new test is almost 100 per cent effective in identifying which ovarian cancer patients could benefit from these promising new drugs.

"We have only been able to carry out this work because of the great team we have here which includes both doctors and scientists."

The team based at Queen Elizabeth Hospital, Gateshead and the Newcastle Cancer Centre at the Northern Institute for Cancer Research, Newcastle University collaborated with Pfizer Inc to develop the new assay to test tumour samples taken from ovarian cancer patients when they had surgery.

The test, called the RAD51 assay, scans the cancer cells and identifies which tumour samples contain defective DNA repair that can be targeted by the PARP inhibitor. The PARP inhibitor studied, PF-01367338 - formerly known as AG-14699 - was found to selectively block the spread of tumour cells with low RAD51 expression.

The test has been used to examine tumour samples in the laboratory and is not yet suitable for routine clinical practice but the team hope to refine it for use in patients.

Dr Mukhopadhyay added: "Now we hope to hone the test to be used directly with patients and then carry out clinical trials. If the trials are successful we hope it will help doctors treat patients in a personalised and targeted way based on their individual tumour."

It is also now hoped that PARP inhibitors will be useful for a broad range of cancers and we hope this test can be extended to other cancer types.

Dr Lesley Walker, Cancer Research UK's director of cancer information, said: "It's exciting to see the development of promising new 'smart' drugs such as PARP inhibitors. But equally important is the need to identify exactly which sub groups of patients will benefit from these new treatments.

"Tests like this will become invaluable in helping doctors get the most effective treatments quickly to patients, sparing them from unnecessary treatments and side effects."

### ENDS

**For media enquiries please contact Emma Rigby in the NCRI press office on 020 3469 8318 or, out-of-hours, the duty press officer on 07050 264 059**

### Notes to editors:

**\*The results of the work will be presented by Dr Mukhopadhyay at the National Cancer Research Institute meeting in Liverpool. View the abstracts here: <http://www.ncri.org.uk/ncriconference/2010abstracts/abstracts/C129.htm>**

**Dr Asima Mukhopadhyay is a doctor and clinical research fellow working at the Queen Elizabeth Hospital, Gateshead and the Northern Institute for Cancer Research at Newcastle University. Queen Elizabeth Hospital is run by Gateshead Health NHS Foundation Trust and is the home for gynae-oncology for the North East of England and Cumbria. She received a bursary to attend the conference, which was awarded on the merit of her work.**

**Key researchers on the study included Dr Richard Edmondson funded by the NHS and Prof Nicola Curtin funded by the Higher Education Funding Council. Dr Asima Mukhopadhyay is funded by the NHS.**

**Dr Richard Edmondson is a consultant Gynaecological Oncologist at the Northern Gynaecological Oncology Centre, Gateshead and a Senior Lecturer at the Newcastle Cancer Centre at the Northern Institute for Cancer Research, Newcastle University, and is a member of the research team.**

**Prof Nicola Curtin is Professor of Experimental Cancer Therapeutics at Newcastle University and is the principal investigator of this project.**

**Current and future work involves working closely with Pfizer, which developed one of the PARP inhibitors, and which has supported this project.**

### About PARP inhibitors

**\*\*PARP inhibitors block PARP, a protein which is part of DNA's 'emergency repair kit' in cells - it prevents mistakes being passed on to daughter cells when cells grow and divide. An alternative 'repair kit' is also controlled by the BRCA1 gene - which is often damaged in breast cancer cells. When both copies of the BRCA1 gene are damaged, the cells rely on the PARP pathway to repair cell damage.**

**The PARP repair kit alone isn't fully effective so mistakes are replicated when the cell divides and grows - leading to cancer. But, by blocking PARP the cell is no longer able to 'muddle on' - it can no longer repair any damage. The cell cannot replicate and it dies.**

**Healthy cells are unaffected if PARP is blocked because they either contain one or two working BRCA1 genes which do an effective repair job.**



#### The Newcastle Cancer Centre

The Newcastle Cancer Centre at the Northern Institute for Cancer Research is jointly funded by three charities - Cancer Research UK, Leukaemia and Lymphoma Research, and the North of England Children's Cancer Research Fund.

Launched in July 2009, the Centre is based at the Northern Institute for Cancer Research at Newcastle University.

The Centre brings together some of the world's leading figures in cancer research and drug development. They play a crucial role in delivering the new generation of cancer treatments for children and adults by identifying new drug targets, developing new drugs and verifying the effectiveness and safety of new treatments.

This collaborative approach makes it easier for researchers to work alongside doctors treating patients on the ward, allowing promising new treatments to reach patients quickly.

#### About the NCRI Cancer Conference

The National Cancer Research Institute (NCRI) Cancer Conference is the UK's major forum for showcasing the best British and international cancer research. The Conference offers unique opportunities for networking and sharing knowledge by bringing together world leading experts from all cancer research disciplines. The seventh annual NCRI Cancer Conference is taking place from the 6-9 November 2011 at the BT Convention Centre in Liverpool. For more information visit [www.ncri.org.uk/ncriconference](http://www.ncri.org.uk/ncriconference)

#### About the NCRI

The National Cancer Research Institute (NCRI) was established in April 2001. It is a UK-wide partnership between the government, charity and industry which promotes co-operation in cancer research among the 21 member organisations for the benefit of patients, the public and the scientific community. For more information visit [www.ncri.org.uk](http://www.ncri.org.uk)

NCRI members are: the Association of the British Pharmaceutical Industry (ABPI); Association for International Cancer Research; Biotechnology and Biological Sciences Research Council; Breakthrough Breast Cancer; Breast Cancer Campaign; Cancer Research UK; CHILDREN with LEUKAEMIA, Department of Health; Economic and Social Research Council; Leukaemia & Lymphoma Research; Ludwig Institute for Cancer Research; Macmillan Cancer Support; Marie Curie Cancer Care; Medical Research Council; Northern Ireland Health and Social Care (Research & Development Office); Roy Castle Lung Cancer Foundation; Scottish Government Health Directorates (Chief Scientist Office); Tenovus; Welsh Assembly Government (Wales Office of Research and Development for Health & Social Care); The Wellcome Trust; and Yorkshire Cancer Research.