

PRESS RELEASE

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CANCER CELL FINGERPRINTS IN THE BLOOD MAY SPEED UP CHILDHOOD CANCER DIAGNOSIS

NEWLY-IDENTIFIED cancer cell fingerprints in the blood could one day help doctors diagnose a range of children's cancers faster and more accurately, according to research* presented at the National Cancer Research Institute (NCRI) Cancer Conference next week.

The researchers, from the University of Cambridge and Addenbrooke's Hospital in Cambridge, found unique molecular fingerprints for 11 types of children's tumours,** which could be used to develop blood tests to diagnose these cancers.

This may eventually lead to a quicker, more accurate way to diagnose tumours, and could also reduce the need for children to undergo surgery to get a diagnosis one day.

The research was funded by Sparks, the children's medical research charity, and Cancer Research UK***.

Each year almost 1,600 children are diagnosed with cancer in the UK. These cancers tend to behave differently to cancers in adults and therefore require different treatments.

The researchers uncovered the fingerprints left by the tumours by analysing blood samples from children when they were diagnosed with cancer. They were looking for molecules that turn genes on and off, called microRNAs, to find common changes linked to different tumours.

In particular they found a very specific fingerprint which identifies different types of neuroblastoma, a form of childhood cancer which develops from a type of nerve cell. There are around 100 new cases of the disease each year in the UK.

The research suggested that different types of tumour could be identified using a blood test which recognises the unique fingerprints produced by tumours.

Lead researcher, Dr Matthew Murray from the University of Cambridge and Addenbrooke's Hospital, said: "Being diagnosed with cancer is often devastating for a child and their family, and the tests involved can be upsetting. We hope that this early research could eventually lead to the development of non-invasive tests which are faster, more accurate and gentler, transforming the way we make a cancer diagnosis in the future.

"Using a blood test instead of surgery to remove a tumour sample could improve diagnosis – such that results take a matter of hours rather than days or weeks. However, before such a test can be incorporated into clinical practice, it will now be important for these findings to be validated in other, larger independent studies."

Dr Julia Ambler, Director of Medical Research at Sparks, said: "We are delighted to have been able to fund a project that will hopefully lead to much quicker diagnosis and treatment of childhood cancers which has the potential to benefit hundreds of children and their families each year. This project is at a really exciting stage and we are looking forward to seeing the results from the next step."

Professor Nic Jones, Cancer Research UK's chief scientist, said: "These early results show promise that one day a blood test could be used to diagnose these cancers. This research is the

first step towards a potential test which would be very exciting, but more work needs to be done before we see this in the clinic.

“Making sure that the diagnosis and treatment of children’s cancers is much kinder in the future is urgently needed. Survival from childhood cancers has climbed to 8 in 10 in recent decades – we must continue to push the pace in this area. We need to make sure even more children survive, and there are fewer side effects from their treatment.”

ENDS

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Notes to editors

* You can find the abstract for this research online:

<http://conference.ncri.org.uk/abstracts/2014/abstracts/B001.html>

** High risk neuroblastoma, low risk neuroblastoma, hepatoblastoma, Wilms tumours, Hodgkin’s lymphoma, non-Hodgkin’s lymphoma, rhabdomyosarcoma, Ewings sarcoma, osteosarcoma, pleuropulmonaryblastoma and glioma.

*** The initial pilot study was funded by Sparks who covered the cost of the researcher and consumables, and Cancer Research UK who were able to provide the funding for the laboratory and equipment.

About the NCRI

- The National Cancer Research Institute (NCRI) is a UK-wide partnership between the government, charity and industry. It’s role is to promote cooperation in cancer research.
- NCRI Partners are: the Association of the British Pharmaceutical Industry (ABPI); Biotechnology and Biological Sciences Research Council; Breakthrough Breast Cancer; Breast Cancer Campaign; Cancer Research UK; Children with Cancer UK; 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); Prostate Cancer UK; Roy Castle Lung Cancer Foundation; Scottish Government Health and Social Care Directorates (Chief Scientist Office); Tenovus; Welsh Government (National Institute for Social Care and Health Research); Worldwide Cancer Research (formerly the Association for International Cancer Research); Wellcome Trust; and Yorkshire Cancer Research.
- For more information visit www.ncri.org.uk

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 tenth NCRI Cancer Conference is taking place from 2–5 November 2014 at the BT Convention Centre in Liverpool.
- For more information visit conference.ncri.org.uk

About Sparks

- As a leading children's medical research charity Sparks is dedicated to funding and promoting pioneering research into a wide range of conditions and disabilities affecting babies, children and pregnant women.
- Sparks has now funded over 275 research projects across the UK. We have committed over £27 million into pioneering research projects across a wide spectrum of medical conditions relating to problems in pregnancy, birth and the early years of life. The charity also supports research into rare childhood diseases.
- Through our research, we aim to improve the quality of life for children and families affected by serious illness or disability today, whilst seeking ways to better diagnose, treat and prevent these conditions in the future.
- Our working is making a difference for thousands of children and their families, not only in the UK but globally too.
- For more information visit www.sparks.org.uk

About Cancer Research UK

- Cancer Research UK is the world's leading cancer charity dedicated to saving lives through research.
- Cancer Research UK's pioneering work into the prevention, diagnosis and treatment of cancer has helped save millions of lives.
- Cancer Research UK receives no government funding for its life-saving research. Every step it makes towards beating cancer relies on every pound donated.
- Cancer Research UK has been at the heart of the progress that has already seen survival rates in the UK double in the last forty years.
- Today, 2 in 4 people survive cancer for at least 10 years. Cancer Research UK's ambition is to accelerate progress so that 3 in 4 people will survive cancer within the next 20 years.
- Cancer Research UK supports research into all aspects of cancer through the work of over 4,000 scientists, doctors and nurses.
- Together with its partners and supporters, Cancer Research UK's vision is to bring forward the day when all cancers are cured.

For further information about Cancer Research UK's work or to find out how to support the charity, please call 0300 123 1022 or visit www.cancerresearchuk.org. Follow us on Twitter and Facebook.