



## **MEDIA RELEASE**

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### **Cell skeleton may hold key to overcoming drug-resistance in cancer.**

**Researchers have uncovered a new way in which a cell protein protects cancer cells from a wide range of chemotherapeutic drugs, identifying a possible target for improving treatment outcomes for patients.**

A team of scientists at Children's Cancer Institute Australia for Medical Research (CCIA), led by Associate Professor Maria Kavallaris, discovered that the  $\beta$ III-tubulin component of the cell's cytoskeleton could play an important role in resistance to a wide range of drugs used to treat lung, ovarian and breast cancers.

Advanced non-small cell lung carcinomas (NSCLC) account for more than 80 per cent of lung cancer cases. More than one million people are diagnosed with lung cancer every year, the most common cancer in the world and the leading cause of cancer deaths.

Chemotherapy remains the most effective treatment option, involving a diverse range of drugs, often used in combination. However, the emergence of drug-resistant tumours in NSCLC means chemotherapy no longer holds the promise of a good outcome for many patients.

Increased expression of  $\beta$ III-tubulin has been linked to drug resistance in NSCLC, ovarian and breast cancers. In the latest *Cancer Research* publication, Associate Professor Kavallaris and her team showed that blocking the expression of the  $\beta$ III-tubulin gene in NSCLC cells led to an increase in their sensitivity to a range of chemotherapeutic drugs.

"Our results strongly suggest that the  $\beta$ III-tubulin component is responsible for protecting NSCLC cells from the action of key chemotherapeutic drugs," said Associate Professor Kavallaris.

"This is the first scientific evidence for the broader implications of abnormal expression of this protein.

"We now have new insight into a mechanism of drug resistance in NSCLC which has not previously been reported. This has important implications for improving the targeting and treatment of a number of cancers which are resistant to current chemotherapeutic drugs," said Associate Professor Kavallaris.

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This work was supported by funding from the National Health and Medical Research Council, New South Wales Cancer Council and Leukaemia Foundation.

Children's Cancer Institute Australia for Medical Research is associated with the University of NSW and Sydney Children's Hospital.

**Note to editors**

The following manuscript will be published in the 1<sup>st</sup> October issue of *Cancer Research*:  
Pei Pei Gan, Eddy Pasquier, Maria Kavallaris (2007) *Class III  $\beta$ -tubulin mediates sensitivity to chemotherapeutic drugs in non-small cell lung cancer.*

**About CCIA**

Children's Cancer Institute Australia for Medical Research (CCIA) is the only independent medical research institute in Australia devoted to research into the causes, better treatment, prevention and cure of childhood cancer. The vision of the Institute is to save the lives of all children with cancer and to eliminate their suffering, and its mission involves achieving this through world-class research.

Founded in 1976 by a dedicated group of parents and doctors who wanted to do something more in the fight against childhood cancer, CCIA opened its first laboratory in 1984. The Institute now employs over 130 staff, including more than 100 scientists.

Research at CCIA comprises a multifaceted approach to improving the outcome of childhood cancer sufferers. Overall, the research program includes basic, preclinical and clinical studies aimed at defining and achieving improved treatment for children with cancer.

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