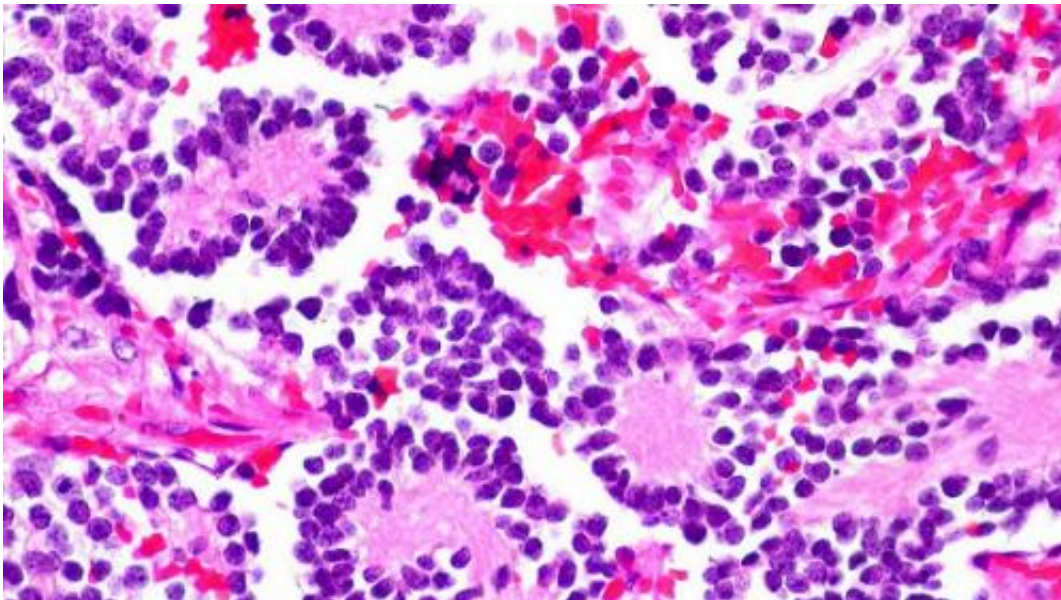


Targeted therapy one step closer in neuroblastoma research

August 27 2014, by Anika Rodgers



Neuroblastoma of the adrenal gland which is found above the kidney. Credit: Ed Uthman

Australian researchers have uncovered new targets for therapy in the childhood cancer neuroblastoma.

Histone Modification Group and Children's Cancer Institute Australia for Medical Research's Tao Liu says the researchers have been studying neuroblastoma in the hope of developing novel treatments.

"Neuroblastoma is the most common solid tumour in early childhood

and it accounts for 15 per cent of all childhood [cancer](#) death," Dr Liu says.

"In Australia, cancer is the most common cause of death from disease for children, and neuroblastoma is one of the most devastating types," Dr Liu says.

Neuroblastoma affects the peripheral nervous system in children, and in most cases presents in the adrenal glands, found above the kidneys.

Gene expression key to tumour severity

Children who have neuroblastoma have higher expression of a specific gene, which intensifies disease progression, and now researchers have identified the mechanism responsible for expressing this gene.

"Normally humans only have two copies of N-Myc gene but in children who have neuroblastoma they have 100-150 copies," Dr Liu says.

The research found a novel long noncoding RNA was responsible for increasing expression of the gene and promoting the progression of tumours.

"We have confirmed the novel long noncoding RNA amplifies the expression of N-Myc oncogene," Dr Liu says.

"The novel long noncoding RNA is critical for the expression of N-Myc oncogene. It's critical for tumour progression."

"...[and] it has other pathways it can affect that are independent of N-Myc."

Dr Liu says that many different types of cancers have become treatable

in the last 30 years, but neuroblastoma still has a high mortality rate.

Dr Tao says children who suffer from "neuroblastoma with amplification of the N-Myc oncogene are much more likely to die of the disease".

Targeting the long noncoding RNA for therapy

Principal investigator for the Harry Perkins Institute of Medical Research and the University of Western Australia, Archa Fox says there are two new findings; the novel long noncoding RNA and the NonO protein, which along with N-Myc, contributes to severity of the cancer.

"NonO is an oncoprotein in this cancer, it's a bad guy and we are using our knowledge and tools to work on targeting it therapeutically," Dr Fox says.

High levels of novel long noncoding RNA and NonO expression in children who suffer from neuroblastoma, results in poor patient outcome.

Dr Fox says they are both new targets that the researchers can potentially create drugs to inhibit.

"If they are inhibited it will slow down and hopefully kill the cancer cells, this should make the world of difference for these [children](#) with this type of [neuroblastoma](#)," Dr Fox says.

Provided by Science Network WA

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