

# New biomarkers for neuroblastoma, a type of cancer in children

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Two new biomarkers for a type of cancer in children called neuroblastoma have been identified in a study published in the journal *Cancer Cell*. The findings are expected to have immediate significance for disease prognosis, and eventually also for treatment.

"There is a need for new methods of treatment for high-risk patients, and that's where our research can lead to truly great benefits," says Chandrasekhar Kanduri, professor of medical biochemistry and cell biology at Sahlgrenska Academy.

Neuroblastoma is the most common form of childhood cancer of the peripheral nervous system, the part of the system that is not the brain or spinal cord. The disease can occur in the chest, neck, abdomen and adrenal glands and also spread to the spinal column. Symptoms may be general aches, anemia and skeletal pains.

When the disease is detected, the children are 17 months old on average and rarely over five years old. Milder variants of neuroblastoma may heal on their own in some cases, while the aggressive cases are the most deadly form of [childhood cancer](#). Treatment is successful in less than half of these cases.

Identification of high risk patients is crucial, and this is where the new findings come in. With the support of patient data from Sweden (59 cases) and Germany (498 cases), researchers have identified two new types of RNA molecules that control the stability of tumor proteins and

that, along with an already known RNA molecule, form a trio that can indicate how serious the condition of an individual patient is.

What can be measured, immediately after a diagnosis is made, is the strength of the three RNA molecules' [gene expression](#). With a stronger expression, there is less scope for a particular tumor-inducing protein to stabilize itself, and vice versa.

This also has to do with a tug of war between the identified RNA molecules (6p22 lncRNAs) and the specific protein (USP36) in which a reading of relative strength can contribute to a better disease prognosis. Researchers believe this points to a near-term application in health care.

Eventually epigenetic drugs, which alter gene expression, may also play an important role in treatment of the [disease](#).

"Epigenetic drugs activate the RNA molecules in question and thereby forestall the tumor, and in this way it will be possible to go in and treat high-risk [patients](#)," Chandrasekhar Kanduri says. "Our findings pave the way for development of drugs in the field, and we have close collaboration with clinical researchers in both Sweden and Germany."

**More information:** Tanmoy Mondal et al. Sense-Antisense lncRNA Pair Encoded by Locus 6p22.3 Determines Neuroblastoma Susceptibility via the USP36-CHD7-SOX9 Regulatory Axis, *Cancer Cell* (2018). [DOI: 10.1016/j.ccell.2018.01.020](https://doi.org/10.1016/j.ccell.2018.01.020)

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