

New strategy against childhood cancer

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Neuroblastoma is a cancer in children that originates in the sympathetic nervous system and has a high mortality. Current treatment includes chemotherapy and radiotherapy with their potentially severe side effects; there is therefore an urgent need for a new improved drug. One potential treatment strategy is to use a drug to target deviant molecular signalling caused by changes in genes.

The Wingless (Wnt) signalling pathway is important in the development of [nerve cells](#). One current study has shown that approximately one in four neuroblastoma patients have at least one gene change in the part of the Wnt signalling pathway that is important for cell maturation and migration, the so-called Rho/Rac signalling pathway.

"Our results indicate that the signalling molecule Rho and the enzyme Rho kinase, ROCK, have been activated in neuroblastoma patients. High expression of the ROCK enzyme has been shown to be linked to poorer survival of the patients", comments Cecilia Dyberg, researcher at the Department of Women's and Children's Health, Karolinska Institutet and first author of the study which will be published in the journal *PNAS*.

In studies on cells in vitro and in mice, the researchers observed that when they inhibited ROCK, the [tumour cells](#) differentiated, i.e. they matured to less harmful [cells](#), and the tumours stopped growing. The researchers also saw that inhibiting the ROCK enzyme caused the MYCN oncogene, which is linked to the incidence of neuroblastoma, to be degraded to a greater extent and disappear. In some parts of the world, the drug used to target ROCK is used clinically to treat diseases

other than cancer, and researchers believe that similar drugs targeting Rho/Rac signalling can be a new promising treatment for [neuroblastoma](#).

More information: Rho-associated kinase is a therapeutic target in neuroblastoma. *Proceedings of the National Academy of Sciences*, online 24 July 2017, [DOI: 10.1073/pnas.1706011114](https://doi.org/10.1073/pnas.1706011114)

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