

Brain cell discovery could open doors to targeted cancer therapies

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Fresh insights into the processes that control brain cell production could pave the way for treatments for brain cancer and other brain-related disorders.

Scientists have gained new understanding of the role played by a key molecule that controls how and when nerve and [brain cells](#) are formed – a process that allows the brain to develop and keeps it healthy. Their findings could help explain what happens when cell production goes out of control, which is a fundamental characteristic of many diseases including cancer.

Researchers have focused on a RNA molecule, known as miR-9, which is linked to the development of brain cells, known as neurons and [glial cells](#). They have shown that a protein called Lin28a regulates the production of miR-9, which in turn controls the genes involved in brain cell development and function.

Scientists carried out lab studies of [embryonic cells](#), which can develop into neurons, to determine how Lin28a controls the amount of miR-9 that is produced.

They found that in embryonic cells, Lin28a prevents production of miR-9 by triggering the degradation of its [precursor molecule](#). In developed brain cells, Lin28a is no longer produced, which enables miR-9 to accumulate and function. In [cancer cells](#), Lin28a production is re-established, and as a result this natural process is disrupted.

Researchers used a series of lab tests to unravel the complex processes that are directed by the Lin28a protein. They say further studies could help explain fully the role of Lin28a and miR-9 in brain development, and pave the way to the development of novel therapies.

Dr Gracjan Michlewski of the School of Biological Sciences, who led the study, said: "Understanding

more of the complex science behind the fundamental processes of cell development will help us learn more about what happens when this goes wrong – and what might be done to prevent it."

The study is published in *Nature Communications*.

Provided by University of Edinburgh

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