

New drug limits and then repairs brain damage in stroke

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Micrograph showing cortical pseudolaminar necrosis, a finding seen in strokes on medical imaging and at autopsy. H&E-LFB stain. Credit: Nephron/Wikipedia

Researchers at The University of Manchester have discovered that a potential new drug reduces the number of brain cells destroyed by stroke and then helps to repair the damage.

A reduction in blood flow to the brain caused by [stroke](#) is a major cause

of death and disability, and there are few effective treatments.

A team of scientists at The University of Manchester has now found that a potential new stroke drug not only works in rodents by limiting the death of existing brain cells but also by promoting the birth of new neurones (so-called neurogenesis).

This finding provides further support for the development of this anti-inflammatory drug, interleukin-1 receptor antagonist (IL-1Ra in short), as a new treatment for stroke. The drug is already licensed for use in humans for some conditions, including rheumatoid arthritis. Several [early stage](#) clinical trials in stroke with IL-1Ra have already been completed in Manchester, though it is not yet licensed for this condition.

In the research, published in the biomedical journal *Brain, Behavior and Immunity*, the researchers show that in rodents with a stroke there is not only reduced brain damage early on after the stroke, but several days later increased numbers of new neurones, when treated with the anti-inflammatory drug IL-1Ra.

Previous attempts to find a [drug](#) to prevent [brain damage](#) after stroke have proved unsuccessful and this new research offers the possibility of a new treatment.

Importantly, the use of IL-1Ra might be better than other failed drugs in stroke as it not only limits the initial damage to brain cells, but also helps the brain repair itself long-term through the generation of new [brain cells](#).

These new cells are thought to help restore function to areas of the brain damaged by the stroke. Earlier work by the same group showed that treatment with IL-1Ra does indeed help rodents regain motor skills that were initially lost after a stroke. Early stage clinical trials in [stroke](#)

[patients](#) also suggest that IL-1Ra could be beneficial.

The current research is led by Professor Stuart Allan, who commented: "The results lend further strong support to the use of IL-1Ra in the treatment of stroke, however further large trials are necessary."

The paper, 'Reparative effects of interleukin-1 receptor antagonist in young and aged/co-morbid rodents after cerebral ischemia', was published in the journal *Brain, Behavior and Immunity*.

More information: Jesus.M. Pradillo et al, Reparative Effects of Interleukin-1 Receptor Antagonist in Young And Aged/Co-Morbid Rodents After Cerebral Ischemia, *Brain, Behavior, and Immunity* (2016). [DOI: 10.1016/j.bbi.2016.11.013](https://doi.org/10.1016/j.bbi.2016.11.013)

Provided by University of Manchester

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