

Swedish discovery could lead to new stroke therapy

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The only acute treatment for a stroke currently available is thrombolysis. This uses drugs that dissolve the blood clot responsible for the stroke, but it only reaches around 10 per cent of stroke patients in time to prevent lasting damage. For other patients, there are no other effective drugs that reduce the loss of brain function following a stroke.

Researchers at the Laboratory for Experimental Brain Research in Lund, together with American researchers, have discovered a substance that reinforces the brain's self-healing functions after a [stroke](#). It has long been known that people affected by a stroke can regain some lost function during the first six months. Professor Tadeusz Wieloch and his colleagues have found a way to activate a [protein](#) in the brain, the sigma-1 receptor, which plays an important role in the brain's recovery during the critical period after the injury.

The study, which is published in the scientific journal *Brain*, began with experiments on rats. The animals were subjected to a stroke and then placed in different environments – an enriched cage with extra stimulation in the form of several levels of tubes, beams and ladders, and a normal cage.

"After performing a genetic analysis of the rats that stayed in the normal cage and those that were in an enriched cage, we found that many genes were activated by the enriched environment. One of these genes coded for the protein sigma-1 receptor. We then injected the rats with a specific substance that activated the sigma-1 receptor and found that the

rats regained their function more quickly than the untreated animals", explains Professor Wieloch.

The idea is to recreate and reinforce the brain's natural response to an enriched environment. By injecting the activating substance, [brain](#) repair is stimulated. This result of Swedish basic research, which started over 15 years ago, has led to a clinical trial on [stroke patients](#) by a Japanese pharmaceutical company.

"We are very pleased that our research on stroke here in Lund has made it all the way from our experiments in the lab to an international clinical trial", says Professor Wieloch.

"This is an excellent example of how basic research can be translated into a healthcare setting and possibly lead to new and better therapies. It also exemplifies the fact that, within medical research, it is a long journey from experimental studies to results that benefit the patient", says Professor Wieloch.

Provided by Lund University

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