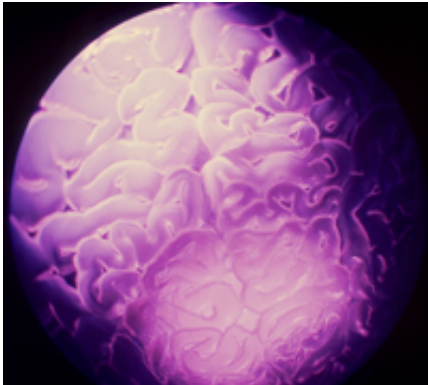


# Reconsidering cancer's bad guy

November 16 2012

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This new research stands on the shoulders of many years of work on S100A4 in its deadlier role in cancer progression

Researchers at the University of Copenhagen have found that a protein, known for causing cancer cells to spread around the body, is also one of the molecules that trigger repair processes in the brain. These findings are the subject of a paper, published this week in *Nature Communications*. They point the way to new avenues of research into degenerative brain diseases like Alzheimer's.

How to repair brain injuries is a fundamental question facing brain researchers. Scientists have been familiar with the protein S100A4 for some time as a factor in [metastasis](#), or how cancer spreads. However it's the first time the protein has been shown to play a role in brain protection and repair.

"This protein is not normally in the brain, only when there's trauma or degeneration. When we deleted the protein in mice we discovered that their brains were less protected and able to resist injury. We also discovered that S100A4 works by activating signalling pathways inside [neurons](#)," says Postdoc Oksana Dmytriyeva, who worked on the research in a team at the Protein Laboratory in the Department of Neuroscience and Pharmacology at the University of Copenhagen.

## The villain turns out to be the hero

This research stands on the shoulders of many years of work on S100A4 in its deadlier role in [cancer progression](#). The discovery represents a significant development for the new Neuro-Oncology Group that moved to the University of Copenhagen's Protein Laboratory Group from the Danish Cancer Society in October.

"We were surprised to find this protein in this role, as we thought it was purely a cancer protein. We are very excited about it and we're looking forward to continuing our research in a practical direction. We hope that the findings will eventually benefit people who need treatment for neurodegenerative disorders like Alzheimer's disease, although obviously we have a long way to go before we get to that point," says Oksana Dmytriyeva.

**More information:** The scientific paper The metastasis-promoting S100A4 protein confers neuroprotection in brain injury can be found online in the journal *Nature Communications*.

[www.nature.com/ncomms/journal/.../full/ncomms2202.html](http://www.nature.com/ncomms/journal/.../full/ncomms2202.html)

Provided by University of Copenhagen

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