

Key protein revealed as trigger for stem cell development

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A natural trigger that enables stem cells to become any cell-type in the body has been discovered by scientists.

Researchers have identified a protein that kick-starts the process by which stem cells can develop to into different cells in the body, for instance liver or [brain cells](#).

Their discovery could help scientists improve techniques enabling them to turn stem cells into other cell types in the laboratory. These could then be used to test drugs or help create therapies for degenerative conditions such as Parkinson's disease, [motor neurone disease](#), [multiple sclerosis](#) and [liver disease](#).

Scientists from the Medical Research Council Centre for Regenerative Medicine at the University of Edinburgh, who studied [embryonic stem cells](#) in mice, also developed a technique enabling them to highlight the presence of the key protein – Tcf15 – in the cells.

This means that researchers can identify which cells have the protein and watch how it affects stem cells in real time to gain a better understanding of how it works.

The study, published in the journal *Cell Reports*, was funded by the Wellcome Trust and the Biotechnology and Biological Sciences Research Council,

Dr Sally Lowell, from the MRC Centre for Regenerative Medicine at the University of Edinburgh, said: "This gives us better insight into the crucially important first step stem cells take to differentiate into other cell types. Understanding how and when this happens could help to improve the way in which we are able to control this process."

Researchers pinpointed the [protein](#) by looking at how some stem cells are naturally prevented from specialising into other cell types.

They found two sets of proteins, one of which binds to the other blocking them from carrying out their various functions.

They were then able to screen the blocked proteins to find out which ones would enable stem cells to differentiate.

Provided by University of Edinburgh

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