

# 'Glow-in-the-dark' red blood cells made from human stem cells

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Victorian stem cell scientists from Monash University have modified a human embryonic stem cell (hESC) line to glow red when the stem cells become red blood cells.

The modified hESC line, ErythRED, represents a major step forward to the eventual aim of generating mature, fully functional red blood cells from human embryonic stem cells.

The research, conducted by a team led by Professors Andrew Elefanty and Ed Stanley at the Monash Immunology and Stem Cell Laboratories that included scientists at the Murdoch Children's Research Institute, was published in today's issue of the prestigious journal, [Nature Methods](#).

The work, funded by the Australian Stem Cell Centre (ASCC), will help scientists to track the differentiation of embryonic stem cells into red blood cells.

Whilst hESCs have the potential to turn into any cell type in the body, it remains a scientific challenge to reliably turn these stem cells into specific cell types such as red blood cells. The development of the ErythRED embryonic stem cell line, which fluoresces red when haemoglobin [genes](#) are switched on, is an important development that will help researchers to optimise the conditions that generate these cells.

Professor Joe Sambrook, Scientific Director of the ASCC said that "The elegant work of the Elefanty-Stanley group unlocks the entrance to the

long sought and elusive differentiation pathway that leads to expression of adult haemoglobin genes"

"Not only will the ErythRED cell line lead to more efficient creation of [red blood cells](#) from human [embryonic stem cells](#), but these cells are a crucial tool for monitoring the behaviour of the cells when transplanted into animal models" said Professor Andrew Elefanty.

More information: [dx.doi.org/10.1038/NMETH.1364](https://doi.org/10.1038/NMETH.1364)

Source: Monash University ([news](#) : [web](#))

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