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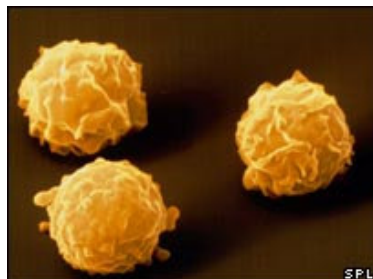
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## Stem cell hope for immune disease

**Common immune system disorders, such as multiple sclerosis and arthritis, could one day be treatable with bone marrow transplants, research suggests.**



Bone marrow stem cells are able to form new blood and immune cells

Currently, the procedure is reserved for life-threatening disorders because chemotherapy or radiotherapy is needed before a transplant can be done.

But a protein may do the same job without dangerous side-effects, a mouse study published in *Science* suggests.

However, the technique is not yet ready for testing in humans.

The purpose of a bone marrow transplant is to infuse the body with healthy adult stem cells which are able to form fresh blood and immune cells.

**“ Stem cell studies are an important avenue of research which hold promise in terms of treatments for MS**

Dr Laura Bell, MS Society

In order for the new blood-forming stem cells to take hold, the faulty cells in the bone marrow must first be destroyed, but the aggressive therapies used can cause severe side effects, such as brain damage, increased risk of cancer or infertility.

A person with an autoimmune disease such as multiple sclerosis has a defective immune system in which immune cells attack the person's own body.

Treatment with a bone marrow transplant would give the patient an immune system that might not attack the body, but this could only be done if the technique was less dangerous.

### Antibodies

A team from Stanford University in the US found that injecting mice with antibodies which latch on to specific proteins on the surface of blood-forming stem cells, destroyed the cells without harming the mice.

Blood-forming stem cells transplanted into the mice were then able to take up residence in the bone marrow and set up a new blood and immune system.

However, the barriers are still significant, the researchers said, as the work was done on a particular group of mice that are a poor mimic for the human immune system.

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And it remains to be seen whether the same molecule on human blood-forming stem cells would be the right one to use.

"It is essentially a surgical strike against the blood-forming stem cells," said study author Dr Irving Weissman, director of the Stanford Institute for Stem Cell Biology and Regenerative Medicine.

He added that he believed the hurdles to translating the research into humans could be overcome.

Dr Laura Bell, research communications officer at the MS Society, said: "Stem cell studies are an important avenue of research which hold promise in terms of treatments for MS.

"This early stage study is interesting and we look forward to seeing how the work translates into studies in people with MS."

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