5 April 2011 Last updated at 03:34

**BBC**

**Chemical found which 'makes bone marrow repair skin'**

The chemical which summons stem cells from bone marrow to the site of a wound has been discovered by scientists in the UK and Japan.

The study, [published in Proceedings of the National Academy of Sciences](http://www.pnas.org/cgi/doi/10.1073/pnas.1016753108), identified the distress signal - HMGB1.

The authors believe it can be used to put "a megaphone in the system" to improve the treatment of injuries such as burns and leg ulcers.

Another UK expert said the research had potential.

Bone marrow was thought to play a role in repairing damaged skin, but the exact process was unknown.

Scientists at Osaka University and King's College London gave mice bone marrow cells that glow green - which can be tracked while moving round the body.

They then wounded the mice and some were given skin grafts.

Megaphone medicine

In mice without grafts, very few stem cells travelled to the wound.

Those with grafts had many stem cells travelling to the wound.

Professor John McGrath, from King's College London, says grafted skin tissue has no blood vessels and therefore no oxygen.

He says this environment leads to the release of HMGB1 - or what he called a 'Save Our Skin signal' - which results in stem cells moving to the wound.

He said: "It could have a very big impact on regenerative medicine for treating people with rare genetic illnesses and more common problems such as burns and ulcers.

"It could potentially revolutionise the management of wound healing."

He envisaged treatments in which a drug similar to HMGB1 would be injected near to a wound.

He said: "It would be like putting a megaphone in the system" bringing stem cells to the injury.

Researchers in Osaka are developing a drug to mimic HMGB1.

They hope to begin animal testing by the end of the year and human clinical trials shortly afterwards.

Phil Stephens, professor of Cell Biology at Cardiff University, said: "I think it has potentially big clinical implications, but the key is potential if you can control it.

You can't just chuck it on, you need the right amounts at the right time."

"Identifying the mechanism is a really important first step."