

Boning up: Researchers find home of best stem cells for bone marrow transplants

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McMaster University researchers have revealed the location of human blood stem cells that may improve bone marrow transplants. The best stem cells are at the ends of the bone.

It is hoped this discovery will lead to lowering the amount of bone marrow needed for a donation while increasing regeneration and lessening rejection in the recipient patients, says principal investigator Mick Bhatia, professor and scientific director of the McMaster Stem Cell and Cancer Research Institute.

In a paper published online today by the journal *Cell Stem Cell*, his team reports that human [stem cells](#) (HSC) residing in the end (trabecular region) of the bones display the highest regenerative ability of the blood and immune system.

"Like the best professional hockey players, our findings indicate blood stem cells are not all equal," said Bhatia. "We now reveal the reason why—it's not the players themselves, but the effect the arena has on them that makes them the highest scorers."

Bone marrow transplants have been done for more than 50 years and are routine in most hospitals, providing a life saving treatment for cancer and other diseases including leukemia, anemia, and [immune disorders](#).

Bhatia, who also holds a Canada Research Chair in Human Stem Cell Biology, said that cells surrounding the best blood stem cells are

critically important, as these "stem cell neighbors" at the end of the bone provide the unique instructions that give these [human blood](#) stem cells their superior regenerative abilities.

Provided by McMaster University

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