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NCCS scientists to increase bone marrow transplantation efficiency

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A team of scientists at Pune's National Centre for Cell Science (NCCS) have found novel ways to rejuvenate the haematopoietic stem cells taken from aged donors and restore their functionality prior to transplantation to improve their engrafting efficiency.

The team co-cultured aged haematopoietic stem cells and young mesenchymal stromal cells for 36 hours. The brief exposure was sufficient to rejuvenate the stem cells and improve their functionality. The improved functionality of stem cells increases their engraftment capacity when transplanted and improves the success rate of bone marrow transplantation.

Currently, haematopoietic stem cells taken from older donors for bone marrow transplantation have lower efficiency and capacity to engraft in recipients thus limiting their usefulness.

The team's work on mouse models has shown that in vitro rejuvenation of aged haematopoietic stem cells will expand the pool of donors for bone marrow transplantation and other regenerative therapies.