

Stem cell research sheds light on weakening of aging immune system

There's a good reason people over 60 are not donor candidates for bone marrow transplantation. The immune system ages and weakens with time, making the elderly prone to life-threatening infection and other maladies, and a UC San Francisco research team now has discovered a reason why.

"We have found the cellular mechanism responsible for the inability of blood-forming cells to maintain blood production over time in an old organism, and have identified molecular defects that could be restored for rejuvenation therapies," said Emmanuelle Passegué, PhD, a professor of medicine and a member of the Eli and Edythe Broad Center of Regeneration Medicine and Stem Cell Research at UCSF. Passegué, an expert on the stem cells that give rise to the blood and immune system, led a team that published the new findings online July 30, 2014 in the journal *Nature*.

Blood and immune cells are short-lived, and unlike most tissues, must be constantly replenished. The cells that must keep producing them throughout a lifetime are called "hematopoietic stem cells." Through cycles of cell division these stem cells preserve their own numbers and generate the daughter cells that give rise to replacement blood and immune cells. But the hematopoietic stem cells falter with age, because they lose the ability to replicate their DNA accurately and efficiently during cell division, Passegué's lab team determined.

Read the full, original story: [Key to aging immune system: Discovery of DNA replication problem](#)