

Insights into rare immune cells that keep blood stem cells in a youthful state may lead to better treatments

Hiding deep inside the bone marrow are special cells. They wait patiently for the hour of need, at which point these blood forming stem cells can proliferate and differentiate into billions of mature blood immune cells to help the body cope with infection, for example, or extra red blood cells for low oxygen levels at high altitudes. Even in emergencies, however, the body keeps to a long-term plan: It maintains a reserve of undifferentiated stem cells for future needs and crises. A research team headed by Prof. Tsvee Lapidot of the Institute's immunology Department recently discovered a new type of bodyguard that protects stem cells from over-differentiation. In a paper that appeared in *Nature Immunology*, they revealed how this rare, previously unknown sub-group of activated immune cells keeps the stem cells in the bone marrow "forever young."

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