

Blood vessel cells improve the conversion of pluripotent stem cells to blood lineages

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Hematopoietic stem cells (HSCs) can differentiate into all of the different types of cells that comprise the blood and immune cell lineages. HSC transplantation is the only effective treatment for certain blood disorders; however, sources of HSCs are limited. Pluripotent stem cells (PSCs), such as induced PSCs, can differentiate into multiple types of cell lineages, but they do not readily reconstitute the population of cells in blood.

A new study in the *Journal of Clinical Investigation* reveals that the presence of [endothelial cells](#), which make up the lining of blood vessels, improves the ability of PSC-derived cells to repopulate blood cell lineages.

Hans-Peter Kiem and colleagues at the Fred Hutchinson Cancer Research Center differentiated PSCs in the presence or absence of endothelial cells. Co-culture with endothelial cells increased the number of progenitor cells and activated hematopoietic specification pathways. Moreover, in a mouse model, these cells were capable of a long-term engraftment similar to levels achieved with cord blood-derived progenitors.

The results of this study support further evaluation of these PSC-derived progenitor cells for transplantation.

More information: Vascular niche promotes hematopoietic multipotent progenitor formation from pluripotent stem cells, *J Clin*

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