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A fine-tuned approach improves platelet generation from stem cells

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A low platelet count can occur as the result of a variety of medical conditions and as a medication side effect. Platelet transfusion is often required for individuals with a critically low platelet level. Currently, the primary source of platelets is volunteer donors. Unfortunately, donated platelets have an extremely short shelf life and can be in limited supply.

A new study in the *Journal of Clinical Investigation* reports on a method to generate progenitor cells from murine embryonic stems that are able to produce a large number of functional platelets. Mitchell Weiss and colleagues at St. Jude Children's Research Hospital generated murine embryonic stems cells in which the transcription factor GATA1 can be both silenced and expressed to endogenous levels. Coordinated regulation of GATA1 expression in these cells led to the production of platelet progenitor cells. Transfusion of these progenitors into mice resulted in the generation of functional platelets that readily incorporated into blot clots.

The results of this study lay important groundwork for the development of a donor-independent source of platelets.

More information: Inducible Gata1 suppression expands megakaryocyte-erythroid progenitors from embryonic stem cells, *J Clin Invest.* DOI: 10.1172/JCI77670