

Study finds cryopreserved endothelial progenitor cells phenotypically identical to non-frozen

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A study published in the current issue of *Cell Transplantation* has demonstrated for the first time that endothelial cells derived from cryopreserved human umbilical cord blood cells are phenotypically, as well as structurally and functionally, indistinguishable from freshly isolated endothelial cells. The success of the author's work eliminates the necessity of performing cell isolation procedures prior to their use in clinical transplantation.

"[Umbilical cord blood](#) (UCB) has been recognized as an enriched source of [endothelial progenitor cells](#) (EPCs) with potential therapeutic use," said Dr. Juan M. Melero-Martin of the Department of Cardiac Surgery, Children's Hospital Boston and the Harvard Medical School and the study's corresponding author. "Cryopreservation is the only reliable method for long-term storage of UCB cells, and clinical application of EPCs depends on our ability to acquire them from frozen samples."

Until this study, successful EPC isolation from fresh [mononuclear cells](#) (MNCs) had become routine, although isolating EPCs from mononuclear cells derived from cryopreserved UCBs had not previously been reported.

"In addition to obtaining phenotypically similar EPCs by following the methodology described in our paper, we also obtained similar numbers of EPC colonies, regardless of whether the MNCs were freshly obtained

or cryopreserved," added Dr. Melero-Martin.

The researchers also reported that the EPCs they obtained from cryopreserved UCB-derived MNCs also had blood vessel forming properties.

"This study shows that cryopreservation does not appear to affect UCBs in their ability to act as a source of EPCs," said Dr. Paul Sanberg, coeditor-in-chief of [Cell Transplantation](#) and executive director of the University of South Florida Center of Excellence for Aging and [Brain Repair](#). "This provides hope that the long term storage of these cells will not affect their ability to act as a reservoir of other potentially beneficial cell types."

More information: Lin, R-Z.; Dreyzin, A.; Aamodt, K.; Dudley, A. C.; Melero-Martin, J. M. Functional endothelial progenitor cells from cryopreserved umbilical cord blood. *Cell Transplantation* 20(4):515-522; 2011. The study is now freely available on-line at www.ingentaconnect.com/content/cog/ct/

Provided by Cell Transplantation Center of Excellence for Aging and Brain Repair

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