

1: [Transplantation](#). 1998 May 15;65(9):1275-8.

Preservation of immunological and colony-forming capacities of long-term (15 years) cryopreserved cord blood cells.

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BACKGROUND: Cryopreserved cord blood may be stored for decades before being used for allogeneic stem cell transplantation. Little is known about the effect of long-term cryopreservation in liquid nitrogen on the viability and function of cord blood cells. We examined the recovery, viability, clonogenic capacity, and T-cell reactivity to HLA alloantigens of cord blood samples cryopreserved up to 15 years. **METHODS:** Progenitor cell recoveries were studied by (colony-forming unit-granulocyte-macrophage) clonogenic assays from 18 cord blood samples short-term frozen for 2-8 weeks and from 8 samples cryopreserved for 15 years. Proliferative and cytotoxic responses against HLA antigens of thawed cord blood mononuclear cells after short-term or long-term cryopreservation were tested in standard mixed lymphocyte cultures and cell-mediated lympholysis assays. **RESULTS:** After thawing, the mononuclear cell recovery from long-term frozen cord blood low-density fractions averaged 80% (range, 64% to 92%). The presented data show that long-term frozen cord blood cells keep their clonogenic potential. No damaging effect was seen on the proliferative and cytotoxic capacities of long-term frozen cord blood T cells. **CONCLUSIONS:** The results support the possibility of long-term storage of progenitor cells from umbilical cord blood for future bone marrow reconstitution.

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