

# What diseases can be treated using cord blood today?

Cord blood is a source of newborn stem cells that is currently being used in transplant medicine to replace damaged blood and immune systems with healthy cells.

## Proven transplant medicine uses

### BLOOD DISORDERS

- Acute Myelofibrosis
- Agnogenic Myeloid Metaplasia (Myelofibrosis) Amyloidosis
- Aplastic Anemia (Severe)
- Beta Thalassemia Major
- Blackfan-Diamond Anemia
- Congenital Amegakaryocytic Thrombocytopenia (CAT)
- Congenital Cytopenia
- Congenital Dyserythropoietic Anemia
- Dyskeratosis Congenita
- Essential Thrombocythemia
- Fanconi Anemia
- Glanzmann's Thrombasthenia
- Myelodysplastic Syndrome
- Paroxysmal Nocturnal Hemoglobinuria (PNH)
- Polycythemia Vera
- Pure Red Cell Aplasia
- Refractory Anemia with Excess Blasts (RAEB)
- Refractory Anemia with Excess Blasts in Transition (RAEB-T)
- Refractory Anemia with Ringed Sideroblasts (RARS) Shwachman-Diamond Syndrome
- Sickle Cell Disease

### CANCERS

- Acute Biphenotypic Leukemia
- Acute Lymphocytic Leukemia (ALL)
- Acute Myelogenous Leukemia (AML)
- Acute Undifferentiated Leukemia
- Adult T Cell Leukemia/Lymphoma
- Chronic Active Epstein Barr
- Chronic Lymphocytic Leukemia (CLL)
- Chronic Myelogenous Leukemia (CML)
- Ewing Sarcoma
- Hodgkin's Lymphoma
- Juvenile Chronic Myelogenous Leukemia (JCML)
- Juvenile Myelomonocytic Leukemia (JMML)
- Myeloid/Natural Killer (NK) Cell Precursor Acute Leukemia
- Non-Hodgkin's Lymphoma
- Prolymphocytic Leukemia
- Plasma Cell Leukemia
- Chronic Myelomonocytic Leukemia (CMML)
- Leukocyte Adhesion Deficiency
- Multiple Myeloma
- Neuroblastoma
- Rhabdomyosarcoma
- Thymoma (Thymic Carcinoma)
- Waldenstrom's Macroglobulinemia
- Wilms Tumor

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## IMMUNE DISORDERS

- Adenosine Deaminase Deficiency (SCID)
- Bare Lymphocyte Syndrome (SCID)
- Chediak-Higashi Syndrome (SCID)
- Chronic Granulomatous Disease
- Congenital Neutropenia
- DiGeorge Syndrome
- Evans Syndrome
- Fucosidosis
- Hemophagocytic Lymphohistiocytosis (HLH)
- Hemophagocytosis Langerhans' Cell
- Histiocytosis (Histiocytosis X)
- IKK Gamma Deficiency (NEMO Deficiency)
- Immune Dysregulation, Polyendocrinopathy, Enteropathy, X-linked (IPEX) Syndrome
- Kostmann Syndrome (SCID)
- Myelokathexis
- Omenn Syndrome (SCID)
- Phosphorylase Deficiency (SCID)
- Purine Nucleoside (SCID)
- Reticular Dysgenesis (SCID)
- Severe Combined Immunodeficiency Diseases (SCID)
- Thymic Dysplasia
- Wiskott-Aldrich Syndrome
- X-linked Agammaglobulinemia
- X-Linked Lymphoproliferative Disorder
- X-Linked Hyper IgM Syndrome

## METABOLIC DISORDERS

- Congenital Erythropoietic Porphyria (Gunther Disease)
- Gaucher Disease
- Hunter Syndrome (MPS-II)
- Hurler Syndrome (MPS-IH)
- Krabbe Disease
- Lesch-Nyhan Syndrome
- Mannosidosis
- Maroteaux-Lamy Syndrome (MPS-VI)
- Metachromatic Leukodystrophy
- Mucopolidosis II (I-cell Disease)
- Neuronal Ceroid Lipofuscinosis (Batten Disease)
- Niemann-Pick Disease
- Sandhoff Disease
- Sanfilippo Syndrome (MPS-III)
- Scheie Syndrome (MPS-IS)
- Sly Syndrome (MPS-VII)
- Tay Sachs
- Wolman Disease
- X-Linked Adrenoleukodystrophy



**40,000+**  
CORD BLOOD TRANSPLANTS  
WORLDWIDE<sup>1</sup>

## Emerging research

### CORD BLOOD

**Hematopoietic stem cells (HSCs)** have the potential to:

- Help improve organ and tissue damage caused by age, disease, or trauma<sup>2</sup>
- Slow the progression of degenerative disease<sup>2</sup>
- Be used in gene therapy treatments<sup>3,4</sup>

### CORD TISSUE

**Mesenchymal stem cells (MSCs)** have the potential to:

- Reduce inflammation<sup>5</sup>
- Treat burns, wounds, vascular damage, and respiratory complications due to COVID-19<sup>6</sup>
- Modulate the immune system to help improve autoimmune disorders<sup>5,1</sup>



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## The transformative power of regenerative medicine

Newborn stem cells are currently being studied to determine their unique role in potentially regenerating or facilitating the repair of cells.

Areas of research within regenerative medicine:

### AUTOIMMUNE

- Lupus
- Type 1 Diabetes
- Bowel inflammation

### CARDIOVASCULAR

- Heart disease
- Vascular damage
- Damage from heart attack

### NEUROLOGICAL (ACQUIRED)

- Stroke
- Cerebral Palsy
- HIE

### TISSUE OR ORGAN DAMAGE

- Liver disease
- Lung disease
- Reproductive related conditions
- Wounds

### ORTHOPEDIC

- Osteoarthritis
- Spinal cord injury
- Bone nonunion

### NEUROLOGICAL (DEGENERATIVE)

- Parkinson's
- Alzheimer's disease
- ALS

1. <http://bethematch.org/Support-the-Cause/Donate-cord-blood/Cord-blood-is-changing-lives/> 2. Couto PS, Bersenev A, Verter F. The first decade of advanced cell therapy clinical trials using perinatal cells. 3. Williams DA, Moritz T. Umbilical cord blood stem cells as targets for genetic modification: new therapeutic approaches to somatic gene therapy. Blood cells. <https://www.ncbi.nlm.nih.gov/pubmed/7749118>. Published 1994. Accessed March 9, 2020. 4. Chen HK, Hung HF, Shyu KG, et al. Combined cord blood stem cells and gene therapy enhances angiogenesis and improves cardiac performance in mouse after acute myocardial infarction. European journal of clinical investigation. 5. Wei X, Yang X, Han ZP, Qu FF, Shao L, Shi YF. Mesenchymal stem cells: a new trend for cell therapy. Acta Pharmacol. Sin. 2013;34(6):747-54. 6. Pain Physician. 2020 Mar;23(2):E71-E83. Expanded Umbilical Cord Mesenchymal Stem Cells (UC-MSCs) as a Therapeutic Strategy in Managing Critically Ill COVID-19 Patients: The Case for Compassionate Use. Atturi S, Manchikanti L, Hirsch JA.