

Referenzen Gynäkologenratgeber Version 08/2023

1. Bundesärztekammer. Richtlinie zur Herstellung und Anwendung von hämatopoetischen Stammzellzubereitungen. *Deutsches Ärzteblatt*. 2014.
2. Wang Y, Zhao S. Placental Blood Circulation. <https://www.ncbi.nlm.nih.gov/books/NBK53254/>. Updated January 1, 2010. Accessed April 30, 2019.
3. Christou I, Mallis P, Michalopoulos E, et al. Evaluation of Peripheral Blood and Cord Blood Platelet Lysates in Isolation and Expansion of Multipotent Mesenchymal Stromal Cells. *Bioengineering (Basel)*. 2018;5(1). doi:10.3390/bioengineering5010019.
4. Bundesamt für Justiz. Gesetz über den Verkehr mit Arzneimitteln (Arzneimittelgesetz - AMG) § 13 Herstellungserlaubnis. https://www.gesetze-im-internet.de/amg_1976/__13.html. Updated July 22, 2019. Accessed July 22, 2019.
5. Bundesamt für Justiz. Gesetz über den Verkehr mit Arzneimitteln (Arzneimittelgesetz - AMG) § 21 Zulassungspflicht. https://www.gesetze-im-internet.de/amg_1976/__21.html. Updated July 22, 2019. Accessed July 22, 2019.
6. Bundesamt für Justiz. Gesetz über den Verkehr mit Arzneimitteln (Arzneimittelgesetz - AMG) § 21a Genehmigung von Gewebezubereitungen. https://www.gesetze-im-internet.de/amg_1976/__21a.html. Updated July 22, 2019. Accessed July 22, 2019.
7. Bundesamt für Justiz. Gesetz über den Verkehr mit Arzneimitteln (Arzneimittelgesetz - AMG) § 22 Zulassungsunterlagen. https://www.gesetze-im-internet.de/amg_1976/__22.html. Updated July 22, 2019. Accessed July 22, 2019.
8. Bundesamt für Justiz. Verordnung über die Anwendung der Guten Herstellungspraxis bei der Herstellung von Arzneimitteln und Wirkstoffen und über die Anwendung der Guten fachlichen Praxis bei der Herstellung von Produkten menschlicher Herkunft (Arzneimittel- und Wirkstoffherstellungsverordnung - AMWHV) § 4 Personal. https://www.gesetze-im-internet.de/amwhv/__4.html. Updated July 22, 2019. Accessed July 22, 2019.
9. Galieva LR, Mukhamedshina YO, Arkhipova SS, Rizvanov AA. Human Umbilical Cord Blood Cell Transplantation in Neuroregenerative Strategies. *Front Pharmacol*. 2017;8:628. doi:10.3389/fphar.2017.00628.
10. Sieburg HB, Cattarossi G, Muller-Sieburg CE. Lifespan differences in hematopoietic stem cells are due to imperfect repair and unstable mean-reversion. *PLoS Comput Biol*. 2013;9(4):e1003006. doi:10.1371/journal.pcbi.1003006.
11. Pillay J, den Braber I, Vrisekoop N, et al. In vivo labeling with 2H2O reveals a human neutrophil lifespan of 5.4 days. *Blood*. 2010;116(4):625-627. doi:10.1182/blood-2010-01-259028.
12. Park YM, Bochner BS. Eosinophil survival and apoptosis in health and disease. *Allergy Asthma Immunol Res*. 2010;2(2):87-101. doi:10.4168/aair.2010.2.2.87.
13. Siracusa MC, Comeau MR, Artis D. New insights into basophil biology: initiators, regulators, and effectors of type 2 inflammation. *Ann N Y Acad Sci*. 2011;1217:166-177. doi:10.1111/j.1749-6632.2010.05918.x.
14. Patel AA, Zhang Y, Fullerton JN, et al. The fate and lifespan of human monocyte subsets in steady state and systemic inflammation. *J Exp Med*. 2017;214(7):1913-1923. doi:10.1084/jem.20170355.
15. Kaestner L, Bogdanova A. Regulation of red cell life-span, erythropoiesis, senescence, and clearance. *Front Physiol*. 2014;5:269. doi:10.3389/fphys.2014.00269.
16. Franco RS. Measurement of red cell lifespan and aging. *Transfus Med Hemother*. 2012;39(5):302-307. doi:10.1159/000342232.

17. Seifert M, Küppers R. Human memory B cells. *Leukemia*. 2016;30(12):2283-2292. doi:10.1038/leu.2016.226.
18. Broxmeyer HE. *StemBook: Cord blood hematopoietic stem cell transplantation**. Cambridge (MA); 2008. <https://www.ncbi.nlm.nih.gov/books/NBK44751/>. Accessed April 29, 2019.
19. Jin HJ, Bae YK, Kim M, et al. Comparative analysis of human mesenchymal stem cells from bone marrow, adipose tissue, and umbilical cord blood as sources of cell therapy. *Int J Mol Sci*. 2013;14(9):17986-18001. doi:10.3390/ijms140917986.
20. Davies JE, Walker JT, Keating A. Concise Review: Wharton's Jelly: The Rich, but Enigmatic, Source of Mesenchymal Stromal Cells. *Stem Cells Transl Med*. 2017;6(7):1620-1630. doi:10.1002/sctm.16-0492.
21. Marino L, Castaldi MA, Rosamilio R, et al. Mesenchymal Stem Cells from the Wharton's Jelly of the Human Umbilical Cord: Biological Properties and Therapeutic Potential. *Int J Stem Cells*. 2019. doi:10.15283/ijsc18034.
22. Dalous J, Larghero J, Baud O. Transplantation of umbilical cord-derived mesenchymal stem cells as a novel strategy to protect the central nervous system: technical aspects, preclinical studies, and clinical perspectives. *Pediatr Res*. 2012;71(4 Pt 2):482-490. doi:10.1038/pr.2011.67.
23. Willing AE, Eve DJ, Sanberg PR. Umbilical cord blood transfusions for prevention of progressive brain injury and induction of neural recovery: an immunological perspective. *Regen Med*. 2007;2(4):457-464. doi:10.2217/17460751.2.4.457.
24. Balassa K, Rocha V. Anticancer cellular immunotherapies derived from umbilical cord blood. *Expert Opin Biol Ther*. 2018;18(2):121-134. doi:10.1080/14712598.2018.1402002.
25. Bönig H, Heiden M, Schüttrumpf J, Müller MM, Seifried E. Potenzial hämatopoetischer Stammzellen als Ausgangsmaterial für Arzneimittel für neuartige Therapien. *Bundesgesundheitsblatt Gesundheitsforschung Gesundheitsschutz*. 2011;54(7):791-796. doi:10.1007/s00103-011-1305-2.
26. Mayani H, Wagner JE, Broxmeyer HE. Cord blood research, banking, and transplantation: achievements, challenges, and perspectives. *Bone Marrow Transplant*. 2019. doi:10.1038/s41409-019-0546-9.
27. Gluckman Eliane, Broxmeyer Hal E., Auerbach Arleen D., et al. Hematopoietic Reconstitution in a Patient with Fanconi's Anemia by Means of Umbilical-Cord Blood from an HLA-Identical Sibling // Hematopoietic reconstitution in a patient with Fanconi's anemia by means of umbilical-cord blood from an HLA-identical sibling. *N Engl J Med*. 1989;321(17):1174-1178. doi:10.1056/NEJM198910263211707.
28. Dessels C, Alessandrini M, Pepper MS. Factors Influencing the Umbilical Cord Blood Stem Cell Industry: An Evolving Treatment Landscape. *Stem Cells Transl Med*. 2018;7(9):643-650. doi:10.1002/sctm.17-0244.
29. ClinicalTrials.gov. NCT03441958: A Phase I-II Open-label Study of Non-myeloablative-allogeneic Transplant of ECT-001 (UM171/ Fed-batch Culture System) Expanded Cord Blood in Patients With High-risk Multiple Myeloma. <https://clinicaltrials.gov/ct2/show/NCT03441958>. Accessed August 13, 2023.
30. ClinicalTrials.gov. NCT01451502: Infusion of Cell Populations From Unlicensed Umbilical Cord Blood Units. <https://clinicaltrials.gov/ct2/show/NCT01451502>. Accessed August 3, 2023.
31. ClinicalTrials.gov. NCT01861093: A Multicenter Safety Study of Unlicensed, Investigational Cryopreserved Cord Blood Units (CBUs) Manufactured by the National Cord Blood Program (NCBP) and Provided for Unrelated Hematopoietic Stem Cell Transplantation of Pediatric and Adult Patients. <https://clinicaltrials.gov/ct2/show/NCT01861093>. Accessed August 3, 2023.

32. ClinicalTrials.gov. NCT02730299: A Multicenter, Randomized, Phase III Registration Trial of Transplantation of NiCord[®], Ex Vivo Expanded, UCB-derived, Stem and Progenitor Cells, vs. Unmanipulated UCB for Patients With Hematological Malignancies. [Already published]. <https://clinicaltrials.gov/ct2/show/NCT02730299>. Accessed August 3, 2023.
33. ClinicalTrials.gov. NCT01962636: Umbilical Cord Blood Transplantation Using a Myeloablative Preparative Regimen for the Treatment of Hematological Diseases. <https://clinicaltrials.gov/ct2/show/NCT01962636>. Accessed August 3, 2023.
34. ClinicalTrials.gov. NCT00547196: Study of Four Different Chemotherapy Regimens With or Without Total-Body Irradiation Followed by Umbilical Cord Blood Transplant in Treating Patients With Relapsed or Refractory Hematologic Cancer. <https://clinicaltrials.gov/ct2/show/NCT00547196?recrs=abdf&cond=leukemia%2C+lymphoma&intr=umbilical+cord+blood&draw=2&rank=6>. Accessed August 3, 2023.
35. ClinicalTrials.gov. NCT00719888: Umbilical Cord Blood Transplant, Cyclophosphamide, Fludarabine, and Total-Body Irradiation in Treating Patients With Hematologic Disease. <https://clinicaltrials.gov/ct2/show/NCT00719888?recrs=abdf&cond=leukemia%2C+lymphoma&intr=umbilical+cord+blood&draw=2&rank=10>. Accessed August 3, 2023.
36. ClinicalTrials.gov. NCT04083170: Cord Blood Transplant With OTS for the Treatment of HIV Positive Hematologic Cancers. <https://clinicaltrials.gov/ct2/show/NCT04083170>. Accessed August 3, 2023.
37. ClinicalTrials.gov. NCT05669079: Decitabine and Umbilical Cord Blood for Poor Graft Function Post Allo-HSCT. [Phase 3, Taiwan]. <https://www.clinicaltrials.gov/study/NCT05669079>. Updated August 3, 2023. Accessed August 7, 2023.
38. ClinicalTrials.gov. NCT01810588: Targeting the IPA and Matching for the Non-Inherited Maternal Antigen for Haplo-Cord Transplantation. [Phase 2, USA]. <https://www.clinicaltrials.gov/study/NCT01810588>. Updated August 3, 2023. Accessed August 7, 2023.
39. ClinicalTrials.gov. NCT02508324: IPA Targeted Adoptive Immunotherapy vs Adult Haplo-identical Cell Infusion During Induction of High Risk Leukemia. [Phase 2, USA]. <https://www.clinicaltrials.gov/study/NCT02508324>. Updated August 3, 2023. Accessed August 7, 2023.
40. ClinicalTrials.gov. NCT03173937: Unrelated Umbilical Cord Blood Transplantation for Severe Aplastic Anemia and Hypo-plastic MDS Using CordIn(TM), Umbilical Cord Blood-Derived Ex Vivo Expanded Stem and Progenitor Cells to Expedite Engraftment and Improve Transplant Outcome. [Phase 1/2, USA]. <https://www.clinicaltrials.gov/study/NCT03173937>. Updated August 3, 2023. Accessed August 7, 2023.
41. ClinicalTrials.gov. NCT03739502: A Randomized Phase II Study of Hyperbaric Oxygen in Improving Engraftment in Umbilical Cord Blood Stem Cell Transplant (HBO-UBC). [Phase 2, USA]. <https://www.clinicaltrials.gov/study/NCT03739502>. Updated August 3, 2023. Accessed August 7, 2023.
42. ClinicalTrials.gov. NCT04174586: Cord Blood Microtransplantation for Treatment of Acute Myeloid Leukemia. [Phase 1, China]. <https://www.clinicaltrials.gov/study/NCT04174586?intr=Cord%20blood&aggFilters=phase:0%201,status:not%20rec%20act&page=2&rank=12>. Updated August 3, 2023. Accessed August 4, 2023.
43. ClinicalTrials.gov. NCT04644016: Cord Blood Transplant in Children and Young Adults With Blood Cancers and Non-malignant Disorders. [Phase 2, USA].

- <https://www.clinicaltrials.gov/study/NCT04644016>. Updated August 3, 2023. Accessed August 7, 2023.
44. ClinicalTrials.gov. NCT04687657: Umbilical Cord Blood Transfusion in Consolidation Therapy of Elderly Patients With Acute Myeloid Leukemia. [Phase 1, China].
<https://www.clinicaltrials.gov/study/NCT04687657>. Updated August 3, 2023. Accessed August 4, 2023.
 45. ClinicalTrials.gov. NCT04990323: US Study of ECT-001-CB in Pediatric and Young Adult Patients With High-Risk Myeloid Malignancies. [Phase 1/2, USA].
<https://www.clinicaltrials.gov/study/NCT04990323?intr=Cord%20blood&aggFilters=phase:0%201,status:not%20rec%20act&page=2&rank=16>. Updated August 3, 2023. Accessed August 4, 2023.
 46. ClinicalTrials.gov. NCT05333705: Donor Immune Cell Therapy for Acute Myeloid Leukemia. [Phase 1, China]. <https://www.clinicaltrials.gov/study/NCT05333705>. Updated August 3, 2023. Accessed August 7, 2023.
 47. ClinicalTrials.gov. NCT03399773: Infusion of Expanded Cord Blood Cells in Addition to Single Cord Blood Transplant in Treating Patients With Acute Leukemia, Chronic Myeloid Leukemia, or Myelodysplastic Syndromes. [Phase 2, USA]. <https://www.clinicaltrials.gov/study/NCT03399773>. Updated August 3, 2023. Accessed August 7, 2023.
 48. ClinicalTrials.gov. NCT05290545: Haplo-PBSC+Cord vs Haplo-PBSC+BM for Hematological Malignancies Undergoing Allo-HSCT. [Phase 3, China].
<https://www.clinicaltrials.gov/study/NCT05290545>. Updated August 3, 2023. Accessed August 7, 2023.
 49. ClinicalTrials.gov. NCT05577611: An Open, Single Center, Randomized Controlled Clinical Study of UCB (Cord Blood) in the Treatment of Newly Diagnosed Acute Myeloid Leukemia (AML). [Phase 1, China]. <https://www.clinicaltrials.gov/study/NCT05577611>. Updated August 3, 2023. Accessed August 7, 2023.
 50. ClinicalTrials.gov. NCT05584761: Unrelated Umbilical Cord Blood Stem Cell Combined With Azacitidine Based Treatment for Advanced MDS,CMML-2 and sAML. [Phase 1/2, China].
<https://www.clinicaltrials.gov/study/NCT05584761=2>. Updated August 3, 2023. Accessed August 4, 2023.
 51. ClinicalTrials.gov. NCT05667155: Clinical Study of Cord Blood-derived CAR NK Cells Targeting CD19/CD70 in Refractory/Relapsed B-cell Non-Hodgkin Lymphoma. [Phase 1, China].
<https://www.clinicaltrials.gov/study/NCT05667155>. Updated August 3, 2023. Accessed August 7, 2023.
 52. ClinicalTrials.gov. NCT05794425: Clinical Study of UCB Combined With UC-MSCs in the Treatment of Bone Marrow Failure Disorders. [Phase 1/2, China].
<https://www.clinicaltrials.gov/study/NCT05794425>. Updated August 3, 2023. Accessed August 4, 2023.
 53. ClinicalTrials.gov. NCT05884333: Cord Blood Transplant in Adults With Blood Cancers. [Phase 2, USA]. <https://www.clinicaltrials.gov/study/NCT05884333>. Updated August 3, 2023. Accessed August 7, 2023.
 54. ClinicalTrials.gov. NCT00357565: Hematopoietic Stem Cell Transplantation in the Treatment of Infant Leukemia. [Phase 2, USA]. <https://www.clinicaltrials.gov/study/NCT00357565>. Updated August 3, 2023. Accessed August 7, 2023.
 55. ClinicalTrials.gov. NCT02727803: Personalized NK Cell Therapy in Cord Blood Transplantation. <https://clinicaltrials.gov/ct2/show/NCT02727803>. Accessed August 3, 2023.

56. ClinicalTrials.gov. NCT03420963: Ex-Vivo Expanded Allogeneic NK Cells for the Treatment of Solid Tumors of Pediatric Origin in Children and Young Adults.
<https://clinicaltrials.gov/ct2/show/NCT03420963>. Accessed August 3, 2023.
57. ClinicalTrials.gov. NCT04796675: Cord Blood Derived Anti-CD19 CAR-Engineered NK Cells for B Lymphoid Malignancies.
<https://clinicaltrials.gov/ct2/show/NCT04796675?recrs=abdf&cond=leukemia%2C+lymphoma&intr=umbilical+cord+blood&draw=3&rank=7>. Accessed August 3, 2023.
58. ClinicalTrials.gov. NCT05092451: Phase I/II Study of CAR.70- Engineered IL15-transduced Cord Blood-derived NK Cells in Conjunction With Lymphodepleting Chemotherapy for the Management of Relapse/Refractory Hematological Malignancies.
<https://clinicaltrials.gov/ct2/show/NCT05092451?recrs=abdf&cond=leukemia%2C+lymphoma&intr=umbilical+cord+blood&draw=3&rank=11>. Accessed August 3, 2023.
59. ClinicalTrials.gov. NCT03594981: Adoptive Cord Blood Immunotherapy for EBV, CMV, BKV and Adenovirus Reactivation/Infection or Prophylaxis. [Phase 1/2, USA].
<https://www.clinicaltrials.gov/study/NCT03594981>. Updated August 3, 2023. Accessed August 4, 2023.
60. ClinicalTrials.gov. NCT04347616: Natural Killer-cell Therapy for Acute Myeloid Leukemia (NK4AML). [Phase 1/2, Netherlands].
<https://www.clinicaltrials.gov/study/NCT04347616?intr=Cord%20blood&aggFilters=phase:0%201,status:not%20rec&page=5&rank=49>. Updated August 3, 2023. Accessed August 7, 2023.
61. ClinicalTrials.gov. NCT04707300: Study Evaluating the Safety and the Efficacy of Human T Lymphoid Progenitor (HTLP) Injection to Accelerate Immune Reconstitution After Umbilical Cord Blood (UCB) Transplantation in Adult Patients With Hematologic Malignancies (HTLP-ONCO) (HTLP-ONCO). [Phase 1/2, Frankreich]. <https://www.clinicaltrials.gov/study/NCT04707300>. Updated August 3, 2023. Accessed August 7, 2023.
62. ClinicalTrials.gov. NCT05240690: Umbilical Cord Blood Derived MAK Immune Cells Combined With Standard Second-Line Treatments for Hepatobiliary and Pancreatic Malignancies. [Phase 1, China]. <https://www.clinicaltrials.gov/study/NCT05240690>. Updated August 3, 2023. Accessed August 4, 2023.
63. ClinicalTrials.gov. NCT05334329: Genetically Engineered Natural Killer (NK) Cells With or Without Atezolizumab for the Treatment of Non-small Cell Lung Cancer Previously Treated With PD-1 and/or PD-L1 Immune Checkpoint Inhibitors. [Phase 1, USA].
<https://www.clinicaltrials.gov/study/NCT05334329>. Updated August 3, 2023. Accessed August 7, 2023.
64. ClinicalTrials.gov. NCT05472558: Clinical Study of Cord Blood-derived CAR-NK Cells Targeting CD19 in the Treatment of Refractory/Relapsed B-cell NHL. [Phase 1, China].
<https://www.clinicaltrials.gov/study/NCT05472558>. Updated August 3, 2023. Accessed August 7, 2023.
65. ClinicalTrials.gov. NCT04991870: Engineered NK Cells Containing Deleted TGF-BetaR2 and NR3C1 for the Treatment of Recurrent Glioblastoma. [Phase 1, USA].
<https://www.clinicaltrials.gov/study/NCT04991870>. Updated August 3, 2023. Accessed August 4, 2023.
66. ClinicalTrials.gov. NCT05110742: Phase I/II Study of CD5 CAR Engineered IL15-Transduced Cord Blood-Derived NK Cells in Conjunction With Lymphodepleting Chemotherapy for the Management of Relapsed/Refractory Hematological Malignancies. [Phase 1/2, USA].

- <https://www.clinicaltrials.gov/study/NCT05110742?intr=Cord%20blood&aggFilters=phase:0%201,status:not%20rec&page=5&rank=44>. Updated August 3, 2023. Accessed August 7, 2023.
67. ClinicalTrials.gov. NCT05703854: Study of CAR.70-engineered IL15-transduced Cord Blood-derived NK Cells in Conjunction With Lymphodepleting Chemotherapy for the Management of Advanced Renal Cell Carcinoma, Mesothelioma and Osteosarcoma. [Phase 1/2, USA].
<https://www.clinicaltrials.gov/study/NCT05703854?intr=Cord%20blood&aggFilters=phase:0%201,status:not%20rec&page=5&rank=50>. Updated August 3, 2023. Accessed August 7, 2023.
68. ClinicalTrials.gov. NCT05842707: Study of Cord Blood-derived CAR NK Cells Targeting CD19/CD70 in Refractory/Relapsed B-cell Non-Hodgkin Lymphoma. [Phase 1/2, China].
<https://www.clinicaltrials.gov/study/NCT05842707?intr=Cord%20blood&aggFilters=phase:0%201,status:not%20rec&page=4&rank=35>. Updated August 3, 2023. Accessed August 7, 2023.
69. ClinicalTrials.gov. NCT04007224: Umbilical Cord Blood vs Personalized Treatments for Improving Autistic Disorder. [Phase1, Rumänien]. <https://www.clinicaltrials.gov/study/NCT04007224>. Updated August 3, 2023. Accessed August 4, 2023.
70. ClinicalTrials.gov. NCT04768816: Clinical Effect and Safety of Autologous Umbilical Cord Blood Transfusion in the Treatment of Autism Spectrum Disorder. [Phase 1, China].
<https://www.clinicaltrials.gov/study/NCT04768816>. Updated August 3, 2023. Accessed August 4, 2023.
71. ClinicalTrials.gov. NCT04243382: Treatment of Children With Autistic Spectrum Disorder With Autologous Umbilical Cord Blood, a Pilot Study. [Phase 2, Israel].
<https://www.clinicaltrials.gov/study/NCT04243382>. Updated August 3, 2023. Accessed August 7, 2023.
72. ClinicalTrials.gov. NCT02551003: A Multi-Centre Safety and Efficacy Study of Autologous Cord Blood Combined With Therapeutic Hypothermia Following Neonates Encephalopathy in China.
<https://clinicaltrials.gov/ct2/show/NCT02551003>. Accessed August 3, 2023.
73. ClinicalTrials.gov. NCT02881970: Neonatal Hypoxic Ischemic Encephalopathy : Safety and Feasibility Study of a Curative Treatment With Autologous Cord Blood Stem Cells (NEOSTEM).
<https://clinicaltrials.gov/ct2/show/NCT02881970>. Accessed August 3, 2023.
74. ClinicalTrials.gov. NCT02433509: Phase I Clinical Safety Study About Human Umbilical Cord Blood Monocyte in the Acute Ischemic Stroke. <https://clinicaltrials.gov/ct2/show/NCT02433509>. Accessed August 3, 2023.
75. ClinicalTrials.gov. NCT04243408: Treatment of Children With Cerebral Palsy With Autologous Umbilical Cord Blood, a Pilot Study.
<https://clinicaltrials.gov/ct2/show/NCT04243408?recrs=abdf&cond=cerebral+palsy&intr=cord+blood&draw=2&rank=1>. Accessed August 3, 2023.
76. ClinicalTrials.gov. NCT03526588: Umbilical Cord Blood Mononuclear Cells for Hypoxic Neurologic Injury in Infants With Congenital Diaphragmatic Hernia (CDH). [Phase 1, USA].
<https://www.clinicaltrials.gov/study/NCT03526588>. Updated August 3, 2023. Accessed August 4, 2023.
77. ClinicalTrials.gov. NCT03779711: Phase IIb Study of Intramyocardial Injection of Autologous Umbilical Cord Blood Derived Mononuclear Cells During Stage II Surgical Repair of Right Ventricular Dependent Variants of Hypoplastic Left Heart Syndrome (AutoCell-S2).
<https://clinicaltrials.gov/ct2/show/NCT03779711>. Accessed June 21, 2019.
78. ClinicalTrials.gov. NCT04907526: Intramyocardial Injection of Autologous UCB-MNC During Fontan Surgery for SRV Dependent CHD.

- <https://clinicaltrials.gov/ct2/show/NCT04907526?recrs=abdf&cond=heart&intr=cord+blood&draw=2&rank=3>. Accessed August 3, 2023.
79. ClinicalTrials.gov. NCT01632475: Long Term Follow-Up Study of the Safety and Exploratory Efficacy of Pneumostem® in Premature Infants With Bronchopulmonary Dysplasia. <https://clinicaltrials.gov/ct2/show/NCT01632475>. Accessed August 3, 2023.
 80. ClinicalTrials.gov. NCT04440670: Effect of Autologous Cord Blood Mononuclear Cells for Prevention of Bronchopulmonary Dysplasia in Extremely Preterm Neonates. <https://clinicaltrials.gov/ct2/show/NCT04440670?recrs=abdf&cond=lung&intr=cord+blood&draw=2&rank=3>. Accessed August 3, 2023.
 81. ClinicalTrials.gov. NCT04003857: Follow-up Study of Safety and Efficacy in Subjects Who Completed PNEUMOSTEM® Phase II (MP-CR-012) Clinical Trial. <https://clinicaltrials.gov/ct2/show/NCT04003857?recrs=abdf&cond=lung&intr=cord+blood&draw=2&rank=8>. Accessed August 3, 2023.
 82. ClinicalTrials.gov. NCT03835312: Sequential Transplantation of Umbilical Cord Blood Stem Cells and Islet Cells in Children and Adolescents With Monogenic Immunodeficiency Type 1 Diabetes Mellitus. <https://clinicaltrials.gov/ct2/show/NCT03835312>. Accessed August 3, 2023.
 83. ClinicalTrials.gov. NCT04943289: Intrathecal Administration of DUOC-01 in Adults With Primary Progressive Multiple Sclerosis (DUOC for MS). <https://clinicaltrials.gov/ct2/show/NCT04943289?recrs=abdf&cond=autoimmune&intr=cord+blood&draw=2&rank=5>. Accessed August 3, 2023.
 84. ClinicalTrials.gov. NCT04689425: Umbilical Cord Blood Mononuclear Cell Gel in the Treatment of Refractory Diabetic Foot Ulcer (DFU-MNC). [Phase 3, China]. <https://www.clinicaltrials.gov/study/NCT04689425>. Updated August 3, 2023. Accessed August 7, 2023.
 85. ClinicalTrials.gov. NCT02254863: Augmentation of Umbilical Cord Blood Transplantation for Inherited Metabolic Diseases With Intrathecal Administration of Human Umbilical Cord Blood-Derived Oligodendrocyte-Like Cells. <https://clinicaltrials.gov/ct2/show/NCT02254863>. Accessed August 3, 2023.
 86. ClinicalTrials.gov. NCT03016806: Umbilical Cord Blood Transplantation From Unrelated Donors. <https://clinicaltrials.gov/ct2/show/NCT03016806>. Accessed August 3, 2023.
 87. ClinicalTrials.gov. NCT01962415: Reduced Intensity Conditioning for Non-Malignant Disorders Undergoing UCBT, BMT or PBSCT (HSCT+RIC). <https://clinicaltrials.gov/ct2/show/NCT01962415?recrs=abdf&cond=Metabolic+Disease&intr=cord+blood&draw=2&rank=7>. Accessed August 3, 2023.
 88. ClinicalTrials.gov. NCT04565665: Cord Blood-Derived Mesenchymal Stem Cells for the Treatment of COVID-19 Related Acute Respiratory Distress Syndrome. [Phase 1/2, USA]. <https://www.clinicaltrials.gov/study/NCT04565665>. Updated August 3, 2023. Accessed August 7, 2023.
 89. ClinicalTrials.gov. NCT05682560: Human Umbilical Cord Blood (RegeneCyte) Infusion in Patients With Post-COVID Syndrome. [Phase 2, USA]. <https://www.clinicaltrials.gov/study/NCT05682560>. Updated August 3, 2023. Accessed August 7, 2023.
 90. ClinicalTrials.gov. NCT05138276: Effect of Autologous Cord Blood Mononuclear Cells for Digestive System in Preterm Neonates (ACBMNC). [Phase 1, China]. <https://www.clinicaltrials.gov/study/NCT05138276?intr=Cord%20blood&aggFilters=phase:0%201,status:not%20rec%20act&page=2&rank=14>. Updated August 3, 2023. Accessed August 4, 2023.

91. ClinicalTrials.gov. NCT05695521: Regulatory T Cells for Amyotrophic Lateral Sclerosis (REGALS). [Phase 1, USA]. <https://www.clinicaltrials.gov/study/NCT05695521>. Updated August 3, 2023. Accessed August 7, 2023.
92. ClinicalTrials.gov. NCT03979742: Umbilical Cord Blood Cell (MC001) Transplant Into Injured Spinal Cord Followed by the Locomotor Training. [Phase 2, Taiwan]. <https://www.clinicaltrials.gov/study/NCT03979742>. Updated August 3, 2023. Accessed August 7, 2023.
93. ClinicalTrials.gov. NCT05095597: Umbilical Cord Plasma for Treating Endometrial Pathologies (Thin Endometrium / Asherman's Syndrome/ Endometria Atrophy) (hSCU-PRP). [Phase 2, Spanien]. <https://www.clinicaltrials.gov/study/NCT05095597>. Updated August 3, 2023. Accessed August 7, 2023.
94. ClinicalTrials.gov. NCT05303727: Allogeneic Hematopoietic Stem Cell Transplantation for 4/M Neuroblastoma. [Phase 2, China]. <https://www.clinicaltrials.gov/study/NCT05303727>. Updated August 3, 2023. Accessed August 7, 2023.
95. Hansen M, Zatula N, Riammer S, Lehmann M. Safe enzymatic isolation and expansion of mesenchymal stromal cells from cryopreserved umbilical cord tissue. *JCB*. 2019;4(1-2):51-56. doi:10.3233/JCB-180011.
96. Beeravolu N, McKee C, Alamri A, et al. Isolation and Characterization of Mesenchymal Stromal Cells from Human Umbilical Cord and Fetal Placenta. *J Vis Exp*. 2017;(122). doi:10.3791/55224.
97. Arutyunyan I, Elchaninov A, Makarov A, Fatkhudinov T. Umbilical Cord as Prospective Source for Mesenchymal Stem Cell-Based Therapy. *Stem Cells Int*. 2016;2016:6901286. doi:10.1155/2016/6901286.
98. Park YB, Ha CW, Kim JA, et al. Single-stage cell-based cartilage repair in a rabbit model: cell tracking and in vivo chondrogenesis of human umbilical cord blood-derived mesenchymal stem cells and hyaluronic acid hydrogel composite. *Osteoarthr Cartil*. 2017;25(4):570-580. doi:10.1016/j.joca.2016.10.012.
99. Kargozar S, Mozafari M, Hashemian SJ, et al. Osteogenic potential of stem cells-seeded bioactive nanocomposite scaffolds: A comparative study between human mesenchymal stem cells derived from bone, umbilical cord Wharton's jelly, and adipose tissue. *J Biomed Mater Res Part B Appl Biomater*. 2018;106(1):61-72. doi:10.1002/jbm.b.33814.
100. Yang C, Wang G, Ma F, et al. Repeated injections of human umbilical cord blood-derived mesenchymal stem cells significantly promotes functional recovery in rabbits with spinal cord injury of two noncontinuous segments. *Stem Cell Res Ther*. 2018;9(1):136. doi:10.1186/s13287-018-0879-0.
101. Ertl J, Pichlsberger M, Tuca A-C, et al. Comparative study of regenerative effects of mesenchymal stem cells derived from placental amnion, chorion and umbilical cord on dermal wounds. *Placenta*. 2018;65:37-46. doi:10.1016/j.placenta.2018.04.004.
102. Moroncini G, Paolini C, Orlando F, et al. Mesenchymal stromal cells from human umbilical cord prevent the development of lung fibrosis in immunocompetent mice. *PLoS ONE*. 2018;13(6):e0196048. doi:10.1371/journal.pone.0196048.
103. ClinicalTrials.gov. NCT05345418: Umbilical Cord-Derived Mesenchymal Stem Cell (VCELL 1) for Male Patients With Sexual Deficiency. [Phase 1/2, Vietnam]. <https://www.clinicaltrials.gov/study/NCT05345418>. Updated July 10, 2023. Accessed August 3, 2023.
104. ClinicalTrials.gov. NCT05495711: hUC Mesenchymal Stem Cells (19#iSCLife®-UT) Therapy for Patients With Thin Endometrial Infertility. [Phase 1, China].

- <https://www.clinicaltrials.gov/study/NCT05495711>. Updated July 10, 2023. Accessed August 3, 2023.
105. ClinicalTrials.gov. NCT03826433: hUC Mesenchymal Stem Cells (19#iSCLife®-LC) in the Treatment of Decompensated Hepatitis b Cirrhosishepatitis b Cirrhosis. [Phase 1, China].
<https://www.clinicaltrials.gov/study/NCT03826433>. Updated July 10, 2023. Accessed August 3, 2023.
106. ClinicalTrials.gov. NCT04357600: Umbilical Cord Mesenchymal Stem Cell for Liver Cirrhosis Patient Caused by Hepatitis B. [Phase 1/2, Indonesien].
<https://www.clinicaltrials.gov/study/NCT04357600?intr=UC-MSCs&aggFilters=phase:1%200,status:rec&page=2&rank=15>. Updated July 10, 2023. Accessed August 3, 2023.
107. ClinicalTrials.gov. NCT05331872: Umbilical Cord-derived Mesenchymal Stem Cell Infusion in the Management of Adult Liver Cirrhosis. [Phase 1, Vietnam].
<https://www.clinicaltrials.gov/study/NCT05331872>. Updated July 10, 2023. Accessed August 3, 2023.
108. ClinicalTrials.gov. NCT05121870: Treatment With Human Umbilical Cord-derived Mesenchymal Stem Cells for Decompensated Cirrhosis. [Phase 2, Leber-Erkr., China].
<https://www.clinicaltrials.gov/study/NCT05121870>. Updated July 10, 2023. Accessed August 3, 2023.
109. ClinicalTrials.gov. NCT05512988: Study of Human Umbilical Cord Mesenchymal Stem Cell in Patients With Cirrhosis Due to Hepatitis B (Compensation Stage). [Leber-Erkr., Phase 1/2, China].
<https://www.clinicaltrials.gov/study/NCT05507762?intr=UC-MSCs&aggFilters=phase:1%200,status:rec&rank=3>. Updated July 10, 2023. Accessed August 3, 2023.
110. ClinicalTrials.gov. NCT04125329: Umbilical Cord Mesenchymal Stem Cells Therapy for Diabetic Nephropathy. [Phase 1, CHina].
<https://www.clinicaltrials.gov/study/NCT04125329?intr=UC-MSCs&aggFilters=phase:1%200,status:rec&page=3&rank=27>. Updated July 10, 2023. Accessed August 3, 2023.
111. ClinicalTrials.gov. NCT05512988: Human Umbilical Cord Mesenchymal Stem Cell(UC- MSC)Delayed Renal Chronic Kidney Disease(CKD3、 4). [Nierenerkr., Phase 1/2, CHina].
<https://www.clinicaltrials.gov/study/NCT05512988?intr=UC-MSCs&aggFilters=phase:1%200,status:rec&rank=4>. Updated July 10, 2023. Accessed August 3, 2023.
112. ClinicalTrials.gov. NCT04255147: Cellular Therapy for Extreme Preterm Infants at Risk of Developing Bronchopulmonary Dysplasia. [Phase 1, Canada].
<https://www.clinicaltrials.gov/study/NCT04255147>. Updated July 10, 2023. Accessed August 3, 2023.
113. ClinicalTrials.gov. NCT05035862: Mechanisms of Interferon Gamma-primed Mesenchymal Stromal Cells (MSCs) for Moderate-to-severe Persistent Asthma. [Phase 1, USA].
<https://www.clinicaltrials.gov/study/NCT05035862>. Updated July 10, 2023. Accessed August 3, 2023.
114. ClinicalTrials.gov. NCT05054803: Cell Therapy for Chronic Traumatic Cervical Incomplete Spinal Cord Injury.
<https://clinicaltrials.gov/ct2/show/NCT05054803?term=spinal+cord&recrs=abdf&intr=UC-MSCs&draw=2&rank=1>. Accessed August 3, 2023.

115. ClinicalTrials.gov. NCT04104412: The Safety/Efficacy Study of Human Umbilical Cord Mesenchymal Stem Cells Therapy (19#iSCLife®-LDP) for Lumbar Discogenic Pain. [Phase 1, China]. <https://www.clinicaltrials.gov/study/NCT04104412>. Updated July 10, 2023. Accessed August 3, 2023.
116. ClinicalTrials.gov. NCT04744116: Addition of Cord Blood Tissue-Derived Mesenchymal Stromal Cells to Ruxolitinib for the Treatment of Steroid-Refractory Acute Graft Versus Host Disease. [Phase 1, USA]. <https://www.clinicaltrials.gov/study/NCT04744116>. Updated July 10, 2023. Accessed August 3, 2023.
117. ClinicalTrials.gov. NCT04314687: Allogeneic Umbilical Cord Mesenchymal Stem Cells and Conditioned Medium for Cerebral Palsy in Children. <https://clinicaltrials.gov/ct2/show/NCT04314687>. Accessed August 3, 2023.
118. ClinicalTrials.gov. NCT04873752: A Study to Investigate the Safety and Efficacy of UC-MSCs in Pediatric Patients With Cerebral Palsy. <https://clinicaltrials.gov/ct2/show/NCT04873752?recrs=abdf&cond=cerebral+palsy&intr=UC-MSc&draw=2&rank=1>. Updated February 14, 2022.000Z. Accessed August 3, 2023.
119. ClinicalTrials.gov. NCT05490173: The Pilot Experimental Study of the Neuroprotective Effects of Exosomes in Extremely Low Birth Weight Infants. <https://clinicaltrials.gov/ct2/show/NCT05490173?term=cerebral+palsy&recrs=abdf&intr=UC-MSc&draw=2&rank=3>. Accessed August 3, 2023.
120. ClinicalTrials.gov. NCT04093336: Effect of Mesenchymal Stem Cells(MSCs) Transplantation for Acute Cerebral Infarction Patients. [Phase 1/2, China]. <https://www.clinicaltrials.gov/study/NCT04093336>. Updated July 10, 2023. Accessed August 3, 2023.
121. ClinicalTrials.gov. NCT04074408: Intracavitary Injection of hUMSCs in Acute Basal Ganglia Hematoma After Stereotactic Aspiration. [Phase 2, Hirnschädig., China]. <https://www.clinicaltrials.gov/study/NCT04074408>. Updated July 10, 2023. Accessed August 3, 2023.
122. ClinicalTrials.gov. NCT05008588: Combination of Conditioned Medium and Umbilical Cord-Mesenchymal Stem Cells Therapy for Acute Stroke Infarct. [Phase 1/2, Indonesien]. <https://www.clinicaltrials.gov/study/NCT05008588?intr=UC-MSc&aggFilters=phase:1%200,status:rec&rank=7>. Updated July 10, 2023. Accessed August 3, 2023.
123. ClinicalTrials.gov. NCT03383081: A Clinical Research on the Safety/Efficacy of Human Umbilical Cord Mesenchymal Stem Cells (19#iSCLife®-OA) Therapy for Patients With Osteoarthritis. <https://clinicaltrials.gov/ct2/show/NCT03383081>. Accessed August 3, 2023.
124. ClinicalTrials.gov. NCT05160831: Human Umbilical Cord Mesenchymal Stem Cells in the Treatment of Knee Osteoarthritis. <https://clinicaltrials.gov/ct2/show/NCT05160831?term=Osteoarthritis&recrs=abdf&intr=UC-MSc&draw=2&rank=1>. Accessed August 3, 2023.
125. ClinicalTrials.gov. NCT02805855: Autologous Culture Expanded Mesenchymal Stromal Cells for Knee Osteoarthritis. <https://clinicaltrials.gov/ct2/show/NCT02805855?recrs=abdf&cond=Osteo+Arthritis&intr=UC-MSc&draw=2&rank=2>. Accessed August 3, 2023.
126. ClinicalTrials.gov. NCT04314661: Comparative Effectiveness of Arthroscopy and Non-Arthroscopy Using Mesenchymal Stem Cell Therapy (MSCs) and Conditioned Medium for Osteoarthritis (OA).

- <https://clinicaltrials.gov/ct2/show/NCT04314661?recrs=abdf&cond=Osteo+Arthritis&intr=UC-MSc+NOT+adipose&draw=2&rank=4>. Accessed August 3, 2023.
127. ClinicalTrials.gov. NCT05043610: MSCs for Prevention of MI-induced HF (PREVENT-TAHA). <https://clinicaltrials.gov/ct2/show/NCT05043610?recrs=abdf&cond=heart&intr=UC-MSc&draw=2&rank=5>. Accessed August 3, 2023.
128. ClinicalTrials.gov. NCT03902067: UC-MSc Transplantation for Left Ventricular Dysfunction After AMI. <https://clinicaltrials.gov/ct2/show/NCT03902067?recrs=abdf&cond=heart&intr=UC-MSc&draw=2&rank=1>. Updated February 14, 2022.000Z. Accessed February 14, 2022.725Z.
129. ClinicalTrials.gov. NCT03562065: Treatment of Refractory Systemic Lupus Erythematosus by Allogeneic Mesenchymal Stem Cells Derived From the Umbilical Cord (MSC-SLE). <https://clinicaltrials.gov/ct2/show/NCT03562065>. Accessed August 3, 2023.
130. ClinicalTrials.gov. NCT04971980: Safety and Efficacy Study of Human Umbilical Cord-Derived Mesenchymal Stem Cells(BC-U001) for Rheumatoid Arthritis. <https://www.clinicaltrials.gov/ct2/show/NCT04971980?recrs=abdf&cond=autoimmune&intr=UC-MSc&draw=2&rank=1>. Accessed August 3, 2023.
131. ClinicalTrials.gov. NCT03828344: Safety and Tolerability of a Single Intravenous Infusion of BX-U001 in Refractory Rheumatoid Arthritis. <https://www.clinicaltrials.gov/ct2/show/NCT03828344?recrs=abdf&cond=autoimmune&intr=UC-MSc&draw=2&rank=2>. Accessed August 3, 2023.
132. ClinicalTrials.gov. NCT05061030: Mesenchymal Stromal Cells to Treat Type 1 Diabetes in Children and Adolescents. <https://www.clinicaltrials.gov/ct2/show/NCT05061030?recrs=abdf&cond=autoimmune&intr=UC-MSc&draw=2&rank=3>. Accessed August 3, 2023.
133. ClinicalTrials.gov. NCT02997878: Selected Mesenchymal Stromal Cells to Reduce Inflammation in Patients With PSC and AIH (Merlin). [Phase 1/2, UK]. <https://www.clinicaltrials.gov/study/NCT02997878>. Updated July 10, 2023. Accessed August 3, 2023.
134. ClinicalTrials.gov. NCT03917797. [Phase 2, Autoimmun, Chile]. <https://www.clinicaltrials.gov/study/NCT03917797>. Updated July 10, 2023. Accessed August 3, 2023.
135. ClinicalTrials.gov. NCT05039411: Safety of Allogeneic Human Umbilical Cord Mesenchymal Stem Cells (UC-MSCs) to Treat Perianal Fistulas Patients With Crohn's Disease. [Autoimmun; Phase 1; Malaysia]. <https://www.clinicaltrials.gov/study/NCT05039411>. Updated July 10, 2023. Accessed August 3, 2023.
136. ClinicalTrials.gov. NCT05279768: Stem Cells and Secretomes for Infertility Therapy in Polycystic Ovary Syndrome (PCOS) Patients With Insulin Resistance. [Autoimmun, Phase 1/2, Indonesien]. <https://www.clinicaltrials.gov/study/NCT05279768?intr=UC-MSCs&aggFilters=phase:1%200,status:rec&rank=2>. Updated July 10, 2023. Accessed August 3, 2023.
137. ClinicalTrials.gov. NCT05507697: Treatment With Human Umbilical Cord Mesenchymal Stem Cells for Refractory Diabetic Peripheral Neuropathy. [Phase 1/2, Autoimmun, China]. <https://www.clinicaltrials.gov/study/NCT05507697?intr=UC-MSCs&aggFilters=phase:2,status:rec&rank=10>. Updated July 10, 2023. Accessed August 3, 2023.
138. ClinicalTrials.gov. NCT05631717: The Study of Comparing the Efficacy and Safety of Human Umbilical Cord MSCs and Low-dose IL-2 in the Treatment of LN.

- <https://www.clinicaltrials.gov/study/NCT05631717?intr=UC-MSCs&aggFilters=phase:3,status:rec&rank=6>. Updated July 10, 2023. Accessed August 3, 2023.
139. ClinicalTrials.gov. NCT05286255: Mesenchymal Stromal Cells for COVID-19 and Viral Pneumonias. <https://clinicaltrials.gov/ct2/show/NCT05286255?recrs=abdf&cond=COVID-19&intr=UC-MSCs&draw=2&rank=2>. Accessed August 3, 2023.
140. ClinicalTrials.gov. NCT04452097: Use of hUC-MSc Product (BX-U001) for the Treatment of COVID-19 With ARDS. <https://clinicaltrials.gov/ct2/show/NCT04452097?recrs=abdf&cond=COVID-19&intr=UC-MSCs&draw=2&rank=9>. Accessed August 3, 2022.
141. ClinicalTrials.gov. NCT04896853: Treatment of Respiratory Complications Associated With COVID-19 Infection Using ProTrans®. <https://clinicaltrials.gov/ct2/show/NCT04896853?recrs=abdf&cond=COVID-19&intr=UC-MSCs&draw=2&rank=11>. Accessed August 3, 2022.
142. ClinicalTrials.gov. NCT05689008: UC-MSCs in the Treatment of Severe and Critical COVID-19 Patients With Refractory Hypoxia. <https://www.clinicaltrials.gov/study/NCT05689008?intr=UC-MSCs&aggFilters=phase:3,status:rec&rank=1>. Updated July 10, 2023. Accessed August 3, 2023.
143. ClinicalTrials.gov. NCT05699811: IFN α Expressing Mesenchymal Stromal Cells for Locally Advanced/Metastatic Solid Tumors. [Phase 1/2, Solide Tumore, China]. <https://www.clinicaltrials.gov/study/NCT05699811>. Updated July 10, 2023. Accessed August 3, 2023.
144. ClinicalTrials.gov. NCT05872659: Mesenchymal Stem Cells for Immune Non-responder Patients With HIV Infection. [Phase 1, China]. <https://www.clinicaltrials.gov/study/NCT05872659>. Updated July 10, 2023. Accessed August 3, 2023.