**Table 1. Summary of MSCs and MSC-exosomes in ongoing clinical trials of ARDS and COVID-19 till November 11th, 2020.**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Registry Number | Country | Phase | Status | MSC Source | Delivery Method | Estimated enrolment | Date |
| NCT04276987 | China | I | Completed | Adipose tissue | 5 does of MSCs-exosomes, 2.0×108 vesicles per time, aerosol inhalation | 24 | February 15, 2020- July 31, 2020 |
| NCT04288102 | China | II | Completed | Umbilical cord tissue | 3 does of UC-MSCs, 4.0×107 cells per time intravenously | 100 | March 5, 2020- July 9, 2020 |
| NCT04492501 | Pakistan | / | Completed | Bone marrow | 2.0×106 cells/kg intravenously | 600 | April 1, 2020- July 20, 2020 |
| NCT04573270 | USA | I | Completed | Umbilical cord tissue | -- | 40 | April 24, 2020- September 1, 2020 |
| NCT04444271 | Pakistan | II | Recruiting | Bone marrow | 2.0×106 cells/kg intravenously | 20 | May 1, 2020- September 20, 2020 |
| NCT04361942 | Spain | II | Recruiting | Umbilical cord tissue | 1.0×106 cells/kg intravenously | 24 | May 1, 2020- December 31, 2020 |
| NCT04366271 | Spain | II | Recruiting | Umbilical cord tissue | -- | 106 | May 7, 2020-May 31, 2021 |
| NCT04416139 | Mexico | II | Recruiting | Umbilical cord tissue | 1.0×106 cells/kg intravenously | 10 | May 1, 2020- May 1, 2021 |
| NCT04565665 | USA | I | Recruiting | Umbilical cord blood | -- | 70 | July 29, 2020- April 30, 2021 |
| NCT04399889 | USA | I, II | Recruiting | Umbilical cord blood | 3 does of 1.0×106 cells/kg intravenously | 30 | June 18, 2020- July 31, 2021 |
| NCT04366323 | Spain | I, II | Recruiting | Adipose tissue | 2 does of 8.0×106 cells/kg intravenously | 26 | April 27, 2020- October 2021 |
| NCT04252118 | China | I | Recruiting | Umbilical cord tissue | 3 does of 3.0×107 cells/kg intravenously | 20 | January 27, 2020- December 2021 |
| NCT04313322 | Jordan | I | Recruiting | Wharton’s Jelly | 3 does of 1.0×106 cells/kg intravenously | 5 | March 16, 2020- September 30, 2020 |
| NCT04457609 | Indonesia | I | Recruiting | Umbilical cord tissue | 1.0×106 cells/kg intravenously | 40 | July 2020- September 2020 |
| NCT04336254 | China | I, II | Recruiting | Dental pulp | 3 does of 3.0×107 cells/kg intravenously | 20 | April 6, 2020- March 31, 2021 |
| NCT04400032 | Canada | I | Recruiting | Bone marrow | 2.5, 5.0, 9.0×107 cells intravenously  | 9 | May 15, 2020- June 2021 |
| NCT04466098 | USA | II | Recruiting | -- | 3.0×108 cells intravenously | 30 | July 30, 2020- December 1, 2021 |
| NCT04525378 | Brazil  | I | Recruiting | -- | 2.5, 5.0, 10.0×107 cells intravenously | 20 | July 1, 2020- October 31, 2020 |
| NCT04447833 | Sweden | I | Recruiting | Bone marrow | 1.0, 2.0×106 cells/kg intravenously | 9 | June 17, 2020- June 30, 2025 |
| NCT04366063 | Iran | II, III | Recruiting | -- | 2 doses of MSCs 1.0×108 intravenously, 2 does of MSC-exosomes intravenously | 60 | April 5, 2020- December 10, 2020 |
| NCT04339660 | China | I, II | Recruiting | Umbilical cord tissue | 1.0×106 cells/kg intravenously | 30 | February 1, 2020- June 30, 2020 |
| NCT04371393 | USA | III | Recruiting | -- | 2.0×106 cells/kg intravenously | 300 | April 30, 2020- April 2022 |
| NCT04461925 | Ukraine | I, II | Recruiting | Placenta and Umbilical cord tissue | 1.0×106 cells/kg intravenously | 30 | May 2, 2020- December 2021 |
| NCT04333368 | France | I, II | Recruiting | Umbilical cord tissue | 1.0×106 cells/kg intravenously | 40 | April 6, 2020- April 6, 2022 |
| NCT04390139 | Spain | I, II | Recruiting | Wharton-Jelly | 1.0×106 cells/kg intravenously | 30 | May 13, 2020- December 2020 |
| NCT04537351 | Australia | I, II | Recruiting | induced pluripotent stem cell (iPSC) and mesenchymoangioblast (MCA) | 2.0×106 cells/kg intravenously | 24 | August 24, 2020- March 31, 2021 |
| NCT04445454 | Belgium | I, II | Recruiting | Bone marrow | 1.5-3.0×106 cells/kg intravenously | 20 | July 12, 2020- September 30, 2022 |
| NCT04397796 | USA | I | Recruiting | Bone marrow | -- | 45 | August 3, 2020- June 2021 |
| NCT04389450 | USA | II | Recruiting | Placenta | -- | 140 | October 1, 2020- March 2022 |
| NCT04494386 | USA | I, II | Recruiting | Umbilical cord tissue | 1.0×106 cells intravenously | 60 | July 23, 2020- November 30, 2021 |
| NCT04392778 | Turkey | I, II | Recruiting | -- | 3 does of 3.0×106 cells/kg intravenously | 30 | April 1, 2020- September 2020 |
| NCT03042143 | UK | I, II | Recruiting | Umbilical cord tissue | -- | 75 | January 7, 2019- October 2022 |
| NCT04269525 | China | II | Recruiting | Umbilical cord tissue | 4 does of 9.9×107 cells/kg intravenously | 16 | February 6, 2020- December 30, 2020 |
| NCT04437823 | Pakistan | II | Recruiting | Umbilical cord tissue | 3 does of 5.0×105 cells/kg intravenously | 20 | June 1, 2020- June 30, 2021 |
| NCT04524962 | USA | I, II | Recruiting | -- | MSCs or MSCs RNA-engineered to secrete a combination of DNases. | 30 | September 15, 2020-September 25, 2022 |