**Supplementary Information for**

Novel therapeutic approach to slow down the inflammatory cascade in acute /subacute SCI:Early immune therapy with LPS enhanced neuroprotective effect of Combinational therapy of G-CSF, BM-MSC in SCI

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**Table S1.** Multiple comparisons of histological evaluation scores for hyperemia, degeneration and infiltration and demyelination.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Variable* | *Reference Group* | *Comparison Group* | *Score* | *P value* |
| *hyperemia* | SCI  (1.37) | SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 0.37  1.87  0.9  0.85  1  1.25  1 | 0.21  0.91  0.95  0.91  0.98  0.98  0.98 |
| SCI+LPS  (0.37) | SCI  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 1.37  1.87  0.9  0.85  1  1.25  1 | 0.21  0.008  0.87  0.93  0.93  0.62  0.76 |
| SCI+MSC  (1.87) | SCI  SCI+LPS  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 1.37  0.37  0.9  0.85  1  1.25  1 | 0.91  0.008  0.31  0.22  0.36  0.37  0.36 |
| SCI+LPS+MSC  (0.9) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 1.37  0.37  1.87  0.85  1  1.25  1 | 0.95  0.87  0.31  >0.99  >0.99  >0.99  >0.99 |
| SCI+LPS+GCSF  (0.85) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 1.37  0.37  1.87  0.9  1  1.25  1 | 0.91  0.93  0.22  >0.99  >0.99  0.99  >0.99 |
| SCI+LPS+GCSF+MSC  (1.25) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+Vehicle | 1.37  0.37  1.87  0.9  0.85  1  1 | 0.98  0.62  0.37  >0.99  0.37  0.99  >0.99 |

**Continue Table S1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Variable* | *Reference Group* | *Comparison Group* | *Score* | *P value* |
| *degeneration* | SCI  (2.87) | SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 1.18  2.68  1.78  2.14  2.31  1.62  2.75 | <0.0001  0.99  0.0148  0.2526  0.5404  0.0019  0.9999 |
| SCI+LPS  (1.18) | SCI  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2.87  2.68  1.78  2.14  2.31  1.62  2.75 | <0.0001  0.0001  0.5058  0.0492  0.0071  0.8055  <0.0001 |
| SCI+MSC  (2.68) | SCI  SCI+LPS  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2.87  1.18  1.78  2.14  2.31  1.62  2.75 | 0.9103  0.0088  0.0764  0.6223  0.9011  0.0134  >0.9999 |
| SCI+LPS+MSC  (1.78) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2.87  1.18  2.68  2.14  2.31  1.62  2.75 | 0.9575  0.8774  0.0764  0.9439  0.6606  0.9994  0.0457 |
| SCI+LPS+GCSF  (2.14) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2.87  1.18  2.68  1.78  2.31  1.62  2.75 | 0.2526  0.0492  0.6223  0.9439  0.9992  0.6795  0.6795 |
| SCI+LPS+GCSF+MSC  (1.62) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+Vehicle | 2.87  1.18  2.68  1.78  2.14  2.31  2.75 | 0.0019  0.8055  0.0134  0.9994  0.6795  0.2853  0.0071 |

**Continue Table S1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Variable* | *Reference Group* | *Comparison Group* | *Score* | *P value* |
| *Infiltration* | SCI  (2) | SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 0.42  2.42  1.14  1.28  1  1.42  1.91 | 0.04  0.98  0.65  0.82  0.46  0.93  >0.9999 |
| SCI+LPS  (0.42) | SCI  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2  2.42  1.14  1.28  1  1.42  1.91 | 0.04  0.003  0.82  0.65  0.93   |  | | --- | | 0.46 | | 0.08 | |
| SCI+MSC  (2.42) | SCI  SCI+LPS  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2  0.42  1.14  1.28  1  1.42  1.91 | 0.98  2.42  0.16  0.29  0.08  0.46  0.97 |
| SCI+LPS+MSC  (1.14) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2  0.42  2.42  1.28  1  1.42  1.91 | 0.65  0.82  0.16  >0.99  >0.99  0.99  0.79 |
| SCI+LPS+GCSF  (1.28) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2  0.42  2.42  1.14  1  1.42  1.91 | 0.82  0.65  0.29  >0.99  0.99  >0.99  >0.99 |
| SCI+LPS+GCSF+MSC  (1.42) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+Vehicle | 2  0.42  2.42  1.14  1.28  1.42  1.91 | 0.93  0.46  0.46  0.99  >0.99  0.98  0.9989 |

**Continue Table S1**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *Variable* | *Reference Group* | *Comparison Group* | *Score* | *P value* |
| *Demyelination* | SCI  (2) | SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 1  2.18  1.35  1.57  1.37  0.7  2.25 | 0.03  0.99  0.47  0.87  0.4650  0.0009  0.99 |
| SCI+LPS  (1) | SCI  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2  2.18  1.35  1.57  1.37  0.7  2.25 | 0.03  0.006  0.94  0.62  0.92  0.96  0.003 |
| SCI+MSC  (2.18) | SCI  SCI+LPS  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2  1  1.35  1.57  1.37  0.7  2.25 | 0.99  0.0064  0.17  0.52  0.15  0.0001  >0.99 |
| SCI+LPS+MSC  (1.35) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2  1  2.18  1.57  1.37  0.7  2.25 | 0.47  0.94  0.17  0.99  >0.99  0.38  0.11 |
| SCI+LPS+GCSF  (1.57) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+GCSF  SCI+LPS+GCSF+MSC  SCI+Vehicle | 2  1  2.18  1.35  1.37  0.7  2.25 | 0.87  0.62  0.52  0.99  0.99  0.09  0.40 |
| SCI+LPS+GCSF+MSC  (0.7) | SCI  SCI+LPS  SCI+MSC  SCI+LPS+MSC  SCI+LPS+GCSF  SCI+GCSF  SCI+Vehicle | 2  1  2.18  1.35  1.57  1.37  2.25 | 0.0009  0.96  0.0001  0.38  0.09  0.29  <0.0001 |

Table S2. Comparison of BBB score at different time point in each group after spinal cord injury.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Group |  |  | Days post SCI |  |  |  |
| 7 | 14 | 21 | 28 | 35 | 42 |
| **Sham** | 21±0.00 | 21±0.00 | 21±0.00 | 21±0.00 | 21±0.00 | 21±0.0 |
| **SCI** | 3±0.25 | 5.5±0.55 | 8.75±0.52 | 8.875±0.47 | 9.625±0.52 | 9.75±0.42 |
| **SCI+LPS** | 4.8±0.4 a | 7.37±0.46 a | 10.88±0.36  a | 12.81±0.32a,b | 12.94±0.3a | 13.06±0.22 a |
| **SCI+MSC** | 2.37±0.3 b | 6.12±0.2 b,c | 8.87±0.2 b,c | 11.13±0.15 a | 12 ±0.1 a | 12.44±0.13 a |
| **SCI+LPS+MSC** | 2.56±0.1 | 7.18±0.43 a | 10.75±0.66 a | 12.19±0.61 a | 12.56±0.45 a | 13.13±0.38 a |
| **SCI+LPS+G-CSF** | 4.81±0.66 a | 8.06±1 a | 10.44±0.79 a | 11.94±0.59 a | 13.06±0.44 a | 13.38±0.27 a |
| **SCI+LPS+GCSF+MSC** | 3.18±0.33 | 6.5±0.64 | 9±0.59 b | 10.94±0.6 a | 12±0.53 a | 13.25±0.48 a |

a compared to the SCI

b compared to SCI+ LPS and LPS+G-CSF

c compared to the LPS+MSC

p<0.001.