Supplementary Material

Title: Aligned Collagen Scaffold Combination with Human Spinal Cord-derived Neural Stem Cells to Improve Spinal Cord Injury Repair

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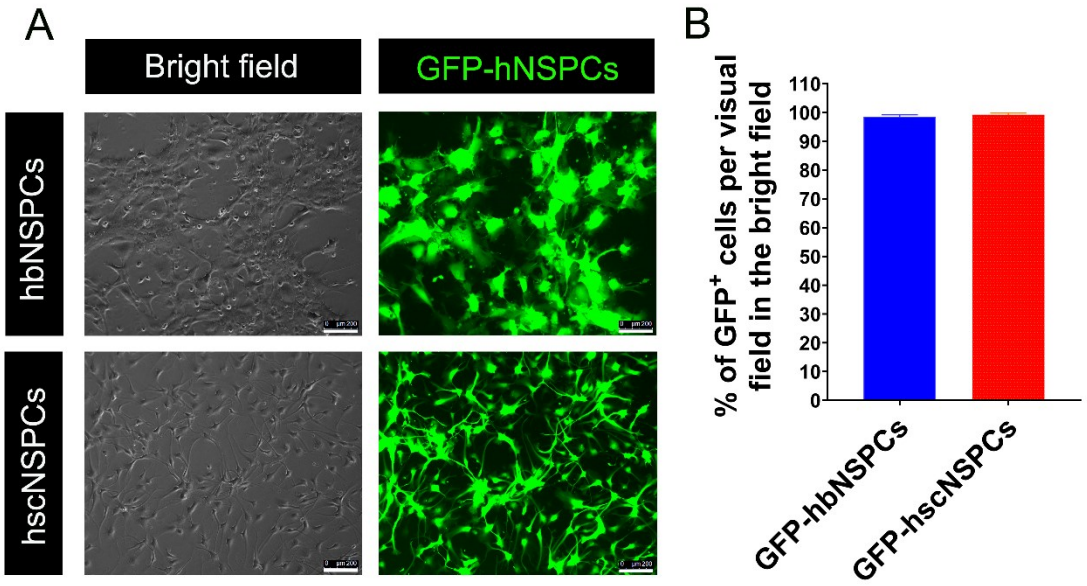

Figure S1. Transplanted hNSPCs infected with lentivirus expressing GFP *in vitro*. **(A)** Images of hbNSPCs and hscNSPCs infected with lentivirus expressing GFP. Scale bars: 200 μm. **(B)** Infection efficiency of hbNSPCs and hscNSPCs before transplantation ($P > 0.05$).

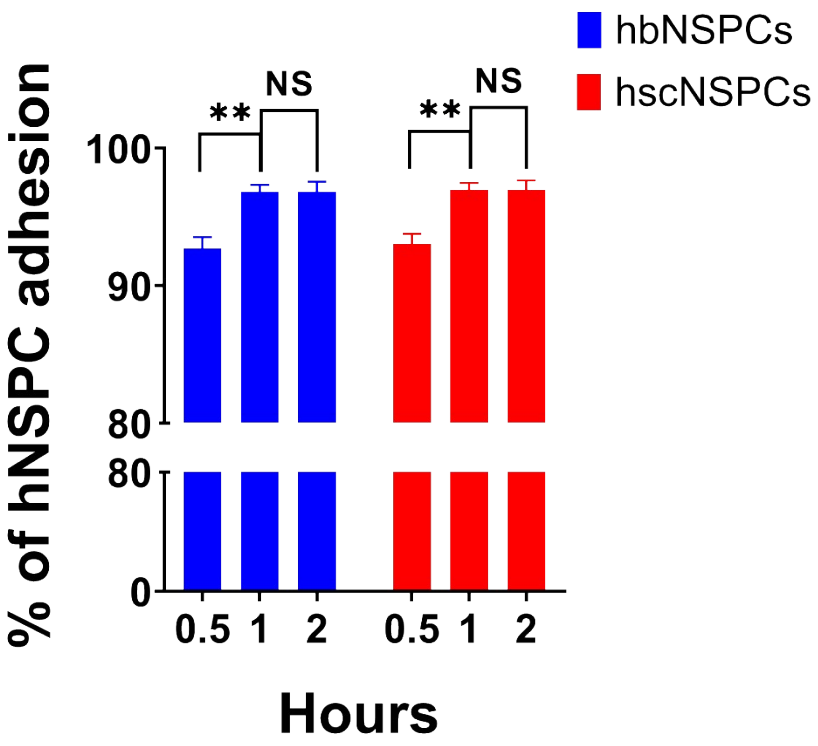

Figure S2. Cell attachment behavior. Most hNSPCs attached to the ACSSs after 1 hour of incubation.

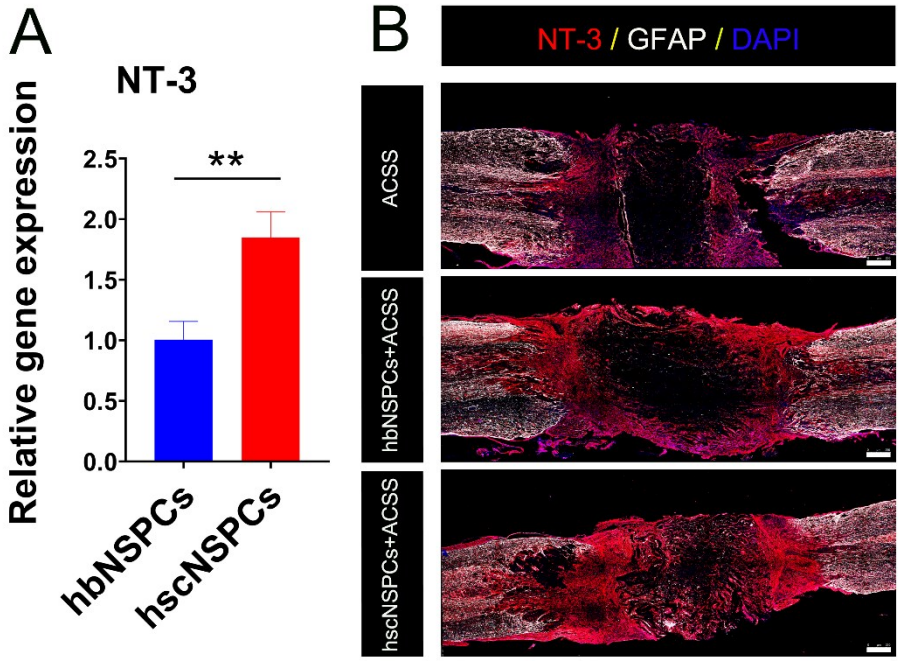

Figure S3. Secretion of neurotrophin-3 in the lesion area. (A) qPCR of relative gene expression of NT-3 in hbNSPCs and hscNSPCs *in vitro*. $^{**}P < 0.01$. **(B)** Immunofluorescence staining of NT-3 in the injury microenvironment *in vivo.* Scale bars: 250 μm.

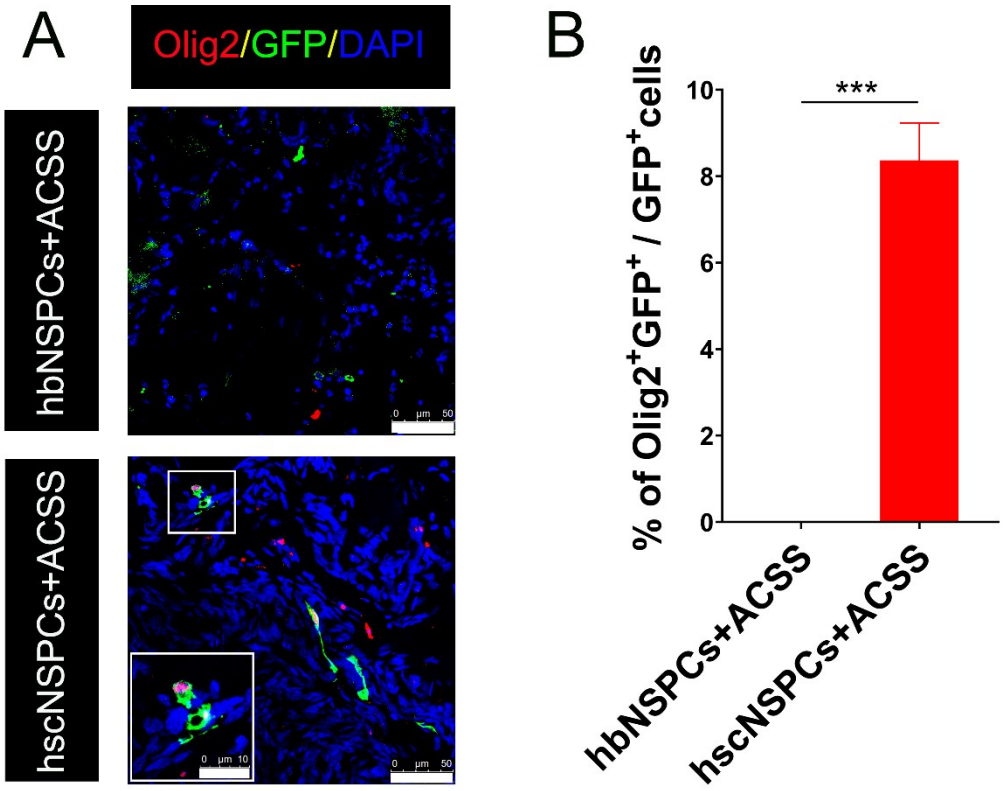

Figure S4. Oligodendrocyte differentiation at the injury site 8 weeks after transplantation. (A) Representative immunofluorescence profiles for Olig2 (red, for oligodendrocytes) at the center of the injury site in the hbNSPCs + ACSS and hscNSPCs + ACSS groups. Scale bars: 50 μm (Scale bars of the inserts = 10 μm). **(B)** Percentage of Olig2-positive cells differentiated from implanted hbNSPCs and hscNSPCs. ***$P < 0.001$.

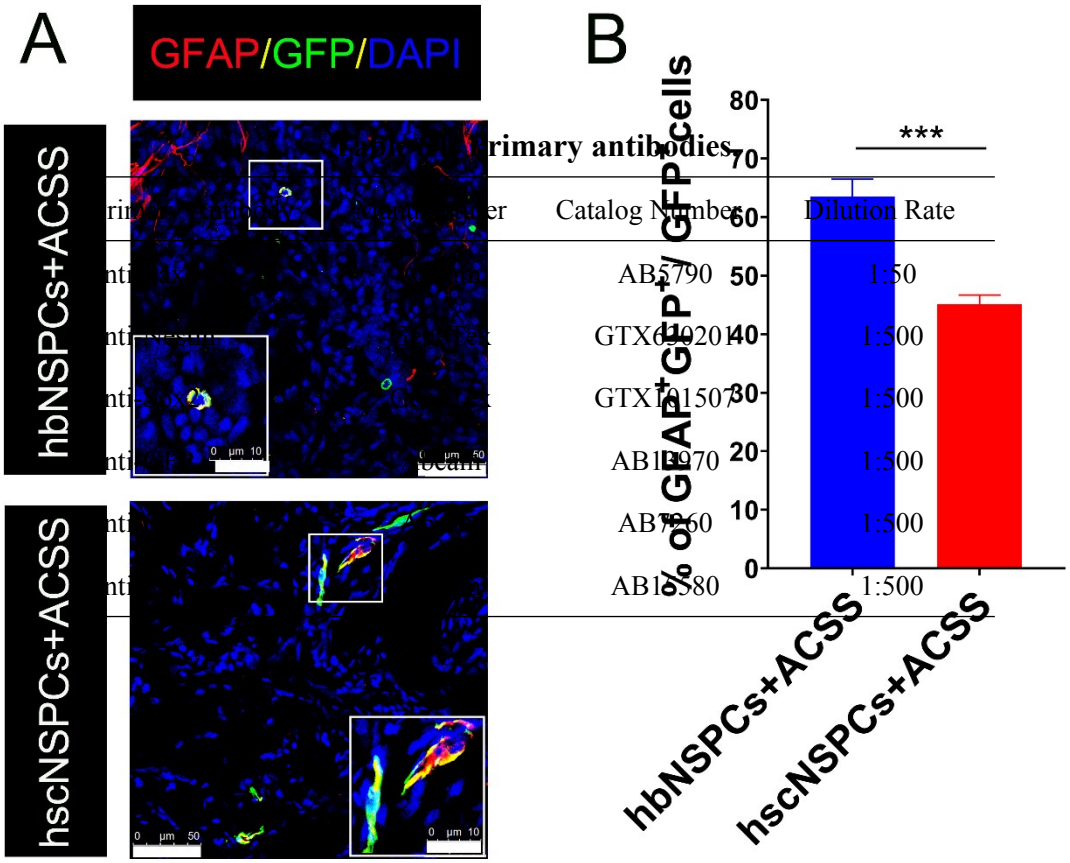

Figure S5. Astrocyte differentiation at the site of injury 8 weeks after transplantation. (A) Representative immunofluorescence profiles for GFAP (red, for astrocytes) at the center of the injury site. Scale bars: 50 μm (Scale bars of the inserts = 10 μm). **(B)** Percentage of GFAP-positive cells differentiated from implanted hNSPCs. ***$P < 0.001$.

anti-Caspase3	R&D	AF835	1:500
anti-Tuj-1	Abcam	AB18207	1:500
anti-Map2	Abcam	AB11267	1:500
anti-5-HT	ImmunoStar	20080	1:500
anti-ChAT	Abcam	AB144P	1:500
anti-MBP	Covance	SMI-99P	1:400
anti-SYN	Abcam	AB64581	1:100
anti-NF	Abcam	AB8135	1:300
anti-CD-68	Abcam	AB125212	1:500
anti-IL-1β	Abcam	AB9722	1:500
anti-CS-56	Sigma	C8035	1:500
anti-NT-3	Abcam	AB16640	1:500

Movie S1

Movie of motor function of rats in the four experimental groups.