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1 *Supplementary*

2 Enhanced Homing Technique of Mesenchymal Stem 3 Cells Using Iron Oxide Nanoparticles by Magnetic 4 Attraction in Olfactory-Injured Mouse Models

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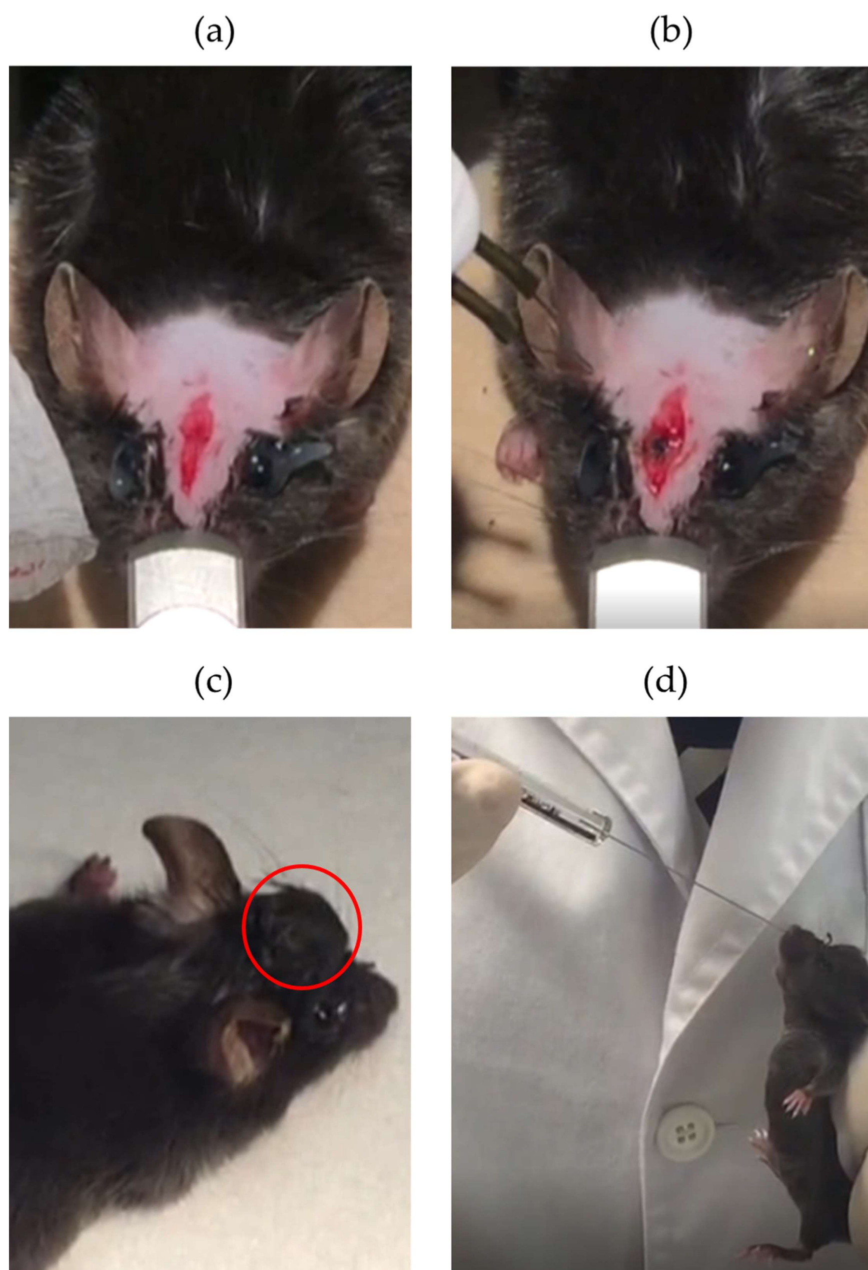

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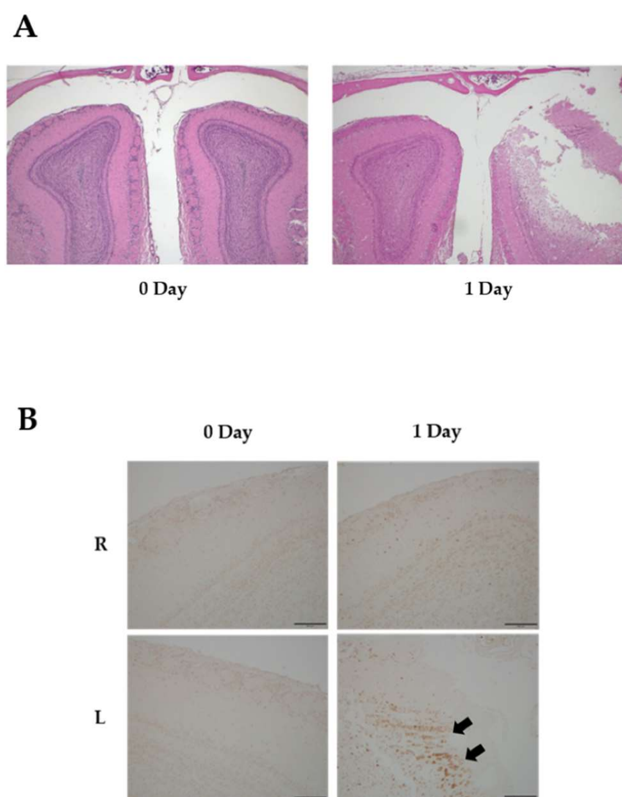
20 **Figure S1.** Procedures for migration of magnetized MSCs with IRBs in olfactory-injured mouse models. (**a**)
21 After exposure of the scalp bone to remove the skin covering the skull with scissors, a 2-mm cranial window
22 was opened on the exposed bone. (**b**) Bipolar coagulation was used with a 1-mm depth for 100 ms on only one
23 side of the olfactory bulb. (**c**) The 5-mm cuboidal magnet was inserted into the scalp, and then the scalp
24 was sutured. (**d**) Injection of magnetized MSCs into olfactory-injured mouse models was performed with a
25 50-μL Hamilton syringe via each nostril.
26
27 Damaged cells in the olfactory mouse model were confirmed by H&E staining and
28 immunohistochemistry results of SDF-1 chemokines secreted from the damaged cells (Figure S2).
29 H&E staining results clearly revealed the destructed left olfactory bulb compared to the right bulb
30 (Figure S2A). The damaged site also showed high secretion of SDF-1 in immunohistochemistry
31 analysis (Figure S2B). This showed that the olfactory mouse model was well-prepared.



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33 **Figure S2.** H&E staining and SDF-1 expression in olfactory injured mouse models. (**A**) Destruction of
34 left olfactory bulbs after one day was observed via H&E staining. (**B**) Distribution of SDF-1
35 chemokines (black arrows) secreted from damaged cells around the injured area was confirmed by
36 immunohistochemistry.