

**Transplantation of a bone marrow mesenchymal stem cell line
increases neuronal progenitor cell migration in a cerebral ischemia
animal model**

Yuri Shiota¹, Atsushi Nagai^{1, 2*}, Seiji Mishima¹, Abdullah Md. Sheikh²,
Shingo Mitaki³, Shozo Yano², Haque Md. Ahsanul², Shotai Kobayashi⁴,
Shuhei Yamaguchi³

¹Clinical Laboratory Division, Shimane University Hospital, 89-1 Enya
Cho, Izumo 693-8501, Japan

²Department of Laboratory Medicine, Shimane University School of
Medicine, 89-1 Enya Cho, Izumo 693-8501, Japan

³Department of Internal Medicine III, Shimane University School of
Medicine, 89-1 Enya Cho, Izumo 693-8501, Japan

⁴Shimane University, 89-1 Enya Cho, Izumo 693-8501, Japan

Address correspondence and reprint requests to:

Dr. Atsushi Nagai,

Department of Laboratory Medicine, Shimane University Faculty of
Medicine, 89-1 Enya-cho, Izumo 693-8501, Japan.

Tel: 81-853-20-2409; Fax: 81-853-20-2409;

E-mail: anagai@med.shimane-u.ac.jp

Supplemental Table 1

Modified neurological scoring system (mNSS)

Motor test		
	Raising by the tail: maximum points = 3	
	Inability to-	
		flexion of forelimb: point 1
		flexion of hind limb: point 1
		head moved >10 in vertical axis within 30 s: point 1
	Placing rat on the floor: maximum points = 3	
		Normal walk: point 0
		Inability to walk strait: point 1
		Circling towards paresis side: point 2
		Fall down to the paretic side: point 3
Sensory test:		maximum points = 6
	Visual test: point 1point	
	Tactile test: point 2 points	
	Proprioceptive test (deep sensation): 3 points	
Balance beam test:		maximum points = 6
	Balance with steady posture: 0 point	
	Grasp the side of the beam: 1 point	
	Hug the beam, and 1 limb fall down from the beam: 2 points	
	Hug the beam, and 2 limbs fall down from the beam, or spin on beam > 60 sec: 3 points	
	Attempt to balance but fall down > 40 sec: 4 points	
	Attempt to balance but fall down > 20 sec: 5 points	
	Fall down, no attempt to balance (<20 sec): 6 points	
Absence of reflexes, and abnormal movements:		maximum points = 4
	Corneal reflex (eye blinks when lightly touching the cornea with cotton): 1 point	
	Startle reflex (motor response to a brief noise from snapping a	

	clipboard paper): 1 point
	Pinna reflex (head shakes when touching the auditory meatus): 1 point
	Seizures, myoclonus, myodystonia: 1 point
Maximum total points = 22	

Supplemental Table 2

Primer sets used for real time PCR

Gene name	Forward primer	Reverse primer	Gene ID
$\alpha 6$ integrin	caaggcagatggagtaatgtgaag	cgattccaaacatcgagtctttg	NM_053725
$\beta 1$ integrin	gcatctgaaccatgactgattctc	cagcaggactgttctttgattctg	NM_017022
STX	ggagtgggtcaatgctctcatc	ctttgatgtggactttgtt	NM_057156
ErbB4	cgggccattccactttacc	ccatgatgaccaggatgaagag	AF041838
Fractalkine	acctcggcatgacgaaatg	cctgggtcagttgatagtggatgag	AF030358
NRG1	ttacacttcacagcccatcac	ctctccgtgtgccattactc	NM_031588
PST	cggaggcaaggctcagaac	ttgatgagtgggatacccttcac	X52833
SDF-1	ccagagccaacgtcaaacatc	acacttgtctgtgttgcttttcag	AF209976
GAPDH	cagcctcgtcatagacaagatg	aaggcagccctggtaacca	NM_017008