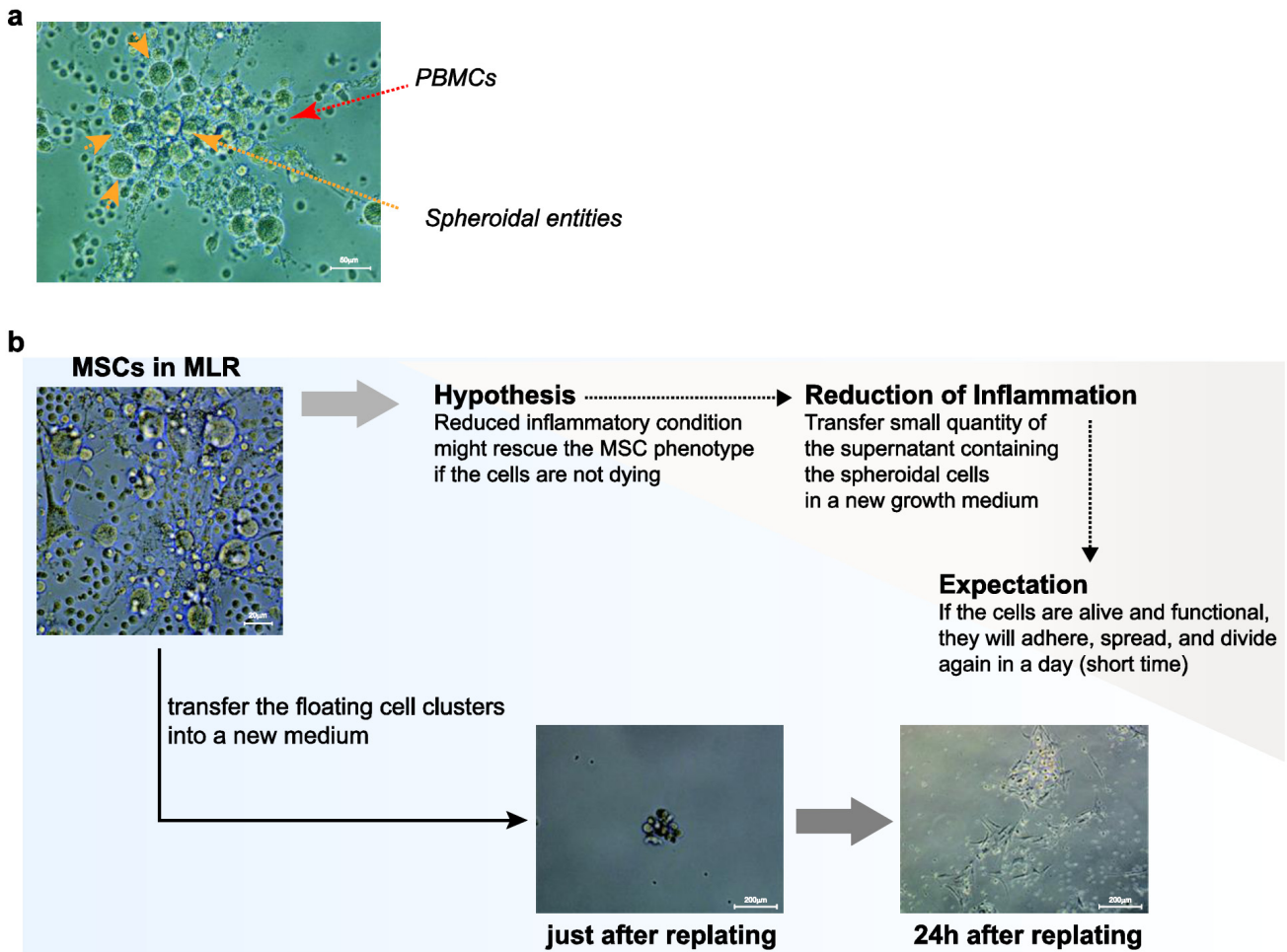
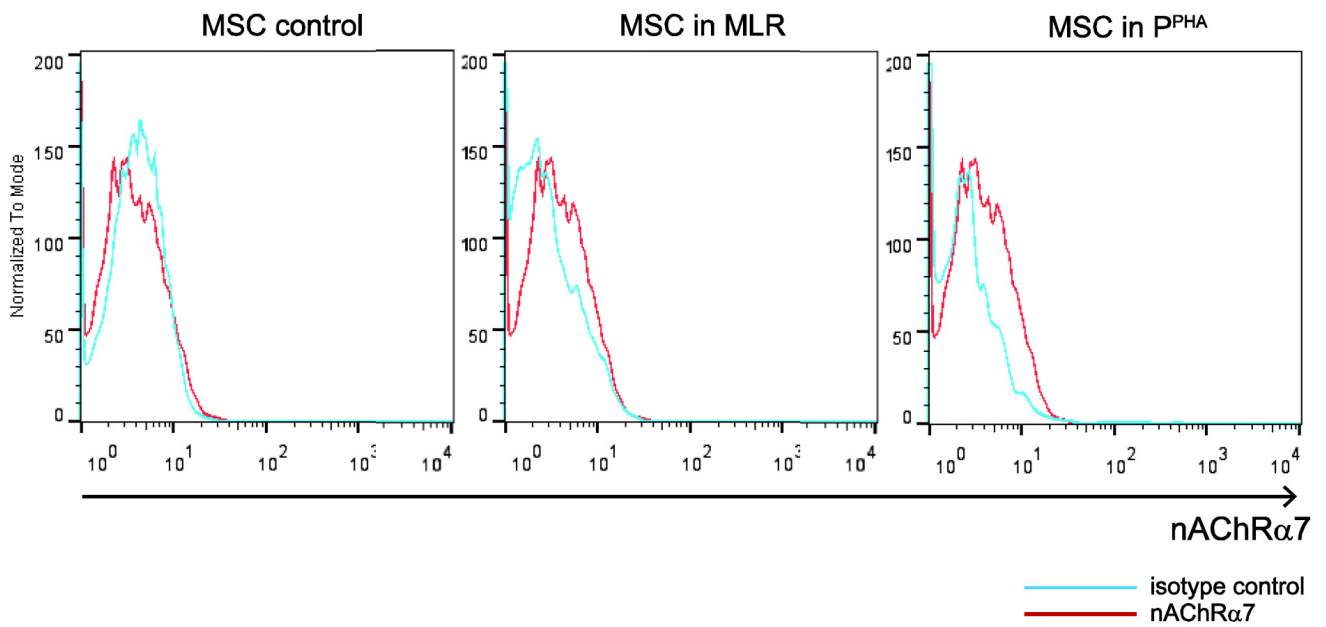


**Table S1.** PCR primers used in semi-quantitative RT-PCR

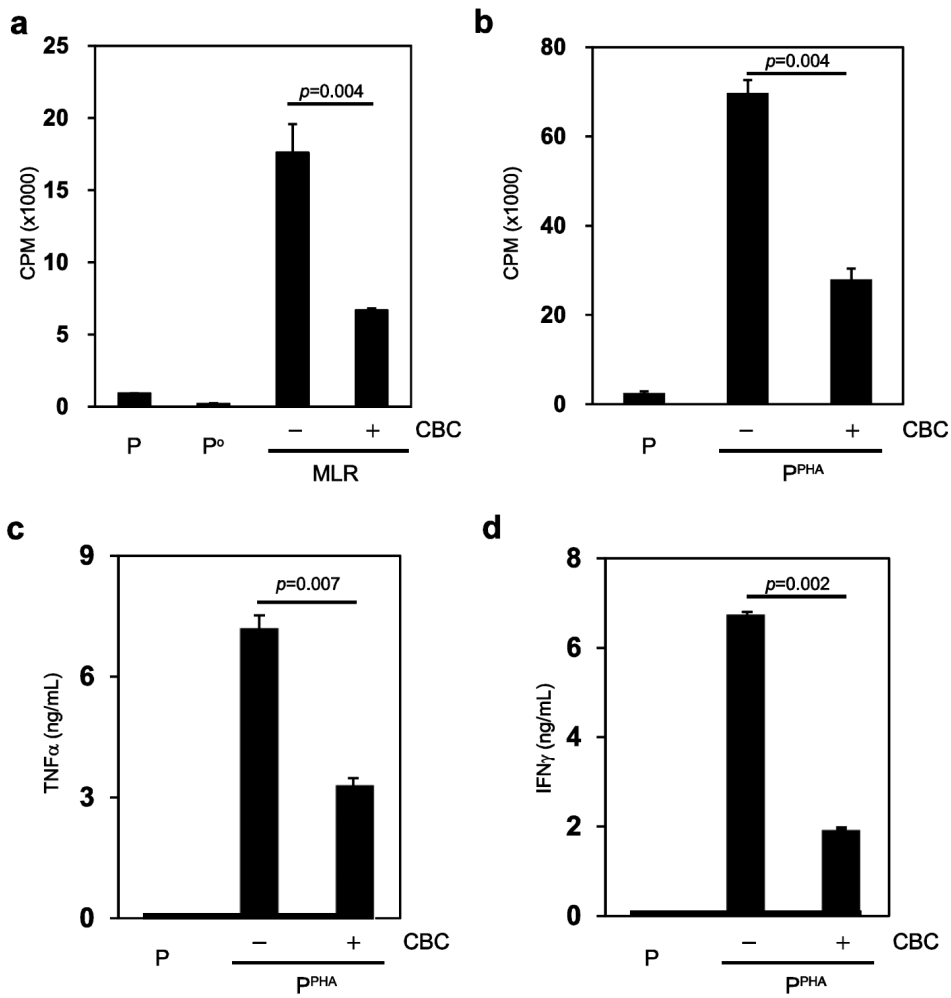
Gene	Primers	Sequence (5'-3')	Ta (°C)	Cycle	Products (bp)
<i>MAP2</i>	Forward	TAAGTTTGGAGCAAGCAGTTACAG	56	35	508
	Reverse	TTCTCTCCATACACTTTTGGATCA			
<i>Tuj1</i>	Forward	AACGAGGCCTCTTCTCACAA	56	25	537
	Reverse	CGATACCAGGTGGTTGAGGT			
<i>GFAP</i>	Forward	GAGTACCAGTACCTGAAGA	55	30	203
	Reverse	TTCACCACGATGTTCTCTT			
<i>NF-M</i>	Forward	TTGGTTTCTCTATGATCTCCTC	54	25	212
	Reverse	AGATGGCTCTGGATATAGAAATCG			
<i>nestin</i>	Forward	TCCAGAGCTGTCAATGACTCTAAG	56	37	596
	Reverse	GACCACTCCAGTTTAGAGGCTAAG			
<i>TrkA</i>	Forward	GAAGAGTGGTCTCCGTTTCG	62	35	410
	Reverse	CTGACTGCTCCAGCTCTGTG			
<i>TrkB</i>	Forward	ATCCCTCCACAGACGTCAC	50	40	494
	Reverse	TCCTGCTCAGGACAGAGGTT			
<i>TrkC</i>	Forward	ACAAGATGCTTGTGGCTGTG	201	40	201
	Reverse	GGGCCCTGAGGAACTTATTC			
<i>p75<sup>NTR</sup></i>	Forward	AGCCTTCAAGAGGTGGAACA	62	35	447
	Reverse	CTGCACAGACTCTCCACGAG			
<i>NGF</i>	Forward	ATACAGGCGGAACCACACTC	56	30	408
	Reverse	GTCTGTGGCGGTGGTCTTAT			
<i>BDNF</i>	Forward	TGGCTGACACTTTCGAACAC	54	30	520
	Reverse	CTTATGAATCGCCAGCCAAT			
<i>nAChR <math>\alpha</math> 3</i>	Forward	CCATGTCTCAGCTGGTG	53.5	35	502
	Reverse	GTCCTTGAGGTTTCATGGA			
<i>nAChR <math>\alpha</math> 5</i>	Forward	GATAATGCAGATGGACGT	54	35	506
	Reverse	TGATGGTATGATCTCTTC			
<i>nAChR <math>\alpha</math> 7</i>	Forward	CCCGGCAAGAGGAGTAAAAGGT	61	31	442
	Reverse	CCGGGCCTCTTCATTCGCAG			
<i>nAChR <math>\alpha</math> 9</i>	Forward	CTACAATGGCAATCAGGTGG	60	30	425
	Reverse	ATGATGGTCAACGCAGTGG			
<i>nAChR <math>\beta</math> 2</i>	Forward	CAGCTCATCAGTGTGCA	58.5	40	410
	Reverse	GTGCGGTCGTAGGTCCA			
<i>GAPDH</i>	Forward	GTCATCCATGACAACCTTTGGTATC	56	25	476
	Reverse	CTGTAGCCAAATTCGTTGTCATAC			



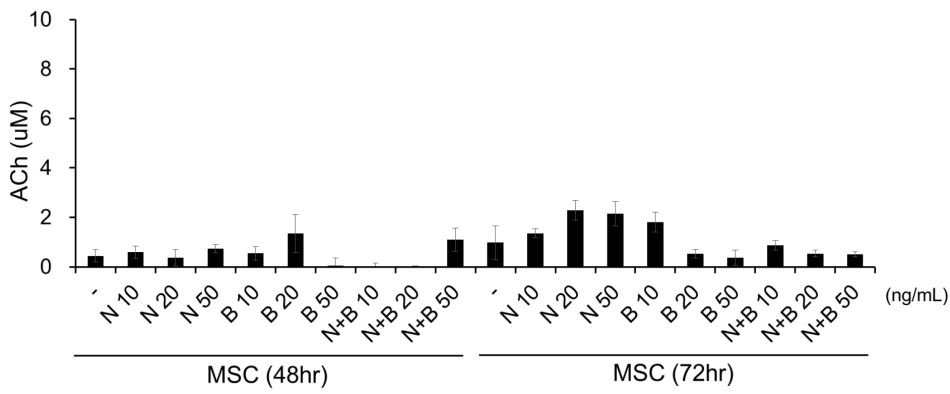
**Fig. S1.** Spheroidal clusters resembling neurospheres accompany changes in MSCs under inflammatory conditions. (a) When MSCs were cocultured with activated PBMCs, spheroidal clusters (orange arrows) were observed. They were larger than PBMCs (red arrow) and looked like cell clusters or aggregates of MSCs. (b) To determine whether these entities consisted of MSCs, we carefully transferred a small aliquot (about 100  $\mu$ L) of the supernatant to a new culture dish containing 15 mL of fresh complete growth medium. After incubation for a day, we found normal fibroblast-like MSCs adhering to the culture dish. There were also a few PBMCs, likely from the transferred supernatant.



**Fig. S2.** Expression of nAChR  $\alpha 7$  on MSCs is poorly affected by inflammatory conditions. To determine whether experimental inflammatory conditions caused MSCs to express nAChR  $\alpha 7$ , MSCs were co-cultured with PBMCs activated by MLR or PHA treatment for 48 h. Experimental inflammation had little or no effect on the expression of nAChR  $\alpha 7$  on MSCs.



**Fig. S3.** MSC-mediated immunosuppression via ACh is reversed by the cholinergic agonist carbachol (CBC). Addition of 10 pM CBC to the medium significantly inhibited lymphocyte proliferation stimulated by (a) MLR or (b) PHA treatment. Production of (c) TNF- $\alpha$  and (d) IFN- $\gamma$  by PHA-activated PBMCs was significantly attenuated after CBC treatment. All data are the average of 3 independent experiments. Statistical significance was determined using Student's paired *t*-test.



**Fig. S4.** Secretion of ACh after treatment of NGF or/and BDNF. To determine if a treatment of neurotrophic factors can induce the secretion of ACh, MSCs were treated with NGF or/and BDNF and secretion of ACh was measured by ELISA after 48 and 72hrs post treatment. N: nerve growth factor, B: brain-derived neurotrophic factor.