

Table S1. the thickness of the inflammatory layer for hydrogels implantation (n = 6, $\bar{x} \pm s$)

Time	Control	GM	GMP	GMPT	P values
7d	39.33±12.60	840.50±58.69***	842.00±63.76***	894.83±96.06***	0.003
28d	35.67±7.03	306.50±58.34***	308.67±31.18***	294.83±19.68***	0.004
56d	30.50±7.42	121.50±34.41***	125.33±26.01***	109.17±22.61***	0.003

Notes: Groups were analyzed with a one-way ANOVA and Bonferroni multiple comparison test (vs Control group, *** $P < 0.001$).

Table S2. BBB scores at various time points for the five groups (n = 6, $\bar{x} \pm s$)

Time	Sham	SCI	TMP	GMP	GMPT	P values
0d	21.00 ± 0.00	21.00 ± 0.00	21.00 ± 0.00	21.00 ± 0.00	21.00 ± 0.00	-
1d	21.00 ± 0.00	0.00 ± 0.00**	0.00 ± 0.00**	0.00 ± 0.00**	0.00 ± 0.00**	0.000
3d	21.00 ± 0.00	0.33 ± 0.52**	0.50 ± 0.55*	0.50 ± 0.55*	0.50 ± 0.55*	0.003
7d	21.00 ± 0.00	0.83 ± 0.75**	1.17 ± 0.75**	3.00 ± 0.89*** $\Delta\Delta$	3.67 ± 1.03*** $\Delta\Delta$	0.000
14d	21.00 ± 0.00	2.00 ± 0.89**	2.66 ± 0.82**	3.67 ± 0.82*** $\Delta\Delta$	5.17 ± 0.75*** $\Delta\Delta\Delta\Delta$	0.000
28d	21.00 ± 0.00	2.50 ± 0.55**	4.17 ± 0.98*	4.67 ± 0.82	6.17 ± 0.75 $\Delta\Delta$	0.000

Notes: Groups were analyzed with a one-way ANOVA and Bonferroni multiple comparison test (GMPT vs Sham group, * $P < 0.05$, ** $P < 0.01$; vs SCI group, $\Delta\Delta P < 0.01$; vs TMP group, $\Delta\Delta P < 0.01$; vs GMP group, $\Delta\Delta P < 0.01$).

Table S3. modified Rivlin-Tator Angleboard test at various time points for the five groups (n = 6, $\bar{x} \pm s$)

Time	Sham	SCI	TMP	GMP	GMPT	P values
0d	52.50 ± 2.74	52.50 ± 2.74	52.50 ± 2.74	51.67 ± 2.58	53.33 ± 2.58	0.863
1d	50.83 ± 3.76	5.83 ± 2.04**	6.67 ± 2.58*	6.67 ± 2.58*	8.33 ± 4.08	0.002
3d	52.50 ± 2.74	7.50 ± 4.18**	12.50 ± 4.18*	14.17 ± 3.76	15.00 ± 4.47	0.001
7d	52.50 ± 2.74	12.50 ± 6.1**	15.00 ± 3.16**	20.00 ± 4.47	23.33 ± 5.16	0.000
14d	51.67 ± 2.58	18.33 ± 6.06**	20.83 ± 4.92**	23.33 ± 2.58*	28.33 ± 5.16	0.001
28d	52.50 ± 2.74	20.00 ± 4.47**	25.00 ± 3.16**	25.83 ± 2.04*	32.50 ± 2.74 Δ	0.000

Notes: Unit: Degrees (°). Groups were analyzed with a one-way ANOVA and Bonferroni multiple comparison test (GMPT vs Sham group, * $P < 0.05$, ** $P < 0.01$; vs SCI group, # $P < 0.05$).