

Supplementary Table 1. 16S rRNA gene sequencing statistics from non-treated and MP-treated mice.

| Sample ID* | Reads | OTUs | Chao1 | Ace | Coverage |
|------------|-----------|--------|--------|--------|----------|
| CTS1 | 139381.00 | 179.00 | 251.73 | 294.45 | 0.82 |
| CTS2 | 136195.00 | 122.00 | 171.00 | 187.76 | 0.84 |
| CTS3 | 60093.00 | 127.00 | 195.88 | 252.62 | 0.83 |
| CTS4 | 116899.00 | 99.00 | 147.24 | 197.96 | 0.82 |
| PS1 | 257565.00 | 146.00 | 200.47 | 245.81 | 0.81 |
| PS2 | 158830.00 | 303.00 | 336.61 | 339.94 | 0.80 |
| PS3 | 193189.00 | 239.00 | 314.30 | 366.10 | 0.80 |
| PS4 | 165920.00 | 216.00 | 308.04 | 284.82 | 0.82 |
| CTC1 | 81091.00 | 364.00 | 405.25 | 404.94 | 0.74 |
| CTC2 | 142348.00 | 354.00 | 373.19 | 375.25 | 0.81 |
| CTC3 | 85359.00 | 403.00 | 434.00 | 417.42 | 0.80 |
| CTC4 | 155577.00 | 404.00 | 435.50 | 424.58 | 0.79 |
| PC1 | 118733.00 | 415.00 | 421.12 | 423.03 | 0.81 |
| PC2 | 106759.00 | 424.00 | 434.50 | 434.67 | 0.79 |
| PC3 | 159808.00 | 414.00 | 423.63 | 423.83 | 0.78 |
| PC4 | 129272.00 | 446.00 | 453.50 | 451.69 | 0.79 |
| CTL1 | 109648.00 | 356.00 | 374.10 | 378.68 | 0.84 |
| CTL2 | 129673.00 | 391.00 | 410.69 | 414.78 | 0.81 |
| CTL3 | 125047.00 | 361.00 | 420.43 | 415.97 | 0.72 |
| CTL4 | 140260.00 | 353.00 | 410.19 | 398.70 | 0.77 |
| PL1 | 128298.00 | 392.00 | 410.91 | 408.67 | 0.79 |
| PL2 | 117647.00 | 402.00 | 426.80 | 420.02 | 0.77 |
| PL3 | 123113.00 | 404.00 | 421.65 | 414.95 | 0.77 |
| PL4 | 104284.00 | 400.00 | 418.00 | 416.72 | 0.79 |

* CTS (PS), CTC (PC), and CTL (PL) correspond to small intestine, cecum, and colon samples, respectively, in mice of the CT (P) group.

Supplementary Table 2. Effects of polysaccharides extracted from morels on body weight (g), spleen weight (mg), and spleen index (mg g^{-1}) of mice.

| Group | Body weight (g) | Spleen weight (mg) | Spleen index (mg g^{-1}) |
|-------|-----------------|--------------------|-------------------------------------|
| CTC | 33.78±2.09 | 142.80±12.84 | 4.25±0.57 |
| PL | 34.31±2.04 | 118.50±24.17 | 3.44±0.57 |
| PM | 34.25±1.98 | 110.30±22.95 | 3.21±0.60 |
| PH | 33.80±1.55 | 101.50±23.70 | 3.00±0.64 |

T test was used to evaluate significant different for body weight, spleen weight and spleen index. Each value was presented as mean±SD. CTC: control group; PL: MP treatment group with 40 mg per kg BW of MP; PM: MP treatment group with 75 mg per kg BW of MP; PH: MP treatment group with 120 mg per kg BW of MP.