## Supplemental materials

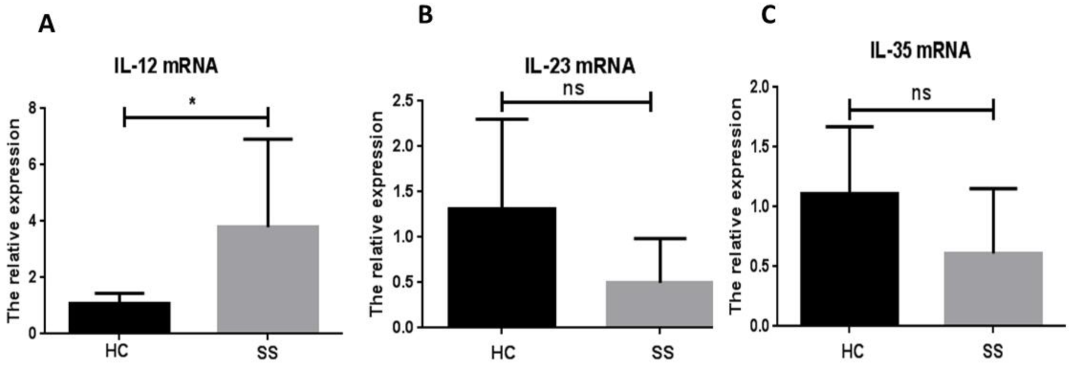

**Figure S1** IL-12, 23 and 35 mRNA expressions in PBMCs. (A) IL-12 mRNA was elevated in SS patients, compared with healthy controls. (B and C) IL-23 and 35 mRNA expression was comparable between SS patients and healthy controls.

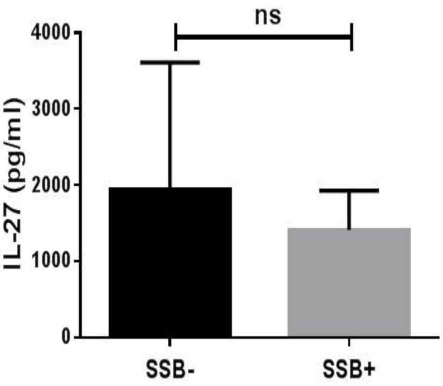

**Figure S2** IL-27 correlated with autoantibodies in patients with SS. Serum IL-27 tended to reduce in SS patients with anti-SSB antibody.

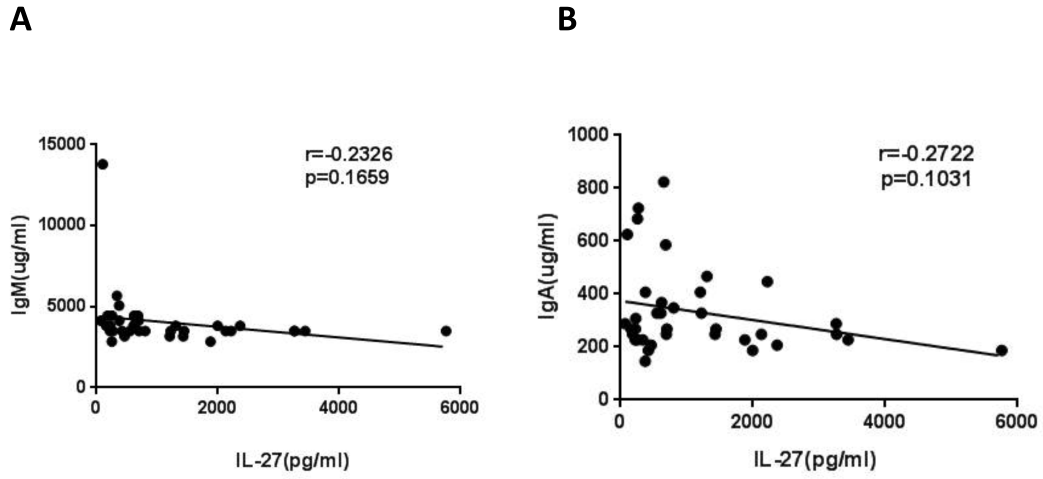

**Figure S3** IL-27 correlated with immunoglobulin M and A in patients with SS. ( A and B) IL-27 showed a negative correlation with IgM and IgA in SS patients.

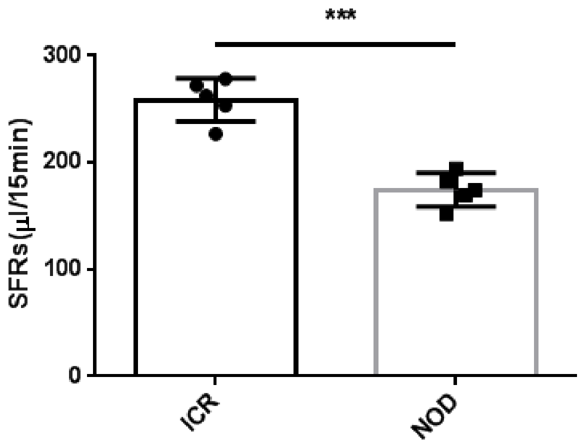

**Figure S4** Salivary flow rates were measured in ICR and NOD mice (n=5).

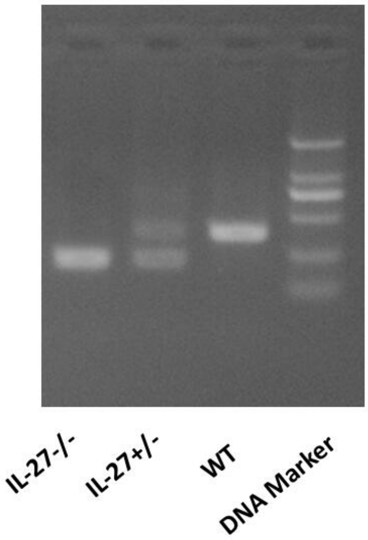

**Figure S5** The genotype of IL-27-/- NOD mice. The genotype was determined by PCR.

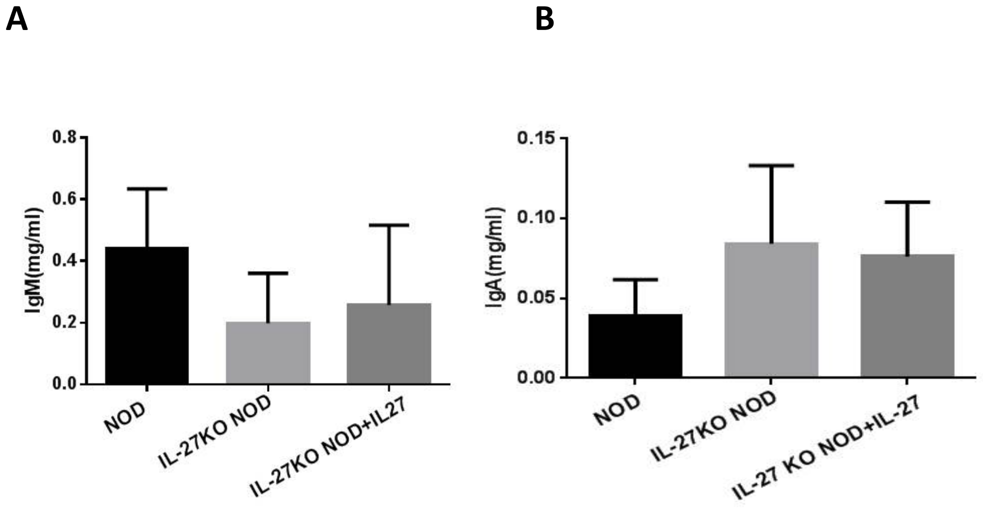

**Figure S6** IgM and IgA in IL-27 KO mice. (A and B) IgM and IgA were comparable among WT, IL-27 KO, IL-27 KO with recombinant IL-27 treatment NOD mice.

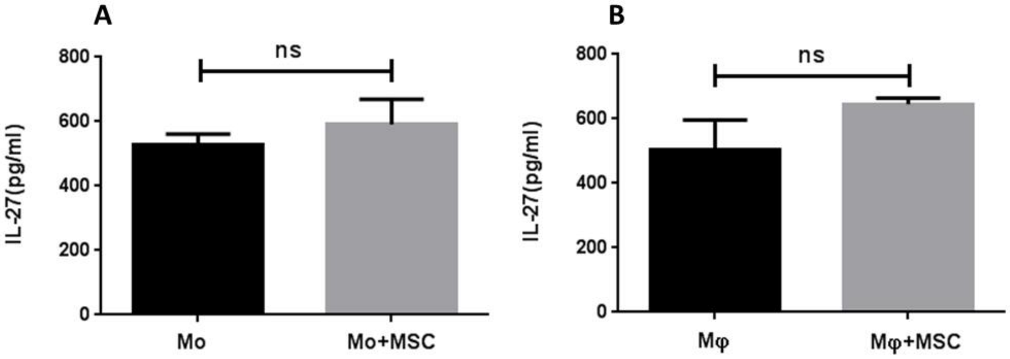

**Figure S7** Mesenchymal stem cells promote the production of IL-27 by macrophages and monocytes. (A and B) Supernatants of macrophages and monocytes with MSC treatment showed a tendency of increased IL-27 levels.

**Supplementary Table 1** Baseline clinical characteristics and medications for the SS patients

| **Patient** | **Age/sex** | **Disease duration (months)** | **ESSDAI** | **Medication** |
|---|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| 1 | 49/F | 12 | 4 | Pred,HCQ,CYC |
| 2 | 22/F | 72 | 3 | Pred,HCQ,CYC |
| 3 | 53/F | 24 | 3 | Pred,HCQ,LEF |
| 4 | 51/F | 9 | 5 | Pred,HCQ, CYC |
| 5 | 50/F | 24 | 6 | Pred,HCQ,CYC,LEF |
| 6 | 26/F | 1 | 5 | No medication |
| 7 | 73/F | 36 | 5 | Pred,HCQ,CYC |
| 8 | 59/F | 60 | 5 | Pred,HCQ,cyclosporin |
| 9 | 61/M | 24 | 1 | Pred,HCQ,LEF |
| 10 | 52/F | 84 | 9 | Pred,HCQ,Tacrolimus |
| 11 | 46/F | 24 | 6 | Pred,HCQ,CYC,cyclosporin |
| 12 | 55/F | 1 | 8 | No medication |
| 13 | 52/F | 60 | 4 | Pred |
| 14 | 53/F | 240 | 13 | Pred,HCQ,CYC,LEF |
| 15 | 70/F | 24 | 3 | Pred,HCQ, |
| 16 | 53/M | 120 | 5 | Pred,HCQ, |
| 17 | 43/F | 2 | 5 | Pred |
| 18 | 36/M | 6 | 7 | Pred,HCQ,CYC, Triptolide |
| 19 | 63/F | 36 | 2 | Pred,HCQ, |
| 20 | 34/F | 120 | 4 | Pred |
| 21 | 54/F | 1 | 1 | No medication |
| 22 | 34/F | 120 | 6 | Pred,HCQ |
| 23 | 60/F | 72 | 5 | Pred,HCQ,LEF |
| 24 | 20/F | 12 | 8 | Pred,HCQ,CYC,LEF |

| | | | | |
|---|---|---|---|---|
| 25 | 55/F | 84 | 8 | Pred,HCQ,CYC,LEF |
| 26 | 44/F | 6 | 4 | Pred,HCQ, Triptolide |
| 27 | 57/M | 24 | 7 | Pred,HCQ,CYC, cyclosporin |
| 28 | 64/M | 120 | 7 | Pred,HCQ, CYC |
| 29 | 29/F | 72 | 6 | Pred,HCQ,LEF |
| 30 | 53/F | 96 | 4 | Pred,HCQ,CYC |
| 31 | 60/F | 240 | 8 | Pred,HCQ |
| 32 | 32/F | 3 | 10 | Pred,HCQ, CYC,LEF, Tacrolimus |
| 33 | 39/F | 72 | 8 | Pred,HCQ,CYC |
| 34 | 73/F | 240 | 6 | Pred |
| 35 | 52/F | 60 | 7 | Pred,HCQ, Tacrolimus |
| 36 | 46/M | 36 | 3 | Pred,HCQ, CYC |
| 37 | 49/F | 6 | 11 | Pred,HCQ,LEF |
| 38 | 45/F | 12 | 5 | Pred,HCQ, CYC |

Pred, prednisone; HCQ, hydroxychloroquine; CYC, cyclophosphamine; LEF, leflunomide;

**Supplementary Table 2.**Primers for real-time PCR

| Gene(human) | Primers | | Product length(bp) |
|---|---|---|---|
| IL-27 | Forward | 5’-TGCCAGGAGTGAACCTGTACC -3’ | |
| | Reverse | 5’-CGTGGTGGAGATGAAGCAGA -3’ | 119 |
| IL-12 | Forward | 5’-AGGAATGTTCCCATGCCTTCA-3’ | |
| | Reverse | 5’-CCAATGGTAAACAGGCCTCCAC-3’ | 170 |

|  |  |  |  |
|---|---|---|---|
| IL-23 | Forward | 5’-GAACAACTGAGGGAACCAAACC -3’ |  |
|  | Reverse | 5’-GAATCTCTGCCCACTTCCACTT -3’ | 80 |
| IL-35 | Forward | 5’-GACCTCACAGACTACGGGGAAC -3’ |  |
|  | Reverse | 5’-CGGGAAGCCCTTGCTACTT -3’ | 85 |
| WSX-1 | Forward | 5’-CCACCTACATGGCCATCTCATAAA-3’ |  |
|  | Reverse | 5’-GCCAGTGGCTAGCTCCAAATC-3’ | 147 |
| gp-130 | Forward | 5’-CTGGGAGTGCTGTTCTGCTTTAATA-3’ |  |
|  | Reverse | 5’-TGAGGTGACCACTGGGCAATA-3’ | 104 |
| GAPDH | Forward | 5’-GCACCGTCAAGGCTGAGAAC-3’ |  |
|  | Reverse | 5’-TGGTGAAGACGCCAGTGGA-3’ | 100 |