**Supplementary Table 1** Primers used for the cytokine genes and the housekeeping gene.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Gene | NCBI reference sequence | ﻿Forward primer | ﻿Reverse primer | ﻿Amplicon  Size（bp） |
| IL-4 | NM\_000589.3 | CATCTTTGCTGCCTCCAAGAACA | GCGAGTGTCCTTCTCATGGT | 100 |
| IL-10 | NM\_000572.2 | GGCGCTGTCATCGATTTCTTC | TAGAGTCGCCACCCTGATGT | 100 |
| IL-13 | NM\_002188.2 | GACCACGGTCATTGCTCTCA | CATTGCAGAGCGGAGCCTTC | 204 |
| IL-2 | NM\_000586.3 | CCAAGAAGGCCACAGAACTGA | AATGGTTGCTGTCTCATCAGC | 203 |
| IFN-γ | NM\_000619.2 | AGCTCTGCATCGTTTTGGGT | TTCTGTCACTCTCCTCTTTCCA | 165 |
| TGF-β | NM\_000660.6 | CGACTCGCCAGAGTGGTTAT | CGGTAGTGAACCCGTTGATGT | 155 |
| TNF-α | NM\_000594 | TCTCTAATCAGCCCTCTG | GGGTTTGCTACAACATGG | 86 |
| β-actin | NM\_001101 | GCCGCCAGCTCACCAT | TCGTCGCCCACATAGGAATC | 184 |

­bp, base pairs.

**Supplementary Table 2** Clinical changes in patients with different mean blood concentration

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Mean blood concentration | N | QMG | | MMT | | MG-ADL | | MG-QOL15 | |
| ﻿ Mean﻿Δ ﻿(SD) | p | Mean﻿Δ ﻿(SD) | p | Mean﻿Δ ﻿(SD) | p | Mean﻿Δ ﻿(SD) | p |
| 6 months  Below 4.7 ng/ml | 16 | -4.56（5.80） |  | -7.81（11.46） |  | -2.44（3.31） |  | -3.75(8.16) |  |
| Above 4.7 ng/ml | 8 | -3.5（1.93） | 0.070 | -6.50（5.26） | 0.204 | -2.50（2.73） | 0.92 | -6.13(6.53) | 0.478 |
| 12 months |  |  |  |  |  |  |  |  |  |
| Below 4.7 ng/ml | 16 | -5.81（4.96） |  | -9.69（10.59） |  | -3.44(3.56) |  | -8.25(11.85) |  |
| Above 4.7 ng/ml | 8 | -4.5（5.68） | 0.789 | -6.88（5.06） | 0.239 | -3.11(4.29) | 0.449 | -8.13(10.52) | 0.975 |

N, number of patients; SD, standard deviation; QMG, quantitative myasthenia gravis score; MMT, myasthenia gravis specific manual muscle testing; MG-ADL, myasthenia gravis specific activities of daily living scale; MG-QOL15, myasthenia gravis quality of life 15.

**Supplementary Table 3** Clinical changes in patients with different thymus pathology

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| thymus | N | QMG | | MMT | | MG-ADL | | MG-QOL15 | |
| ﻿ Mean﻿Δ ﻿(SD) | p | Mean﻿Δ ﻿(SD) | p | Mean﻿Δ ﻿(SD) | p | Mean﻿Δ ﻿(SD) | p |
| 6 months |  |  |  |  |  |  |  |  |  |
| With thymoma | 8 | -6.88（6.51） |  | -12.38（12.88） |  | -3.63(4.14) |  | -0.5(8.59) |  |
| Without thymoma | 16 | -2.88（3.30） | 0.102 | -4.88（6.89） | 0.070 | -1.88(2.31) | 0.177 | -6.56(6.98) | 0.071 |
| 12 months |  |  |  |  |  |  |  |  |  |
| With thymoma | 8 | -7.13(6.49) |  | -13.38（13.20） |  | -4.63(3.85) |  | -4.38(13.04) |  |
| Without thymoma | 16 | -4.50(4.26) | 0.121 | -6.44（5.34） | 0.032 | -2.69(3.61) | 0.089 | -10.13(10.05) | 0.448 |

N, number of patients; SD, standard deviation; QMG, quantitative myasthenia gravis score; MMT, myasthenia gravis specific manual muscle testing; MG-ADL, myasthenia gravis specific activities of daily living scale; MG-QOL15, myasthenia gravis quality of life 15.

**Supplementary Table 4** Clinical information of 24 patients.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Patient no. | Gender | Age (years) | Antibody status | MGFA classification at baseline | Previous treatment | Thymoma | MGFA-PIS  at month 6 | Pred dose (mg/qd) | | | Side effects |
|  |  | At baseline | At month six | Change |
| 1 | F | 29 | Seronegative | IIa | Pred | N | IIa | 20 | 0 | -100% |  |
| 2 | F | 49 | Anti-AChR | IIb | Pred, AZA | N | IIa | 30 | 15 | -50% |  |
| 3 | F | 37 | Anti-AChR | IIIb | Pred, AZA | N | MM-3 | 30 | 10 | -66.67% |  |
| 4 | F | 36 | Anti-AChR | IIa | Pred, Tx | Y | I | 30 | 12.5 | -58.30% | Alopecia |
| 5 | M | 33 | Anti-AChR | IIa | Pred, Tx | Y | MM-3 | 25 | 5 | -80% | Hyperglycemia |
| 6 | M | 66 | Anti-AChR | IIb | Pred, IVIg, PE | N | IIa | 40 | 7.5 | -81.25% |  |
| 7 | F | 49 | Seronegative | IIa | Pred, Tx | Y | I | 60 | 15 | -75% |  |
| 8 | F | 41 | Seronegative | IIIa | Pred | N | IIa | 35 | 30 | -14.29% |  |
| 9 | F | 38 | Anti-AChR | IVa | Pred, Tx | Y | IIa | 55 | 20 | -63.64% | Hyperglycemia |
| 10 | F | 51 | Anti-AChR | IIa | Pred, Tx | Y | IIa | 25 | 5 | -80% | Hyperglycemia, Alopecia |
| 11 | M | 33 | Anti-AChR | IIa | Pred, AZA，Tx | Y | IIa | 20 | 5 | -75% |  |
| 12 | M | 65 | Anti-AChR | IIa | Pred | N | I | 30 | 0 | -100% |  |
| 13 | M | 65 | Anti-AChR | IIa | Pred, IVIg | N | MM-3 | 25 | 5 | -80% |  |
| 14 | M | 54 | Anti-AChR | IIb | Pred, Tx | Y | MM-3 | 25 | 7.5 | -70% |  |
| 15 | M | 56 | Anti-AChR | IIb | Pred | N | MM-3 | 40 | 0 | -100% |  |
| 16 | F | 37 | Anti-AChR | IVb | Pred, IVIg | N | IIIb | 50 | 40 | -20% |  |
| 17 | F | 36 | Anti-AChR | IIa | Pred | N | IIa | 40 | 15 | -62.50% |  |
| 18 | F | 31 | Anti-AChR | IIa | Pred, AZA | N | IIb | 10 | 0 | 0 |  |
| 19 | F | 37 | Seronegative | IIIa | Pred, AZA | N | IIIa | 25 | 20 | -20% | Hyperglycemia |
| 20 | M | 56 | Anti-AChR | IIa | Pred | N | IIa | 30 | 17.5 | -41.67% | Hyperglycemia |
| 21 | F | 28 | Anti-AChR | IIa | Pred | N | IIa | 25 | 10 | -60% |  |
| 22 | F | 66 | Seronegative | IIIa | Pred, AZA,TX | Y | IIa | 20 | 15 | -25% |  |
| 23 | F | 31 | Seronegative | IIa | Pred | N | I | 25 | 5 | -80% |  |
| 24 | F | 27 | Anti-AChR | IIa | Pred, AZA, IVIg | N | I | 15 | 5 | -66.67% |  |

F, female; M, male; AChR, acetylcholine receptor; N,no; Y, yes; MGFA, Myasthenia Gravis Association of America; MGFA-PIS: Myasthenia Gravis Association of America Post-intervention Status; MM, minimal manifestations; I, improved; Pred, prednisolone; AZA, azathioprine; IVIg, intravenous immunoglobulin; PE, plasma exchange; Tx, thymectomy.

**Supplementary Fig. 1** The proportion (%) of peripheral blood T-cell and B-cell phenotypes analyzed by flow cytometry in Patient 11 at baseline and month three.

(A)-(E) represent the flow cytometry data at base line. (F)-(J) represent the flow cytometry data at month six. (K)-(O) represent the flow cytometry data at month twelve. (A): 3.94% of CD4+T cells in patient 11's peripheral blood were Tfh cells at baseline; (B): 66.0% CD4+CD25+T cells in patient 11's peripheral blood were Treg cells at baseline; (C): 4.64 % of CD19+B cells in patient 11's peripheral blood were Breg cells at baseline; (D) 4.65 % of CD19+B cells in patient 11's peripheral blood were CD19+BAFF-R+B cells at baseline; (E) 8.13% of the total lymphocyte population were CD19+B cells at baseline; (F) The percentage of Tfh cells in the CD4+T cells population decreased to 2.14% at month six; (G) The percentage of Treg cells in the CD4+CD25+T cells population increased to 77.3% at month six; (H) The percentage of Breg cells in the CD19+B cells population decreased to 2.47% at month six; (I) The percentage of CD19+BAFF-R+B cells in the CD19+B cells population decreased to 2.38% at month six; (J) The percentage of CD19+B cells in the total lymphocyte population decreased to 2.24% at month six. (K): 1.14% of CD4+T cells in patient 11's peripheral blood were Tfh cells at month twelve; (L): 58.6% CD4+CD25+T cells in patient 11's peripheral blood were Treg cells at month twelve; (M): 0.74 % of CD19+B cells in patient 11's peripheral blood were Breg cells at month twelve; (N) 1.49 % of CD19+B cells in patient 11's peripheral blood were CD19+BAFF-R+B cells at month twelve; (O) 0.98% of the total lymphocyte population were CD19+B cells at month twelve.