

| Table S1 Demographics and clinical characteristics of patients with severe pneumonia |           |                         |                         |         |
|--------------------------------------------------------------------------------------|-----------|-------------------------|-------------------------|---------|
| Demographics or characteristic                                                       | Total     | Patients with BO (N=31) | Patients non-BO (N=116) | P value |
| Gender, n (%)                                                                        |           |                         |                         | 0.806   |
| Male                                                                                 | 74        | 15 (48.4)               | 59 (50.9)               |         |
| Female                                                                               | 73        | 16 (51.6)               | 57 (49.1)               |         |
| Age (months)                                                                         | 67.1±31.6 | 65.7±33.3               | 67.4±31.2               | 0.788   |
| Length of symptoms (days)                                                            |           |                         |                         | <0.001  |
| Median                                                                               | 11        | 15                      | 10                      |         |
| IQ range                                                                             | 8–14      | 11–23                   | 7–13                    |         |
| Length of fever (days)                                                               | 9.2±3.9   | 8.9±4.5                 | 9.2±3.7                 | 0.676   |
| Shortness of breath, n (%)                                                           |           |                         |                         | 0.230   |
| Yes                                                                                  | 44        | 12 (38.7)               | 32 (27.6)               |         |
| No                                                                                   | 103       | 19 (61.3)               | 84 (72.4)               |         |
| Mechanical ventilation, n (%)                                                        |           |                         |                         | 0.071   |
| Yes                                                                                  | 19        | 7 (22.6)                | 12 (10.3)               |         |
| No                                                                                   | 128       | 24 (77.4)               | 104 (89.7)              |         |
| Use of globulin, n (%)                                                               |           |                         |                         | 0.008   |
| Yes                                                                                  | 43        | 15 (48.4)               | 28 (24.1)               |         |
| No                                                                                   | 104       | 16 (51.6)               | 88 (75.9)               |         |
| Use of glucocorticoids, n (%)                                                        |           |                         |                         | 0.748   |
| Yes                                                                                  | 96        | 21 (67.7)               | 75 (64.7)               |         |
| No                                                                                   | 51        | 10 (32.3)               | 41 (35.3)               |         |
| wheezing, n (%)                                                                      |           |                         |                         | 0.097   |
| Yes                                                                                  | 66        | 18 (58.1)               | 48 (41.4)               |         |
| No                                                                                   | 81        | 13 (41.9)               | 68 (58.6)               |         |
| Limited activities, n (%)                                                            |           |                         |                         | 0.230   |
| Yes                                                                                  | 44        | 12 (38.7)               | 32 (27.6)               |         |
| No                                                                                   | 103       | 19 (61.3)               | 84 (72.4)               |         |
| Acropachy, n (%)                                                                     |           |                         |                         | 0.052   |
| Yes                                                                                  | 1         | 1 (3.2)                 | 0 (0.0)                 |         |
| No                                                                                   | 146       | 30 (96.8)               | 116 (100.0)             |         |
| Three depressions signs, n (%)                                                       |           |                         |                         |         |
| Yes                                                                                  | 34        | 12 (38.7)               | 22 (19.0)               | 0.021   |
| No                                                                                   | 113       | 19 (61.3)               | 94 (81.0)               |         |
| Adenoviral, n (%)                                                                    |           |                         |                         | <0.001  |
| Yes                                                                                  | 23        | 16 (51.6)               | 7 (6.0)                 |         |
| No                                                                                   | 124       | 15 (48.4)               | 109 (94.0)              |         |
| Mycoplasma co-infection, n (%)                                                       |           |                         |                         | 0.001   |
| Yes                                                                                  | 117       | 18 (58.1)               | 99 (85.3)               |         |
| No                                                                                   | 30        | 13 (41.9)               | 17 (14.7)               |         |
| ESR (mm/h)                                                                           |           |                         |                         | 0.496   |
| Median                                                                               | 47        | 47                      | 47                      |         |
| IQ range                                                                             | 29–63     | 27–56                   | 29–63                   |         |
| D-dimer (×10 <sup>2</sup> mg/L)                                                      |           |                         |                         | 0.128   |
| Median                                                                               | 110       | 86                      | 121                     |         |
| IQ range                                                                             | 55–350    | 35–350                  | 61–359                  |         |
| CRP (mg/L)                                                                           |           |                         |                         | 0.282   |
| Median                                                                               | 22        | 20                      | 23                      |         |
| IQ range                                                                             | 9–52      | 4–55                    | 9–52                    |         |
| PCT (×10 <sup>2</sup> ng/mL)                                                         |           |                         |                         | 0.874   |
| Median                                                                               | 36        | 36                      | 37                      |         |
| IQ range                                                                             | 17–94     | 22–75                   | 16–95                   |         |
| LDH (U/L)                                                                            |           |                         |                         | 0.977   |
| Median                                                                               | 439       | 480                     | 425                     |         |
| IQ range                                                                             | 318–755   | 274–873                 | 324–698                 |         |
| Ferritin (ng/mL)                                                                     |           |                         |                         | 0.506   |
| Median                                                                               | 157       | 159                     | 151                     |         |
| IQ range                                                                             | 71–497    | 55–707                  | 74–490                  |         |
| Mucosal abnormality, n (%)                                                           |           |                         |                         | <0.001  |
| Yes                                                                                  | 20        | 14 (45.2)               | 6 (5.2)                 |         |
| No                                                                                   | 127       | 17 (54.8)               | 110 (94.8)              |         |
| BALF WBC (×10 <sup>6</sup> )                                                         |           |                         |                         | <0.001  |
| Median                                                                               | 1,350     | 538                     | 1,589                   |         |
| IQ range                                                                             | 539–2,600 | 260–1,159               | 740–2,761               |         |
| BALF Neutrophil (%)                                                                  |           |                         |                         | 0.881   |
| Median                                                                               | 60        | 60                      | 62                      |         |
| IQ range                                                                             | 40–74     | 49–70                   | 40–75                   |         |
| BALF Macrophages (%)                                                                 |           |                         |                         | <0.001  |
| Median                                                                               | 16        | 13                      | 21                      |         |
| IQ range                                                                             | 10–31     | 6–24                    | 10–40                   |         |
| BALF Lymphocyte (%)                                                                  |           |                         |                         | 0.207   |
| Median                                                                               | 16        | 21                      | 15                      |         |
| IQ range                                                                             | 10–26     | 10–32                   | 10–22                   |         |
| BALF PCT (×10 <sup>2</sup> ng/mL)                                                    |           |                         |                         | 0.900   |
| Median                                                                               | 30        | 26                      | 31                      |         |
| IQ range                                                                             | 16–43     | 15–56                   | 18–42                   |         |
| BALF IL-8 (×10 <sup>-2</sup> pg/mL)                                                  |           |                         |                         | <0.001  |
| Median                                                                               | 16.9      | 0.03                    | 21.1                    |         |
| IQ range                                                                             | 5.4–38.6  | 0.001–12.7              | 9.4–41.6                |         |
| BALF IL-1β (×10 <sup>-2</sup> pg/mL)                                                 |           |                         |                         | <0.001  |
| Median                                                                               | 1.1       | 0.001                   | 1.68                    |         |
| IQ range                                                                             | 0.08–6.9  | 0.001–1.04              | 0.61–6.04               |         |
| BALF IL-2 (×10 <sup>2</sup> pg/mL)                                                   |           |                         |                         | 0.200   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–10     | 10–10                   | 10–10                   |         |
| BALF IL-6 (×10 <sup>2</sup> pg/mL)                                                   |           |                         |                         | 0.568   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–12,793 | 10–3,347                | 10–14,372               |         |
| BALF IL-10 (×10 <sup>2</sup> pg/mL)                                                  |           |                         |                         | 0.408   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–303    | 10–10                   | 10–318                  |         |
| BALF IL-4 (×10 <sup>2</sup> pg/mL)                                                   |           |                         |                         | 0.163   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–10     | 10–10                   | 10–10                   |         |
| BALF IL-5 (×10 <sup>2</sup> pg/mL)                                                   |           |                         |                         | 0.614   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–10     | 10–10                   | 10–10                   |         |
| BALF IL-12p70 (×10 <sup>2</sup> pg/mL)                                               |           |                         |                         | 0.196   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–10     | 10–10                   | 10–10                   |         |
| BALF IL-17A (×10 <sup>2</sup> pg/mL)                                                 |           |                         |                         | 0.296   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–10     | 10–10                   | 10–10                   |         |
| BALF IL-18 (×10 <sup>2</sup> pg/mL)                                                  |           |                         |                         | 0.018   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–7,090  | 10–10                   | 10–9,949                |         |
| BALF TNF-α (×10 <sup>2</sup> pg/mL)                                                  |           |                         |                         | 0.319   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–10     | 10–10                   | 10–10                   |         |
| BALF γ-INF (×10 <sup>2</sup> pg/mL)                                                  |           |                         |                         | 0.388   |
| Median                                                                               | 10        | 10                      | 10                      |         |
| IQ range                                                                             | 10–10     | 10–10                   | 10–10                   |         |
| BALF IL-2R (×10 <sup>2</sup> pg/mL)                                                  |           |                         |                         | 0.001   |
| Median                                                                               | 10        | 56,280                  | 10                      |         |
| IQ range                                                                             | 10–81,710 | 10–958,550              | 10–56,709               |         |

BO, bronchitis obliterans; IQ range, interquartile range; ESR, Erythrocyte sedimentation rate; CRP, C-reactive protein; PCT, procalcitonin; LDH, lactate dehydrogenase; BALF, bronchoscopic airway lavage fluid; WBC, white blood count; IL-8, Interleukin-8; IL-1β, interleukin-1β; IL-2, interleukin-2; IL-6, interleukin-6; IL-10, interleukin-10; IL-4, interleukin-4; IL-5, interleukin-5; IL-12p70, interleukin-12p70; IL-17A, interleukin-17A; IL-18, interleukin-18; TNF-α, tumor necrosis factor-α; γ-INF, interferon-γ; IL-2R, interleukin-2R.