



**Fig. S1.** Statistics of relative gray values from Western blot analysis of human PBMCs and Beas-

2B cells under various treatments. (A) Western blot assessment of relative expression levels of LC3, TUFM, ATG5, TOMM20, and COXIV in PBMCs from healthy volunteers and RSV-infected patients.  $n=9$ .  $^*P < 0.05$  vs. Normal group. (B) Western blot evaluation of relative expression levels of ATG5, LC3II/I, TOM20, VDAC1, and COXIV in Beas-2B cells after RSV-NS1 overexpression.  $n=3$ .  $^*P < 0.05$  vs. oe-NC group. (C) Western blot analysis of TUFM relative expression levels in Beas-2B cells transfected with TUFM silencing plasmids (#1–3) and control plasmid.  $n=3$ .  $^*P < 0.05$  vs. si-NC group. (D) Western blot analysis of relative expression levels of ATG5, LC3II/I, TOM20, VDAC1, and COXIV in Beas-2B cells overexpressing RSV-NS1 after TUFM silencing.  $n=3$ .  $^*P < 0.05$  vs. oe-NC group;  $^{\#}P < 0.05$  vs. oe-RSV-NS1+si-NC group. (E) Western blot analysis of LC3II/I and TOM20 expression changes in Beas-2B cells following vitamin D intervention at different concentrations. (F) Western blot analysis of relative expression levels of ATG5, LC3II/I, TOM20, VDAC1, and COXIV in Beas-2B cells treated with 10  $\mu$ M vitamin D.  $n=3$ .  $^*P < 0.05$  vs. oe-NC group;  $^{\#}P < 0.05$  vs. oe-RSV-NS1 group. (G) Western blot analysis of relative expression levels of ATG5, LC3II/I, TOM20, VDAC1, and COXIV in Beas-2B cells overexpressing TUFM after 10  $\mu$ M vitamin D intervention.  $n=3$ .  $^*P < 0.05$  vs. oe-RSV-NS1 group;  $^{\#}P < 0.05$  vs. oe-RSV-NS1+VitD+oe-NC group.