



**Supplementary information, Fig. S5: Comparison of different coronaviruses envelope proteins (E).**

**a** Sequence alignment of five human  $\beta$ -coronaviruses E proteins. **b** Single-channel current recording of SARS-CoV-E and HCoV-OC43-E proteins after reconstitution in lipid bilayers with 50:50 mM KCl solutions (*trans* : *cis*), PC/PS = 3:2 lipids at the indicated potentials. Protein (5-50 ng/mL) was added to the *cis* side. “C” means channel close; “O” means channel open. **c** Survival viability of Vero E6 cells under 2-E, SARS-CoV-E and HCoV-OC43-E transfection at 24 and 48 hours. **d** The expression level of 2-E-HA, SARS-CoV-E-HA and HCoV-OC43-E-HA protein in Vero E6 cells. **e** The correlation between capability of killing cell and the relative expression level of HCoV-OC43-E protein normalized by 2-E expression. \* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ ; unpaired Student’s t test. All error bars are SEM.