

## Supplementary information, Fig. S3



**a**, Representative elution profile of the purified  $C5a^{pep}$ -C5aR1-G<sub>i</sub> complex (left panel) and SDS–PAGE of the size-exclusion chromatography peak (right panel).

**b**, Representative cryo-EM micrographs (upper panel) and 2D classification averages (lower panel) of the  $C5a^{pep}$ -C5aR1- $G_i$  complex.

**c,** Cryo-EM data processing flowcharts and local resolution for the  $C5a^{pep}$ -C5aR1- $G_i$  complex.

**d**, Gold-standard FSC curve (orange), the model-vs-map curve (green), FSC<sub>work</sub> (blue) and FSC<sub>free</sub> (red) validation curve of  $C5a^{pep}$ -C5aR1-G<sub>i</sub> complex. The marginal gap between the FSC<sub>work</sub> and FSC<sub>free</sub> validation curve indicate no over-fitting of the model. **e**, Cryo-EM density maps and models for transmembrane helixes TM1-TM7, ECL2 and H8 of C5a<sup>pep</sup>-bound C5aR1, as well as the  $\alpha$ 5 helix of G $\alpha_{i1}$ .