Supplementary information

Videos provided are simulation results of phases at statepoints mentioned below using method described in model and methods section of the paper.

- Video #1: Phase A at \( \alpha_0 = 0.2 \) and \( F_{active} = 100 \)
- Video #2: Phase B at \( \alpha_0 = 0.35 \) and \( F_{active} = 300 \)
- Video #3: Phase C at \( \alpha_0 = 0.5 \) and \( F_{active} = 40 \)
- Video #4: Phase E at \( \alpha_0 = 0.45 \) and \( F_{active} = 40 \)
- Video #5: Phase F at \( \alpha_0 = 0.65 \) and \( F_{active} = 100 \)
- Video #6: Phase G at \( \alpha_0 = 0.85 \) and \( F_{active} = 40 \)
Figure 1: Time evolution of maximum cluster size, $c_{max}$, and fraction of CAPs, $\alpha_{dense}$, in the dense phase at $\phi = 0.6$, $F_{active} = 40$, and $\alpha_0 = 0.25$. 
Figure 2: The density distribution of the system at $\phi = 0.6$ for varying $\alpha_0$ and $F_{active}$. For subplots, the x-axis varies the packing fraction $\phi$ and the y-axis plots its probability $p$. The distribution is calculated at the steady state and averaged over 250 frames.
Figure 3: The phase diagram of the system at $\phi = 0.6$. The x-axis varies $\alpha_0$ and y-axis varies $F_{active}$. Each grid point is a snapshot of the corresponding statepoint at steady state. The simulation method is described in the model and methods section of the paper.
Figure 4: Fraction of CAPs in the dense and dilute phases, $\alpha_{\text{dense}}$ and $\alpha_{\text{dilute}}$, relative to $\alpha_0$ for all the state points (varying $F_{\text{active}}$ and $\alpha_0$) at $\phi = 0.6$ that phase separate and reach steady state.
Figure 5: Heatmap of average local density, $\phi_{dense}$, of the dense phase at $\phi = 0.6$, averaged over 20 frames.
Figure 6: Ratio of passive particles to CAPs as a function of x-axis at $\alpha_0 = 0.2$, averaged over 150 frames.