Supporting Information

Corneal retention using nanorobots-based eyedrop

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This file includes:

Legends for Movie S1

Supporting Figures S1 to S4

Supporting experimental

Movie S1 Swarming behaviour of the 500 nm NRs in simulated tear fluid for 90 s. (The movie was
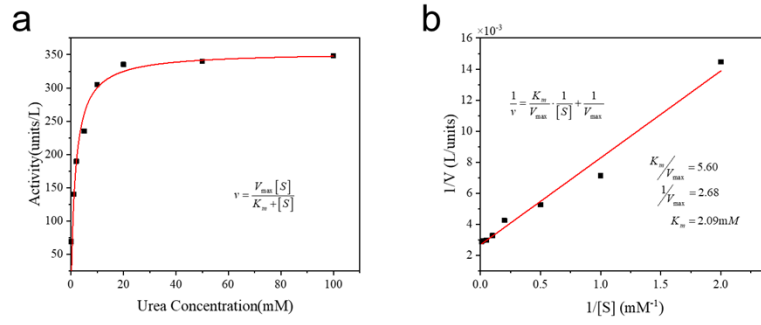
900% accelerated)

Fig. S1 Determination of urease activity of NRs. (a) Activity of urease on the surface of NRs under different urea concentrations. (b) Lineweaver–Burk plot calculated with the parameters in (a).
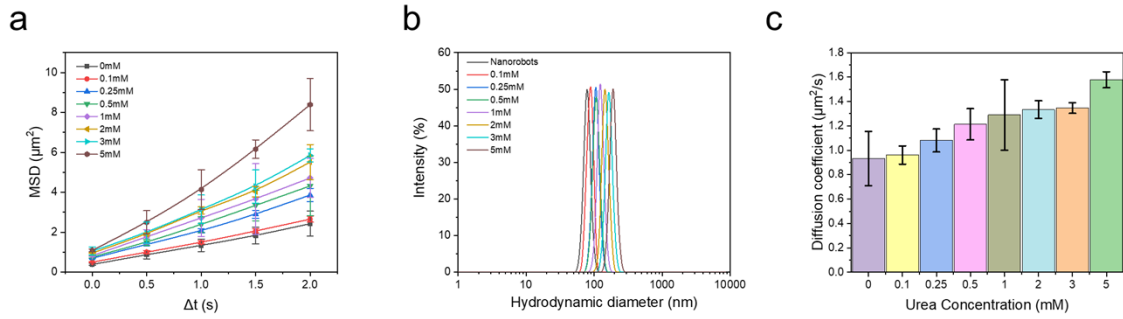

Fig. S2 Individual movement under different urea concentrations. (a) MSD versus the time interval (Δt) of the NRs under different urea concentrations. (b) Dynamic light scattering (DLS) analysis of the dispersion showing particle size distribution (PSD) of NRs under different urea concentrations. (c) Corresponding diffusion coefficients of NRs under different urea concentrations.
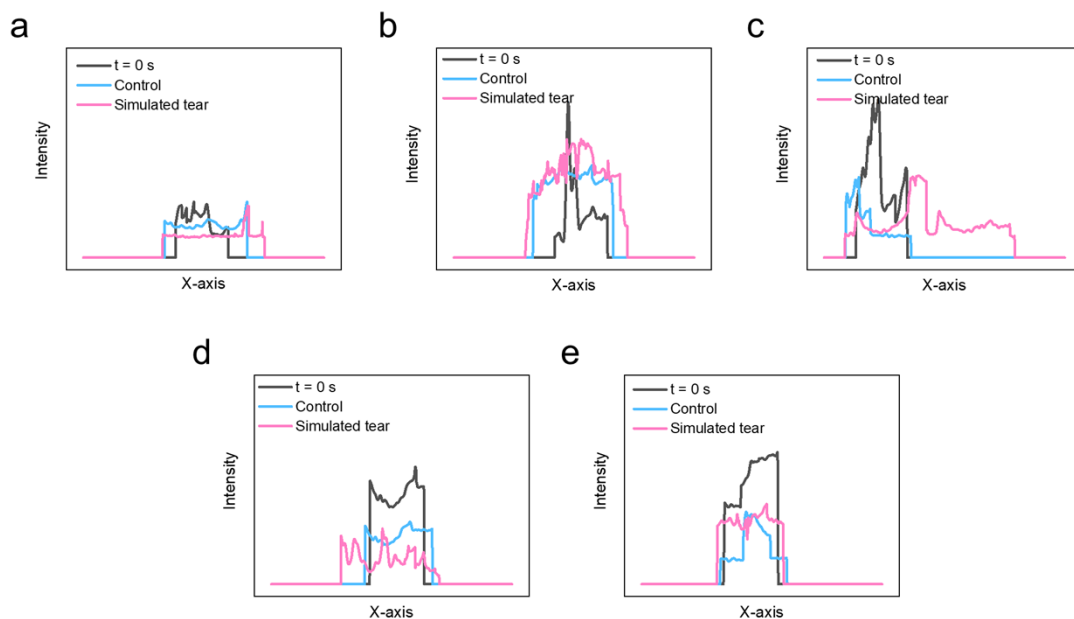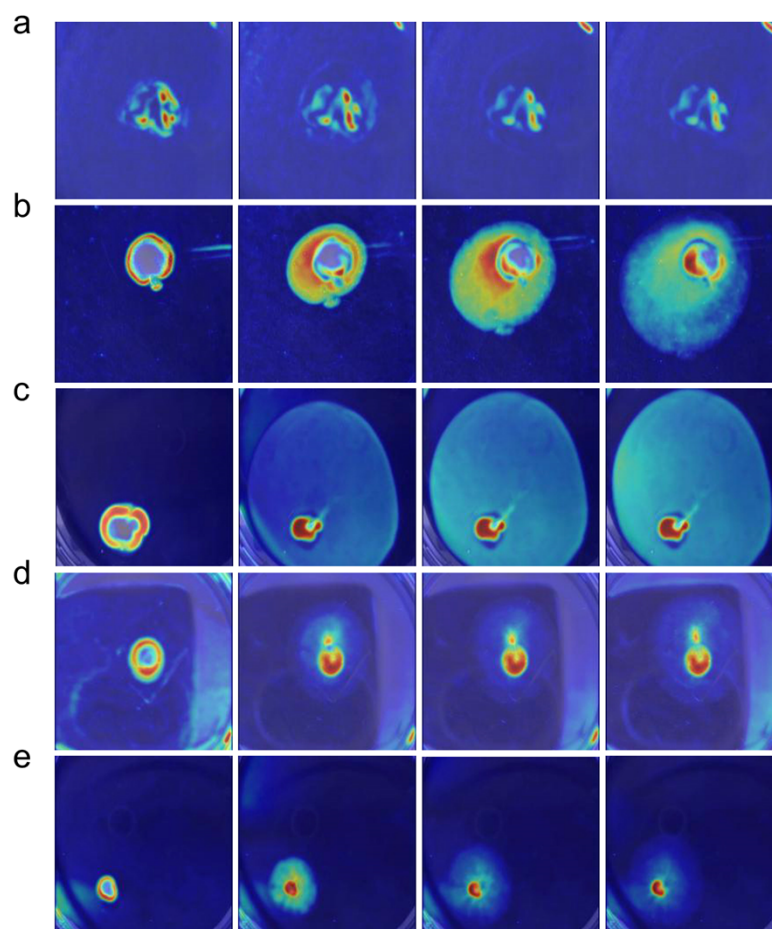
Fig. S3 Corresponding projection intensity for different sizes of NRs in PBS and simulated

tear (a) 100 nm, (b) 200 nm, (c) 500 nm, (d) 1μm, (e) 5 μm.

Fig. S4 Time-lapse images of swarming behavior of NRs under different sizes (a) 100 nm, (b)

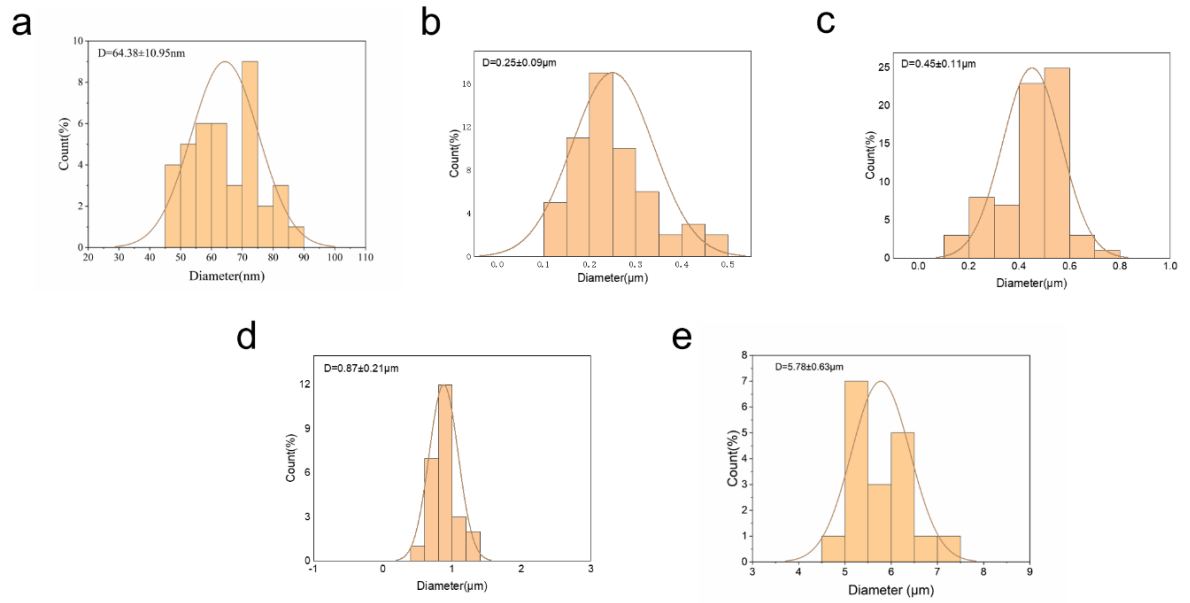200 nm, (c) 500 nm, (d) 1μm, (e) 5 μm for 90s.

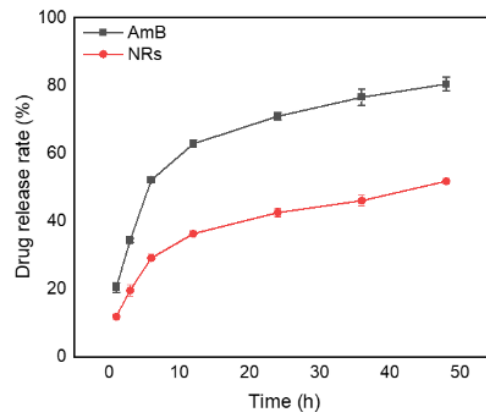**Fig. S5 Size distribution histograms** (a) 100 nm, (b) 200 nm, (c) 500 nm, (d) 1μm, (e) 5 μm.
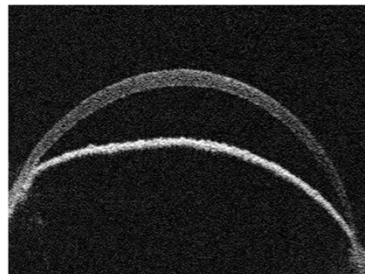

Fig. S6 Drug release curve.

Fig. S7 AS-OCT images of normal eye.