

## Supporting information

# A Light-Powered Micropump with Dynamic Collective Behavior for Reparation

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**Video S1.** The pumping behavior of the pentacene micropump driven by light. Light intensity  $0.6 \text{ W/cm}^2$ .  $20 \times$  speed.

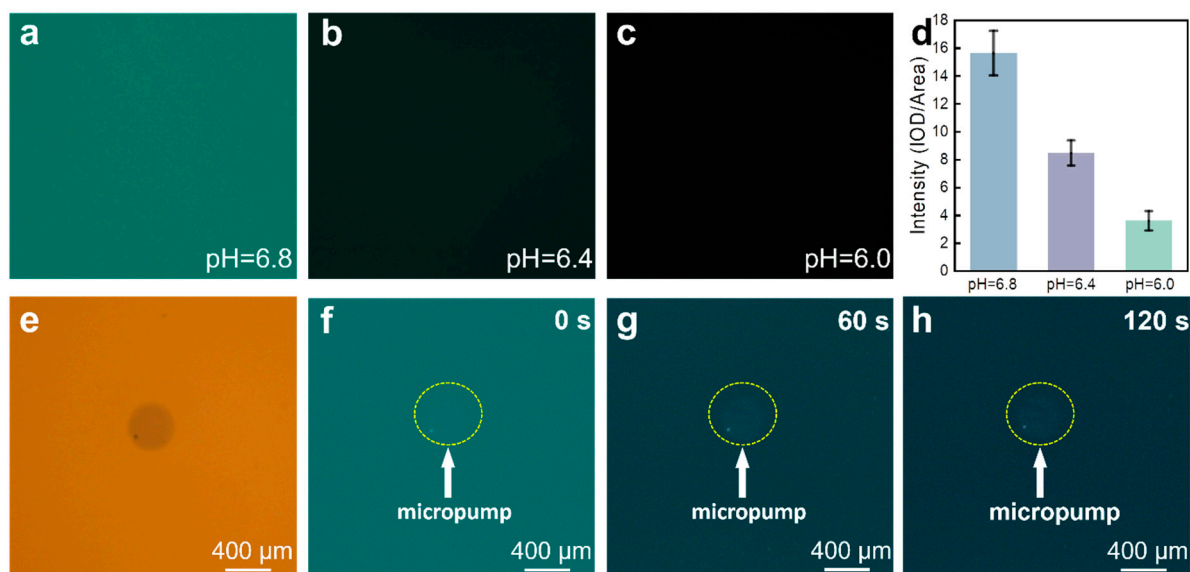
**Video S2.** The pumping behavior of the trace particles in the NaCl solution. Light intensity  $1.2 \text{ W/cm}^2$ .  $10 \times$  speed.

**Video S3.** The pumping direction of the trace particles with positive or neutral charge. Light intensity  $1.2 \text{ W/cm}^2$ .  $30 \times$  speed.

**Video S4.** The aggregation of tracer particles on the focus spot in a system consisting of two adjacent pentacene micropumps. Light intensity  $1.2 \text{ W/cm}^2$ .  $50 \times$  speed.

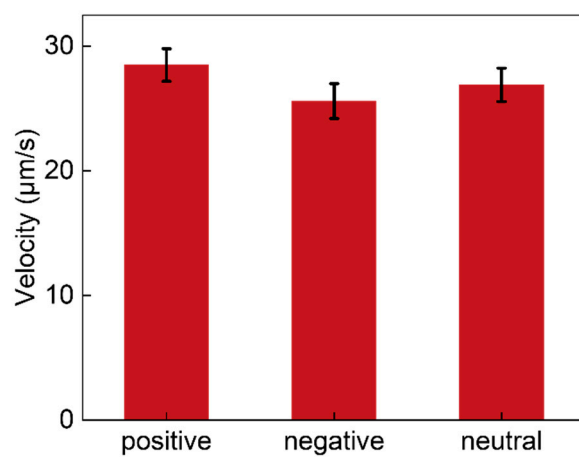
**Video S5.** The dynamic movement of the aggregation tuned by the light. Light intensity  $1.2 \text{ W/cm}^2$ .  $50 \times$  speed.

**Video S6.** The application of pumping in crack reparation based on pentacene micropump. Light intensity  $1.2 \text{ W/cm}^2$ .  $10 \times$  speed.



**Figure S1.** (a-d) The fluorescence images and intensity of the pH indicator with different pH. (e-h)

The change of fluorescence images of the solution with micropump during white light irradiation.



**Figure S2.** The velocity of the tracer particles with different electricity.