

## **Electronic Supplementary Information**

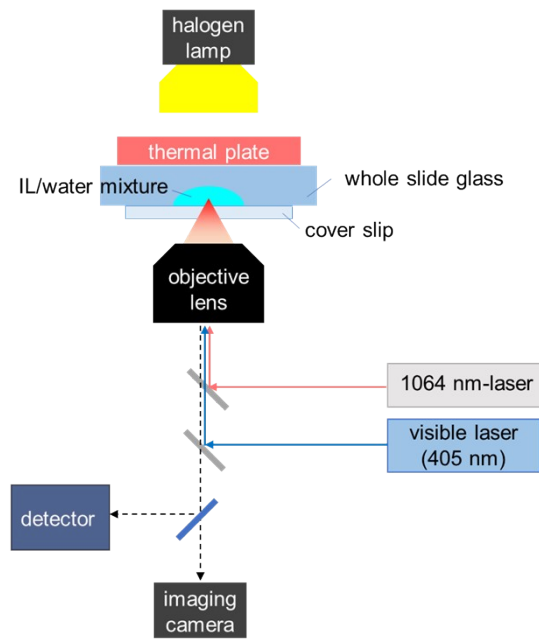
# Optical trapping of nanoclusters formed in a temperature-responsive ionic liquid aqueous solution under focused near-infrared laser irradiation

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### **S1. Optical setup**

A continuous-wave (cw) 1064 nm-laser beam (Laser Quantum, Oups1064-5W-HP) was used for optical tweezers. The laser was introduced into an inverted microscope (Olympus, IX73) and focused onto a sample solution through an objective lens (Olympus, Plan Fluor, oil, numerical aperture; 1.45). The sample solution was sandwiched with a glass slip and a whole slide glass, and its temperature was controlled with a thermal plate (Tokai Hit, TP-110R-100). The optical transmission images were captured with an imaging camera (HOZAN, L-835) under the illumination of white light from a halogen lamp. Fluorescence images and spectra were obtained under the irradiation of a cw 405 nm-laser (Backer & Hickl GmbH, BDS-SM-405-FBE). The emission was guided to a spectrograph (SOL instruments) and detected with a charge coupled device (CCD) detector (Andor). The same laser was used at the pulse mode for fluorescence lifetime measurements. The fluorescence was guided to a detector (MPD, SPD-100-CTC) and analysed with a time-correlated single photon counting module (Becker & Hickl GmbH, SPC-130MN).



**Fig. S1** A schematic illustration of the optical setup used in this study.

