Electronic Supplementary Material (ESI) for Analytical Methods.

The preparation and dual-mode detection of ascorbic acid based on poly(N-isopropylacrylamide) nanogel with oxidase-like activity

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Results

		Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 532.3	Peak 1:	566.7	100.0	144.5
PdI: 0.055	Peak 2:	0.000	0.0	0.000
Intercept: 0.946	Peak 3:	0.000	0.0	0.000
Result quality Good				

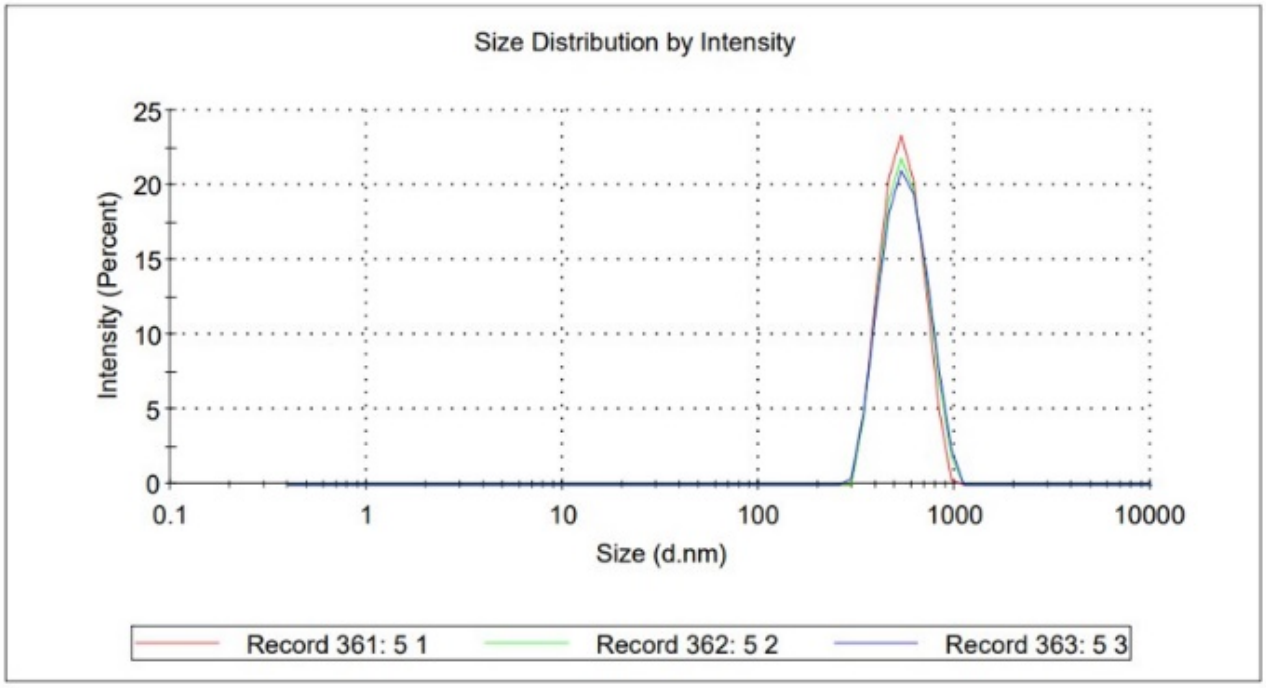

Figure S1. Particle size distribution curve of PNIPAM NG (5:1).

Results

		Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 523.8	Peak 1:	591.1	100.0	214.3
PdI: 0.108	Peak 2:	0.000	0.0	0.000
Intercept: 0.967	Peak 3:	0.000	0.0	0.000

Result quality Good

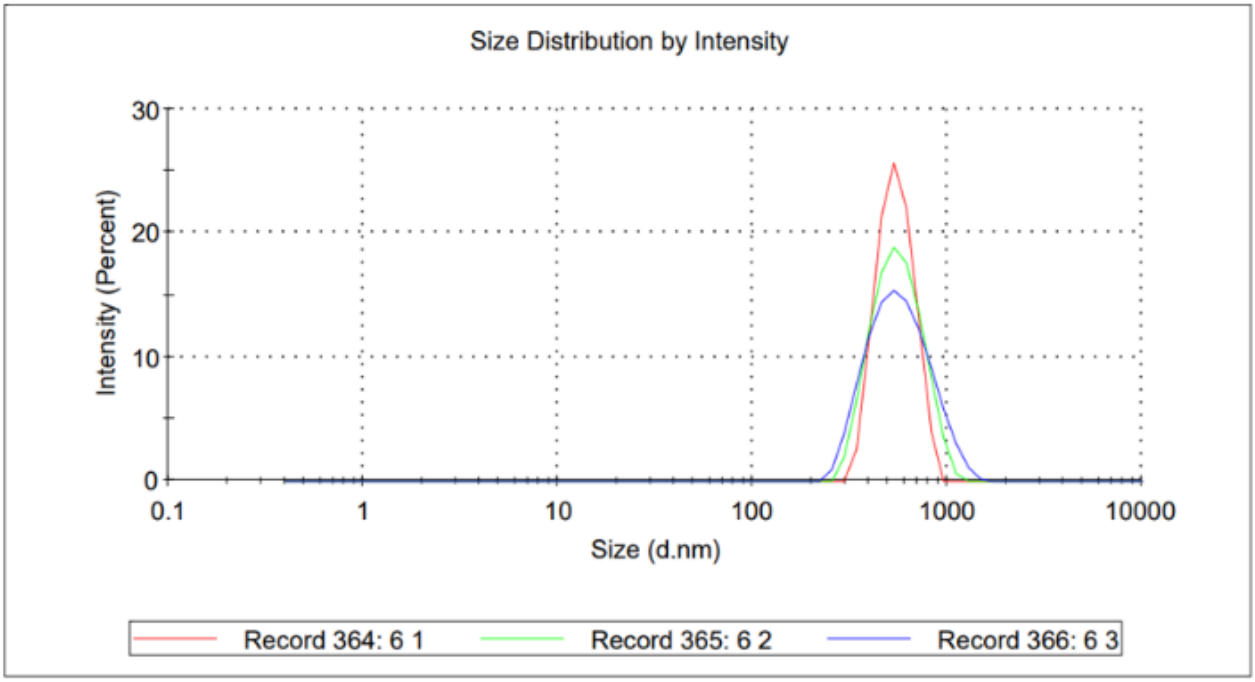

Figure S2. Particle size distribution curve of PNIPAM NG (6:1).

Results

		Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 514.9	Peak 1:	534.6	100.0	115.2
PdI: 0.002	Peak 2:	0.000	0.0	0.000
Intercept: 0.968	Peak 3:	0.000	0.0	0.000

Result quality Good

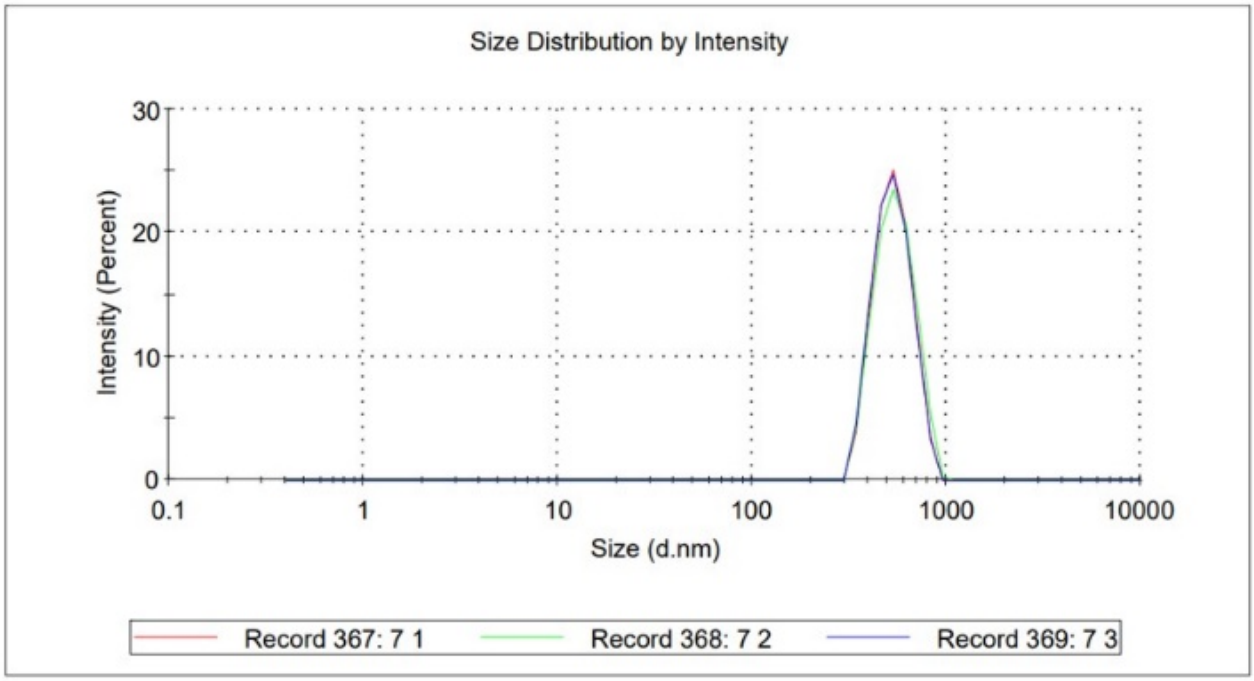

Figure S3. Particle size distribution curve of PNIPAM NG (7:1).

Results

		Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 577.1	Peak 1:	633.1	98.1	245.8
PdI: 0.178	Peak 2:	5010	1.9	603.3
Intercept: 0.944	Peak 3:	0.000	0.0	0.000

Result quality Good

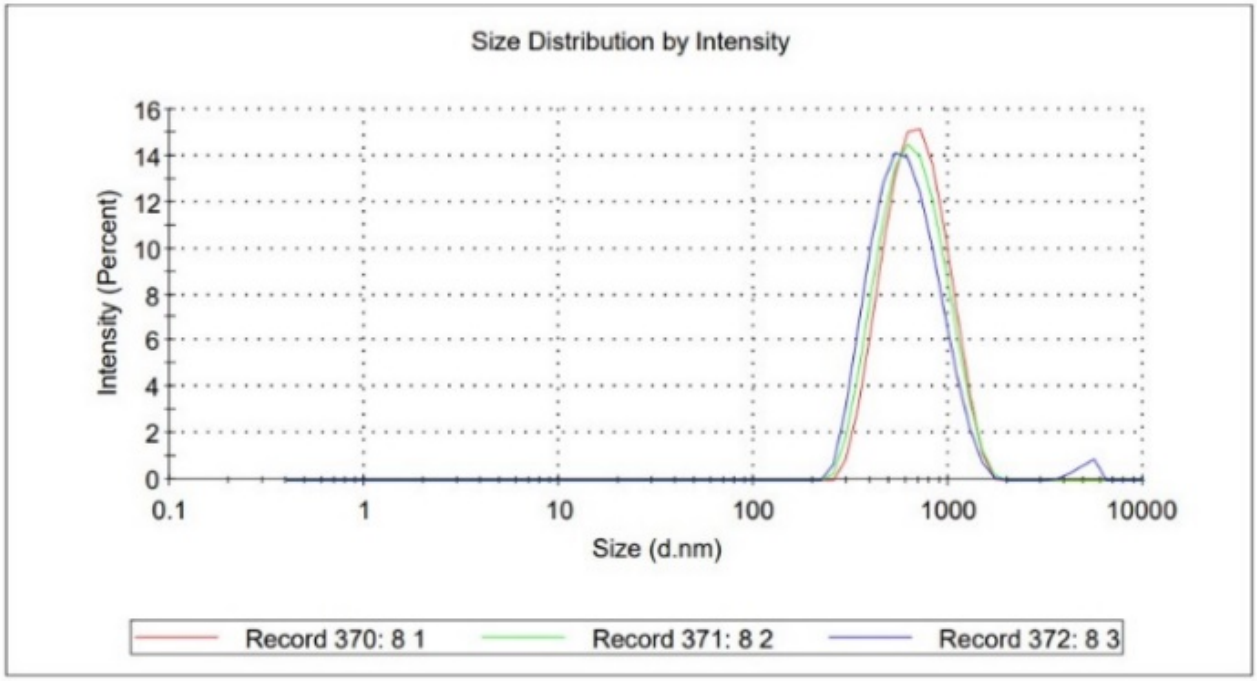

Figure S4. Particle size distribution curve of PNIPAM NG (8:1).

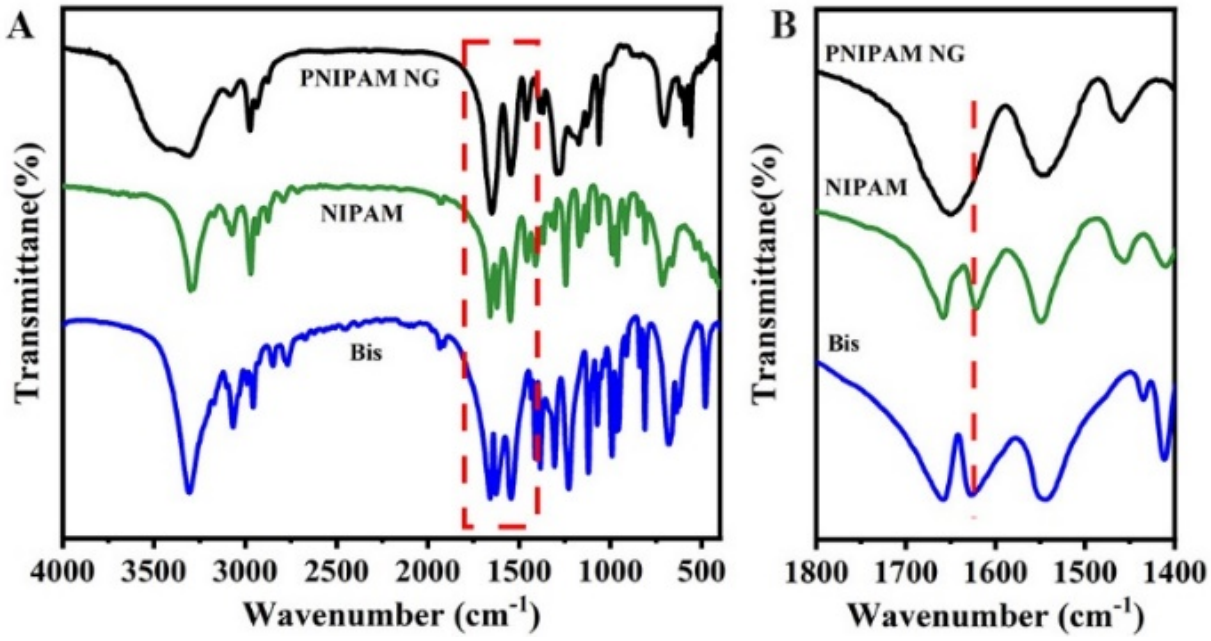

Figure S5. (A) FTIR spectra of PNIPAM NG, NIPAM and Bis. (B) FTIR spectra of PNIPAM NG, NIPAM and Bis in the range 1400-1800 cm^{-1}.

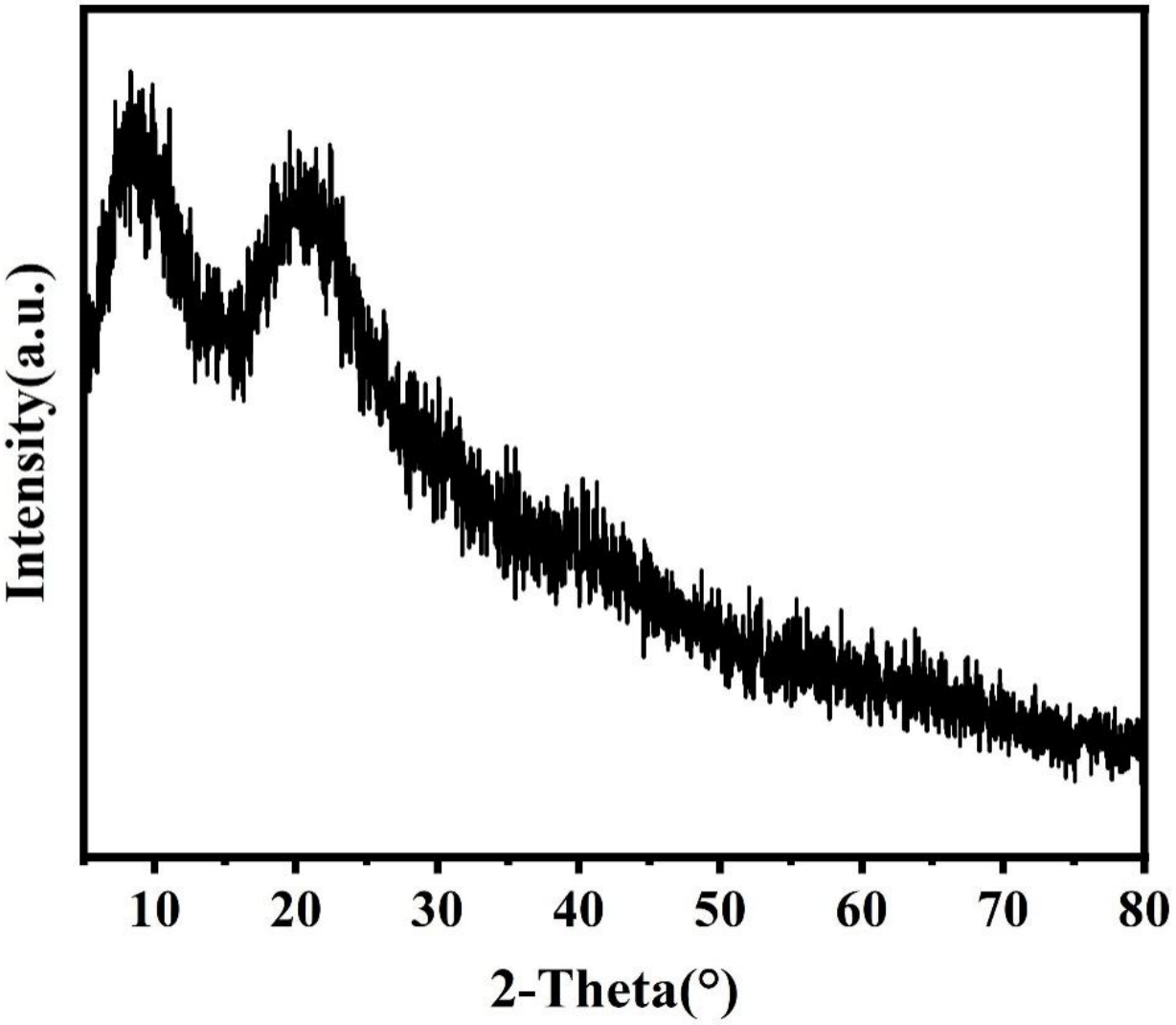

Figure S6. XRD spectrum of PNIPAM NG.

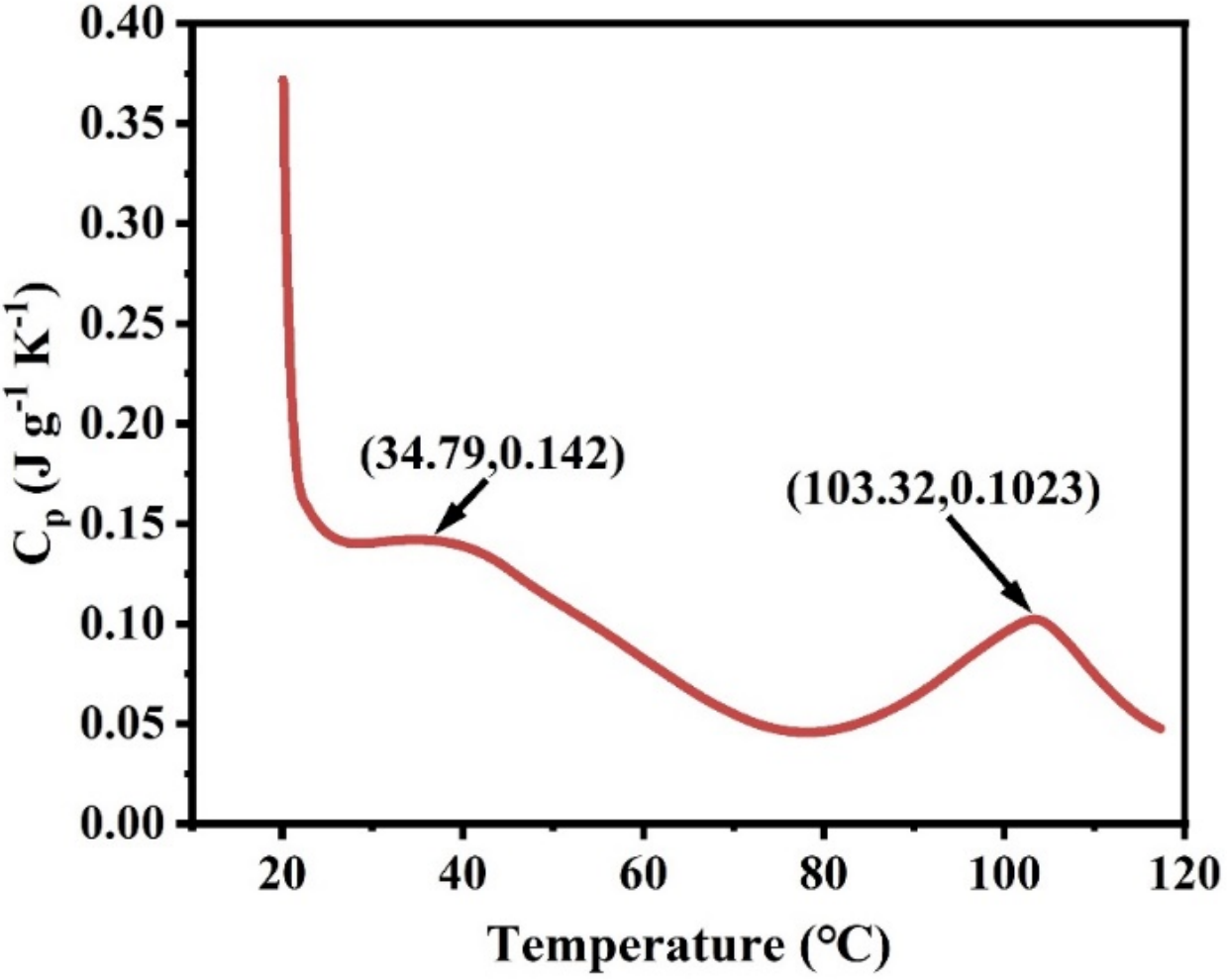

Figure S7. DSC spectrum of PNIPAM NG.

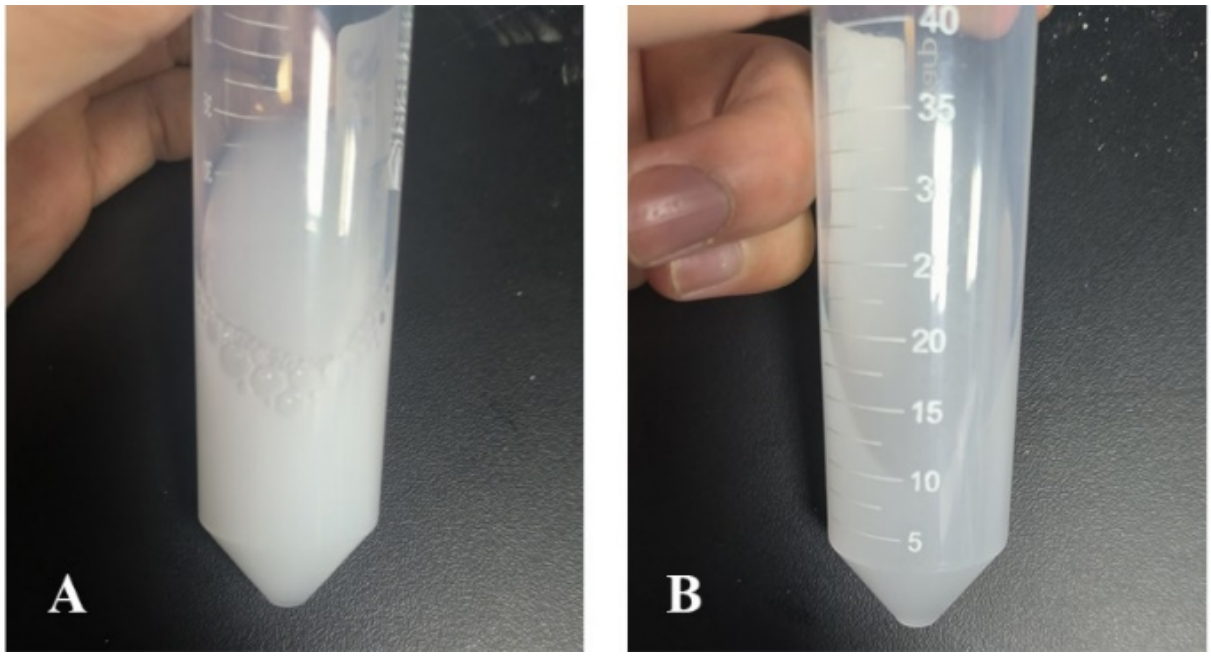

Figure S8. Photographs of PNIPAM NG at (A) 70°C (B) 25°C.

Table S1. Comparison of Mie constant (K_m) and maximum reaction rate (V_{max}) for different catalysts with OPD as the substrate.

Catalyst	K_m (mM)	V_{max} (10^{-8} M·s^{-1})	Ref.
$NiFe_2O_4$	8.4	0.86	1
CuO	6.78	0.52	2
CuO@E. coli	3.64	1.05	2
Ru NPs	56.92	0.01	3
PNIPAM NG	7.617	0.15	This work

Table S2. Comparison of AA detection by different nanomaterials.

Catalyst	Line range(μM)	Method	LOD (μM)	Ref.
CDs	1-30	colorimetric	1.530	4
Cu-ICA	0.5-5	colorimetric	0.130	5
N-CQDs	5-40	colorimetric	1.770	6
PNIPAM NG	10-90	colorimetric	1.199	This work
CA-CDs	5-100	fluorescence	0.150	7
Cu NCs	0.3-50	fluorescence	0.144	8
PVP-Pt	2~50	fluorescence	1.170	9
PNIPAM NG	1-100	fluorescence	0.283	This work

Reference

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