

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
Pdl: 0.055	Peak 2: 0.000	0.0	0.000
Intercept: 0.946	Peak 3: 0.000	0.0	0.000
Result quality Good			

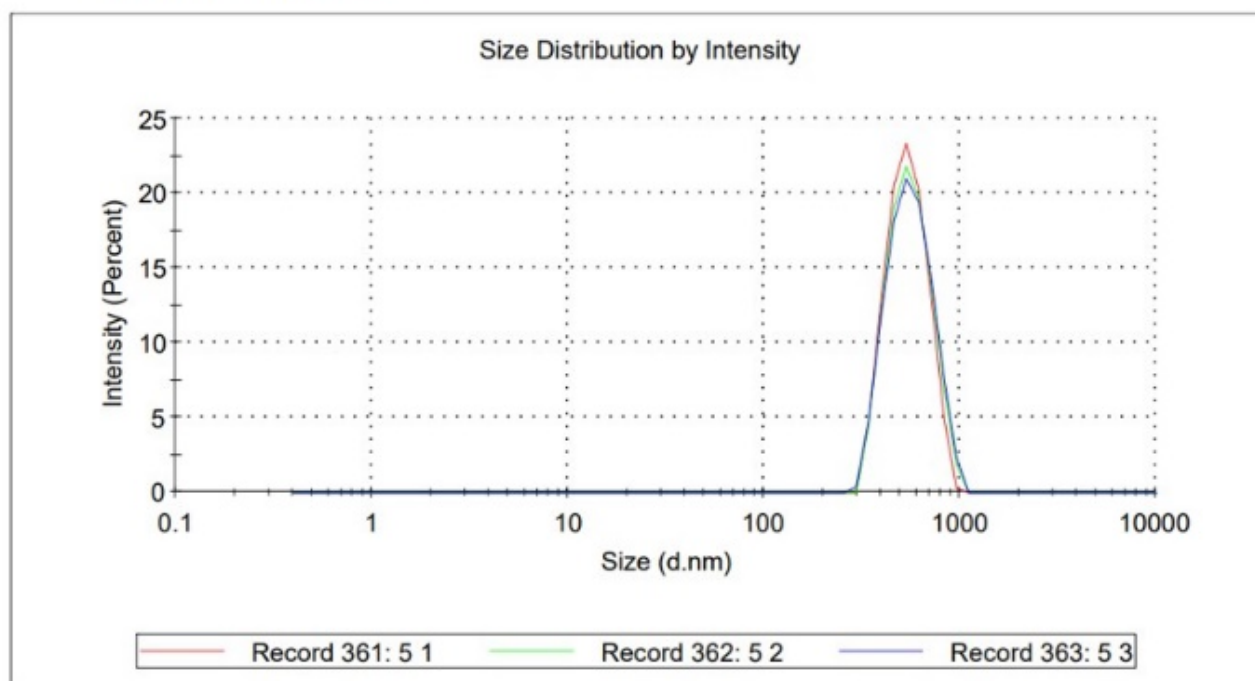


Figure S1. Particle size distribution curve of PNIPAM NG (5:1).

Results

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

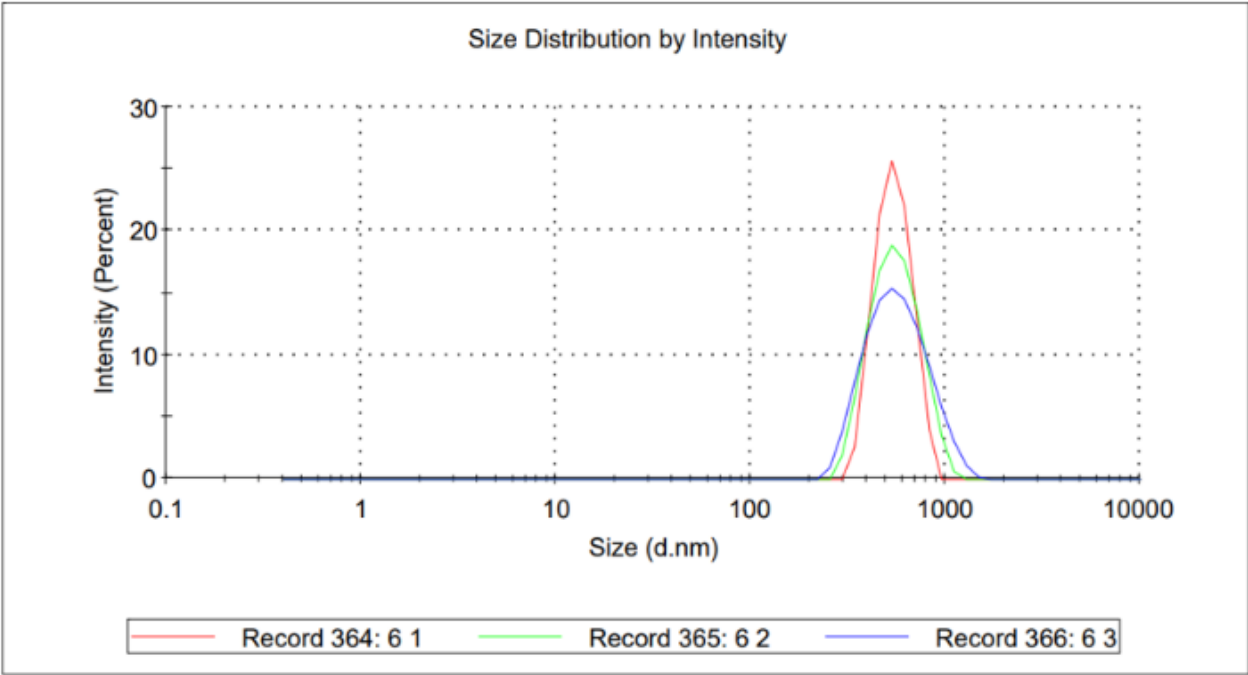


Figure S2. Particle size distribution curve of PNIPAM NG (6:1).

Results

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

Result quality Good

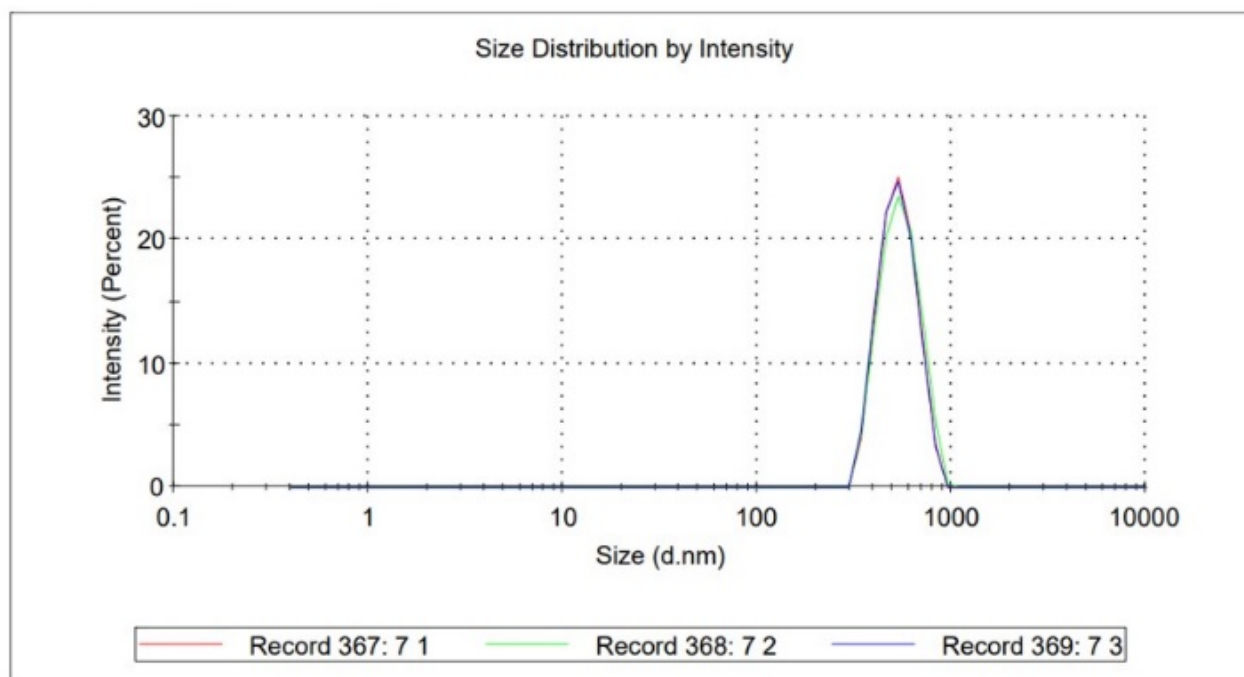


Figure S3. Particle size distribution curve of PNIPAM NG (7:1).

Results

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

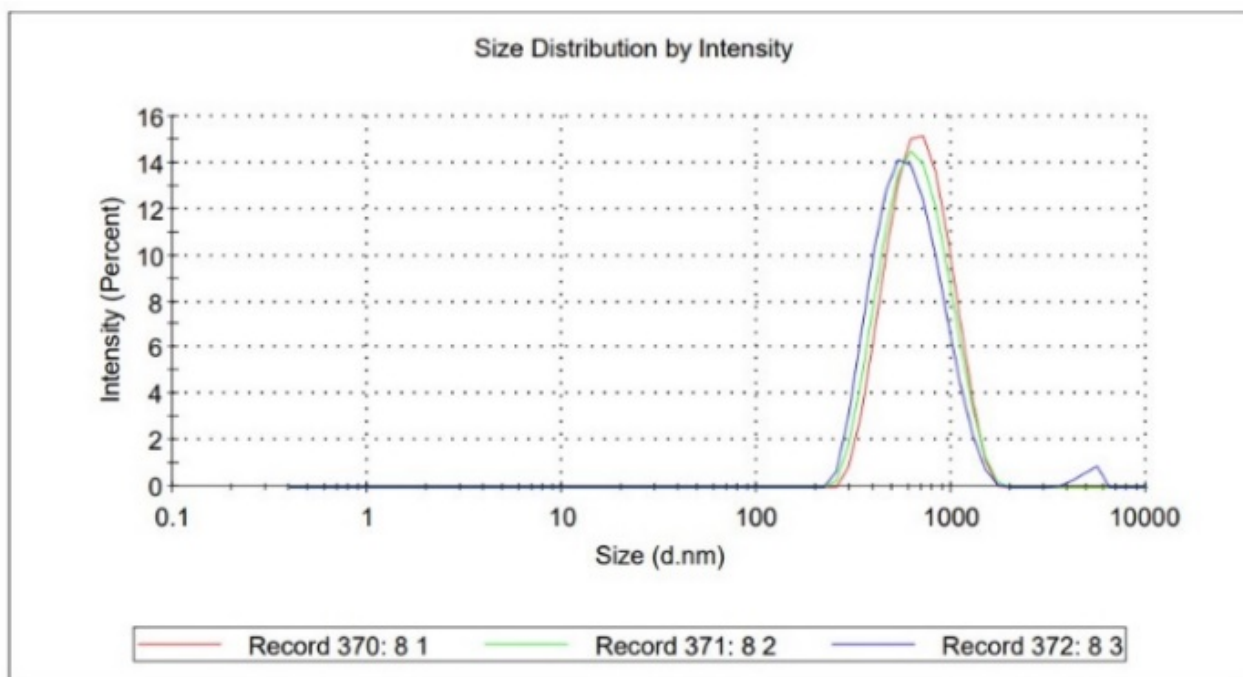


Figure S4. Particle size distribution curve of PNIPAM NG (8:1).

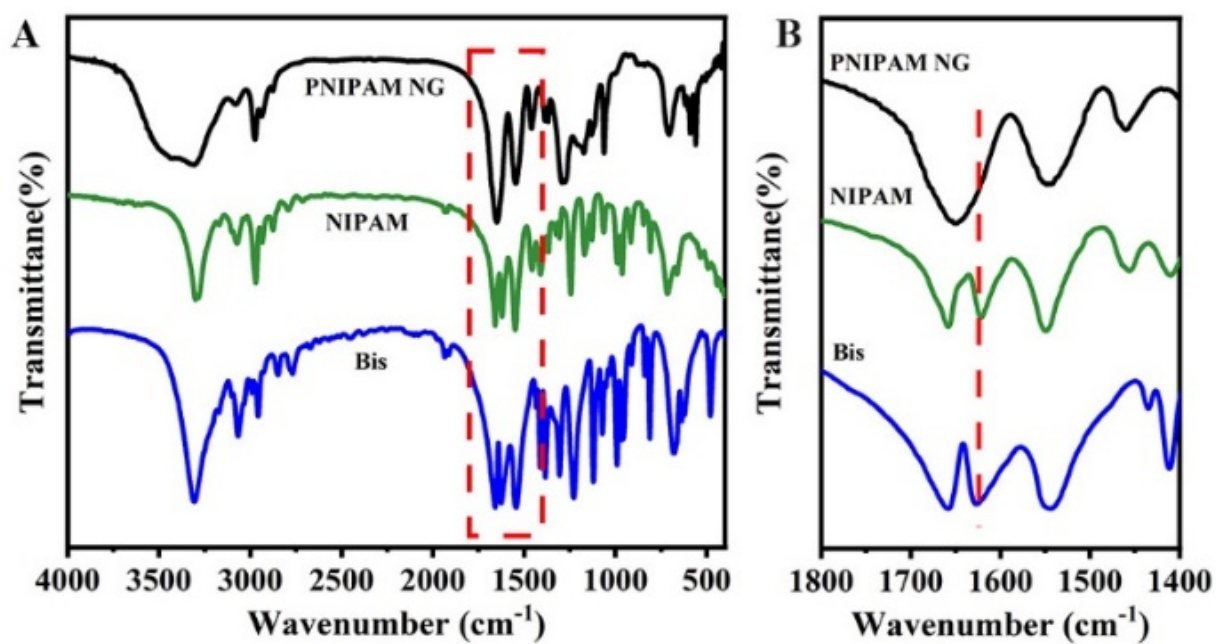


Figure S5. (A) FTIR spectra of PNIPAM NG, NIPAM and Bis. (B) FTIR spectra of PNIPAM NG, NIPAM and Bis in the range 1400-1800 cm^{-1} .

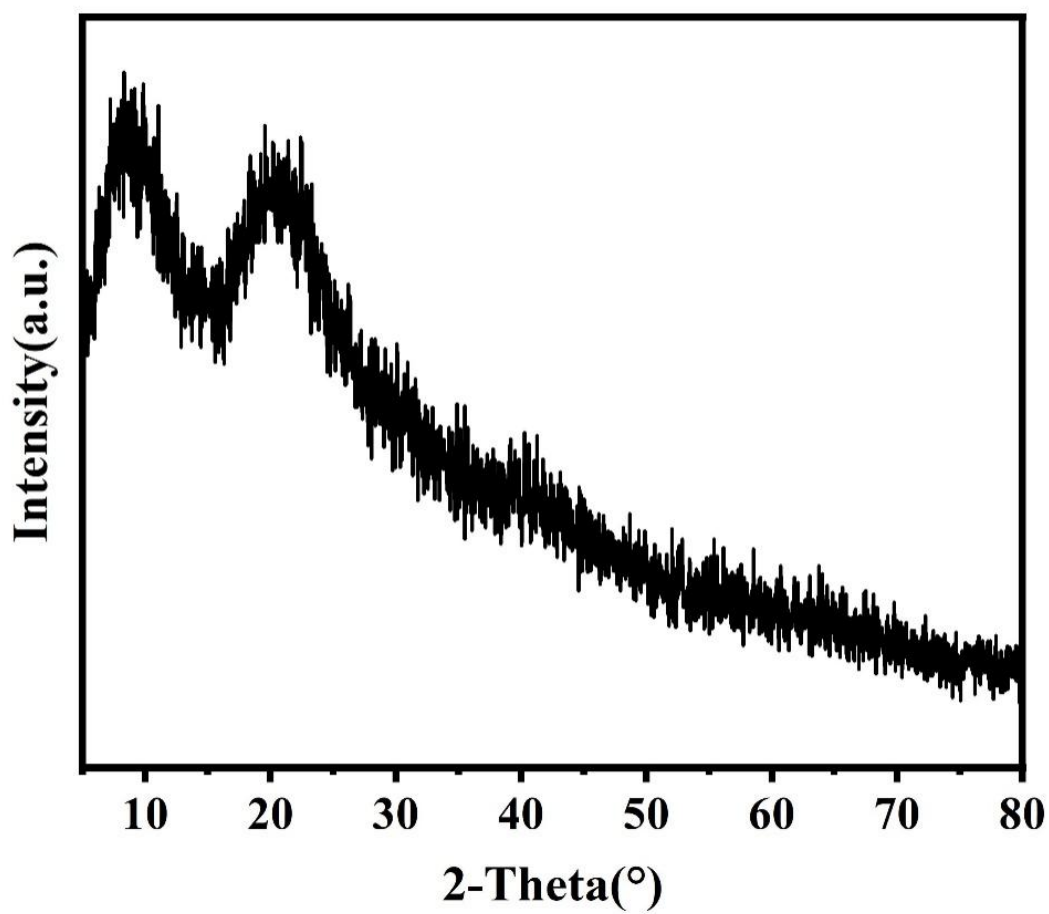


Figure S6. XRD spectrum of PNIPAM NG.

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} ($10^{-8} \text{ M}\cdot\text{s}^{-1}$)	Ref.
NiFe ₂ O 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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