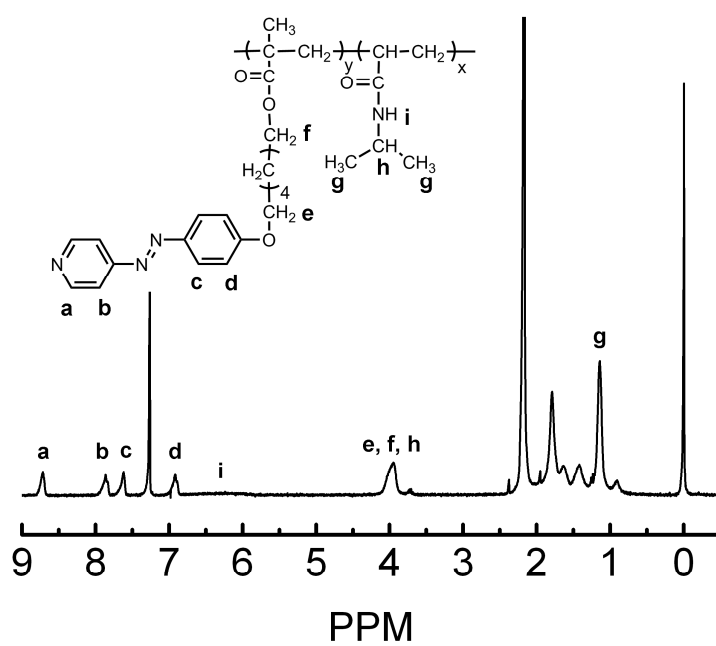


Supporting information for Photo-induced reversible Janus-Uniform shape change of
micro-scale polymer vesicles self-assembled from PNIPAM-b-PAzPy2

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Soft Matter

Characterization of materials



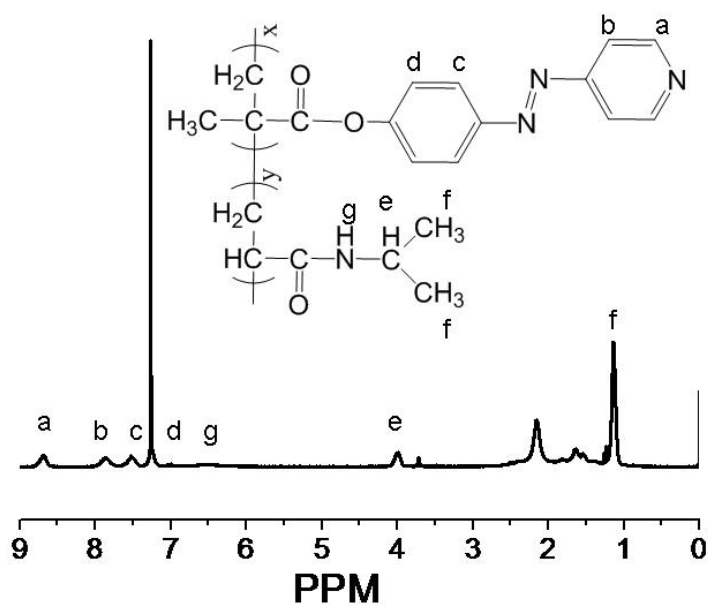
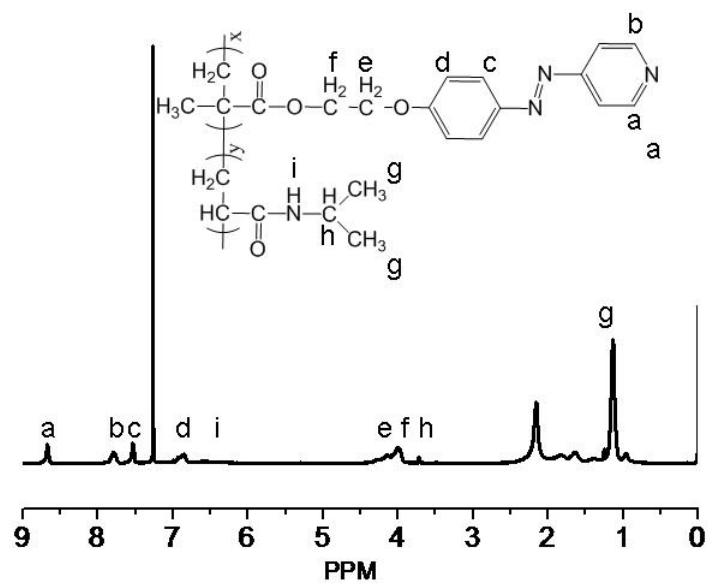


Figure S1. shows the ¹H NMR spectrum of PNIPAM-*b*-PAzPy in CDCl₃. The composition of the block copolymer was determined from the ratio of the integrals of

the peak around 1.1 ppm and 4.0 ppm of PNIPAM to the peak at about 8.7ppm of PAzPy. The composition determined from the ^1H NMR spectrum, resulting in NIPAM: PAzPy₆=2.5:1, NIPAM: PAzPy₂=3:1, NIPAM: PAzPy₀=2.5:1.

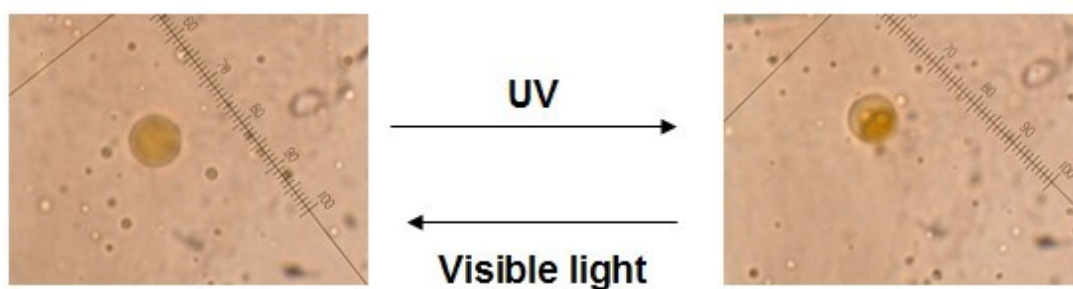


Figure S2 Photo induced Uniform-Janus shape change of vesicle composed of PNIPAM-b-PAzPy₂ from the eyepiece. The yellow part means the aggregation of the azopyridine units.

Table S1 Observed IR Frequencies (in cm⁻¹) Assignments of PNIPAM-b-PAzPy₆

| Wavenumber(cm ⁻¹) | Assignment |
|-------------------------------|---|
| 3432 | N-H stretching (bonding) |
| 3310 | N-H stretching (free) |
| 3069 | N-H |
| 2968 | asymmetric C-H stretching of -C(CH ₃) ₂ |
| 2936 | symmetric CH ₂ stretching |
| 2876 | symmetric C-H stretching of -C(CH ₃) ₂ |
| 1725 | C=O stretching of COOC |
| 1646 | C=O stretching of CONC |
| 1602 | Phenyl ring stretching |
| 1584 | Pyridine ring stretching |
| 1546 | N-H bending |
| 1500 | CH ₂ scissoring + C-H bending in plane |
| 1457 | CH ₂ scissoring in chain +symmetric deformation of -C(CH ₃) ₂ |

| | |
|------|---|
| 1454 | CH2 scissoring in chain |
| 1420 | ring stretching + C-H bend |
| 1404 | CH2 scissoring |
| 1388 | asymmetric deformation of -C(CH ₃) ₂ + CH2 bending in chain, in chain Direction |
| 1368 | asymmetric deformation of -C(CH ₃) ₂ |

Video S3. The reversible Uniform-Janus vesicle shape change can be seen in attached video file. The video was taken by a CCD camera and recorded on a computer.