

【Electronic Supplementary Information】

Coordination polymer gel derived from a tetrazole
ligand and Zn^{2+} : spectroscopic and mechanical
properties of an amorphous coordination polymer gel

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Table S1 Gelation test of ligand **2** (3.0 wt%) with metal ions (2.0 equivalents) in organic solvents.

Entry	Solvent	Zn(ClO ₄) ₂	Cu(ClO ₄) ₂	Co(ClO ₄) ₂
1	MeOH	P	P	P
2	DMF	P	P	P
3	DMSO	P	P	P
4	DCM	P	P	P
5	THF	P	P	P
6	Toluene	P	P	P
7	ACN	P	P	P
8	DMA	P	P	P
9	EA	P	P	P
10	CHCl ₃	P	P	P
11	Dioxane	P	P	P
12	H ₂ O	P	P	P
13	Acetone	P	P	P
14	DMF:MeOH	P	P	P
15	DMF:H ₂ O	P	P	P

P: precipitate

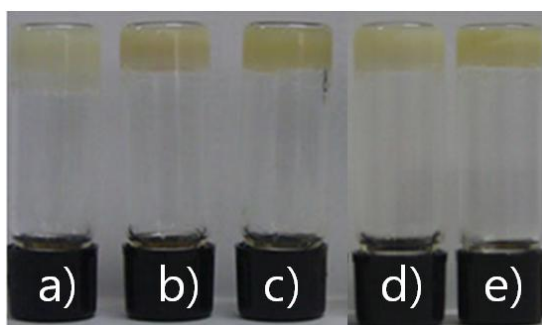


Fig. S1 Photographs of the coordination polymer gels **1** with (a) $\text{Zn}(\text{ClO}_4)_2$, (b) $\text{Zn}(\text{OAc})_2$, (c) ZnCl_2 , (d) ZnBr_2 , and (e) ZnI_2 in $\text{DMF}/\text{MeOH}(1/1, v/v)$.

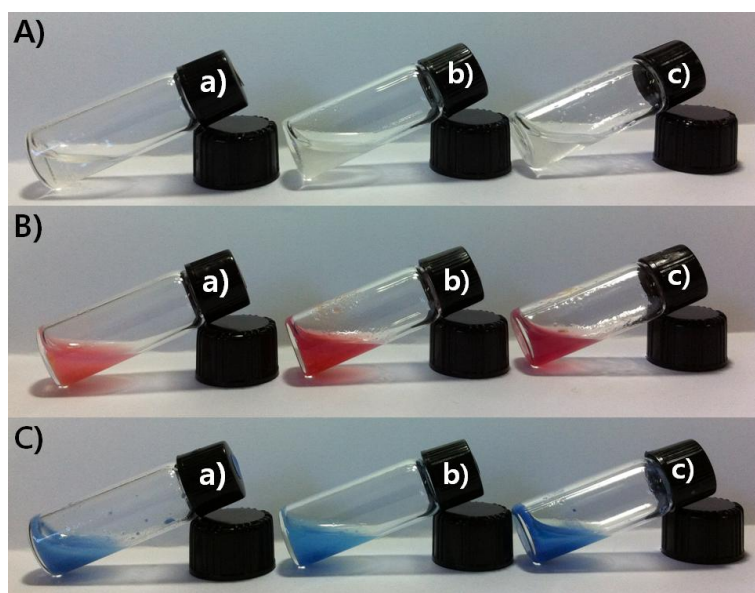


Fig. S2 Photographs of **2** with (A) $\text{Zn}(\text{ClO}_4)_2$, (B) $\text{Co}(\text{ClO}_4)_2$, (C) $\text{Cu}(\text{ClO}_4)_2$ in (a) DMF/MeOH(1/1, v/v), (b) DMF and (c) DMA.

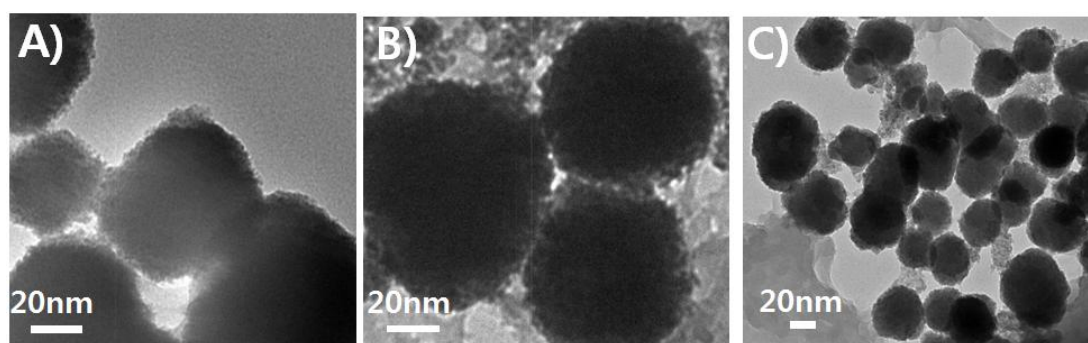


Fig. S3 TEM images of Zn^{2+} coordination polymer gels **1** with different anions such as (A) ClO_4^- , (B) I^- , and (C) Cl^- .

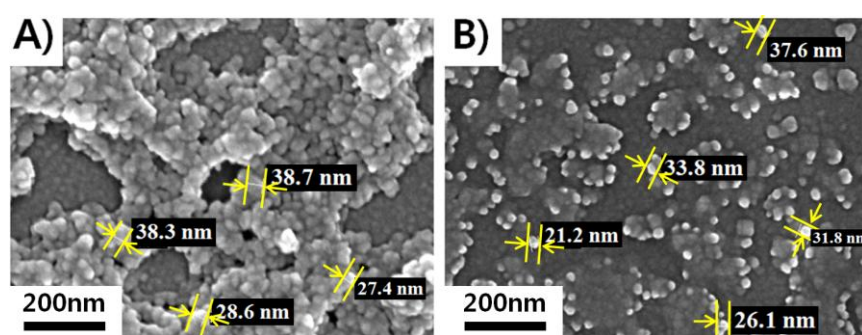


Fig. S4 SEM images of the coordination polymer gels **1** (20 mM) with (a) $\text{Co}(\text{ClO}_4)_2$, (b) $\text{Cu}(\text{ClO}_4)_2$ (2.0 equiv) in DMF/MeOH(1/1, v/v).

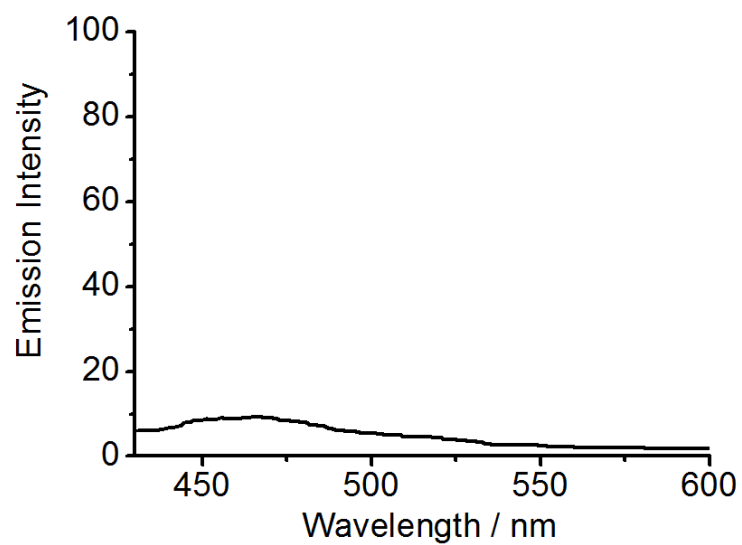


Fig. S5 Fluorescence spectrum of ligand **1** (60 mM) in the absence of metal ions in DMF:MeOH.

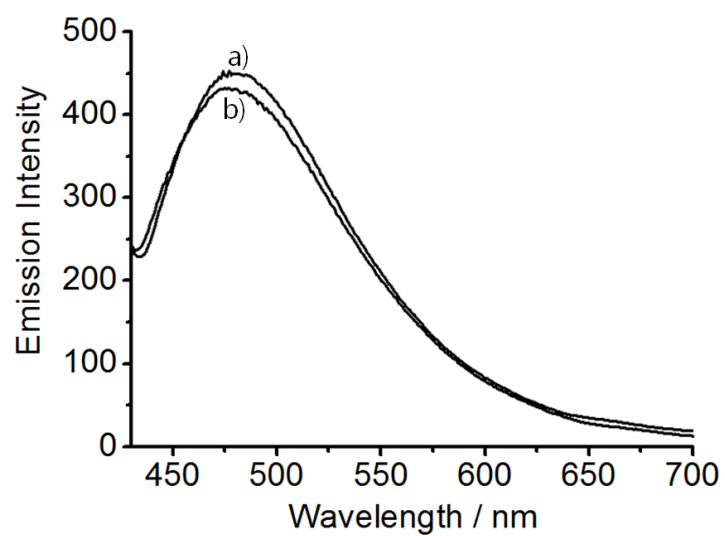


Fig. S6 Fluorescence spectra (excitation at $\lambda=320$ nm for sol **1** and 410 nm for gel **1** (20 mM) with $\text{Zn}(\text{ClO}_4)_2$ (2.0 equiv) in (a) DMA and (b) DMF.

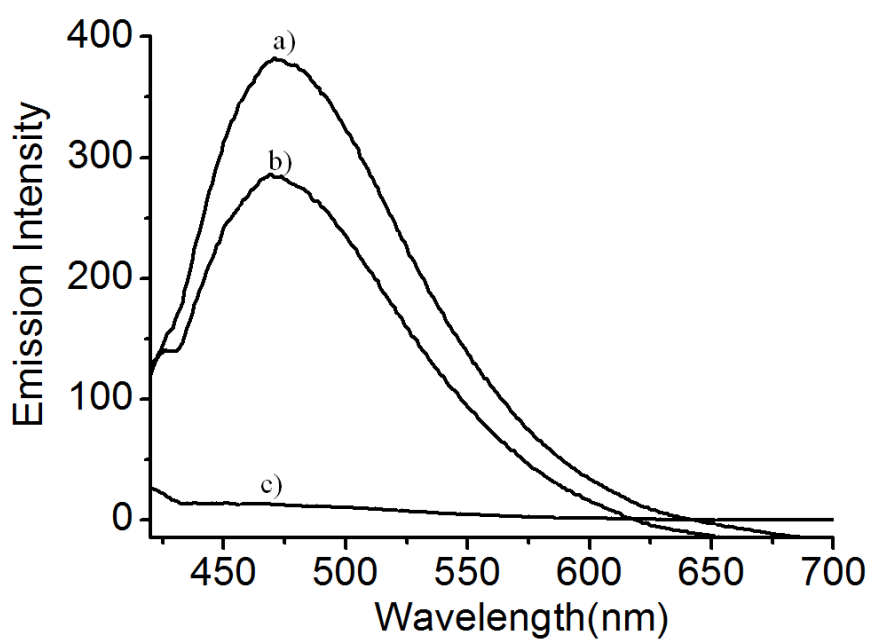


Fig. S7 Fluorescence spectra of the coordination polymer gel **1** (20 mM, $\lambda_{\text{ex}} = 410$ nm) with different metal ions (2.0 equiv); (a) $\text{Zn}(\text{ClO}_4)_2$, (b) ZnCl_2 , and (c) ZnI_2 .

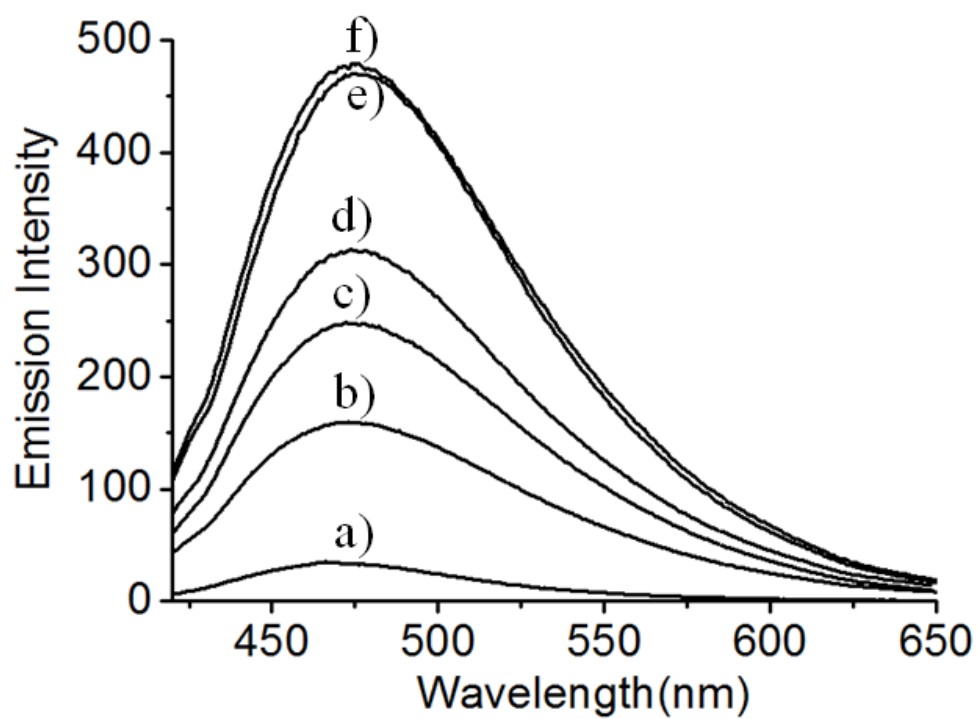


Fig. S8 Emission spectra of gel **1** (20 mM) with different equivalents of Zn(ClO₄)₂. ($\lambda_{\text{ex}}=410$ nm); (a) 0.0, (b) 0.3, (c) 0.45, (d) 0.6, (e) 1.0, and (f) 2.0 equivalents.

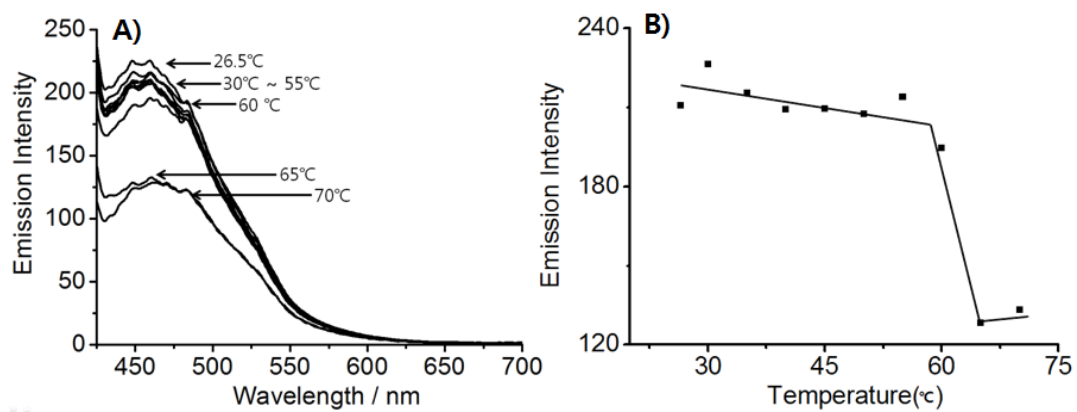


Fig. S9 (A) Fluorescence spectra of gel **1** with Zn(ClO₄)₂ at different temperatures upon excitation at λ=410 nm. (B) Plot of emission intensities of gel **1** at λ=475 nm against temperatures.

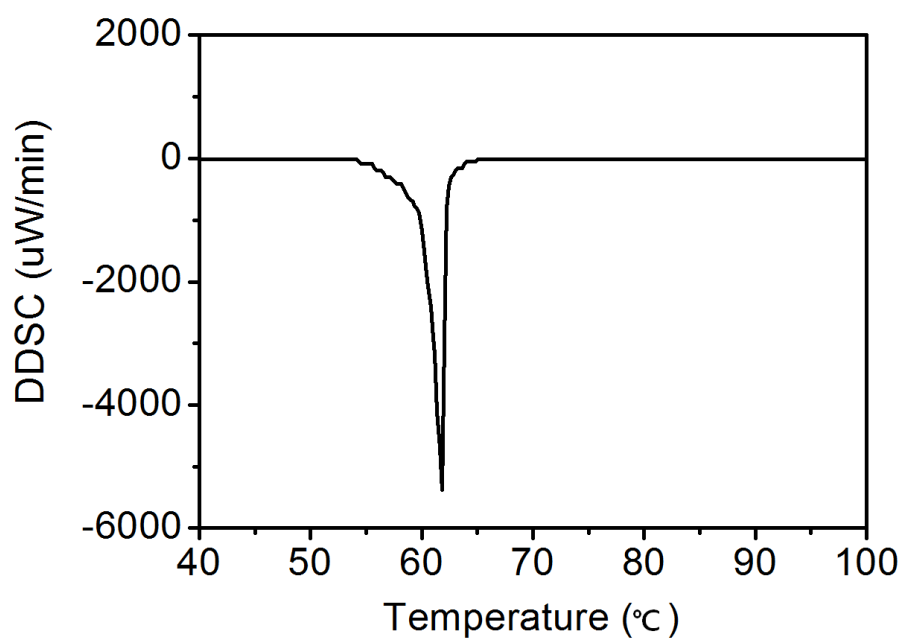


Fig. S10 DSC thermogram of gel **1** with Zn^{2+} (2.0 equivalent).

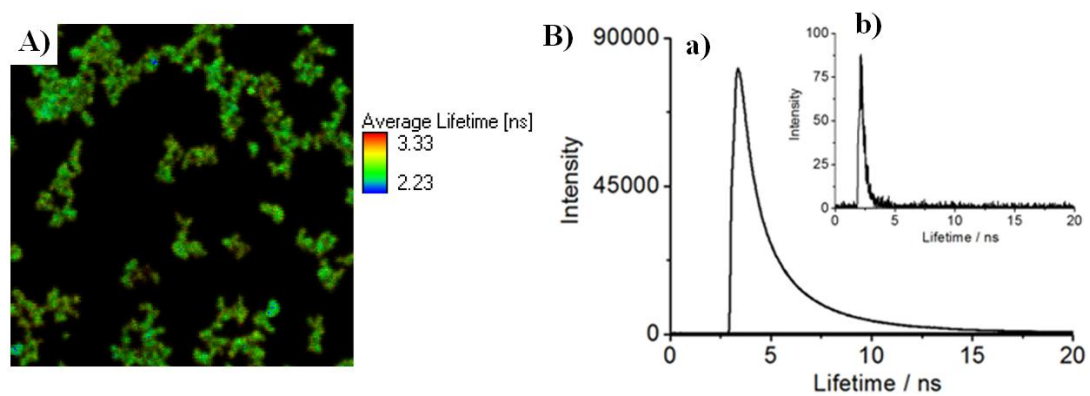


Fig. S11 (A) Fluorescence image of gel **1** (3.0 wt%) with Zn(ClO₄)₂ (2.0 equivalent) by fluorescence lifetime microscopy. (B) Fluorescence decay profiles of (a) gel **1** (3.0 wt%) and (b) sol **1**.

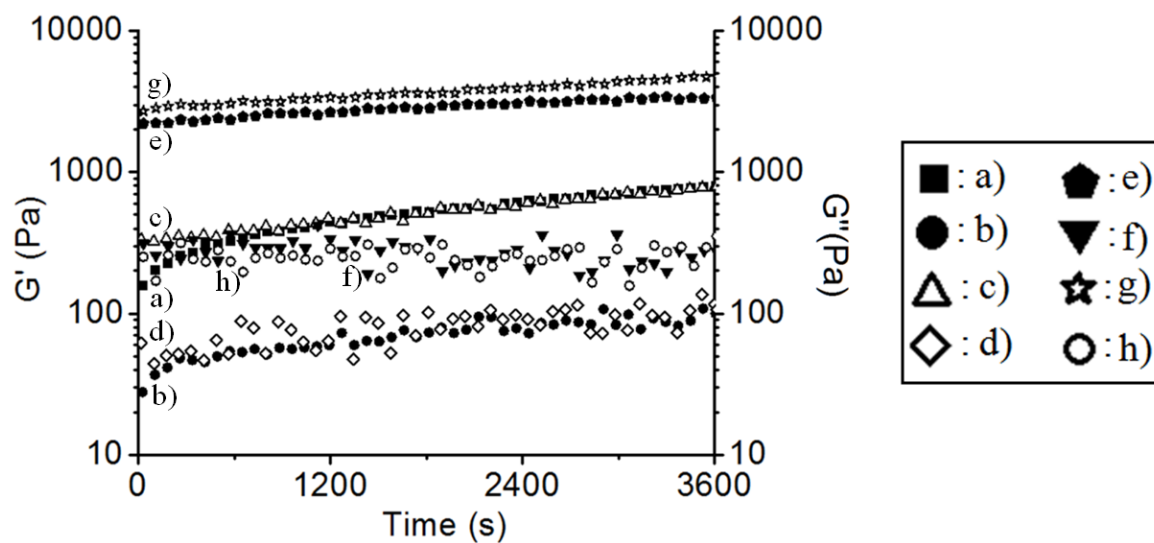


Fig. S12 Dynamic oscillatory and steady shear measurements of coordination polymer gel **1** at different concentration of Zn^{2+} at 25 °C: time sweep at a strain of 0.01% and frequency of 1 rad s⁻¹; 1: $\text{Zn}(\text{ClO}_4)_2$ =1:0.3 ■: G' , ●: G'' ; 1: $\text{Zn}(\text{ClO}_4)_2$ =1:0.6 △: G' , ◇: G'' ; 1: $\text{Zn}(\text{ClO}_4)_2$ =1:1 G' : ●, ▼: G'' ; 1: $\text{Zn}(\text{ClO}_4)_2$ =1:2 ☆: G' , ○: G'' .