Supporting Information

Li^{+}-enriched Co^{2+}-induced metallogel: a study on thixotropic rheological behaviour and conductance

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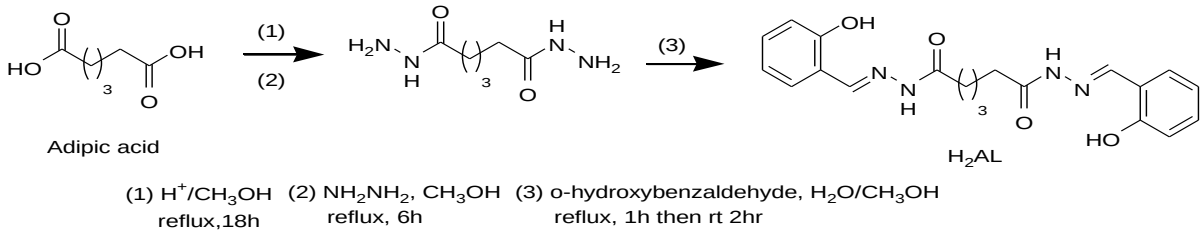

Scheme S1. Synthetic scheme adpated for preparation of **H_2AL**.[1]

Table S1: Gelation tests with respect to **H_2AL**/LiOH/$Co(OAc)_2$ and solvents*

S.N.	Solvent	**H_2AL/LiOH/$Co(OAc)_2$**
1.	Water	S
2.	Aceto nitrile	p
3.	Methanol	S
4.	Ethanol	S
5.	DMF	**G**
6.	DMSO	S
7.	Acetone	P
8.	Chloroform	P
9.	DCM	P
10.	THF	P

*Where, S= solution, G= gel, P= precipitate,

Table S2: Gel or sol formation of **H_2AL** with different alkali bases in presence of $Co(OAc)_2$*

Solvent	**H_2AL/Li^+/$Co(OAc)_2$**	**H_2AL/Na^+/$Co(OAc)_2$**	**H_2AL/K^+/$Co(OAc)_2$**	**H_2AL/Cs^+/$Co(OAc)_2$**
DMF	**G**	S	S	S

*Where, S= solution, G= gel.

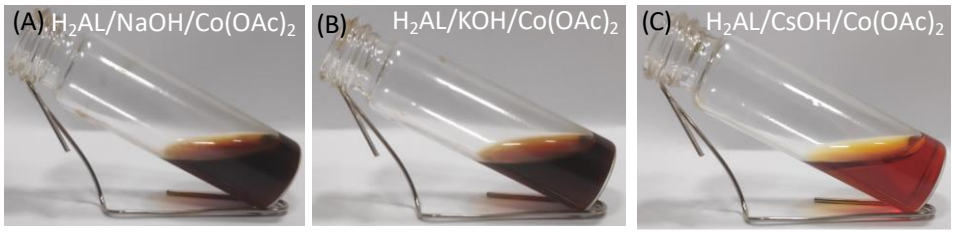

Figure S1. The gelation test of gelator **1** with **(A)** Na^+, **(B)** K^+, **(C)** Cs^+.

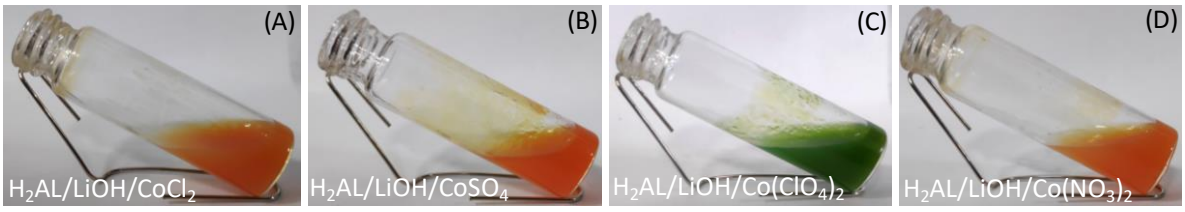

Figure S2. The gelation test of **H_2AL**/LiOH performed with (**A**) $CoCl_2$, (**B**) $CoSO_4$, (**C**) $Co(ClO_4)_2$ and (**D**) $Co(NO_3)_2$ leading to only solutions.

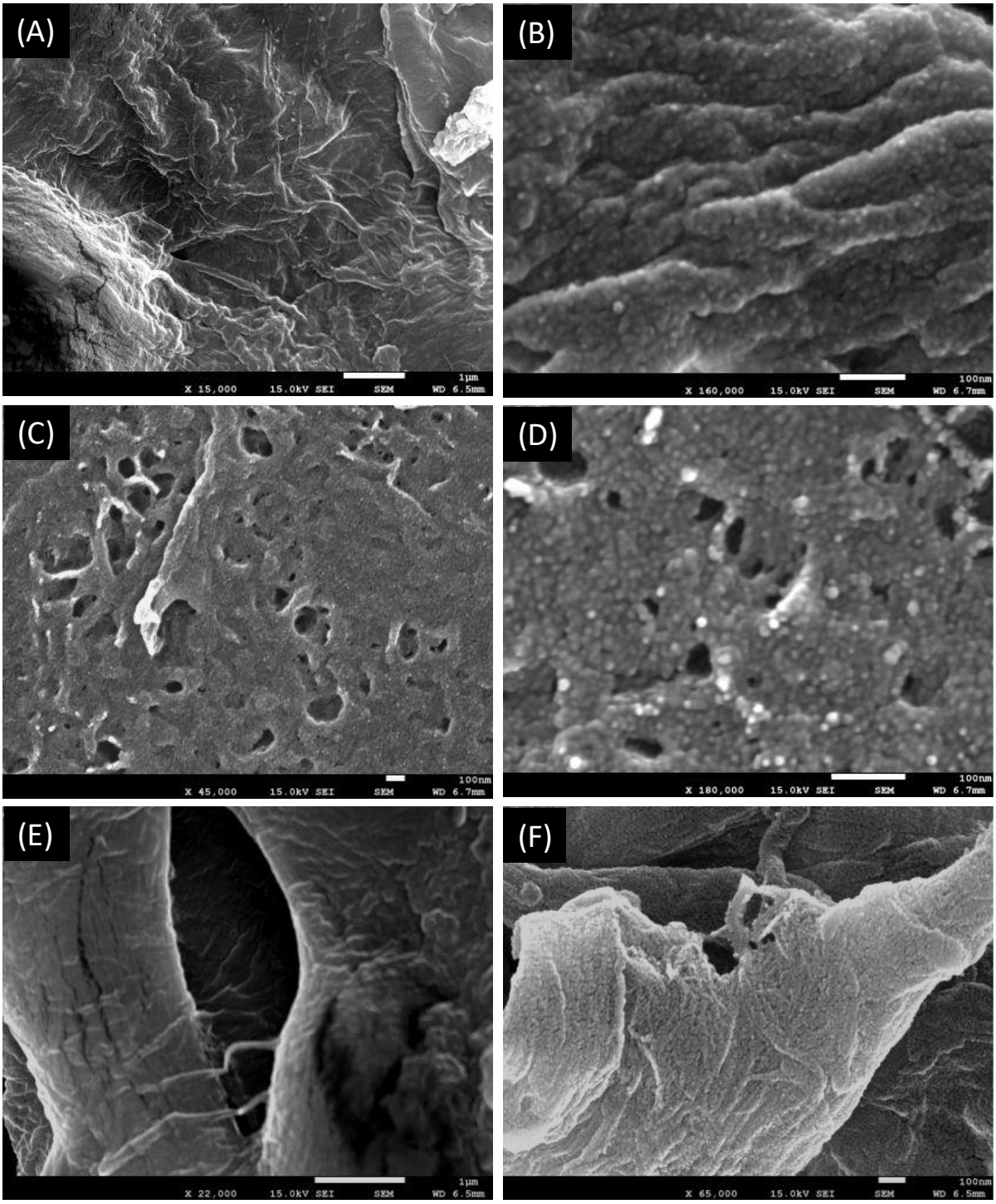

Figure S3. (A-F) FE-SEM images of diluted metallogel (**H_2AL**/LiOH/ $Co(OAc)_2$).

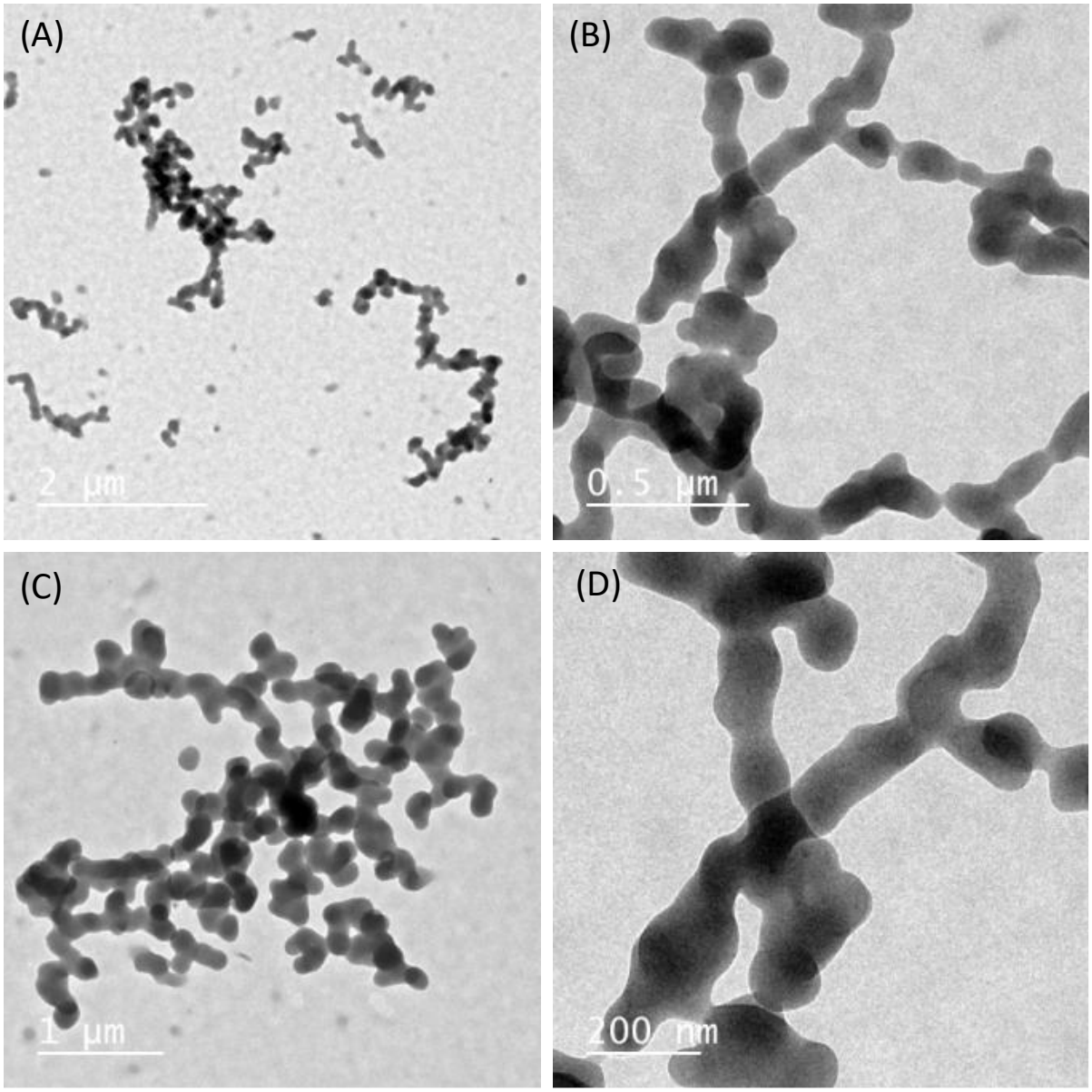

Figure S4. (A-D) TEM images of diluted metallogel.

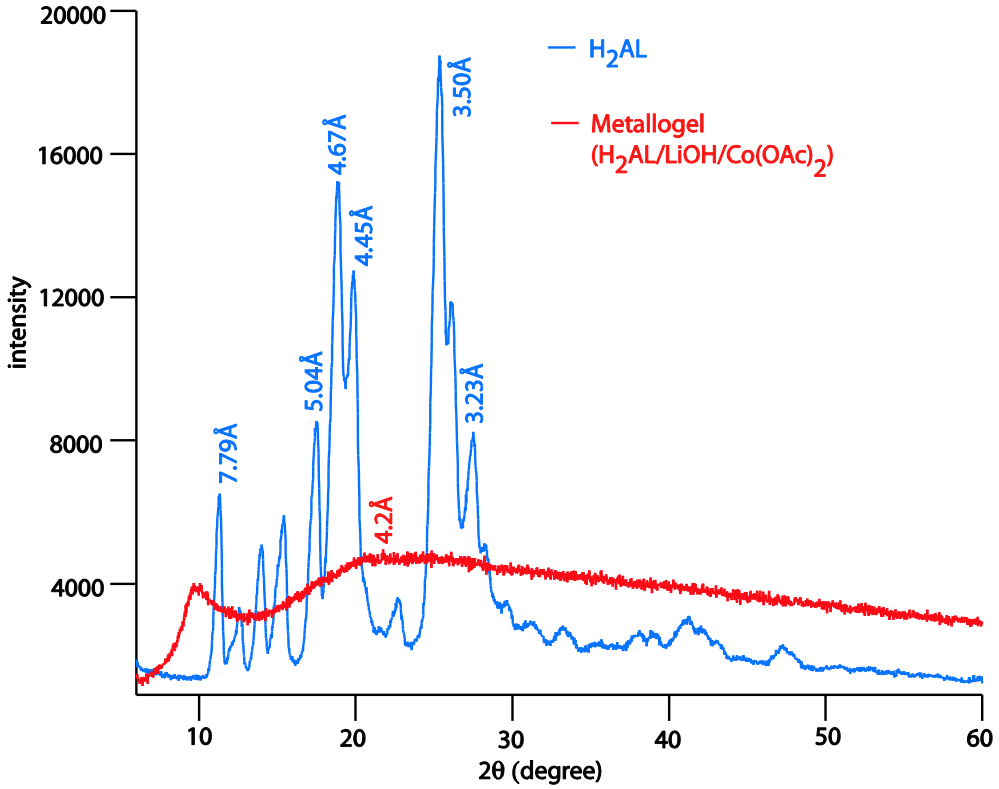

Figure S5. A comparative PXRD analysis of pro-ligand **H_2AL** (blue line) and xerogel (**H_2AL**/LiOH/ $Co(OAc)_2$, red line).

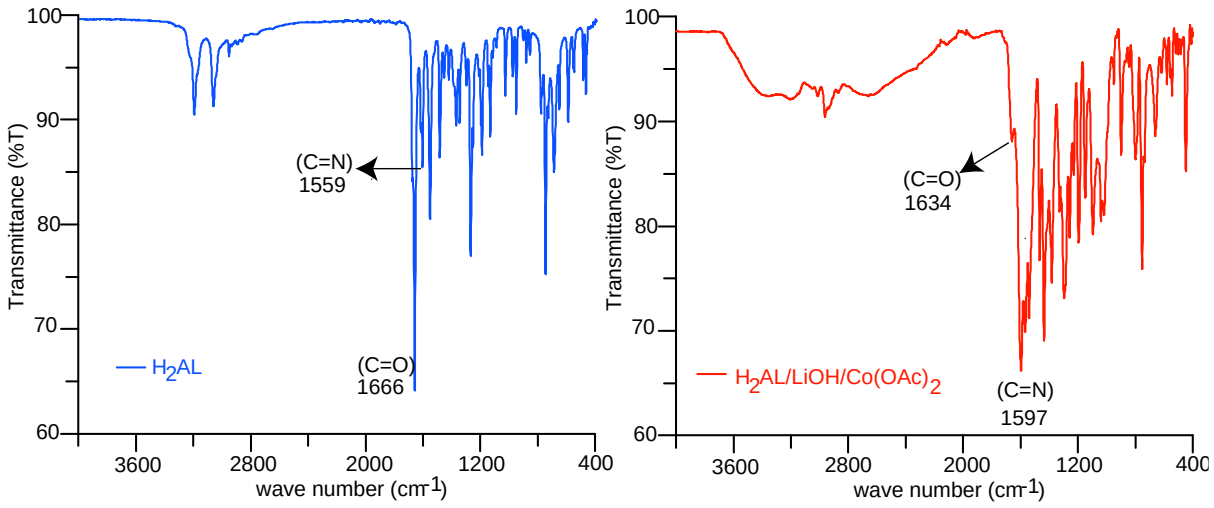

Figure S6. A comparision FT IR spectra of (left) pro-ligand **H_2AL** and (right) xerogel (**H_2AL**/LiOH/ $Co(OAc)_2$).

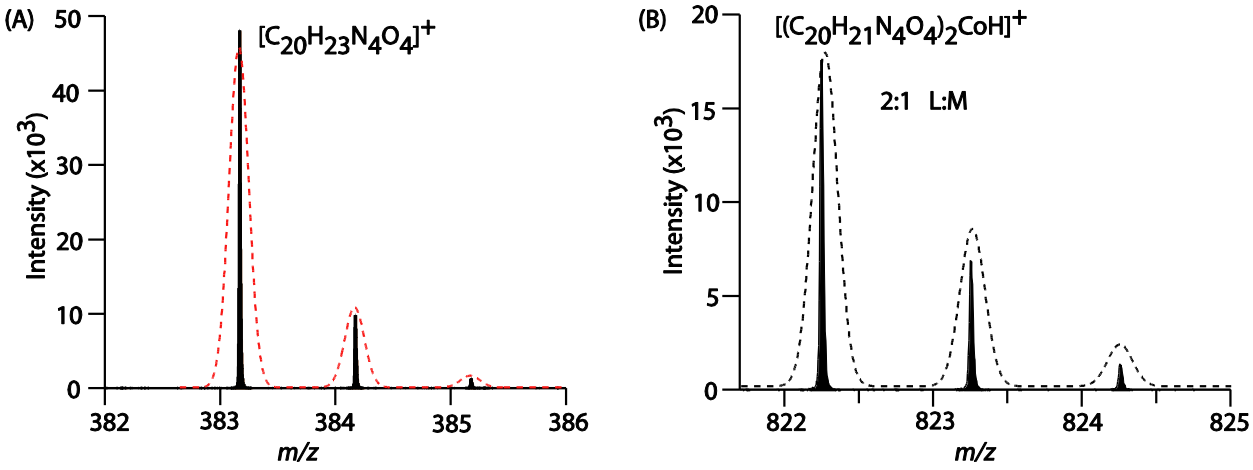

Figure S7. Simulated (red dotted line) and experimental (black solid line) isotopic abundance pattern for (A) **H_2AL** and (B) $[(C_{20}H_{21}N_4O_4)_2Co]^+$ *i.e.* 2:1 L:M.

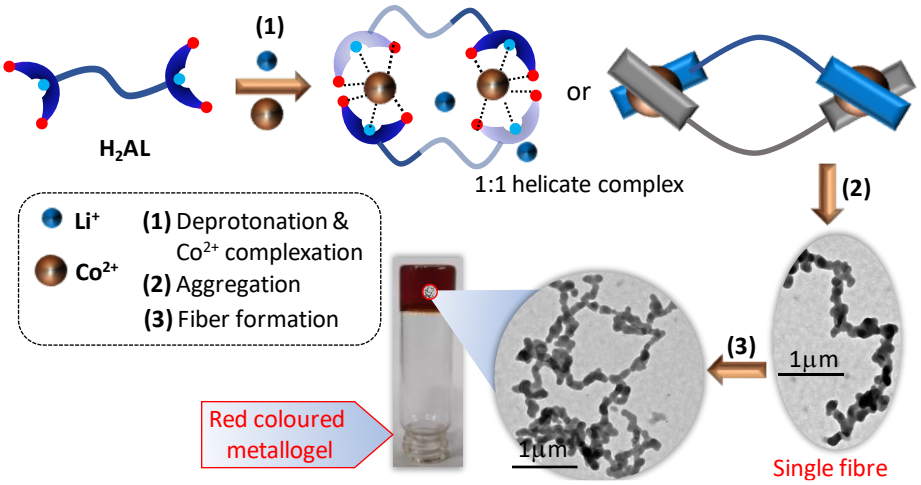

Figure S8. Pictorial presentation of plausible mechanism behind gelation.

References:

1. (a) M. Dubey, A. Kumar and D. S. Pandey, *Chem. Commun.*, 2014, **50**, 1675; (b) M. K. Dixit, V. K. Pandey and M. Dubey, *Soft Matter*, 2016, **12**, 3622; (c) V. K. Pandey, M. K. Dixit, S. Manneville, C. Bucher and M. Dubey, *J. Mater. Chem. A*, 2017, **5**, 621; (d) M. K. Dixit, C. Mahendar and M. Dubey, *Chem. Asian J.* 10.1002/asia.201900559; (e) M. K. Dixit, Y. Kumar, J. Shukla, C. Mahendar and M. Dubey, *ChemPlusChem* 10.1002/cplu.201900589; (f) M. K. Dixit and M. Dubey, *Phys. Chem. Chem. Phys.*, 2018, **20**, 23762.