Supporting Information

Study of the Properties of Luminescent Poly[1-(2-propynyl)-3-methylimidazolium bromide] Oligomer Prepared Using Mo(CO)\textsubscript{6}/Phenol Catalyst

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Fig. S1. \textsuperscript{1}H NMR spectrum of 1-(2-propynyl)-3-methylimidazolium bromide in CDCl\textsubscript{3} at RT.

![NMR spectrum of 1-(2-propynyl)-3-methylimidazolium bromide in CDCl\textsubscript{3} at RT.](image-url)
Fig. S2. $^{13}$C NMR spectrum of oligomer in D$_2$O at RT

Alkene carbons (132.5, 131.26, 139, 127.58, 120.37, 116.2 ppm) along with other characteristic carbon peaks of pendant group (137.25, 124.95, 123.88, 52.83, 50.69, 48.89 ppm)

Fig. S3. Mass spectrum of oligomer
Figure S4. UV-Visible absorption spectra of 0.125 mg/mL oligomer solution in deionized water mixed with sodium acetate (1:0.0; 1:0.1; 1:0.2; 1:1.0 weight ratios).

Figure S5. Fluorescence spectra of 0.125 mg/mL oligomer solution in deionized water mixed (1:1 weight ratio) with sodium salt of formate, propionate, oxalate, malonate, fluoride, chloride, bromide, carbonate, sulphate and phosphphate (A), thiosulfate and thiocynate (B).
Fig. S6. DTA of oligomer and IL (Heating rate 10°C/min; N₂ atmosphere)

Fig. S7. DSC of IL monomer (Heating rate 10°C/min; N₂ atmosphere)

In second heating run, however, it did not shown the prior established melting point, but shown the $T_g$ with a shift. This is probably because the quenching to low temperature is too fast for proper crystallization and it remained in super cooled state. The result is in good agreement with previous literature reports.
Reference:
