

## Supporting Information

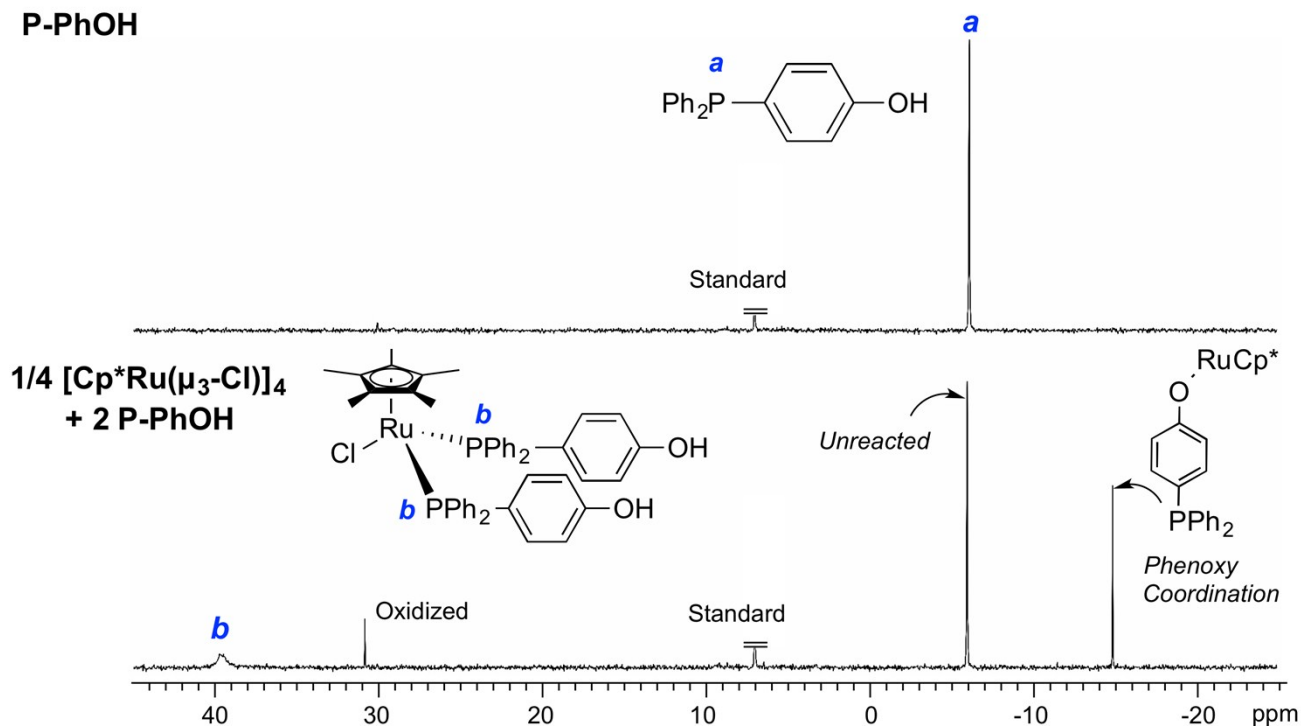
# **Design of Hydrophilic Ruthenium Catalyst for Metal- Catalyzed Living Radical Polymerization: Highly Active Catalysis in Water**

*Keita Nishizawa, Makoto Ouchi\* and Mitsuo Sawamoto\**

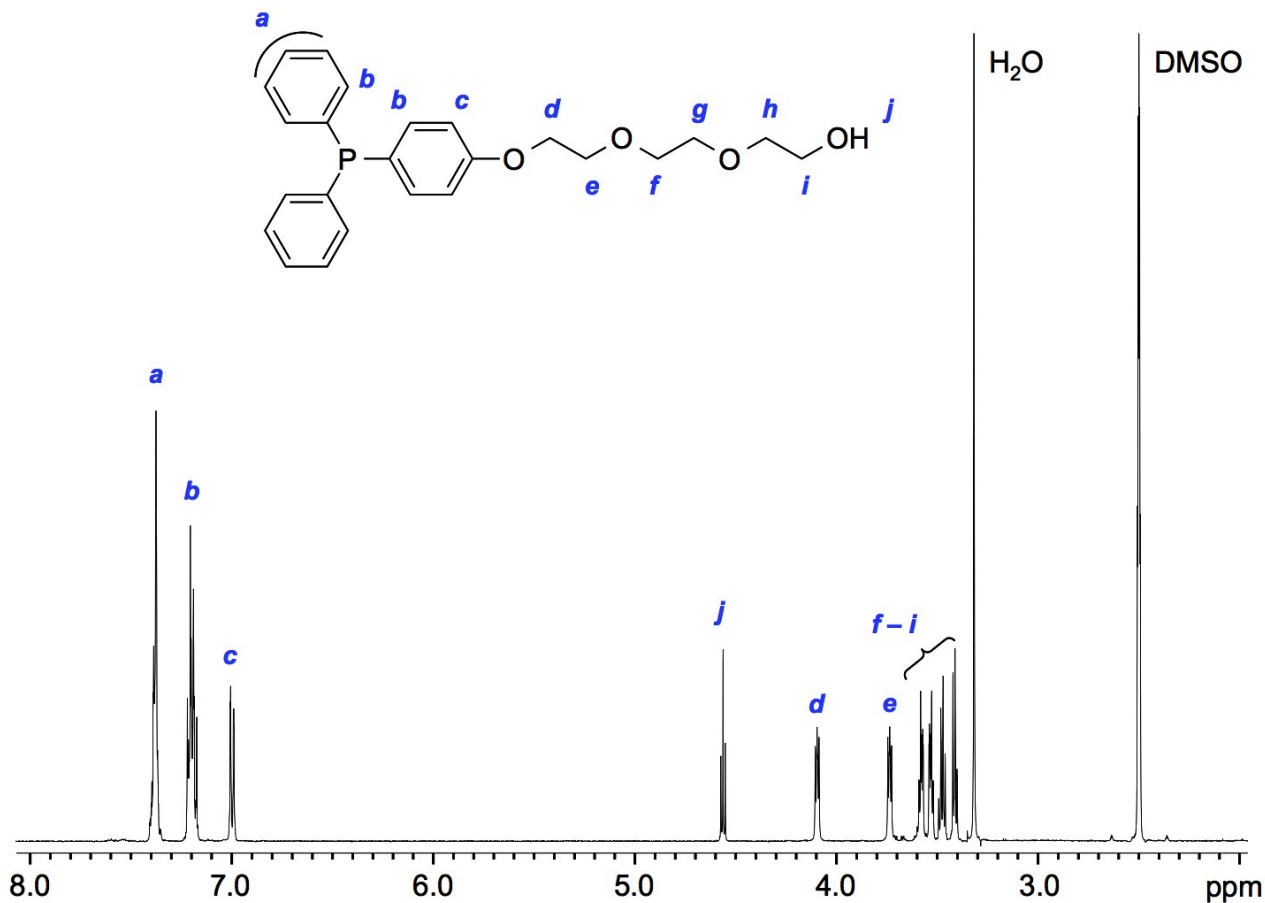
Department of Polymer Chemistry, Graduate School of Engineering, Kyoto University, Katsura,  
Nishikyo-ku, Kyoto 615-8510, Japan

[ouchi@living.polym.kyoto-u.ac.jp](mailto:ouchi@living.polym.kyoto-u.ac.jp), [sawamoto@star.polym.kyoto-u.ac.jp](mailto:sawamoto@star.polym.kyoto-u.ac.jp)

P-PhOH

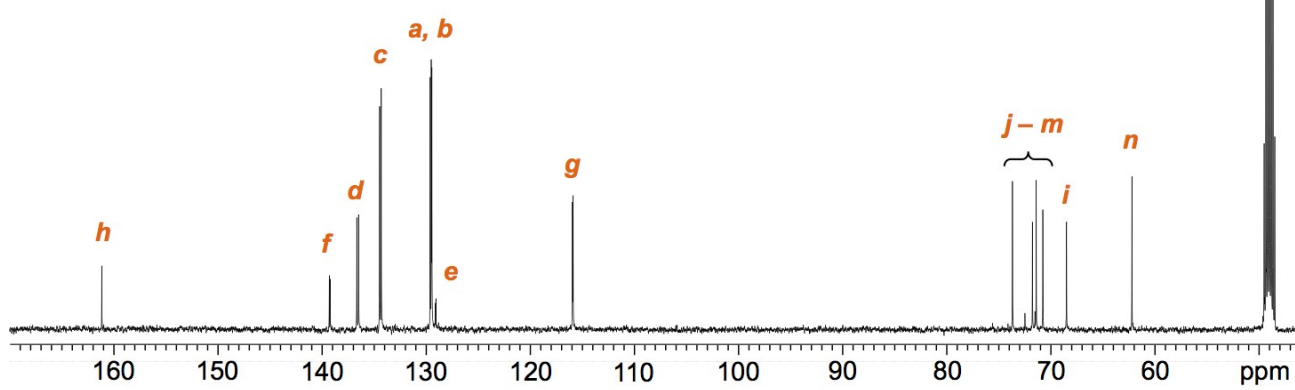
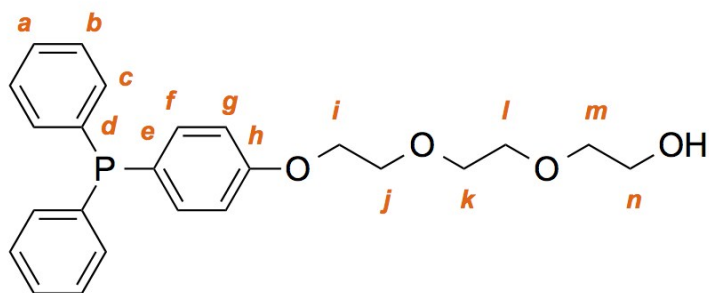


**Figure S1.**  $^{31}\text{P}$  NMR spectra of P-PhOH and Cp\*-based ruthenium complexes prepared with 1:2 ratio ( $[\text{Ru}]_0:[\text{Lignad}]_0$ ) in toluene- $d_8$  at r.t.:  $[\text{P-PhOH}]_0 = 8.0 \text{ mM}$ ;  $[[\text{Cp}^*\text{Ru}(\mu_3\text{-Cl})_4]_0 = 1.0 \text{ mM}$ ,  $[\text{P-PhOH}]_0 = 8.0 \text{ mM}$ .



**Figure S2.**  $^1\text{H}$  NMR spectrum (500 MHz) of P-TEG in DMSO- $d_6$  at r.t.

CD<sub>3</sub>OD



**Figure S3.** <sup>13</sup>C NMR spectrum (125 MHz) of **P-IEG** in methanol-*d*<sub>4</sub> at r.t.