Figure S1. Frictional stress $\sigma$ vs. sliding velocity $v$ for PCDME hydrogel sliding over glass substrates with varied wettability. Contact angles of glass substrates to water $\theta_w$ are shown in figure. Hydrogel: PCDME (S-16.0). Substrates: G1 and G3 series, Normal pressure: 2.75 kPa.
**Figure S2.** Dependence of frictional behavior of PCDME hydrogel on the ionic strength of the medium. (a) Overall frictional stress $\sigma$ vs. sliding velocity $v$, (b) Ratio of elastic component of frictional stress $\sigma_{el}$ to shear modulus $G$ vs. Weissenberg number $W_e=(v/\xi)\tau_f$, (c) Adsorption time $\tau_b$ vs. Weissenberg number. The adsorption time $\tau_b$ was estimated from the results of Figure S2a using Equation (15). Concentrations of NaCl are shown in figure. Hydrogel: PCDME with swelling degree $q=20.1$. Substrates: G2-1, Normal pressure: 5.5 kPa. Figure S2a is cited from reference 23.
Figure S3. Dependence of frictional behavior of PCDME hydrogel on pH of the medium. (a) Overall frictional stress $\sigma$ vs. sliding velocity $v$, (b) Ratio of elastic component of frictional stress $\sigma_{el}$ to shear modulus $G$ vs. Weissenberg number $W_e=(v/\xi)\tau_f$, (c) Adsorption time $\tau_b$ vs. Weissenberg number. The adsorption time $\tau_b$ was estimated from the results of Figure S3a using Equation (15). pH of the medium are shown in figure. Hydrogel: PCDME with swelling degree $q=20.1$. Substrates: G2-1, Normal pressure: 5.5 kPa. Figure S3a is cited from reference 23.