Supporting Information

Asymmetric Imidazolium-Based Ionic Liquid Crystal with Enhanced Ionic Conductivity in Low-Temperature Smectic Phases

Yuna Kim [1,*], Alagan Jeevika [2,3], Tomoya Suwa [1], Kazuya Kubo [4] and Ken-ichi Iimura [1]

[1] School of Engineering, Utsunomiya University, 7-1-2 Yoto, Utsunomiya 321-8585, Tochigi, Japan
[2] Center for Innovation Support, Institute for Social Innovation and Cooperation, Utsunomiya University, 7-1-2 Yoto, Utsunomiya 321-8585, Tochigi, Japan
[3] PG and Research Department of Chemistry, Thiagarajar College, Madurai 625009, Tamil Nadu, India
[4] Graduate School of Science, University of Hyogo, 3-2-1, Kouto, Kamigori-cho, Akou-gun, Kobe 678-1297, Hyogo, Japan
* Correspondence: kimyuna@cc.utsunomiya-u.ac.jp

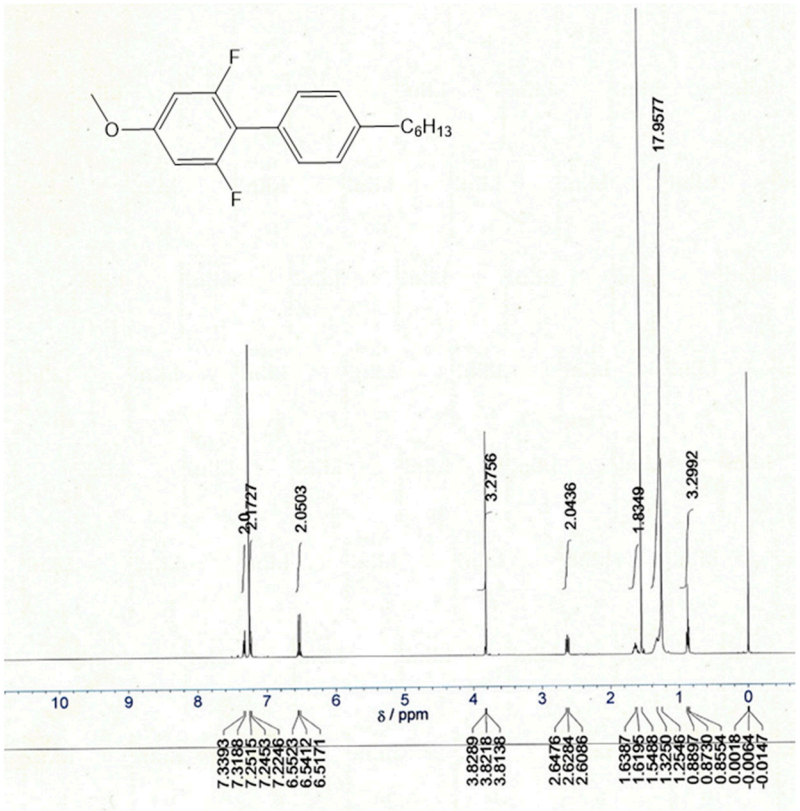

Figure S1. ^{1}H NMR (400 MHz, $CDCl_3$) spectrum of **2**.

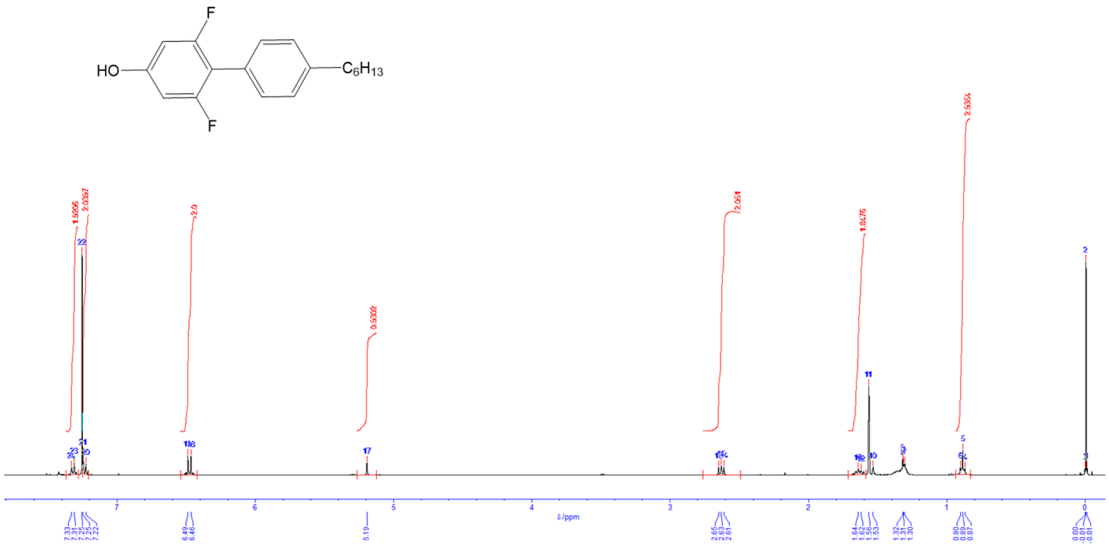

Figure S2. ^{1}H NMR (400 MHz, $CDCl_3$) spectrum of **3**.

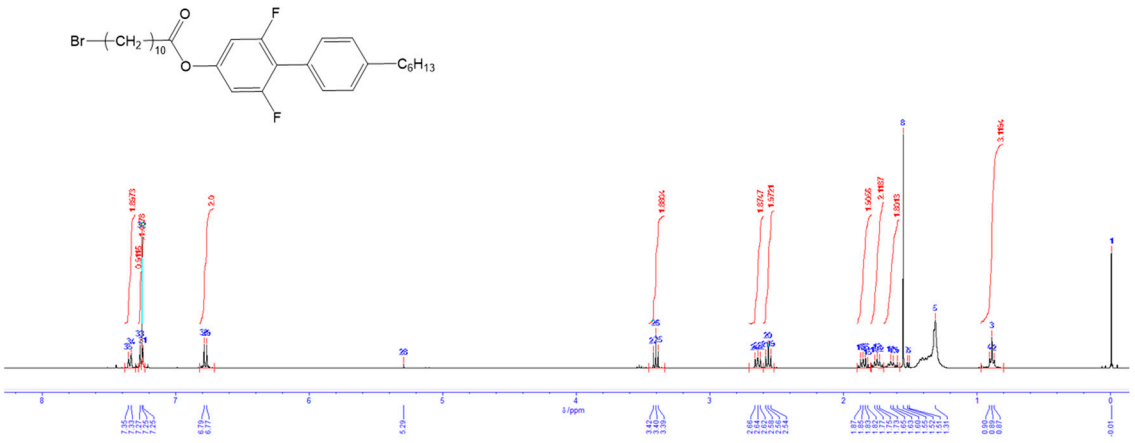

Figure S3. ^{1}H NMR (400 MHz, $CDCl_3$) spectrum of **4**.

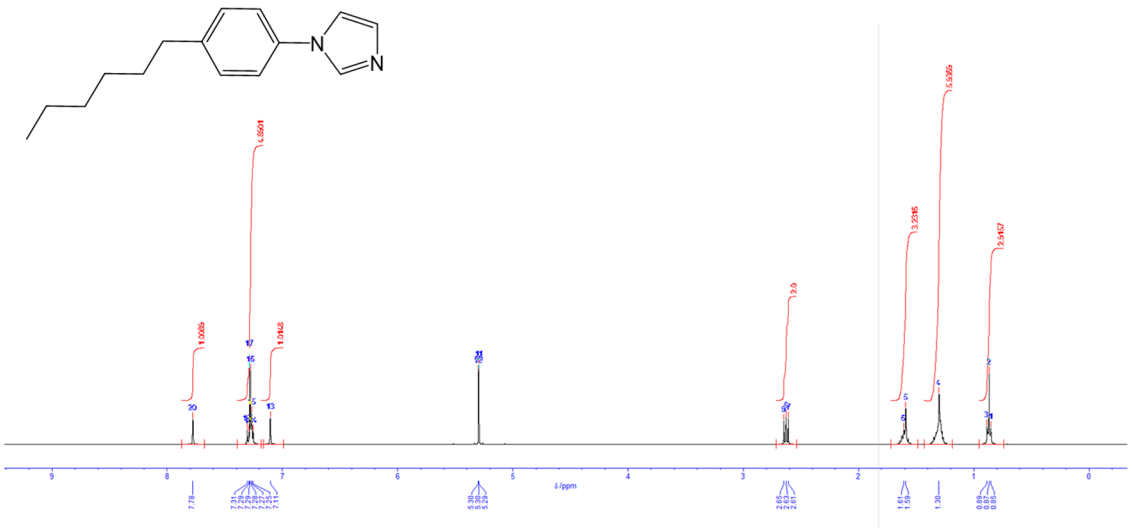

Figure S4. ^{1}H NMR (400 MHz, CD_2Cl_2) spectrum of **5**.

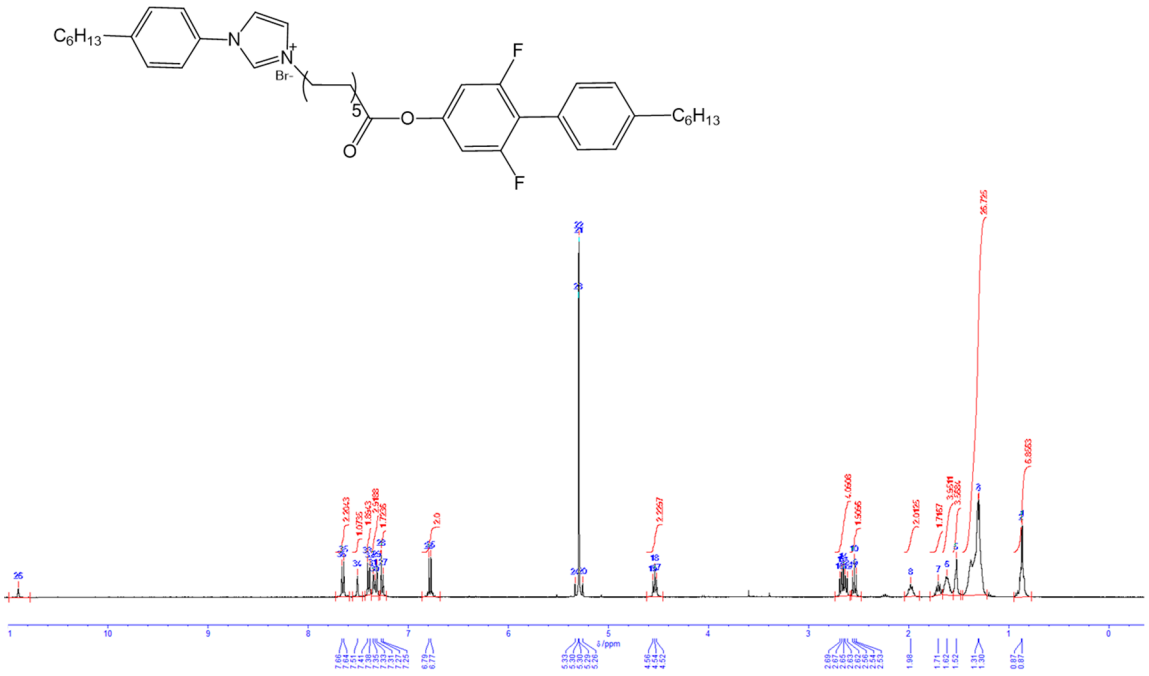

Figure S5. ^{1}H NMR (400 MHz, CD_2Cl_2) spectrum of **1**.

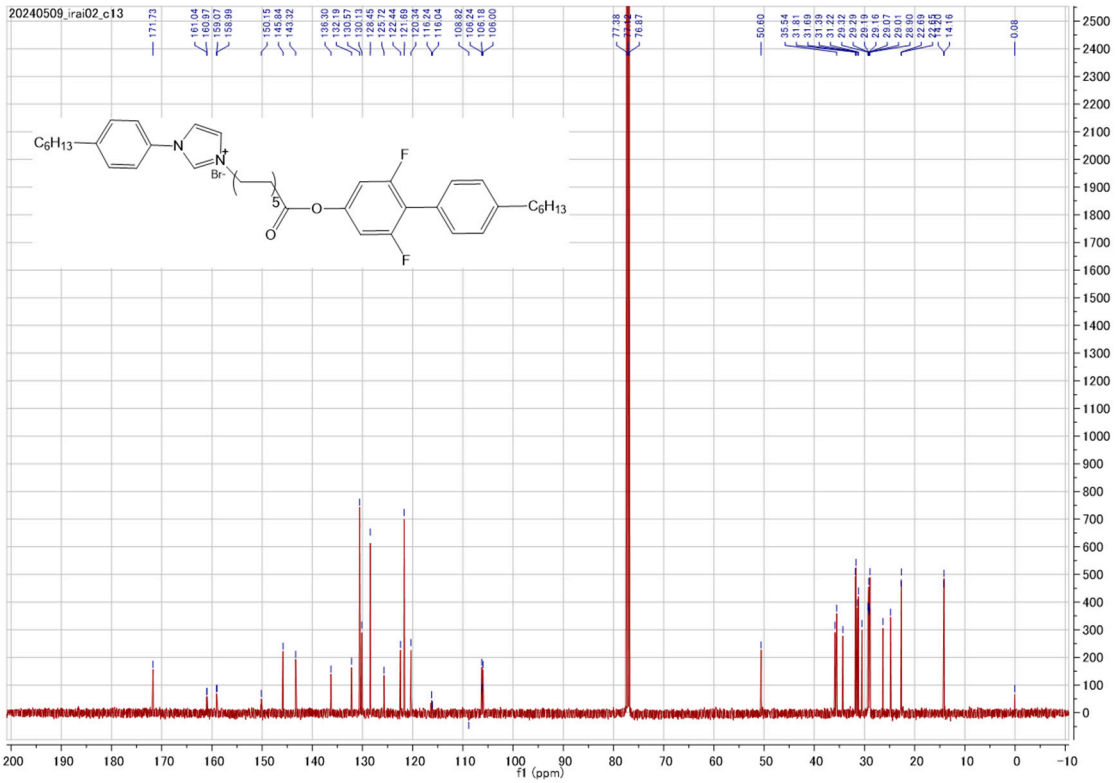

Figure S6. ^{13}C NMR (125 MHz MHz, $CDCl_3$) spectrum of **1**.

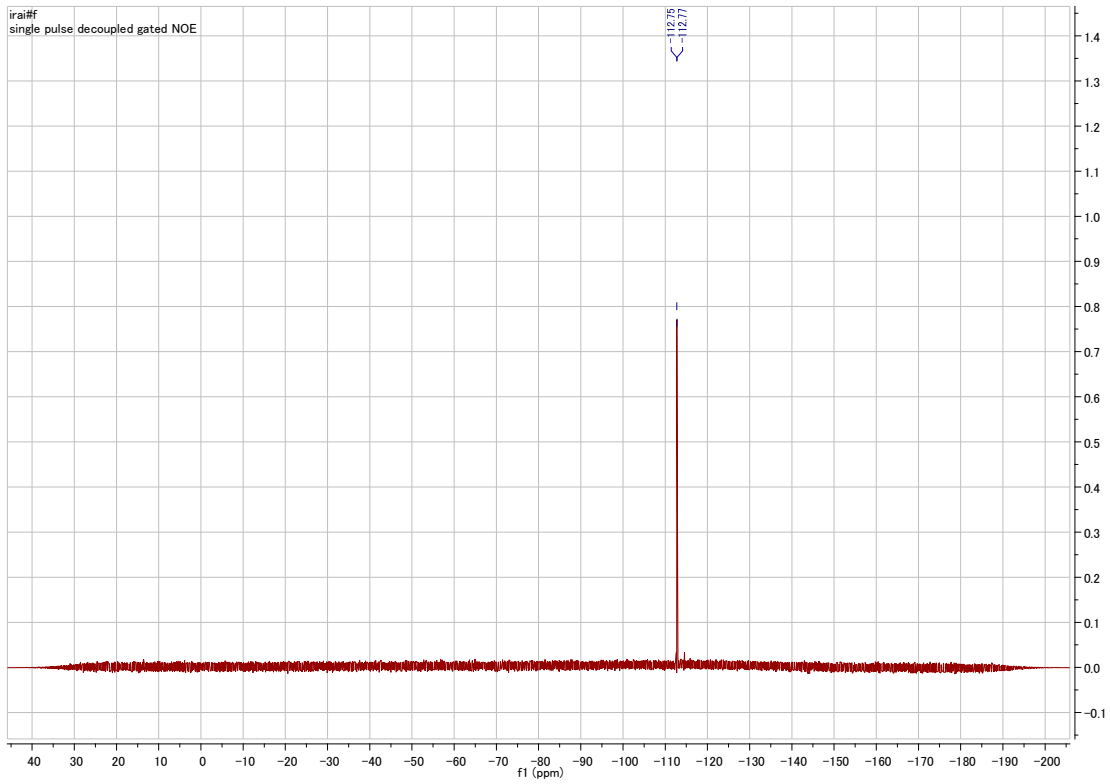

Figure S7. ^{19}F NMR (376 MHz MHz, $CDCl_3$) spectrum of **1**.

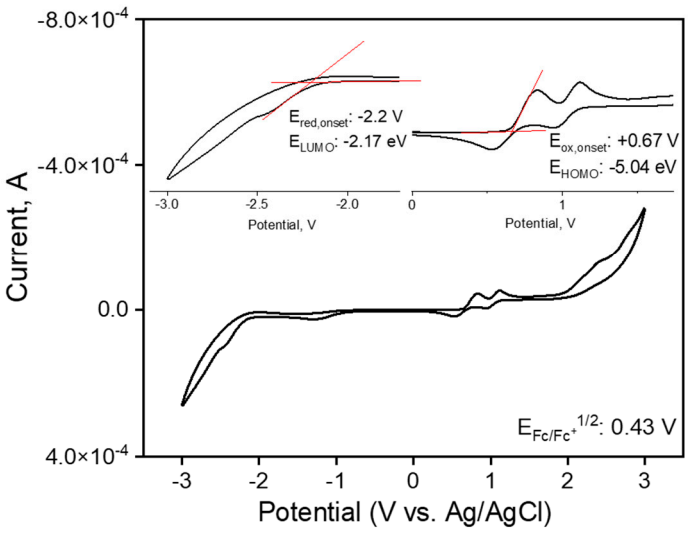

Figure S8. Cyclic voltammogram of **1** (1 mM) in acetonitrile electrolyte solution (TBAP, 0.1M) was investigated with platinum disk (W), platinum wire (C) electrodes with Ag/AgCl reference electrode ($E_{Fc/Fc+}^{1/2}$: +0.43 V) with a scan rate at 50 mV/s. (Inset: calculation of reduction/oxidation onset potentials, E_{LUMO} and E_{HOMO}, of **1**.