

Supporting Information

Li^+ -selective optodes - effect of
fluoroionophore distribution in mesoporous
silica thin films on Li^+ response

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- S2 Fig. S1 ^1H NMR spectra of KBL-01-Si
- S3 Fig. S2 ^{13}C NMR spectra of KBL-01-Si
- S4 Fig. S3 High-resolution mass spectrum of KBL-01-Si
- S5 Fig. S4 XRD patterns of Li^+ optodes with different grafting times
- S6 Fig. S5 TEM images of Li^+ optodes with 48 h grafting time
- S6 Procedure for calculating binding constants

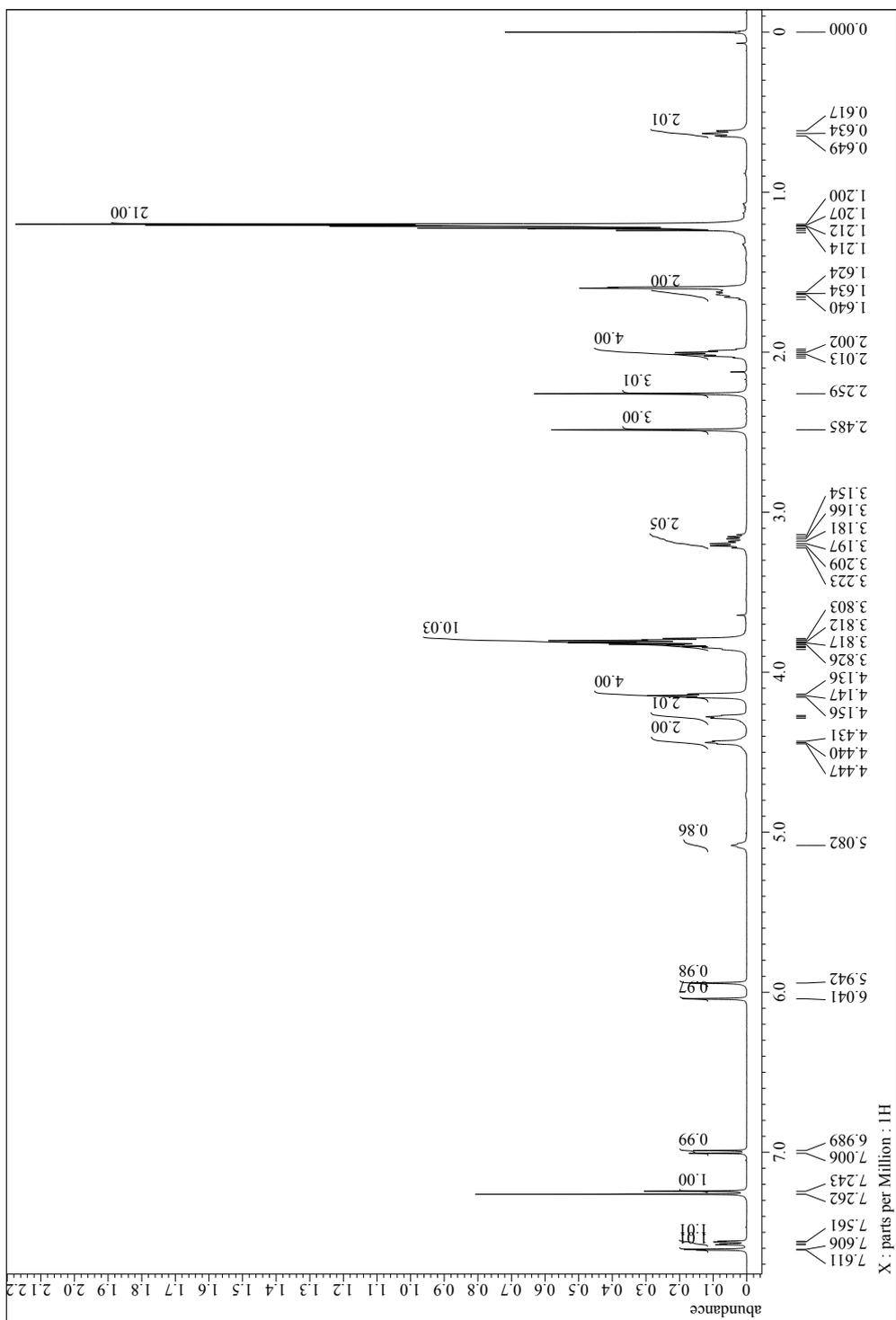


Fig. S1 ^1H NMR spectra of KBL-01-Si

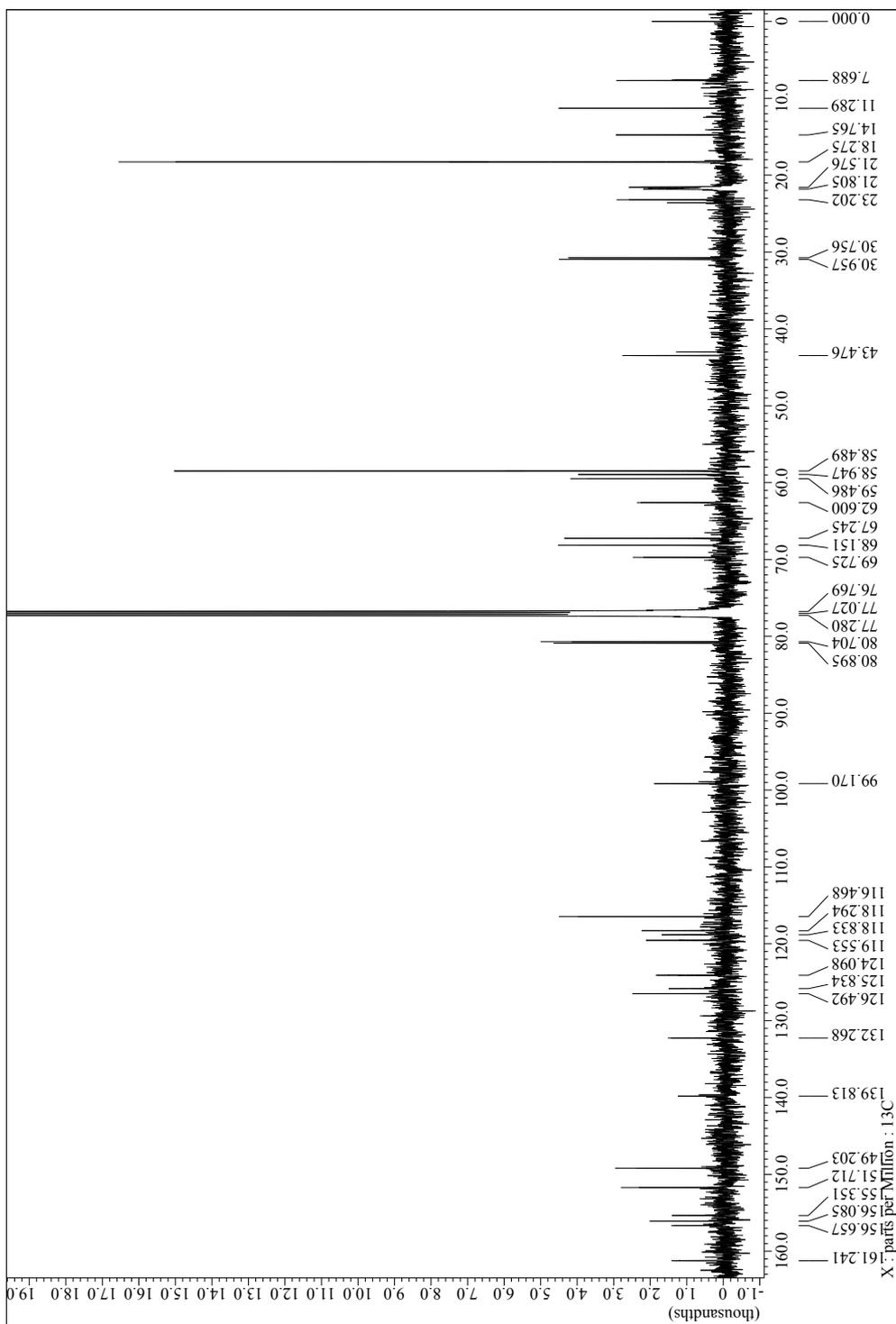


Fig. S2 ^{13}C NMR spectra of KBL-01-Si

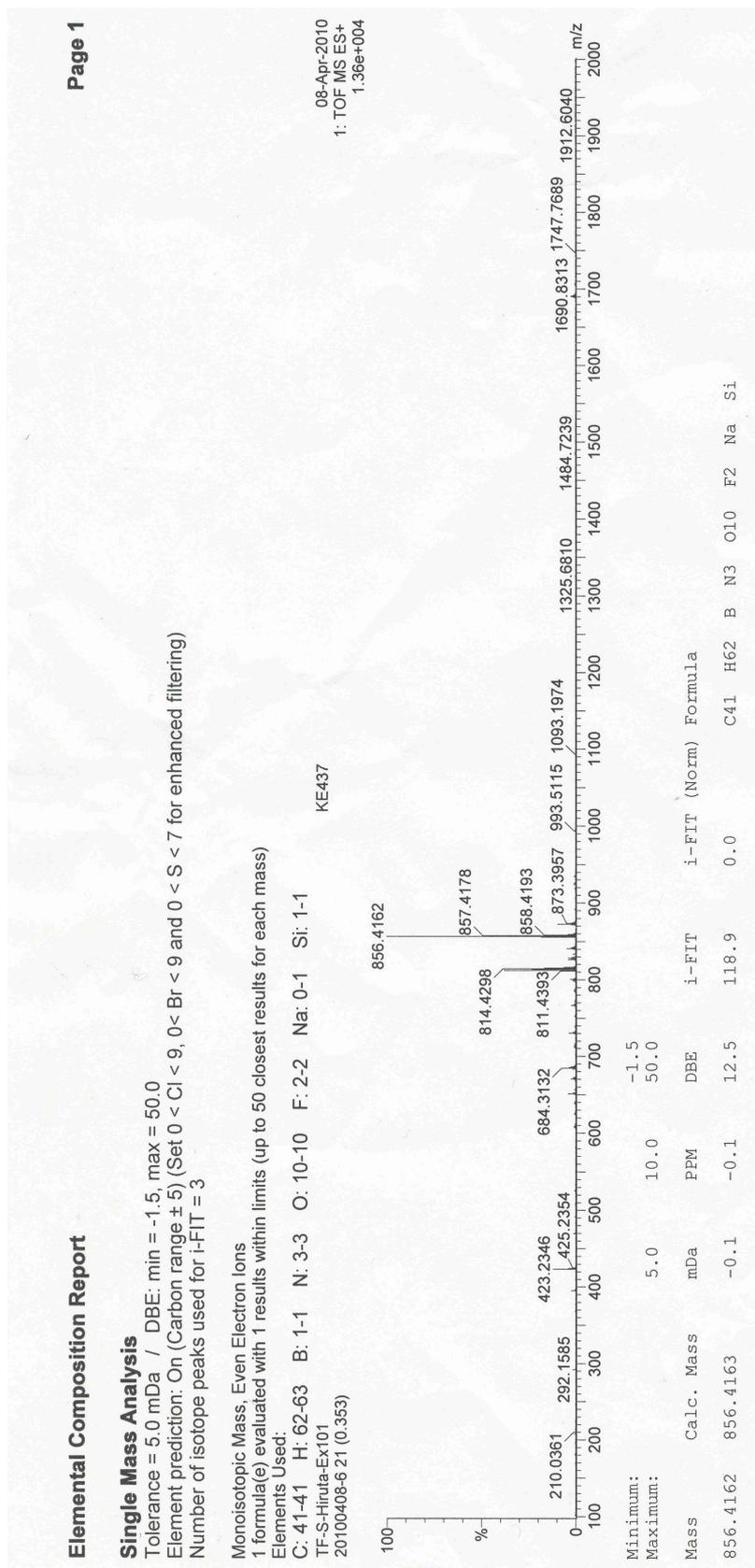


Fig. S3 High-resolution mass spectrum of KBL-01-Si

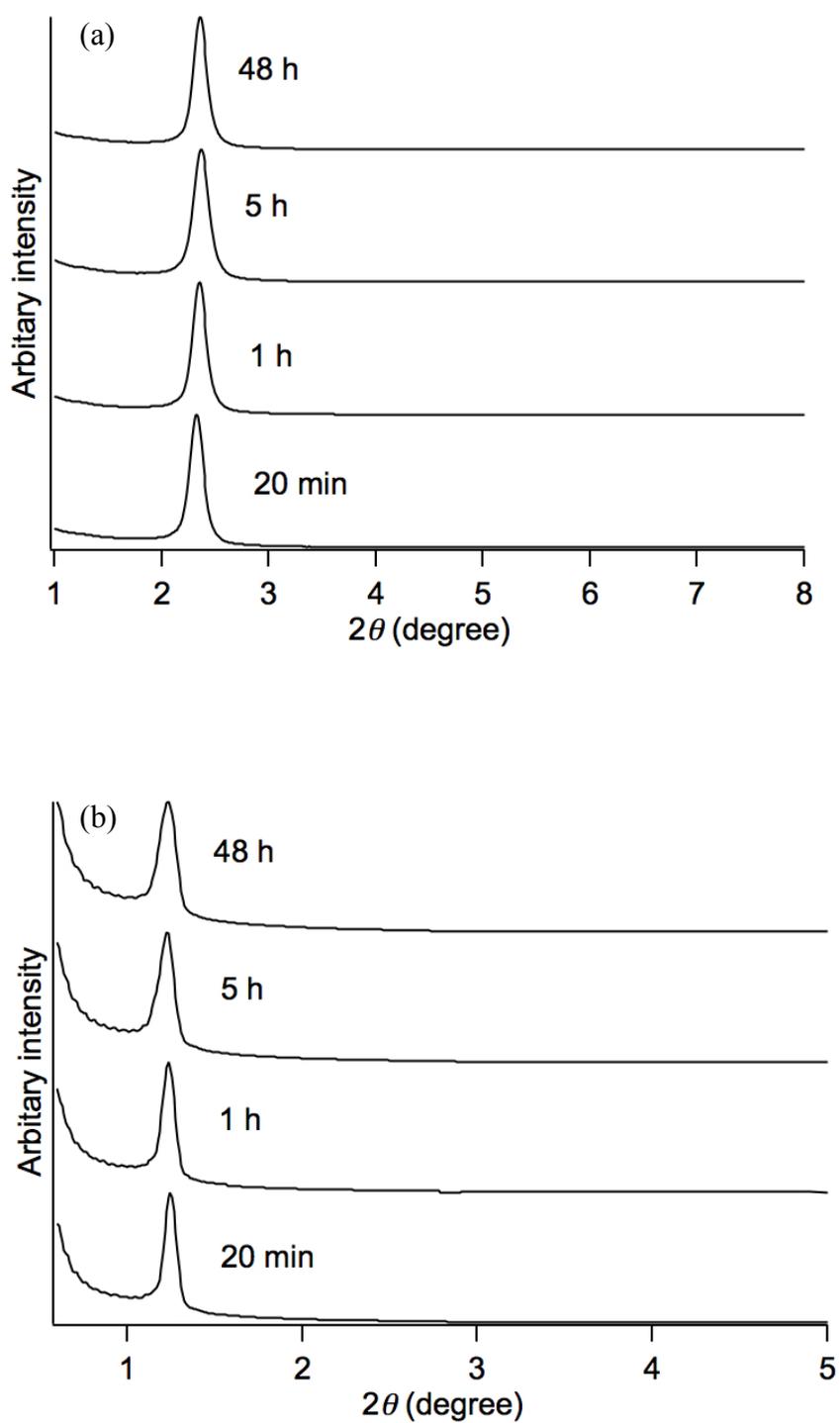


Fig.S4 XRD patterns of Li^+ optodes with different grafting times: based on mesoporous silica thin film templated with (a) Brij56 (b) F127

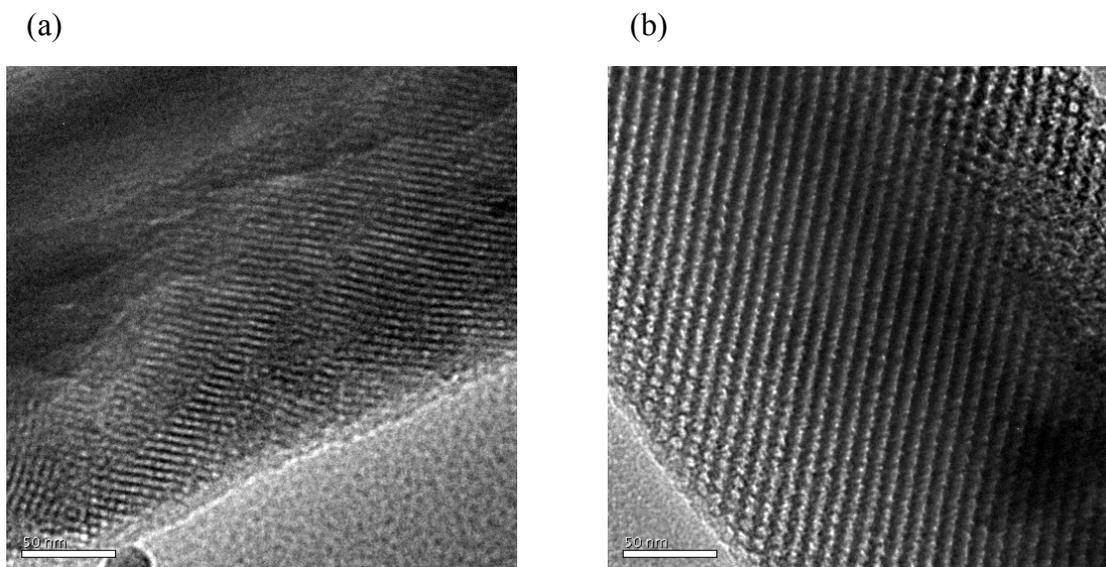


Fig. S5 TEM images of Li^+ optodes with 48 h grafting time: based on mesoporous silica thin film templated with (a) Brij56 (b) F127, scale bar, 50 nm

Binding constants K were determined by a least square curve fitting according to the following equation using Excel Solver.

$$R = \frac{R_{bind} - R_{free}}{1 + \frac{1}{K[\text{Li}^+]}} + R_{free}$$

R_{bind} : Measured fluorescence emission intensity ratio when all ligands are metal ion binding (saturation); emission wavelengths are indicated in Figs. 5 and 8.

R_{free} : Measured fluorescence emission intensity ratio under Li^+ -free conditions; emission wavelengths are indicated in Figs. 5 and 8.