Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supplementary Information

Preorganized dual H-bond donor promotes benzoic acid active in polymerization of δ-valerolactone

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Contents

^{1}H NMR and ^{13}C NMR of the 3-amino-1,2,4-benzothiadiazine-1,1-dioxide (ABTD)

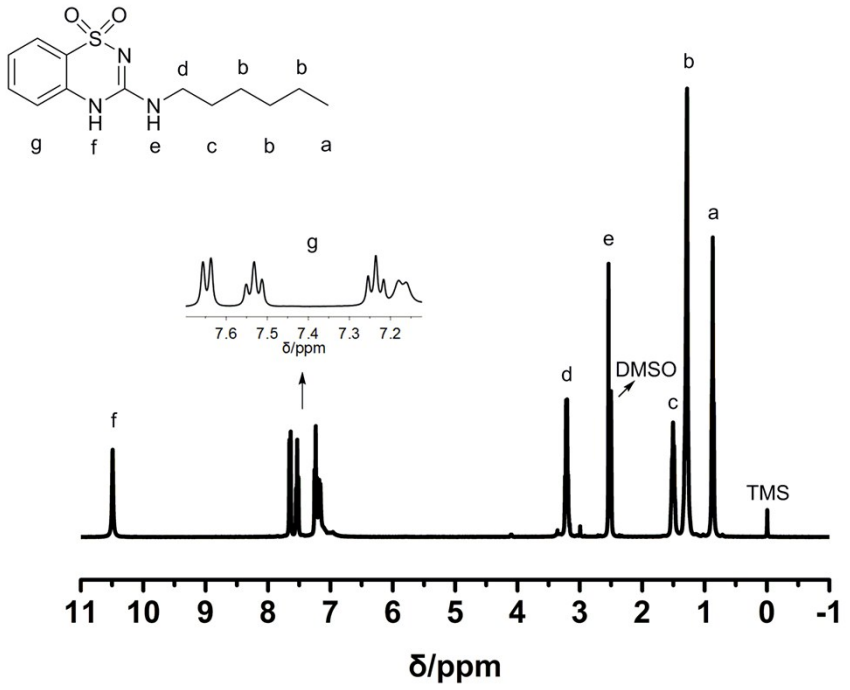

Figure S1. ^{1}H NMR spectrum of the 3-amino-1,2,4-benzothiadiazine-1,1-dioxide (ABTD) (400 MHz, DMSO).

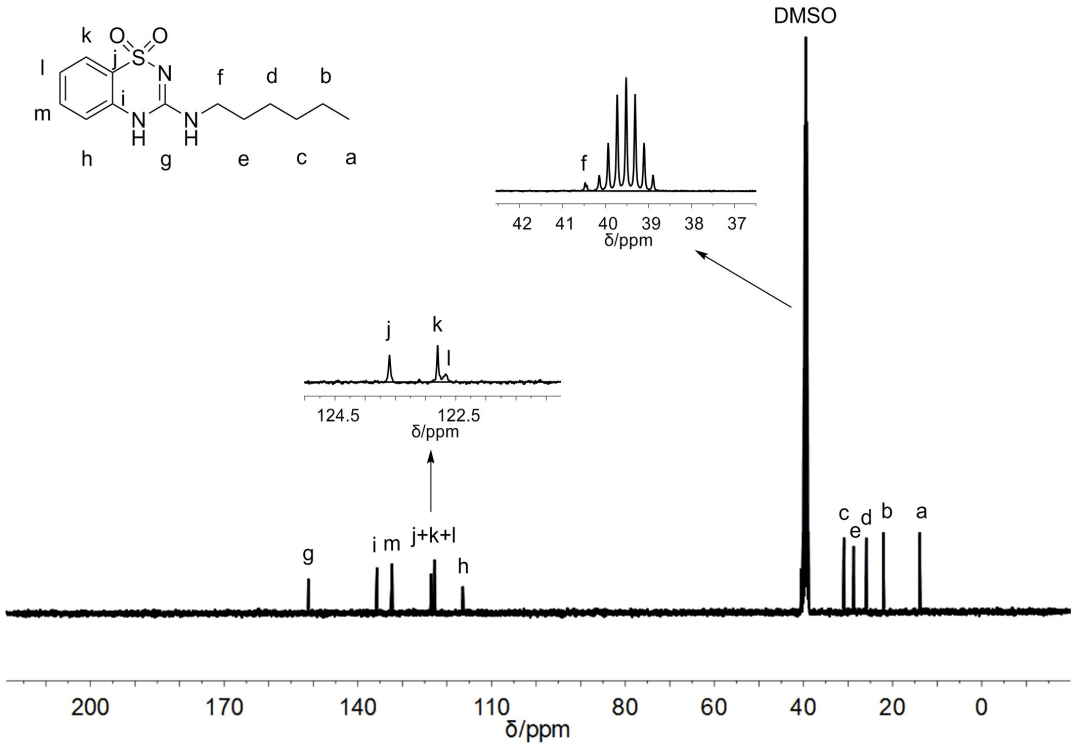

Figure S2. ^{13}C NMR spectrum of the 3-amino-1,2,4-benzothiadiazine-1,1-dioxide (ABTD) (400 MHz, DMSO).

The first-order kinetics plots for poly- δ -valerolactones (PVL) catalyzed by the ABTD with different carboxylic acid

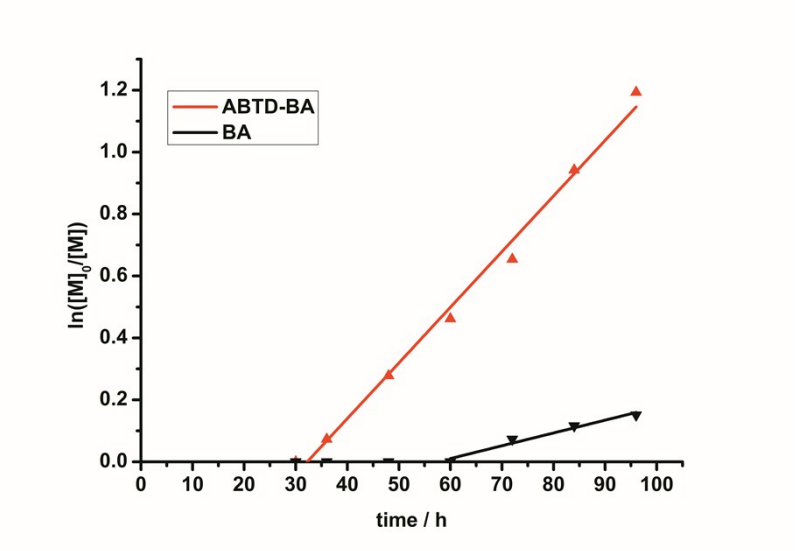

Fig S3. The first-order kinetics plots for poly- δ -valerolactones (PVL) catalyzed by ABTD/benzoic acid(BA)([δ-VL]$_0$/[ABTD]$_0$/[carboxulic acid]$_0$/[BnOH]$_0$ =30:1:1:1, CH_2Cl_2, room temperature) (red line), and by BA ([VL]$_0$/[carboxulic acid]$_0$/ [BnOH]$_0$ = 30:1:1, CH_2Cl_2,room temperature) (black line).

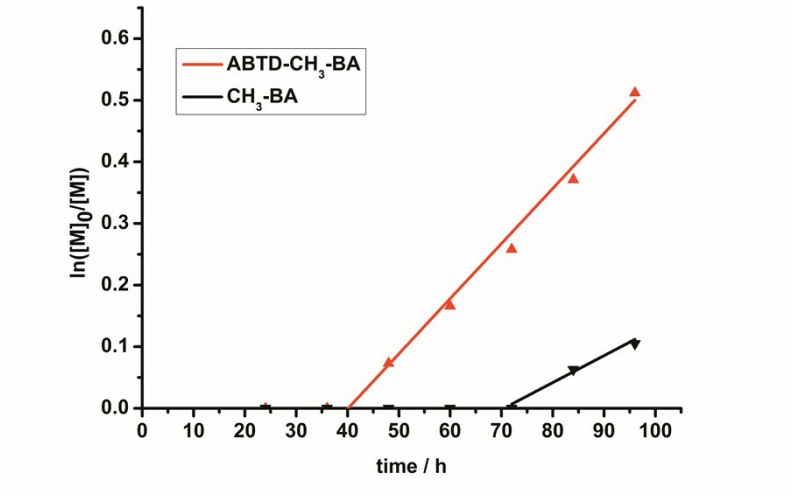

Fig S4. The first-order kinetics plots for PVL catalyzed by ABTD/ p-Toluic acid(CH_3-BA)([δ-VL]$_0$/[ABTD]$_0$/[carboxulic acid]$_0$/[BnOH]$_0$ =30:1:1:1, CH_2Cl_2, room temperature) (red line), and by CH3-BA ([VL]$_0$/[carboxulic acid]$_0$/ [BnOH]$_0$ = 30:1:1, CH_2Cl_2, room temperature) (black line).

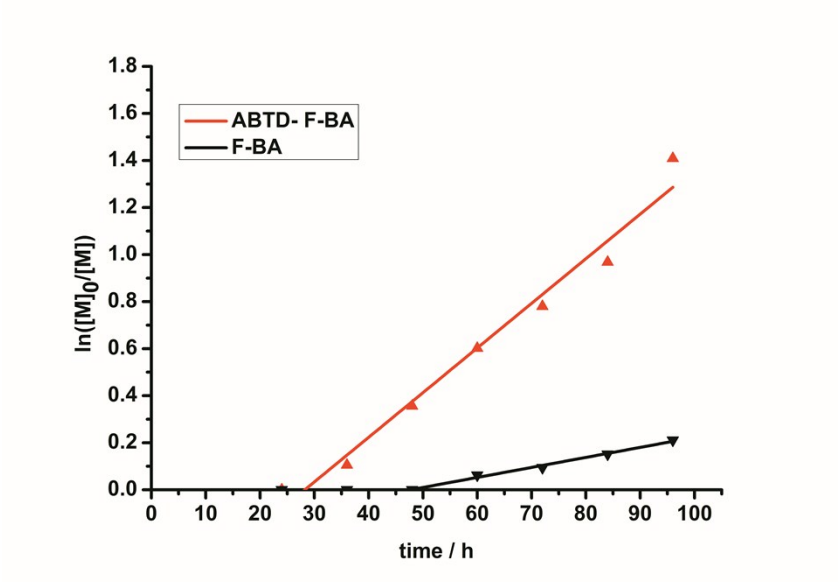

Fig S5. The first-order kinetics plots for PVL catalyzed by ABTD/4-fluorobenzoic acid (F-BA) ($[VL]_0/[ABTD]_0/[carboxulic\ acid]_0/[BnOH]_0$ =30:1:1:1, CH_2Cl_2, room temperature) (red line), and by F-BA ($[VL]_0/[carboxulic\ acid]_0/\ [BnOH]_0$ = 30:1:1, CH_2Cl_2, room temperature) (black line).

Chemical shifts of carbonyl carbon of the VL in the ^{13}C NMR spectra

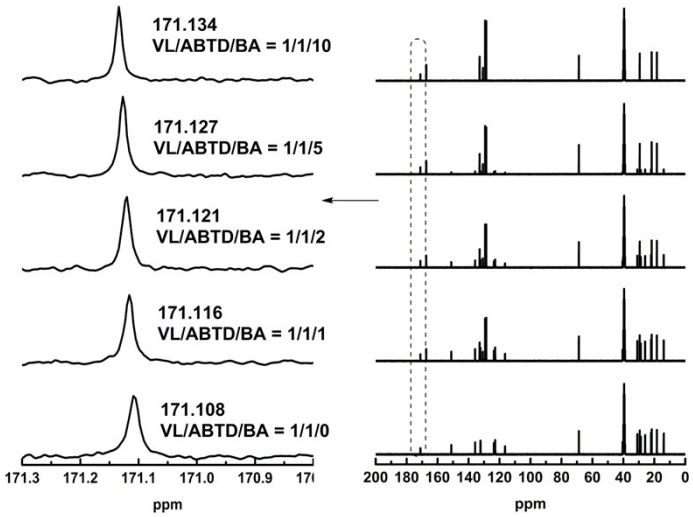

Fig S6. Chemical shifts of carbonyl carbon of the VL in the ^{13}C NMR spectra observed by the titration of BA in DMSO.

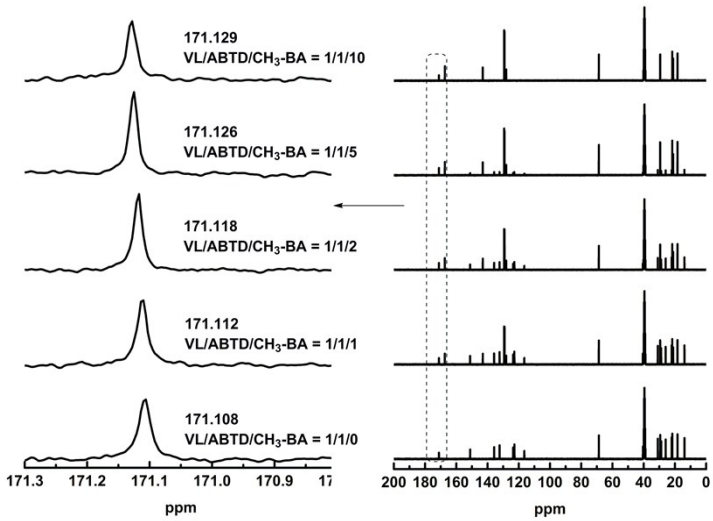

Fig S7. Chemical shifts of carbonyl carbon of the VL in the ^{13}C NMR spectra observed by the titration of CH_3-BA in DMSO.

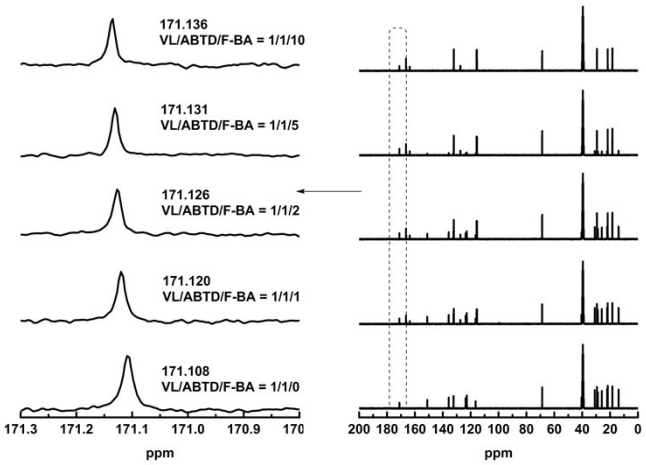

Fig S8. Chemical shifts of carbonyl carbon of the VL in the ^{13}C NMR spectra observed by the titration of F-BA in DMSO.

^{1}H NMR of the PVL

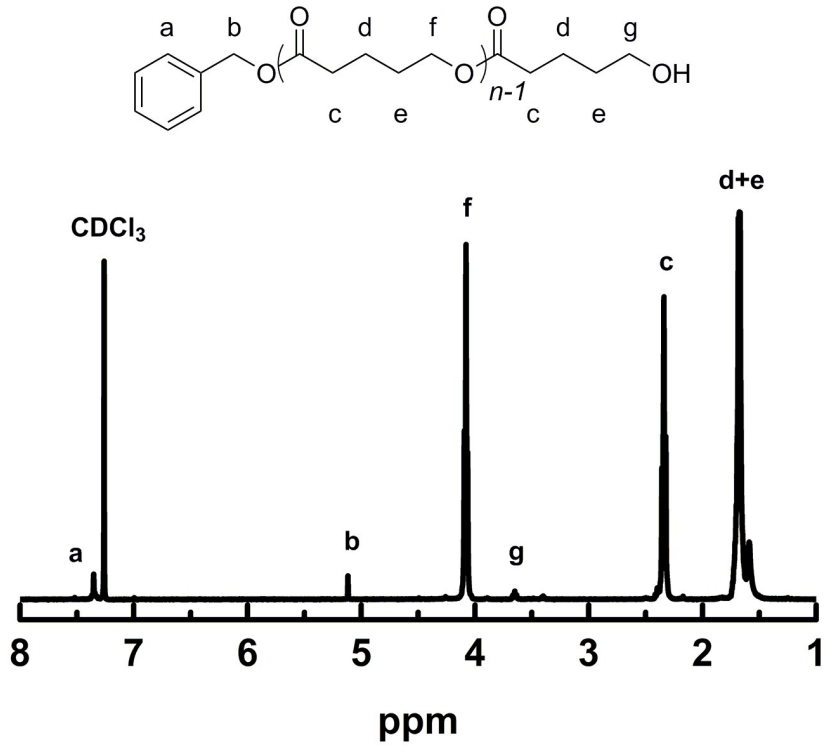

Figure S9. ^{1}H NMR spectrum of the obtained PVL prepared at room temperature (400 MHz, $CDCl_3$).