Supplementary Information

Solution-processed organic single-crystalline semiconductors with fence-like shape via ultrasound concussion

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**Fig. S1** Optical image of long C$_8$-BTBT single crystals.

**Fig. S2** Optical images of morphological change of C$_8$-BTBT crystals using solution without PMMA from 6 to 21 min.
Fig. S3 Optical image of C₈-BTBT single crystals via SVA. C₈-BTBT and PMMA were mixed with the weight ratio of 1:1 and dissolved in anisole (1 wt %) and spin-coated onto SiO₂/Si substrates. Then the samples were stuck on the top side down to the Petri dish cover over the bottom dish half-filled by the chlorobenzene. After 12 hours, the C₈-BTBT crystals were formed on the substrates. The length of these crystals is mostly around 100 µm.

Fig. S4 Optical images of morphological change of C₈-BTBT crystals from 6 to 30 min.
**Fig. S5** Optical image of \( \text{C}_8\)-BTBT crystals formed without ultrasound.

**Fig. S6** Optical image of \( \text{C}_8\)-BTBT crystals formed with weaker ultrasound.
**Fig. S7** (a) and (b) Polarized optical microscopy images of C$_8$-BTBT crystals.

**Fig. S8** (a) Transfer characteristics of a device with the highest mobility ($\mu_{\text{FET}} = 6.0 \text{ cm}^2\text{V}^{-1}\text{s}^{-1}$) operated at $-20$ V drain voltage under vacuum. The effective channel length is $L = 485 \mu$m and the channel width is $W = 25 \mu$m. Insert is optical image of device fabricated for G-GFP. (b) Output characteristics at gate voltages of $-15$, $-20$, $-25$, and $-30$ V of the C$_8$-BTBT crystal-based transistor.
**Fig. S9** Contact resistance calculated using GFP technique.