## Electronic Supplementary Information

## A Novel Random Terpolymer for High-Efficiency BulkHeterojunction Polymer Solar Cells

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Figure S1. Cyclic voltammogram of LGC-D013

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Figure S2. (a) The representative J-V curves for PSCs with various blend ratios (polymer: $\mathrm{PC}_{71} \mathrm{BM}$ ). (b) PCE changes with different polymer: $\mathrm{PC}_{71} \mathrm{BM}$ ratios for LGC-D013 based devices. (c) The representative J-V curves for PSCs with various concentrations. (d) PCE changes with different concentrations for LGC-D013 based devices.

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Table S1. Packing parameters derived from GIWAXS measurements.

| Films | Crystallographic parameters |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | Lamellar spacing |  |  |  |  |
|  |  | Face-on orientation |  |  | Edge-on orientation |  |
|  |  | $q_{x v}\left(\AA^{-1}\right)$ | $d$-spacing $(\AA)$ | $q_{z}\left(\AA^{-1}\right)$ | $d$-spacing $(\AA)$ |  |
| LGC-D013: | w/o | 0.2445 | 25.69 | 0.2439 | 25.76 |  |
| PC $_{71} \mathrm{BM}$ | $3 \%$ | 0.2445 | 25.69 | 0.2479 | 25.34 |  |

