

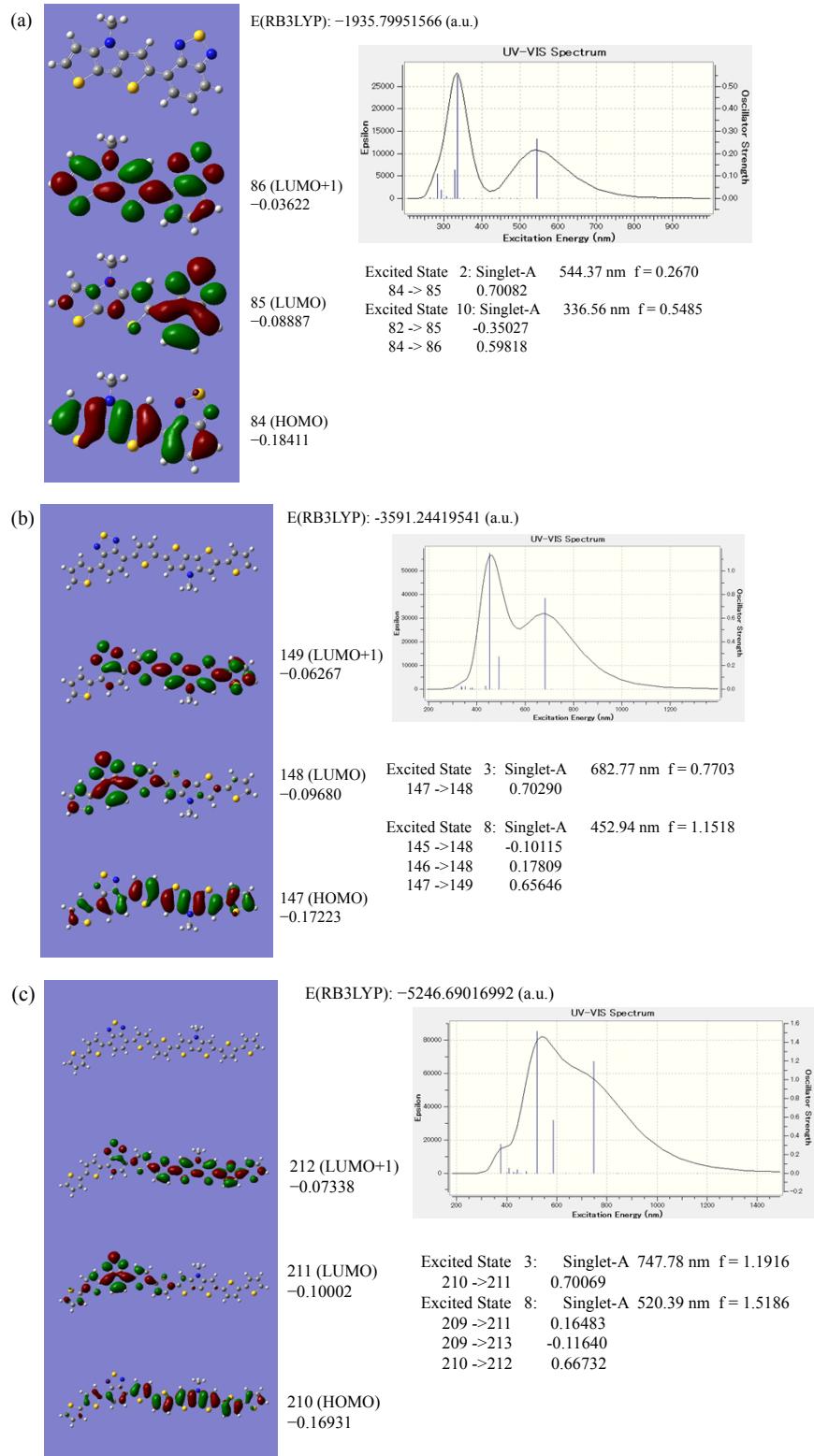
## Supporting information

### Synthesis and Properties of D-A Copolymers Based on Dithienopyrrole and Benzothiadiazole with Various Number of Thienyl Units as Spacer

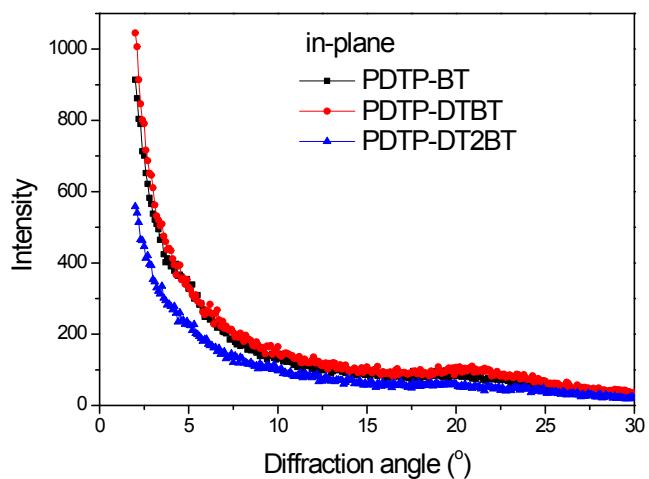
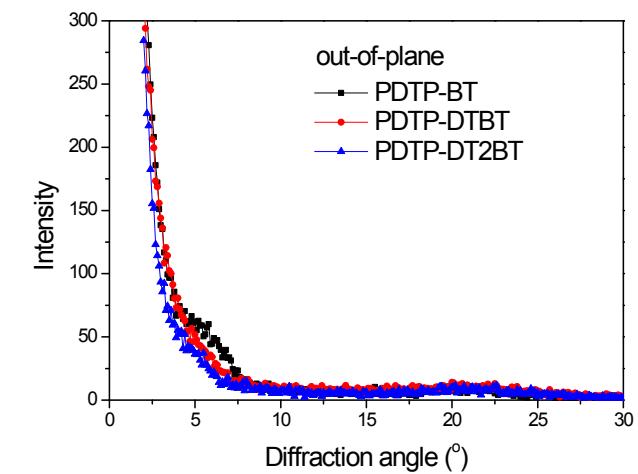
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**Figure S1.** Summary of DFT and TD-DFT calculations on a model compound for (a) PDTP-BT, (b) PDTP-DTBT and (c) PDTP-DT2BT. Only the major orbitals and the transitions are shown. The optimization of the chemical structure was carried out in Gaussian 09 with a basis set of B3LYP/6-31G(d).



**Figure S2.** XRD patterns of three polymers in thin films with out-of-plane (top) and in-plane (bottom) configurations.