Donor-acceptor-donor conjugated oligomers based on isoindigo and anthra[1,2-*b*]thieno[2,3-*d*]thiophene for organic thin-film transistors: effect of alkyl side chain length on semiconducting properties

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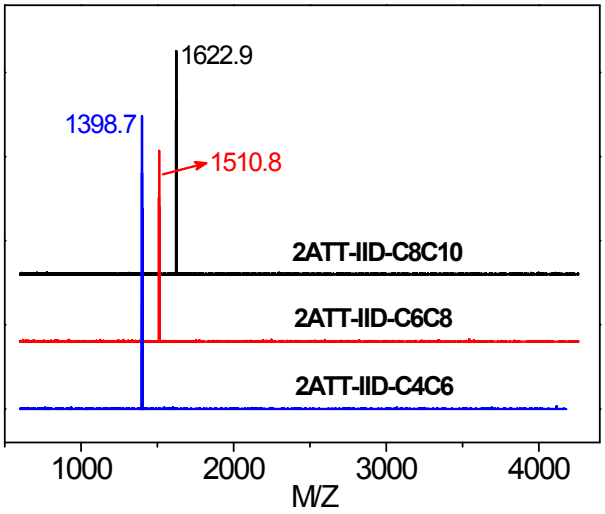

Figure S1. MALDI-TOF MS of all the three oligomers.

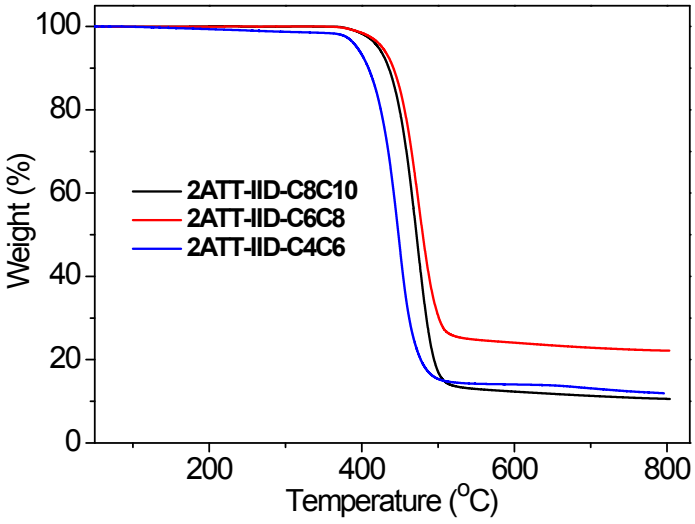

Figure S2. Thermogravimetric analysis (TGA) curves of all the three oligomers.

Table S1. OTFT device performance of **2ATT-IID-C8C10**, **2ATT-IID-C6C8** and **2ATT-IID-C4C6** annealed at other temperatures.

oligomer	T_a (°C)[a]	μ_{max}/μ_{ave} (cm^2 V^{-1} s^{-1})[b]	V_T (V)[c]	I_{on}/I_{off}[d]
2ATT-IID-C8C10	60	0.028 /0.023	-14 ~ -3	10^4~ 10^5
	150	0.022/0.020	-10 ~ -2	10^4~ 10^5
2ATT-IID-C6C8	60	0.10/0.076	-12 ~ -1	10^4 ~ 10^7
	150	0.022/0.016	-9 ~ -2	10^4 ~ 10^7
2ATT-IID-C4C6	150	0.43/0.39	-15 ~ -10	10^5 ~ 10^8
	200	0.60/0.50	-16 ~ -12	10^5 ~ 10^8

[a]Thermal annealing was carried out in nitrogen for 15 min. [b]Mobility calculated from saturation regime, and average mobility was calculated from more than 5 parallel devices. [c]Threshold voltage. [d]Current on/off ratio.

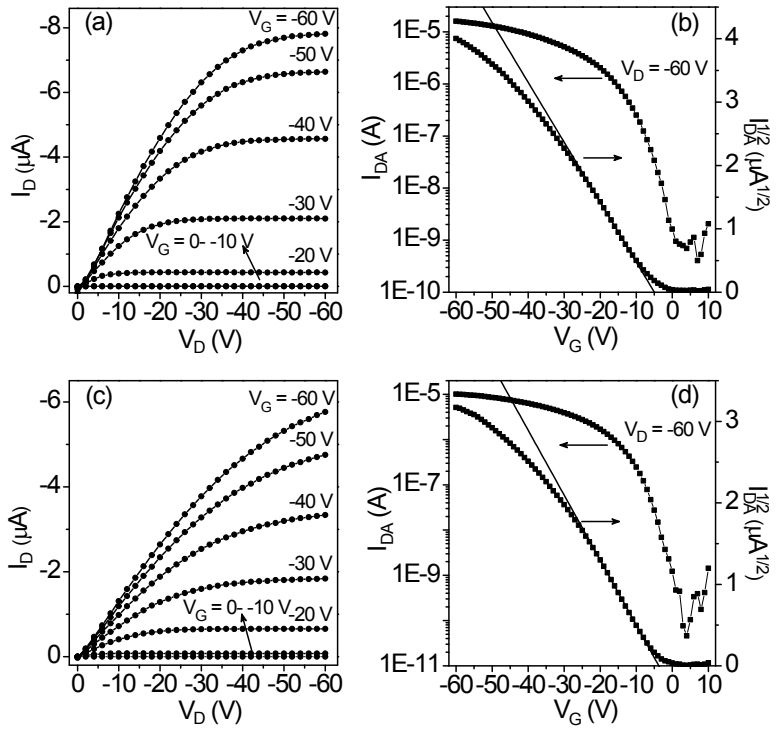

Figure S3. Representative output (a, c) and transfer characteristics (b, d) of OTFT devices based on thermally annealed films of **2ATT-IID-C8C10**. The annealing was done in nitrogen for 15 minutes at 60 °C (a, b) and 150 °C (c, d).

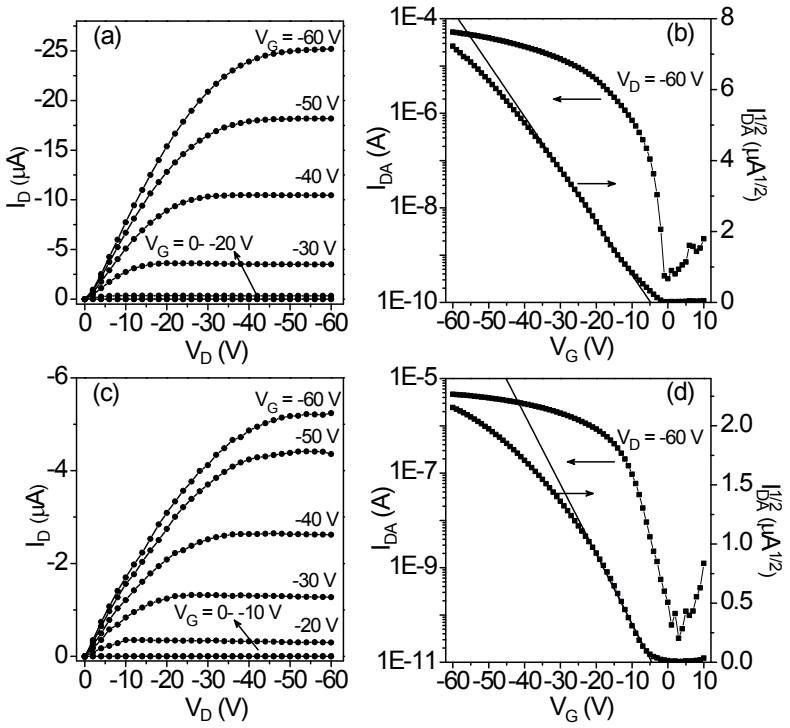

Figure S4. Representative output (a, c) and transfer characteristics (b, d) of OTFT devices based on thermally annealed films of **2ATT-IID-C6C8**. The annealing was done in nitrogen for 15 minutes at 60 °C (a, b) and 150 °C (c, d).

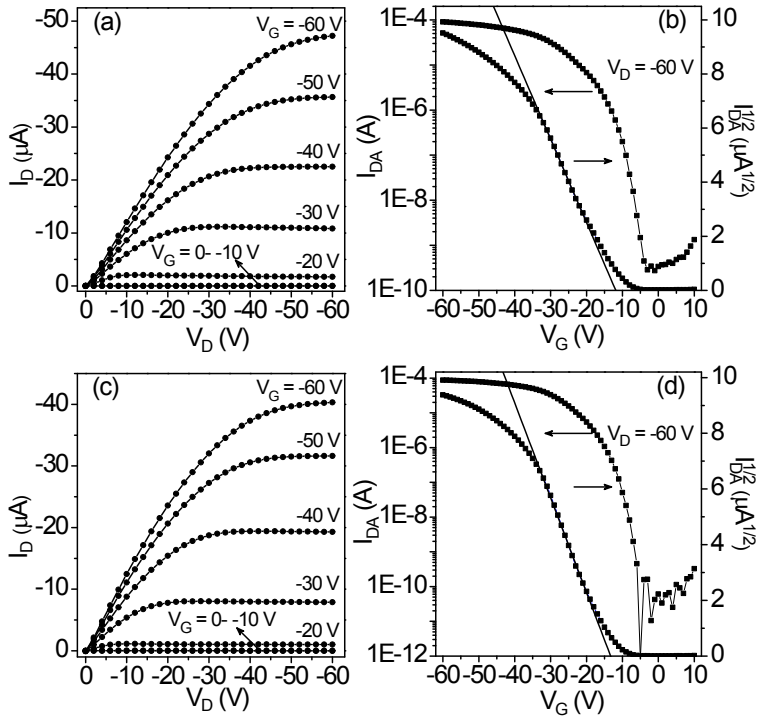

Figure S5. Representative output (a, c) and transfer characteristics (b, d) of OTFT devices based on thermally annealed films of **2ATT-IID-C4C6**. The annealing was done in nitrogen for 15 minutes at 150 °C (a, b) and 200 °C (c, d).