

Supplementary Information for:

**Improving visible-light photoresponse characteristics of
ZnO phototransistor via solution processable Li dopants**

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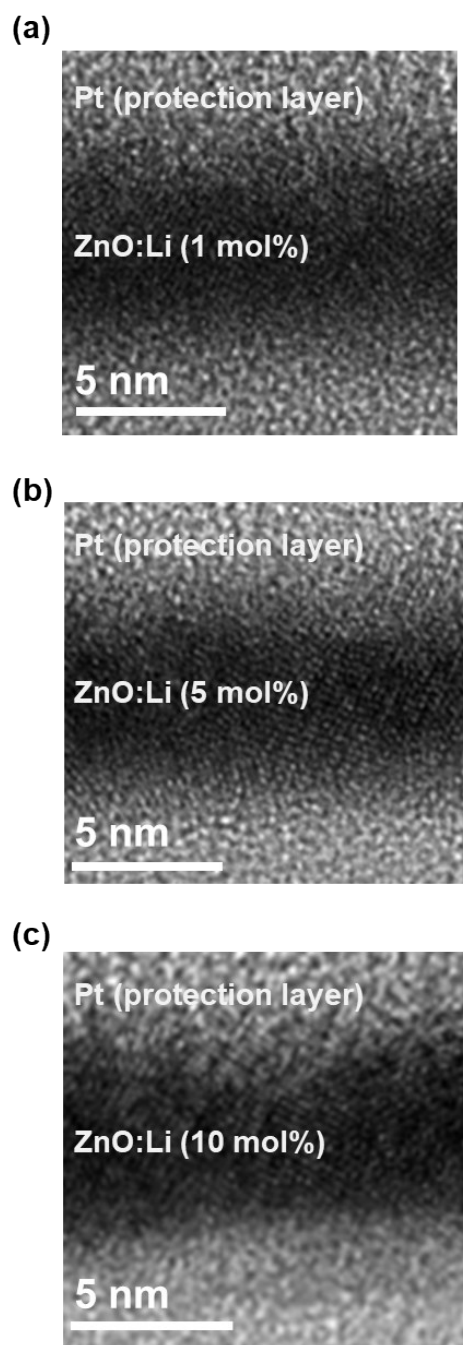


Figure S1. Cross-sectional high-resolution TEM images of a) ZnO:Li (1 mol%), b) ZnO:Li (5 mol%), and c) ZnO:Li (10 mol%) films.

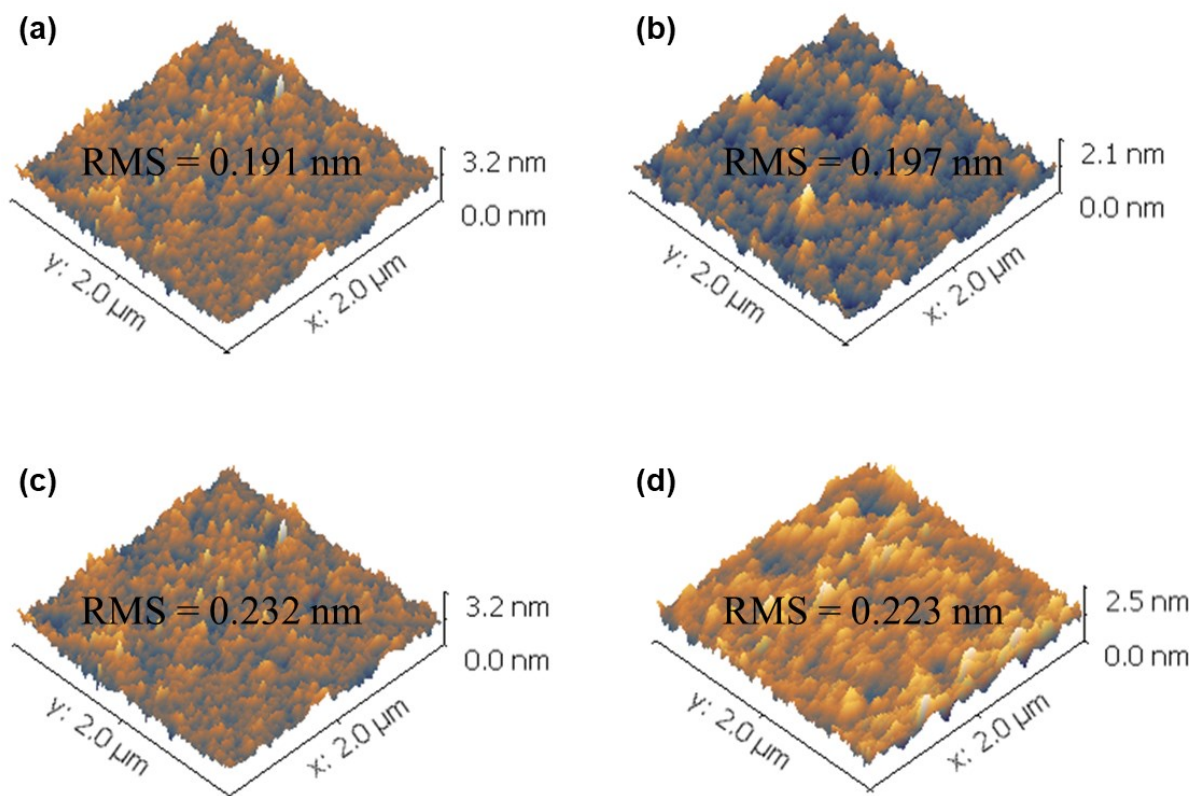


Figure S2. AFM images and root mean square (RMS) values of a) ZnO, b) ZnO:Li (1 mol%), c) ZnO:Li (5 mol%), and d) ZnO:Li (10 mol%).

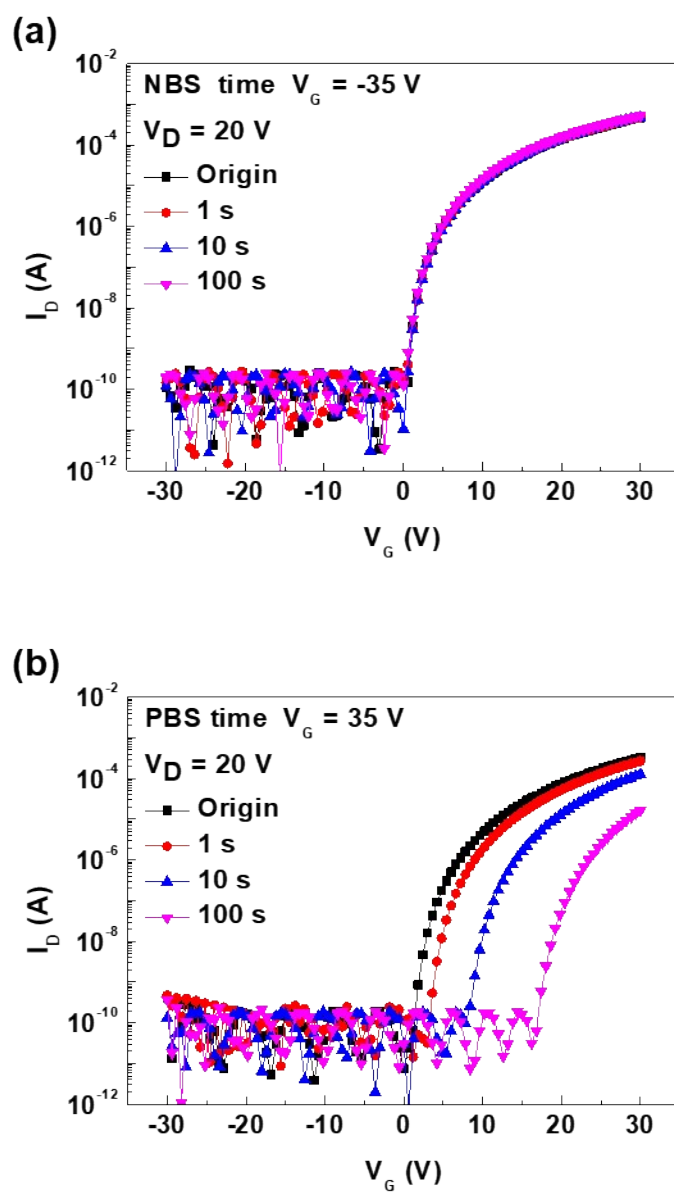


Figure S3. a) NBS at $V_G = -35$ V on the ZnO:Li (5 mol%) TFT. b) PBS at $V_G = 35$ V on the ZnO:Li (5 mol%) TFT.

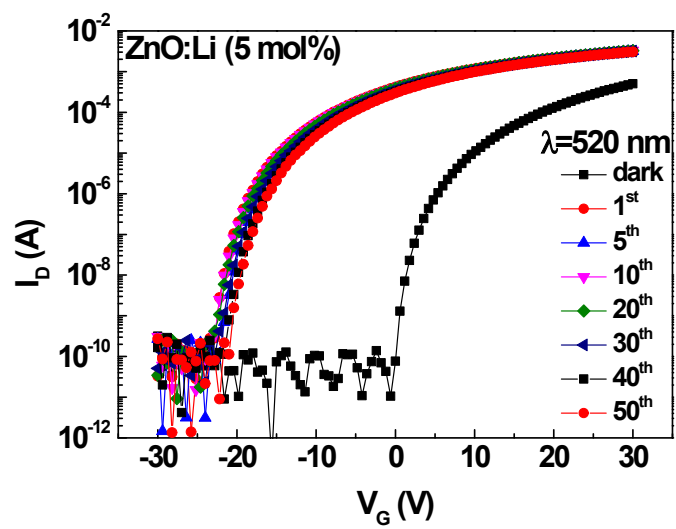


Figure S4. Transfer curve of ZnO:Li (5 mol%) TFT measured 50 times under 520 nm wavelength light exposure.

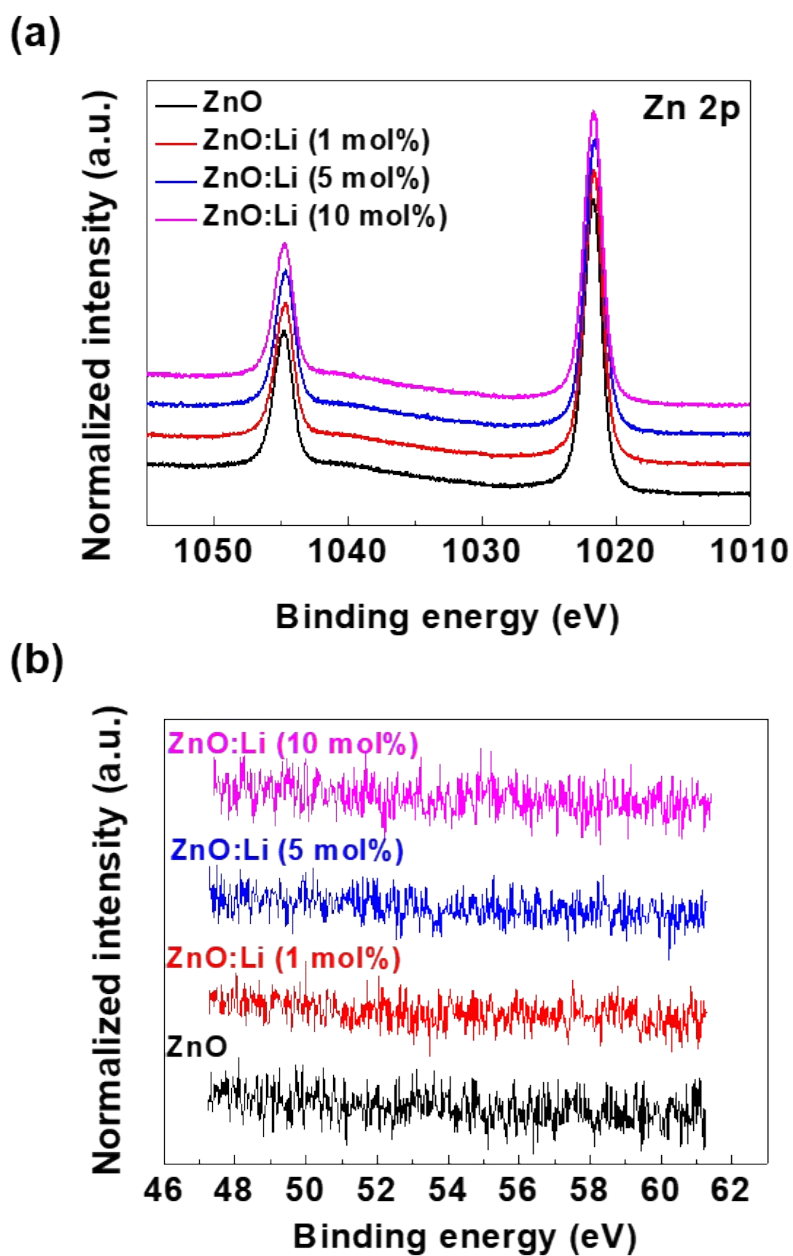


Figure S5. XPS spectra of a) Zn 2p and b) Li 1s of ZnO, ZnO:Li (1 mol%), ZnO:Li (5 mol%), and ZnO:Li (10 mol%) films, respectively.

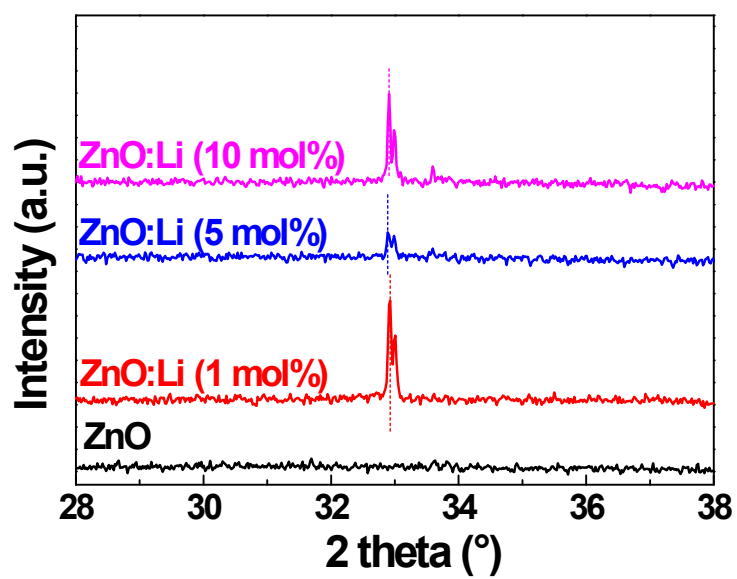


Figure S6. XRD spectra of ZnO, ZnO:Li (1 mol%), ZnO:Li (5 mol%), and ZnO:Li (10 mol%) films.

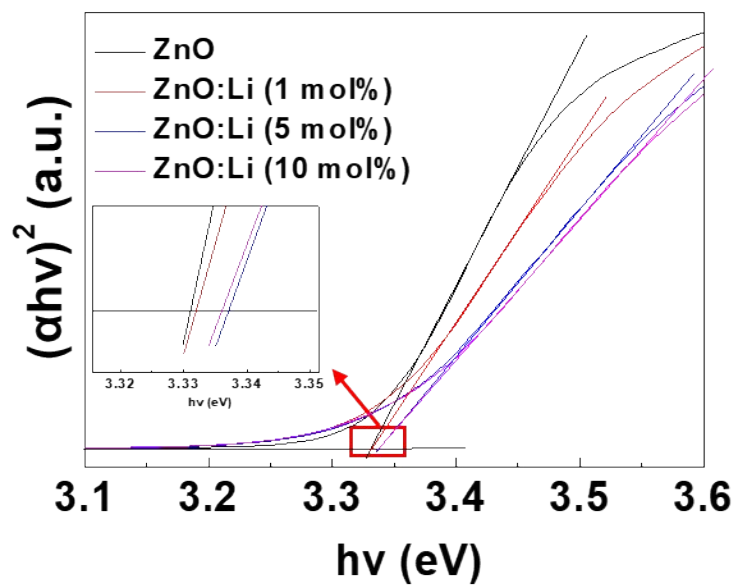


Figure S7. Tauc's plots of ZnO, ZnO:Li (1 mol%), ZnO:Li (5 mol%), and ZnO:Li (10 mol%) films.

	2θ (°)
ZnO	-
ZnO:Li (1 mol%)	32.93
ZnO:Li (5 mol%)	32.89
ZnO:Li (10 mol%)	32.91

Table S1. XRD peaks(2θ) of (100) plane of ZnO, ZnO:Li (1 mol%), ZnO:Li (5 mol%), and ZnO:Li (10 mol%) films.