Supporting Information

A fast route towards freestanding single crystalline oxide thin films by using YBa$_2$Cu$_3$O$_{7-x}$ as a sacrificial layer

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**Figure S1.** (a) Full width at half-maximum (FWHM) from the rocking curve around as grown LSMO (002) and (b) freestanding LSMO.

**Figure S2.** Transport behaviors of LSMO films with (a) 16 nm, (b) 30 nm, and (c) 60 nm in thickness were measured before and after freestanding process.
Figure S3. Surface morphology of (a) as grown SRO and (b) freestanding SRO.

Figure S4. Transport behaviors of SRO films with (a) 15 nm, (b) 40 nm, (c) 65 nm, and (d) 130 nm in thickness were measured before and after freestanding process.