Supporting Information

Solution-phase, template-free synthesis of PbI$_2$ and MAPbI$_3$ nano/microtubes for high-sensitivity photodetectors

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Figure S1 Photographic image of as-synthesized PbI$_2$ microtubes and MAPbI$_3$ nano/microtubes. The as-synthesized samples are dried in vacuum oven at 40 °C.
Figure S2 Optical microscopy image of PbI$_2$ microtubes synthesized at different time duration. The measurements were taken after the samples are dispersed on glass substrates.

Figure S3 Effect of growth time on the length of PbI$_2$ microtubes.
**Figure S4** FE-SEM image PbI$_2$ microrods with faceted morphology.

**Figure S5** Energy dispersive X-ray spectrum of PbI$_2$ microtubes. The samples were dispersed on SiO$_2$/Si substrates.
Figure S6 Energy dispersive X-ray spectrum of MAPbI$_3$ microtubes. The samples were dispersed on SiO$_2$/Si substrates.

Figure S7 FE-SEM image of MAPbI$_3$ nano/microtubes after exposure of electron beam for a long time. The breakings of tubes were occurred (as indicated in orange circle).
**Figure S8** HR-TEM image of MAPbI$_3$ microtubes with protruded whisker-like nanorods. The diameter and length of the protruded nanorods were found to vary from 40 nm to 60 nm and the length was ~150 nm.

**Figure S9** HR-TEM image of PbI$_2$ microtubes with well-distinguished twinned crystals.
Figure S10 PL spectra of MAPbI$_3$ microtubes at room temperature.

Figure S11 I-t curves of the photodetectors based on PbI$_2$ microtubes (a) and MAPbI$_3$ microtubes (b) at different biases.