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**Supporting Information**

# Clean Room-Free Rapid Fabrication of High-Tech Roll-Up Self-Powered Catalytic Microengines

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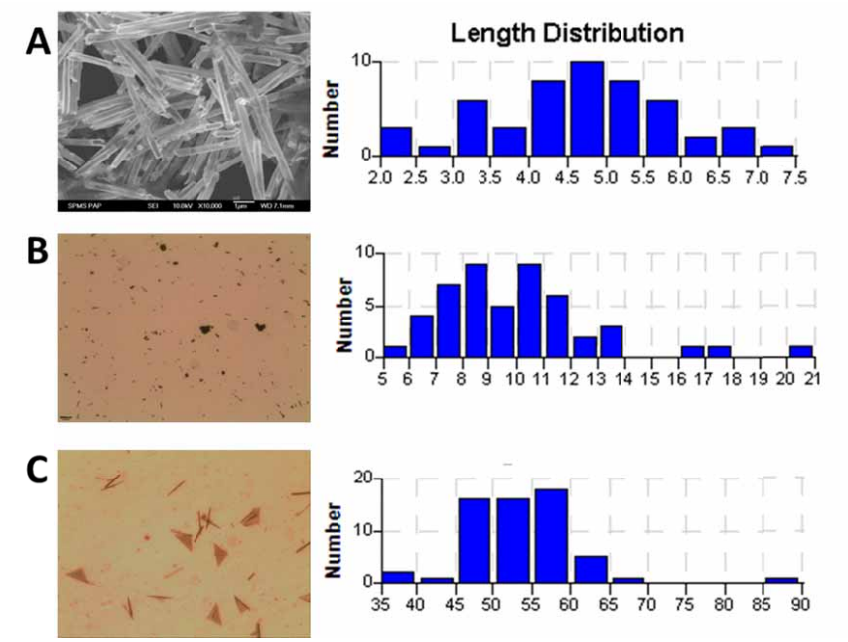


**Figure S1.** Characterizations and length distributions of different tubes. (A) SEM image and length distribution of the nanotubes fabricated through the AAO-templated electrochemical deposition processes. The average length was measured to be 4.63 μm with a 25.1% RSD. (B) Microscope image and length distribution of the microtubes fabricated through the polycarbonate-templated electrochemical deposition processes. The average length was measured to be 9.98 μm with a 28.5% RSD. (C) Microscope image and length distribution of the microtubes fabricated through the rolled-up processes on lithographically-patterned photoresist layers. The average length was measured to be 53.6 μm with a 13.2% RSD. For all tubes, a minimum number of 45 tubes were counted.

**Table S1**. Size of microengines generated by the $H_2O_2$ assisted lift-off of Pt membranes varying $H_2O_2$ concentration.

| $H_2O_2$ conc. (%) | Average length (μm) | Min | Max | RSD % |
|---|---|---|---|---|
| 7 | 21.05 | 10.23 | 31.19 | 26.1 |
| 14 | 21.57 | 9.03 | 37.23 | 31.8 |
| 21 | 12.35 | 5.12 | 31.05 | 43.3 |
| 28 | 10.17 | 3.53 | 4.1 | 34.7 |