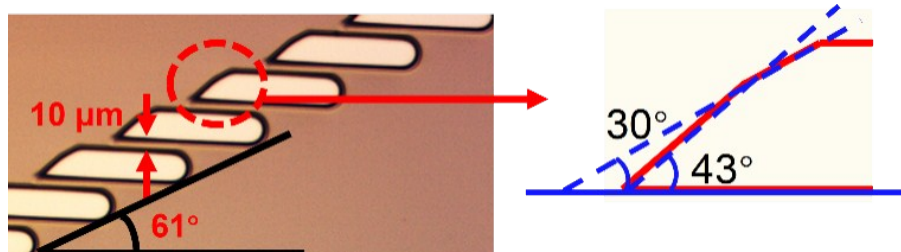
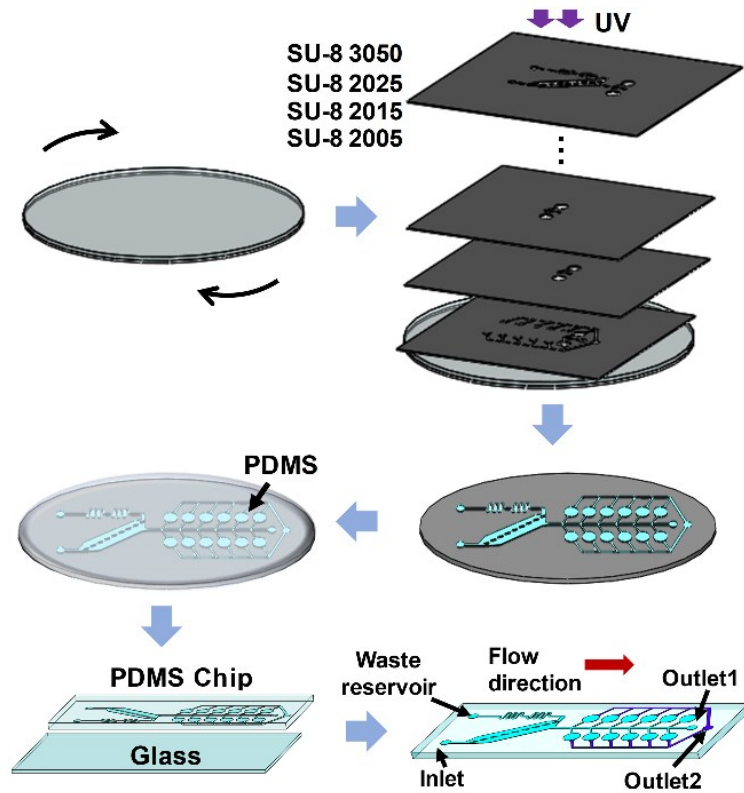


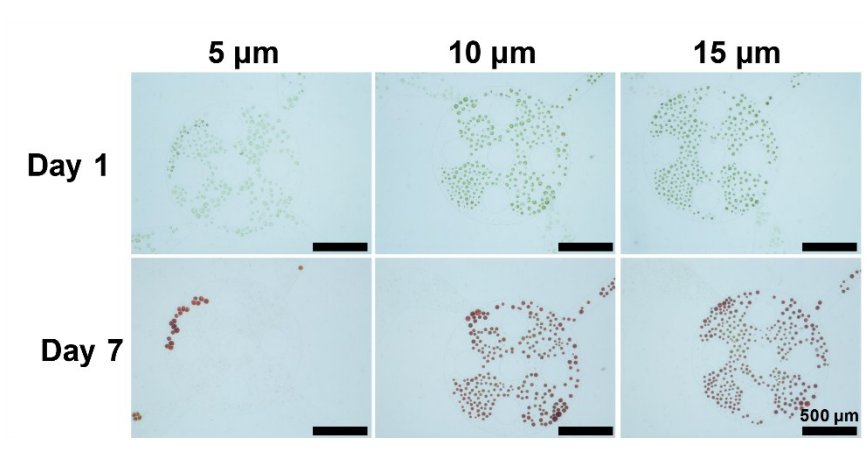
## Supplementary Materials



**Figure S1:** Close up image of the micropillar array. Inset: A sketch showing angled micropillar inlet area.



**Figure S2:** Fabrication process.



**Figure S3:** Microscopic images of *H. pluvialis* cultured inside the 5, 10, and 15μm height culture chambers at the day 1 and day 7.

| <b>Manufacturer</b>         | <b>Component</b>                                    | <b>Concentration (mg/L)</b> |
|-----------------------------|---|-----------------------------|
| Sigma (USA)                 | MgSO <sub>4</sub> ·7H <sub>2</sub> O                | 246                         |
|                             | CaCl <sub>2</sub> ·2H <sub>2</sub> O                | 110                         |
|                             | CoCl <sub>2</sub> ·6H <sub>2</sub> O                | 0.11                        |
|                             | Cyanocobalamine                                     | 0.015                       |
|                             | Biotin  | 0.025                       |
|                             | Thiamine hydrchloride                               | 0.0175                      |
| Sigma-Aldrich Inc.<br>(USA) | Na <sub>2</sub> HPO <sub>4</sub>                    | 30                          |
|                             | Fe(III)citrate·H <sub>2</sub> O                     | 2.62                        |
|                             | Cr <sub>2</sub> O <sub>3</sub>                      | 0.075                       |
| Baker (USA)                 | MnCl <sub>2</sub> ·4H <sub>2</sub> O                | 0.98                        |
| Samchun (Koera)             | KNO <sub>3</sub>                                    | 410                         |
| Aldrich (USA)               | SeO <sub>2</sub>                                    | 0.005                       |
| J.T.Baker (USA)             | Na <sub>2</sub> MoO <sub>4</sub> ·2H <sub>2</sub> O | 0.12                        |
| MCIB (USA)                  | CuSO <sub>4</sub> ·5H <sub>2</sub> O                | 0.12                        |

**Supplementary Table S1.** OHM media.