

# Microfluidic Protocol

## [Microfluidic chips]

We used a well-designed microfluidic system from Chunxiong Luo's Lab.

The chip contains four repeated units, which are convenient for multiple sets of repetitive experiments. Each unit has two inlets for switching the culture media, one outlet, and one main channel. There are 120 chambers connected to both sides of each main channel. The chamber is 1.2  $\mu\text{m}$  high, slightly larger than the diameter of *E. coli*. This dimension can align the bacteria to form a single layer in the chambers, which is convenient for observing and tracing each single cell.

Detailed parameters of the chip can be acquired from:

Wang, Y., Ran, M., Wang, J., Ouyang, Q. & Luo, C. Studies of antibiotic resistance of beta-lactamase bacteria under different nutrition limitations at the single-cell level. *PLoS One* 10, 1–12 (2015)