

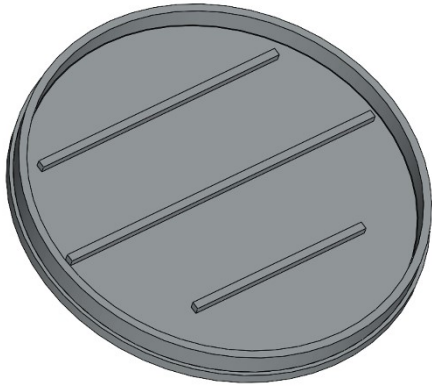
## **Sheath-Enhanced Concentration and On-chip Detection of Bacteria from Extremely Low-concentration Level**

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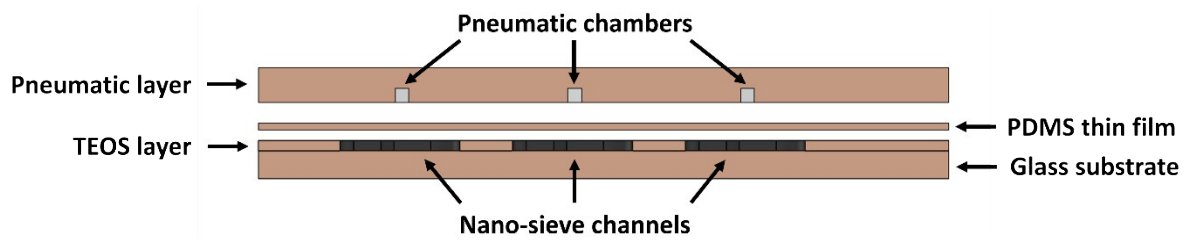
(a)



(b)



**Fig. S1** (a) The design of pneumatic chamber mold by Solidworks. The chamber height and width are 2 mm and 2mm, respectively; (b) 3-D printed mold for creating PDMS replica.



**Fig. S2** The cross-sectional view of the nano-sieve device proposed in our study. Three major components includes: 1) Pneumatic layer (Top); 2) PDMS thin film (Middle); 3) Glass substrate with nano-sieve channels in TEOS layer (Bottom).