

*Supplementary Information*

Polymer Based Chemical Delivery to Multichannel Capillary Patterned Cells

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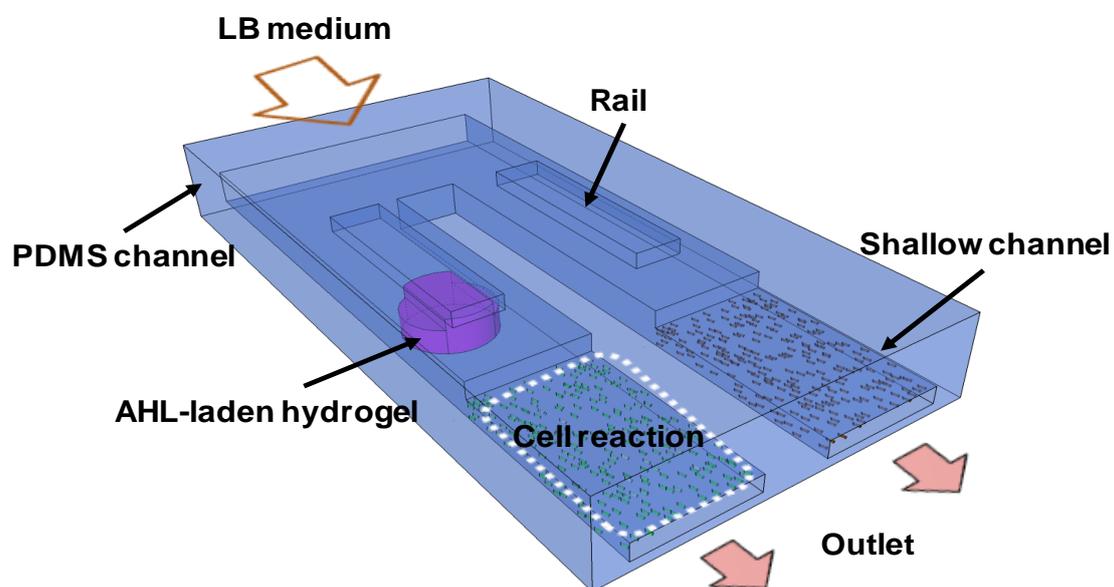
Figure S1: 3D schematic view of on chip based chemical delivery platform

Figure S2: Comparison of *E.coli* cell attachment on PDMS channel after 90 minutes

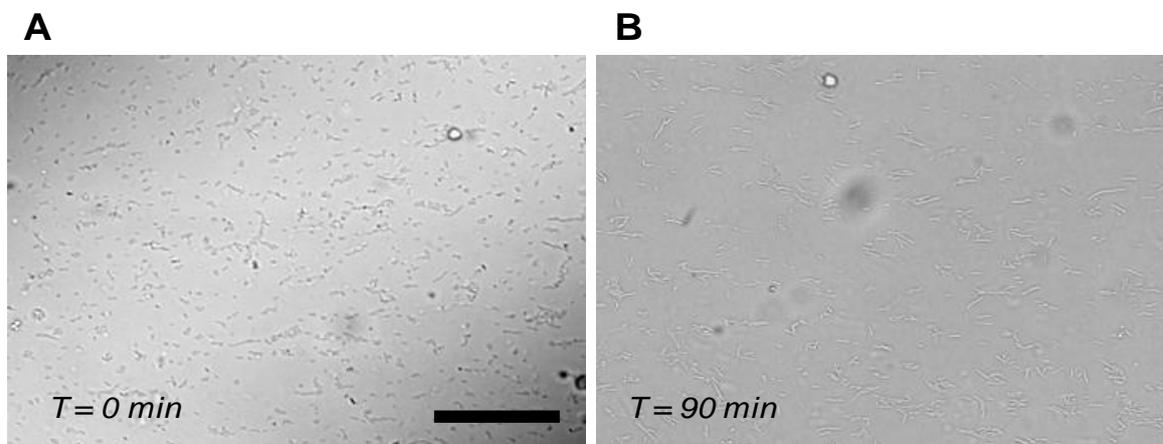
Table S1: Quantitative data of fluorescein released from hydrogel

Table S2: Quantitative data of *E.coli* GFP expression triggered by AHL released from hydrogel

**Figure S1** 3D schematic view of on-chip based chemical delivery platform. LB medium is flowed from a single inlet. *E.coli* are attached on shallow channel from a single outlet and cut the end part to isolate each channel. It is reacted with AHL released from hydrogel lodged by rail.



**Figure S2** *E.coli* cells attached to the PLL coated PDMS channel after 90 minutes with LB flowed at 5  $\mu$ l/min. (A) Bright field image at time = 0 and (B) time = 90 minutes after *E.coli* cells are attached. (Scale bar: 50  $\mu$ m)



**Table S1** Fluorescence (pixel) intensity of fluorescein released from hydrogel microstructure for 180 minutes

Minutes	20% 500ms		60% 500ms		100% 500ms	
	Intensity Average	Standard Deviation	Intensity Average	Standard Deviation	Intensity Average	Standard Deviation
0	37.68	1.15	39.53	3.27	35.26	0.23
10	26.06	3.39	19.02	0.51	21.20	1.08
20	20.21	3.75	18.43	0.34	19.75	0.84
30	15.87	1.99	16.94	0.67	18.84	0.63
40	15.55	3.77	15.92	0.68	18.03	1.02
50	13.66	4.40	15.34	0.85	18.28	0.11
60	12.18	3.72	14.61	1.06	17.42	0.96
70	11.11	4.13	13.62	0.85	16.98	1.21
80	9.69	3.32	12.76	0.76	15.63	1.93
90	9.12	3.78	12.03	0.70	14.89	1.60
100	8.68	3.93	11.68	0.76	14.46	1.50
110	8.34	3.84	11.63	0.63	14.16	1.49
120	7.75	3.06	11.30	0.56	13.79	1.30
130	7.24	2.56	10.85	0.86	13.35	1.21
140	6.84	2.02	10.58	0.65	13.03	1.21
150	6.55	1.87	10.42	0.64	12.90	1.20
160	6.19	1.78	9.87	0.37	12.60	1.26
170	5.74	1.31	9.28	0.49	12.39	1.01
180	5.49	1.31	8.86	0.31	12.09	1.20

**Table S2** Fluorescence (pixel) intensity of tethered *E.coli* exposed from AHL laden hydrogel in PDMS microfluidic channel

<b>Minutes</b>	<b>Average</b>		<b>Standard Deviation</b>	
	<b>AHL</b>	<b>Control</b>	<b>AHL</b>	<b>Control</b>
<b>0</b>	2.63	2.17	1.05	0.75
<b>20</b>	5.23	1.73	1.99	0.74
<b>40</b>	10.27	1.84	4.32	0.86
<b>60</b>	14.23	2.52	5.57	1.35