Electronic Supplementary Information For

Generation of arbitrary monotonic concentration profiles by a serial dilution microfluidic network composed of microchannels with a high fluidic-resistance ratio

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Table S1. Length of microchannels in microfluid networks used in this study

Microchannel No.[a]	Length [μm]		
	MN-Lin1, MN-Lin2	MN-Log1	MN-Log2
$MC_{0,1}$	780	6150	2210
$MC_{0,2}$			
$MC_{0,3}$	36750	18810	11710
$MC_{0,4}$	3500	3750	2660
$MC_{1,1}$	27250	16150	4460
$MC_{1,2}$	3500	4000	58500
$MC_{1,3}$	26250	15120	10480
$MC_{1,4}$	3500	3750	2660
$MC_{2,1}$	44750	20160	5690
$MC_{2,2}$	3000	4000	58500
$MC_{2,3}$	17500	11480	9260
$MC_{2,4}$	3500	3750	2660
$MC_{3,1}$	58750	24580	6920
$MC_{3,2}$	2500	4000	58490
$MC_{3,3}$	10500	7970	8030
$MC_{3,4}$	3500	3750	2660
$MC_{4,1}$	69250	30090	8150
$MC_{4,2}$	2000	4000	58480
$MC_{4,3}$	5250	4690	6800
$MC_{4,4}$	3500	3750	2660
$MC_{5,1}$	76250	38850	9380
$MC_{5,2}$	1500	4000	58440
$MC_{5,3}$	1750	1880	5570
$MC_{5,4}$	3500	3750	2660
$MC_{6,1}$	79750	62030	10630
$MC_{6,2}$	1000	4000	58310

$MC_{6,3}$	0	0	4350
$MC_{6,4}$			2660
$MC_{7,1}$	39870	31010	11930
$MC_{7,2}$			57910
$MC_{7,3}$			3130
$MC_{7,4}$			2660
$MC_{8,1}$			13430
$MC_{8,2}$			56650
$MC_{8,3}$			1940
$MC_{8,4}$			2660
$MC_{9,1}$			15680
$MC_{9,2}$			52650
$MC_{9,3}$			840
$MC_{9,4}$			2660
$MC_{10,1}$			21860
$MC_{10,2}$			40000
$MC_{10,3}$			0
$MC_{10,4}$			
$MC_{11,1}$			14950

[a] Microchannel No. ($MC_{k,l}$) corresponds to the variables of fluidic resistance ($R_{k,l}$) and flow rate ($Q_{k,l}$) depicted in Fig.1. $MC_{k,1}$ corresponds to the inlet-side-resistance-microchannel. $MC_{k,2}$ corresponds to the diffusion-mixing-microchannel. $MC_{k,3}$ corresponds to the outlet-side-resistance microchannel. $MC_{k,4}$ corresponds to the connection-microchannel.

Table S2. Fluidic resistance of microchannels in microfluid networks used in this study

Microchannel No.	Fluidic resistance [mPa s μm^{-3}]			
	MN-Lin1	MN-Lin2	MN-Log1	MN-Log2
$MC_{0,1}$	2.5	0.41	39	0.14
$MC_{0,2}$				
$MC_{0,3}$	120	19	120	0.76
$MC_{0,4}$	11	1.8	24	0.17
$MC_{1,1}$	88	14	100	0.29
$MC_{1,2}$	0.0072	0.0077	0.00056	0.0066
$MC_{1,3}$	84	14	96	0.68
$MC_{1,4}$	11	1.8	24	0.17
$MC_{2,1}$	140	23	130	0.37
$MC_{2,2}$	0.0062	0.0066	0.00056	0.0066
$MC_{2,3}$	56	9.1	73	0.60
$MC_{2,4}$	11	1.8	24	0.17
$MC_{3,1}$	190	31	160	0.45
$MC_{3,2}$	0.0051	0.006	0.00056	0.0066
$MC_{3,3}$	34	5.5	51	0.52
$MC_{3,4}$	11	1.8	24	0.17
$MC_{4,1}$	220	36	190	0.53
$MC_{4,2}$	0.0041	0.0044	0.00056	0.0066
$MC_{4,3}$	17	2.7	30	0.44
$MC_{4,4}$	11	1.8	24	0.17
$MC_{5,1}$	250	40	250	0.61
$MC_{5,2}$	0.0031	0.0033	0.00056	0.0066
$MC_{5,3}$	5.6	0.91	12	0.36
$MC_{5,4}$	11	1.8	24	0.17
$MC_{6,1}$	260	42	390	0.69
$MC_{6,2}$	0.0021	0.0022	0.00056	0.0066
$MC_{6,3}$	0	0	0	0.28
$MC_{6,4}$				0.17
$MC_{7,1}$	130	21	200	0.77
$MC_{7,2}$				0.0066
$MC_{7,3}$				0.20
$MC_{7,4}$				0.17
$MC_{8,1}$				0.87
$MC_{8,2}$				0.0064
$MC_{8,3}$				0.13
$MC_{8,4}$				0.17

$MC_{9,1}$	1.0
$MC_{9,2}$	0.0060
$MC_{9,3}$	0.054
$MC_{9,4}$	0.17
$MC_{10,1}$	1.4
$MC_{10,2}$	0.0045
$MC_{10,3}$	0
$MC_{10,4}$	
$MC_{11,1}$	0.97