Supplementary materials

Fig.S1 Standard curve of GloMax Multi Jr (0.3 μm)

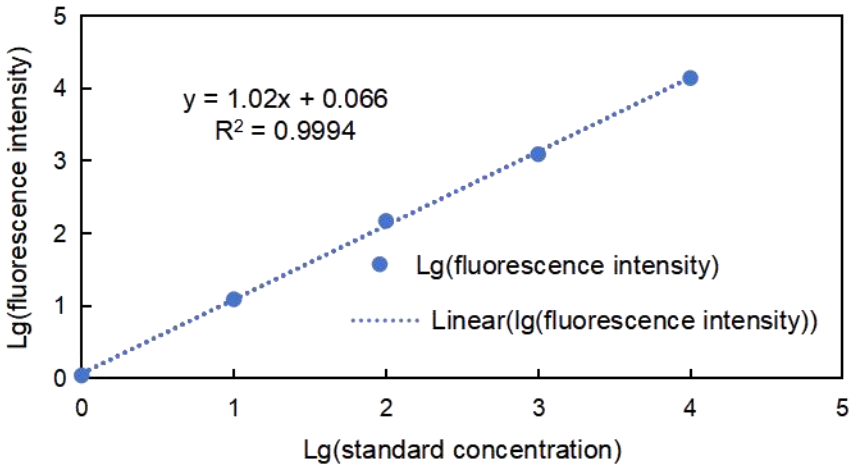

Fig.S2 Standard curve of GloMax Multi Jr (0.5 μm)

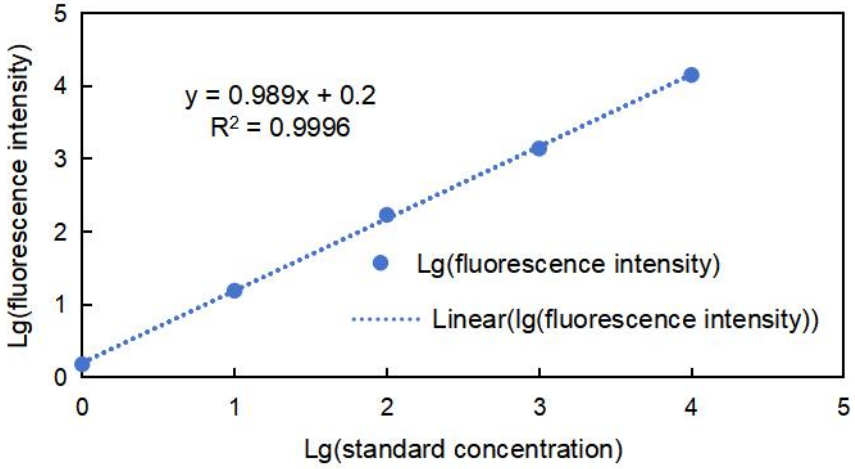

Fig.S3 Standard curve of GloMax Multi Jr (1 μm)

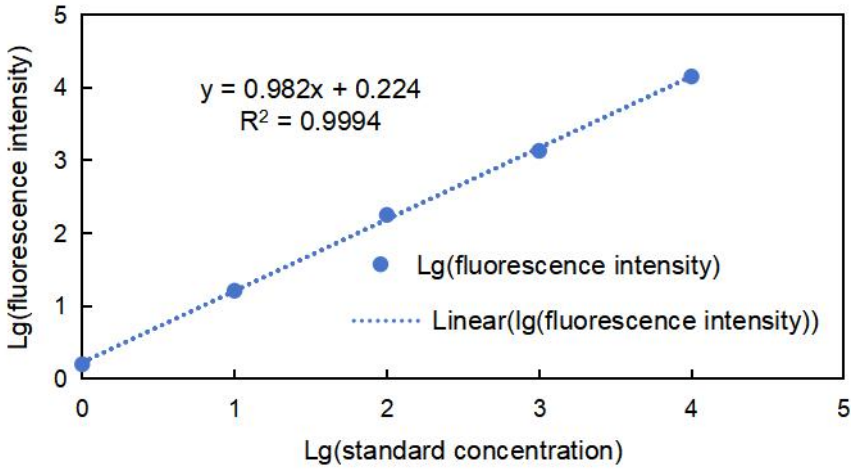

Table S1 Impact of sampling media on the sampling efficiency of the liquid impinger sampler, the dry-wall cyclone sampler, and the wet-wall cyclone sampler

Microsphere diameter	Sampling instrument	Sampling flow rate（ L/min）	Irradiated physiological saline（N=3）	RNase-free water（N=3）	PBS（N=3）	ANOVA	
						F	p-value
0.3 μm	Liquid impinger sampler	10	53.63 ± 1.06	55.66 ± 0.79	58.41 ± 0.52[ab]	25.68	0.001
	Dry-wall cyclone sampler	400	55.78 ± 0.43	54.53 ± 0.32	73.27 ± 0.83[ab]	1015	< 0.001
		100	52.32 ± 0.44	52.69 ± 0.11	55.69 ± 0.81[ab]	35.34	< 0.001
		150	54.93 ± 0.37	55.46 ± 1.25	57.70 ± 0.38[ab]	10.64	0.01
	Wet-wall cyclone sampler	200	56.07 ± 0.11[b]	61.84 ± 1.29[a]	66.14 ± 2.38[ab]	31.22	< 0.001
		250	57.69 ± 0.35[b]	67.18 ± 0.86[a]	70.79 ± 1.72[ab]	107.6	< 0.001
		300	58.04 ± 0.07[b]	65.81 ± 1.28[a]	69.31 ± 0.60[ab]	148.5	< 0.001
1 μm	Liquid impinger sampler	10	54.73 ± 0.08	55.07 ± 0.46	58.12 ± 0.13[ab]	131.9	< 0.001
	Dry-wall cyclone sampler	400	55.86 ± 0.65	57.00 ± 1.62	76.70 ± 1.27[ab]	265.7	< 0.001
	Wet-wall cyclone sampler	100	53.28 ± 0.32	52.51 ± 0.47	56.44 ± 0.27[ab]	100.9	< 0.001
		150	54.63 ± 0.57	56.65 ± 0.74	59.16 ± 1.16[ab]	20.80	0.002
		200	57.30 ± 0.41[b]	64.51 ± 0.77[a]	67.71 ± 1.50[ab]	85.14	< 0.001
		250	57.85 ± 0.13[b]	69.76 ± 0.41[a]	73.72 ± 1.18[ab]	389.6	< 0.001
		300	59.98 ± 0.51[b]	67.50 ± 1.03[a]	71.77 ± 0.62[ab]	187.7	< 0.001

Note: [a] indicates $p < 0.05$ for the PBS group compared with the irradiated saline group; [b] indicates $p < 0.05$ for the PBS group compared with the RNase-free water group.

Table S2 Impact of sampling flow rate on sampling efficiency of the membrane filtration sampler

Microsphere diameter	Sampling instrument	30 L/min（N=3）	40 L/min（N=3）	50 L/min（N=3）	ANOVA	
					F	p-value
0.3 μm	Membrane filtration sampler	266.91 ±10.49	283.99 ± 3.14	357.59 ± 25.83[ab]	26.557	＜0.01
1 μm	Membrane filtration sampler	415.71 ± 8.53	460.86 ± 10.54	559.76 ± 70.85[a]	9.388	＜0.05

Note: [a] indicates $p < 0.05$ for the 50 L/min group compared with the 30 L/min group; [b] indicates $p < 0.05$ for the 50 L/min group compared with the 40 L / min group.

Table S3 Impact of sampling flow rate on sampling efficiency of the wet-wall cyclone sampler

Microsphere diameter	Sampling instrument	Sampling media	100 L/min（N=3）	150 L/min（N=3）	200 L/min（N=3）	250 L/min（N=3）	300 L/min（N=3）	ANOVA F	p-value
0.3 μm	Wet-wall cyclone sampler	Irradiated physiological saline	52.32 ± 0.44	54.93 ± 0.37[a]	56.07 ± 0.11[ab]	57.69 ± 0.35[abc]	58.04 ± 0.07[abc]	171.0	＜0.001
		RNase-free water	52.69 ± 0.11	55.46 ± 1.25	61.84 ± 1.29[ab]	67.18 ± 0.86[abc]	65.81 ± 1.28[abc]	107.7	＜0.001
		PBS	55.69 ± 0.81	57.70 ± 0.38	66.14 ± 2.38[ab]	70.79 ± 1.72[abc]	69.31 ± 0.60[ab]	71.67	＜0.001
1 μm	Wet-wall cyclone sampler	Irradiated physiological saline	53.28 ± 0.32	54.63 ± 0.57[a]	57.30 ± 0.41[ab]	57.85 ± 0.13[ab]	59.98 ± 0.51[abcd]	122.8	＜0.001
		RNase-free water	52.51 ± 0.47	56.65 ± 0.74[a]	64.51 ± 0.77[ab]	69.76 ± 0.41[abc]	67.50 ± 1.03[abcd]	311.5	＜0.001
		PBS	56.44 ± 0.27	59.16 ± 1.16	67.71 ± 1.50[ab]	73.72 ± 1.18[abc]	71.77 ± 0.62[abc]	161.0	＜0.001

Note: [a] indicates $p < 0.05$ for the 300 L/min group compared with the 100 L/min group; [b] indicates $p < 0.05$ for the 300 L/min group compared with the 150 L/min group; [c] indicates $p < 0.05$ for the 300 L/min group compared with the 200 L/min group; [d] indicates $p < 0.05$ for the 300 L/min group compared with the 250 L/min group.