

Supplementary information

Development of fluorescence capillary biosensor based on self-assembled AuNPs/LDH for micro-volume intracellular pyruvate

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Table S1 Determination of PA in red cells

Sample	ΔF	PA / $\mu\text{mol L}^{-1}$	RSD / %	Regression equations
No. 1	130.56, 128.17, 133.56, 128.17, 133.64, 128.98, 122.93, 125.59, 127.20, 129.09, 131.18	24.74 \pm 0.62	2.48	$\Delta F = 5.13 C_{\text{PA}} + 2.08$
No. 2	136.92, 139.28, 135.25, 137.73, 127.58, 140.37, 145.28, 139.29, 140.30, 130.34, 138.26	25.43 \pm 0.55	3.16	$\Delta F = 5.43 C_{\text{PA}} + 0.54$
No. 3	101.68, 103.50, 105.56, 106.56, 104.18, 109.38, 103.04, 103.16, 102.72, 102.90, 112.95	16.96 \pm 0.70	3.24	$\Delta F = 5.76 C_{\text{PA}} + 7.42$
No. 4	208.88, 206.75, 200.01, 193.79, 202.83, 208.74, 212.47, 212.45, 203.70, 197.35, 210.45	34.49 \pm 1.07	3.04	$\Delta F = 5.82 C_{\text{PA}} + 10.40$
No. 5	144.25, 146.59, 138.55, 139.56, 144.21, 140.01, 149.32, 140.60, 152.52, 152.01, 141.74	23.49 \pm 0.84	3.47	$\Delta F = 5.94 C_{\text{PA}} + 5.05$
No. 6	94.42, 93.99, 94.48, 93.77, 101.56, 96.75, 97.51, 94.96, 108.37, 96.98, 105.91	16.29 \pm 0.91	5.14	$\Delta F = 5.56 C_{\text{PA}} + 7.57$
No. 7	117.24, 110.09, 113.04, 112.92, 114.32, 111.29, 107.96, 117.34, 123.80, 123.03, 120.59	19.36 \pm 0.50	4.54	$\Delta F = 5.65 C_{\text{PA}} + 6.19$
No. 8	185.11, 197.13, 190.58, 187.42, 196.02, 182.97, 182.98, 207.17, 198.24, 190.94, 191.76	32.86 \pm 1.31	3.85	$\Delta F = 5.65 C_{\text{PA}} + 6.19$

Table S2 Recovery test in this method

Sample	PA conc. / $\mu\text{mol L}^{-1}$	Add. Standard / $\mu\text{mol L}^{-1}$	Found value / $\mu\text{mol L}^{-1}$	Recover standard / $\mu\text{mol L}^{-1}$	Recovery* / %
No.1	12.4	10.0	22.1	9.7	97.0
		20.0	31.6	19.2	96.0
		30.0	43.8	31.4	105.0
		40.0	53.7	41.3	103.3
No.2	12.7	10.0	22.2	9.5	95.0
		20.0	32.1	19.4	97.0
		30.0	42.7	30.0	100.0
		40.0	52.1	39.4	98.5
No.3	8.5	10.0	18.0	9.5	95.0
		20.0	28.1	19.6	98.0
		30.0	38.9	30.5	101.3
		40.0	47.8	39.4	98.3
No.4	17.3	10.0	27.4	10.6	106.0
		20.0	37.8	21.0	105.0
		30.0	46.7	29.9	99.7
		40.0	57.8	41.1	102.5
No.5	11.7	10.0	21.5	9.8	98.0
		20.0	32.9	21.2	106.0
		30.0	41.4	29.7	99.0
		40.0	53.9	42.2	105.5
No.6	8.1	10.0	18.1	10.0	100.0
		20.0	28.8	20.7	103.5
		30.0	37.8	29.7	99.0
		40.0	50.2	42.1	105.3
No.7	9.7	10.0	19.4	9.7	97.0
		20.0	28.8	19.1	95.5
		30.0	39.3	30.2	100.7
		40.0	49.9	40.2	100.5
No.8	16.4	10.0	26.9	10.5	105.0
		20.0	37.0	20.6	103.0
		30.0	47.1	30.7	102.3
		40.0	55.8	39.4	98.5

*Recovery = [(found value - PA concentration) / added standard] \times 100%.