Supplementary Tables (*S1-5*)

In vitro physiological performance factors of a catalase-based biosensor for real-time electrochemical detection of brain hydrogen peroxide in freely-moving animals.

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TEMPERATURE STUDIES

SENSOR TYPE	37° C				35° C				40° C			
	Mean I, nA	SEM	R^2	n	Mean I, nA	SEM	R^2	n	Mean I, nA	SEM	R^2	n
PEROX	0.42	0.01	0.99	6	0.42	0.01	0.99	6	0.47	0.01	0.99	4

S1a: H_2O_2 sensitivity of *PEROX* sensors at different experimental temperature conditions. Data is represented as a Mean ± SEM, nA.

SENSOR TYPE	37° C			35° C			40° C		
	Mean I, pA	SEM	n	Mean I, pA	SEM	n	Mean I, pA	SEM	n
CONTROL	7.4	1.2	6	15.6	0.3	6	18.0	0.3	4

S1b: H_2O_2 sensitivity of *CONTROL* sensors at different experimental temperature conditions. Data is represented as a Mean ± SEM, pA.

pH STUDIES

SENSOR TYPE	7.4				6.5				8.0			
	Mean I, nA	SEM	R^2	n	Mean I, nA	SEM	R^2	n	Mean I, nA	SEM	R^2	n
PEROX	0.472	0.003	0.99	24	0.470	0.002	0.99	4	0.480	0.002	0.99	6

S2a: H_2O_2 sensitivity of *PEROX* sensors at different experimental pH conditions. Data is represented as a Mean ± SEM, nA.

SENSOR TYPE	7.4			6.5			8.0		
	Mean I, pA	SEM	n	Mean I, pA	SEM	n	Mean I, pA	SEM	n
CONTROL	5.6	0.1	24	32.6	1.1	4	14.4	0.1	4

S2b: H_2O_2 sensitivity of *CONTROL* sensors at different experimental pH conditions. Data is represented as a Mean ± SEM, pA.

BIOCOMPATIBILITY STUDIES

Day	Mean I, nA /μM	SEM	%	SEM (%)	R^2	n
0	0.30	0.001	100	0.42	0.99	4
1	0.26	0.001	87.51	0.23	0.99	4
3	0.24	0.002	78.75	0.53	0.99	4
7	0.21	0.001	70.76	0.34	0.99	4
14	0.22	0.001	73.46	0.44	0.99	4
21	0.24	0.002	78.49	0.75	0.99	4
28	0.24	0.003	80.65	1.04	0.99	4

S3: H_2O_2 sensitivity of *PEROX* sensors treated with BT (1, 3, 7, 14, 21 and 28 days). Data is represented as a Mean ± SEM, nA. The number of sensors is denoted by (n).

Day	Mean I, pA/μM	SEM	n
0	2.0	0.1	4
1	10.0	0.1	4
3	46.0	0.1	4
7	56.0	0.1	4
14	72.0	0.1	4
21	97.0	0.1	4
28	100.0	0.1	4

S4: H_2O_2 sensitivity of *CONTROL* sensors treated with BT (1, 3, 7, 14, 21 and 28 days). Data is represented as a Mean ± SEM, pA. The number of sensors is denoted by (n).

Day	Mean I, pA/µM	SEM	n
0	2.0	0.1	4
1	9.0	0.1	4
3	46.0	0.1	4
7	46.0	0.1	4
14	69.0	0.1	4
21	98.0	0.1	4
28	93.0	0.1	4

S5: H_2O_2 sensitivity of *CONTROL* sensors treated with BT (1, 3, 7, 14, 21 and 28 days) at a relatively lower concentration of H_2O_2 (0–150 µM). Data is represented as a Mean ± SEM, pA. The number of sensors is denoted by (n).

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