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Supplemental Information for:

## Enzymeless electrochemical determination of hydrogen peroxide at a

## heteropolyanion-based composite film electrode

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Fig. S1 (a) The mixed mapping image of WV-Pt@Pd. (b)~(e) The individual element mapping images of V, Pd, Pt and W. (f) The TEM image of Pt@Pd aolly nanoparticles. (g) the diameter distribution histogram of Pt@Pd aolly nanoparticles.



Fig. S2 The catalytic efficiency of the  $[PB/WV-Pt@Pd]_6$  composite film towards reduction  $H_2O_2$ in 0.2 M PBS with different pH (a), and the  $[PB/WV-Pt@Pd]_n$  composite film with different layers in 0.2 M PBS with pH 7.0 (b).



Fig. S3 Cyclic voltammograms of the different films (a):  $[PEI/WV]_6$ ; (b):  $[PEI/PB]_6$ ; (c):  $[PB/WV]_6$ ; (d):  $[PEI/Pt@Pd]_6$ ; (e):  $[PEI/WV-Pt@Pd]_6$  and (f):  $[PB/Pt@Pd]_6$  with various concentrations of  $H_2O_2$ : 0.0, 1.0, 2.0, 3.0, 4.0 and 5.0 mM in 0.2 M PBS (pH 7.0).

order	eletrode materials	CAT (%)	applied potential (V)
a	[PEI/WV] <sub>6</sub>	81.9	-0.3
b	[PEI/PB] <sub>6</sub>	109	-0.3
c	[PB/WV] <sub>6</sub>	210	-0.35
d	[PEI/Pt@Pd] <sub>6</sub>	359	0.04
e	[PEI/WV-Pt@Pd] <sub>6</sub>	416	-0.3
f	[PB/Pt@Pd] <sub>6</sub>	594	-0.3
g	[PB/WV-Pt@Pd] <sub>6</sub>	1463	-0.3

Table S1 Comparison of CAT and applied potential of seven kinds of different composite films