

## Supporting information

### Label- and Redox Probe-Free Bioelectronic Chip for Monitoring Vitamins C and the 25-Hydroxyvitamin D3 Metabolite

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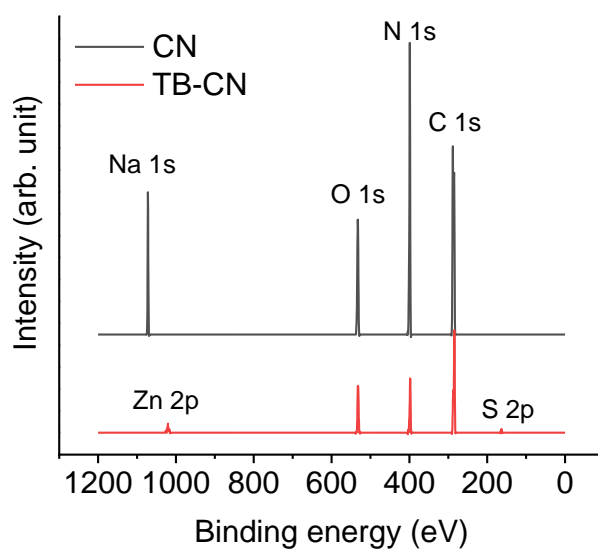
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**Figure S1.** Survey XPS spectra for CN and TB-CN.

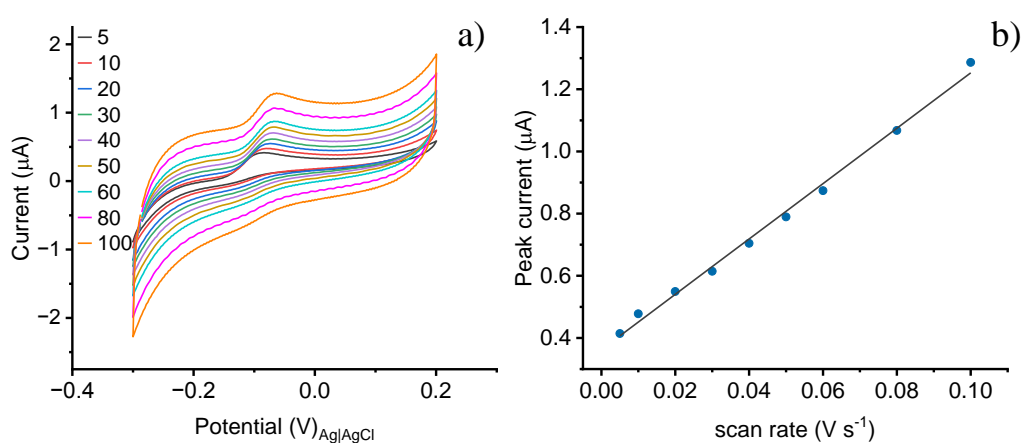
**Figure S2.** (a) Cyclic voltammetry response at different scan rates (5 to 100 mV s<sup>-1</sup>) and (b) plot of peak current with the scan rate in 0.01 M PBS (pH 7.4) with 140 μM vitamin C for PC/SPCE electrode.

**Figure S3.** (a) Cyclic voltammetry response at different scan rates (5 to 100 mV s<sup>-1</sup>) and (b) plot of peak current with the square root of scan rate in 0.01 M PBS (pH 7.4) for Au/TB-CN/SPCE electrode.

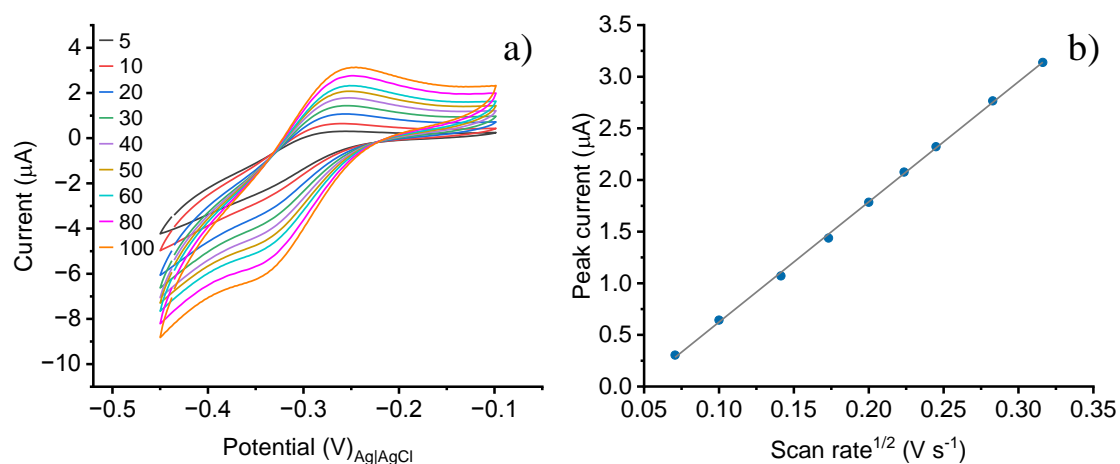
**Table S1.** Recovery values of the chip in detecting 25(OH)D3 and vitamin C in human serum and artificial saliva samples (n = 5; P = 0.05).



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**Figure S3.** (a) Cyclic voltammetry response at different scan rates (5 to 100 mV s<sup>-1</sup>) and (b) plot of peak current with the square root of scan rate in 0.01 M PBS (pH 7.4) for Au/TB-CN/SPCE electrode.

**Table S1.** Recovery values of the chip in detecting 25(OH)D3 and vitamin C in human serum and artificial saliva samples (n = 5; P = 0.05).

|           | Human serum                  |                              |              | Artificial saliva            |              |
|-----------|------------------------------|------------------------------|--------------|------------------------------|--------------|
|           | Added (ng mL <sup>-1</sup> ) | Found (ng mL <sup>-1</sup> ) | Recovery (%) | Found (ng mL <sup>-1</sup> ) | Recovery (%) |
| 25(OH)D3  | 0.1                          | 0.1                          | 103.9 ± 8.3  | 0.1                          | 101.7 ± 7.2  |
|           | 300                          | 288                          | 96.0 ± 9.2   | 301                          | 100.2 ± 8.9  |
|           | 700                          | 699                          | 99.9 ± 7.0   | 703                          | 99.0 ± 4.8   |
|           | Human serum                  |                              |              | Artificial saliva            |              |
|           | Added (mM)                   | Found (mM)                   | Recovery (%) | Found (mM)                   | Recovery (%) |
| Vitamin C | 1                            | 1                            | 101.7 ± 9.3  | 1                            | 99.5 ± 9.1   |
|           | 70                           | 68                           | 97.0 ± 9.0   | 69                           | 102.8 ± 8.4  |
|           | 140                          | 141                          | 100.9 ± 9.9  | 142                          | 100.4 ± 9.5  |