Supplementary Information

Artificial intelligent olfactory system for the diagnosis of Parkinson's disease

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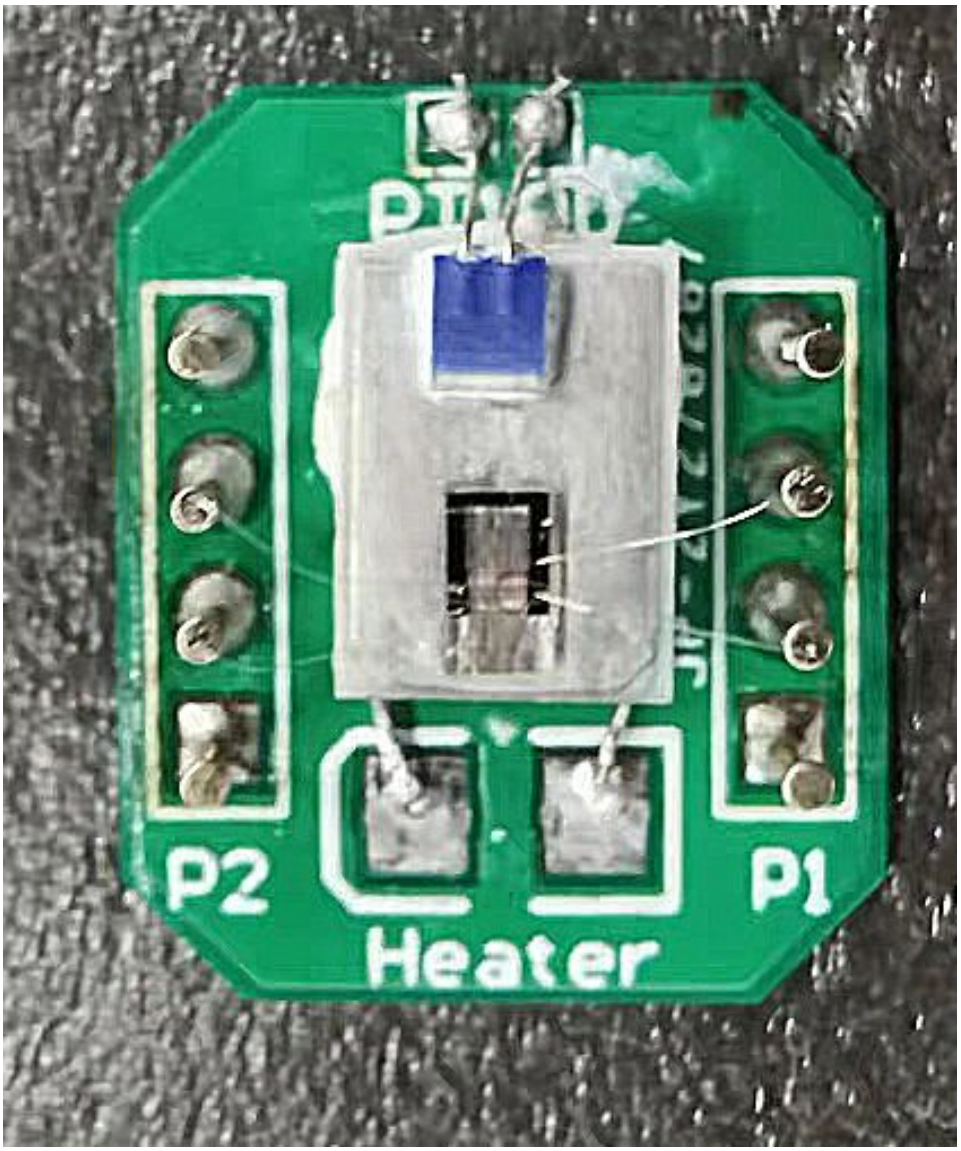

Figure S1. Physical image of SAW sensor.

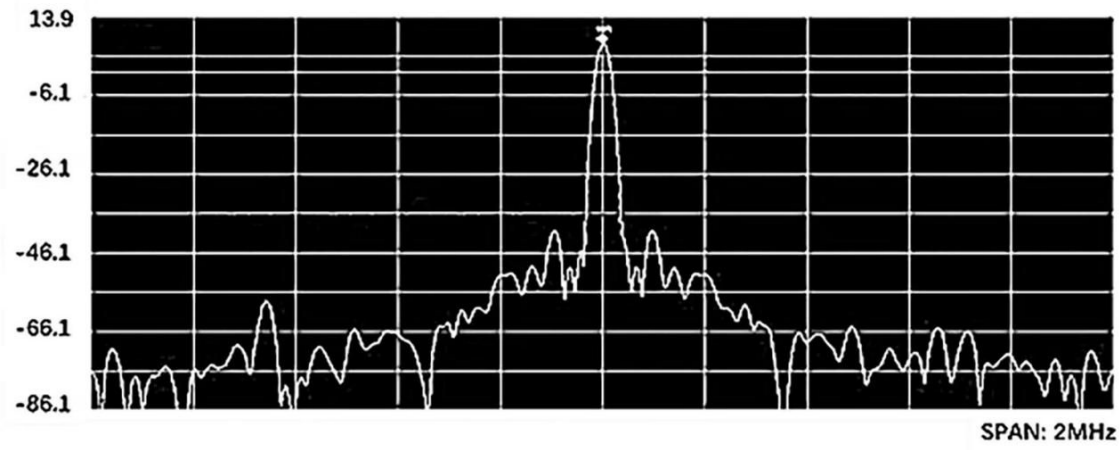

Figure S2. SAW sensor's starting frequency spectrum measured by the spectrum analyzer. The center frequency of the sensor is 500.647 MHz. In the case of no load on the sensor surface, the frequency amplitude of the vibration is 7.35 dB, which is consistent with the design parameters. And the frequency band is narrower and the energy is more concentrated. Reprinted in part with permission from [1]. Copyright 2017 Japan Society for Analytical Chemistry

Table S1. The results of non-parametric test for the four biomarkers

Putative identification	p-value	
	Mann-Whitney U test	**Kolmogorov-Smirnov Z test**
Octanal	0. 571	0. 033
Hexyl acetate	0. 987	0. 044
Perillic aldehyde	0. 014	0. 114
Dodecane	0.519	0.996

Table S2. By dissolving them in an appropriate solvent, various standard solutions are Dprepared for creating chemical mixtures of gauze spiked with human sebum. The following table shows the solvents used to create each standard separately, and then formed a mixture of various concentrations for calibration experiments. And the retention time periods were useful to find the standard from the full-data.

Standard	CAS	Mass	Solvent	Retention time(s) (a time period)
Octanal	124-13-0	128.21	Ethanol	5.59-5.78
Hexyl acetate	142-92-7	144.21	Methanol	5.89-6.04
Perillic aldehyde	2111-75-3	150.22	Ethanol	10.39-10.78
Dodecane	112-40-3	170.33	Ethanol	9.52-9.90

References

(1) Zhang F.; Dong H.; Zhang X.; Guo J.; Liu Y.; Zhou C.; Zhang X.; Liu J.; Yan M.; Chen X. A Non-invasive Monitoring of Propofol Concentration in Blood by a Virtual Surface Acoustic Wave Sensor Array. Anal Sci **2017**, *33*, 1271-1277.