

Graphene Bioelectronic Nose for the Detection of Odorants with Human Olfactory Receptor 2AG1

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Table 1. Root Mean Square (RMS) roughness data of bare graphene (blank) and after functionalization using DAN.

Scan number	Blank/DAN	RMS	Scan number	Blank/DAN	RMS
1	Blank	802.1 pm	16	Blank	897.6 pm
2	Blank	825.0 pm	17	Blank	662.7 pm
3	Blank	944.1 pm	18	Blank	684.4 pm
4	Blank	857.5 pm	19	Blank	648.8 pm
5	Blank	974.9 pm	20	Blank	621.6 pm
6	Blank	788.1 pm	21	Blank	686.8 pm
7	Blank	725.2 pm	22	Blank	580.4 pm
8	Blank	644.7 pm	23	Blank	570.4 pm
9	Blank	725.2 pm	24	Blank	534.3 pm
10	Blank	1.228 nm	25	Blank	732.4 pm
11	Blank	616.3 pm	26	Blank	717.3 pm
12	Blank	621.6 pm	27	Blank	570.4 pm
13	Blank	1.052 nm	28	Blank	767.9 pm
14	Blank	739.5 pm	29	Blank	723.4 pm
15	Blank	867.3 pm	30	Blank	783.0 pm

Scan number	Blank/DAN	RMS	Scan number	Blank/DAN	RMS
31	Blank	534.3 pm	46	DAN	961.8 pm
32	Blank	701.4 pm	47	DAN	843.9 pm
33	Blank	497.1 pm	48	DAN	1.030 nm
34	Blank	724.9 pm	49	Blank	1.191 nm
35	Blank	708.8 pm	50	Blank	1.077 nm
36	DAN	2.315 nm	51	Blank	1.040 nm
37	DAN	2.309 nm	52	Blank	1.007 nm
38	DAN	2.189 nm	53	Blank	1.118 nm
39	DAN	1.306 nm	54	DAN	1.063 nm
40	DAN	1.106 nm	55	DAN	852.9 pm
41	DAN	1.024 nm	56	DAN	970.3 pm
42	DAN	804.8 pm	57	DAN	829.4 pm
43	DAN	952.6 pm	58	DAN	817.9 pm
44	DAN	1.044 nm	59	DAN	763.1 pm
45	DAN	1.072 nm	60	DAN	763.5 pm

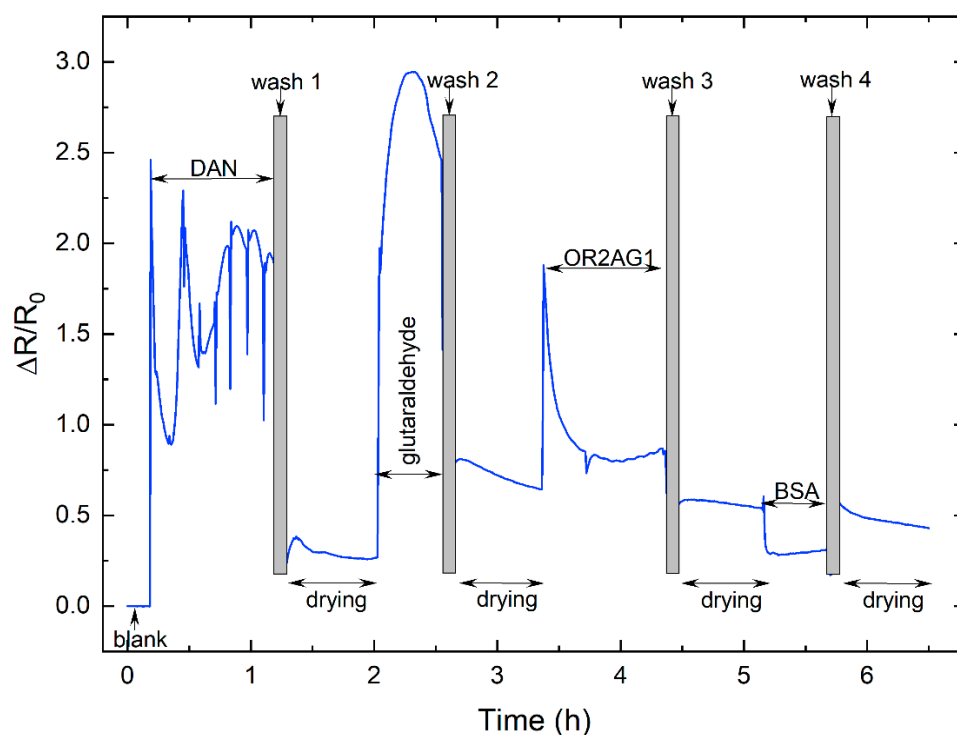


Figure S1. Real-time resistance measurements of the graphene functionalization process. Where $\Delta R/R_0 = R_{\text{device}} - R_0/R_0$ and R_0 is the resistance at $T = 0$ (resistance of bare (intrinsic) graphene).

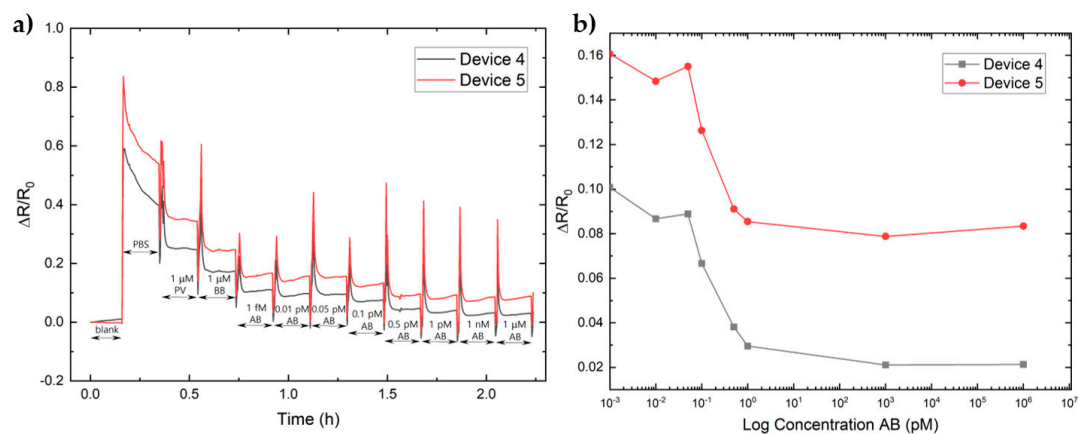


Figure S2. (a) Real-time resistance measurements of the OR2AG1 functionalized graphene sensor. Where $\Delta R/R_0 = R_{\text{device}} - R_0/R_0$ and R_0 is the resistance at $T = 0$ (resistance of OR2AG1 functionalized graphene). (b) Picomolar amyl butyrate concentration (logarithmic scale) plotted against resistance.

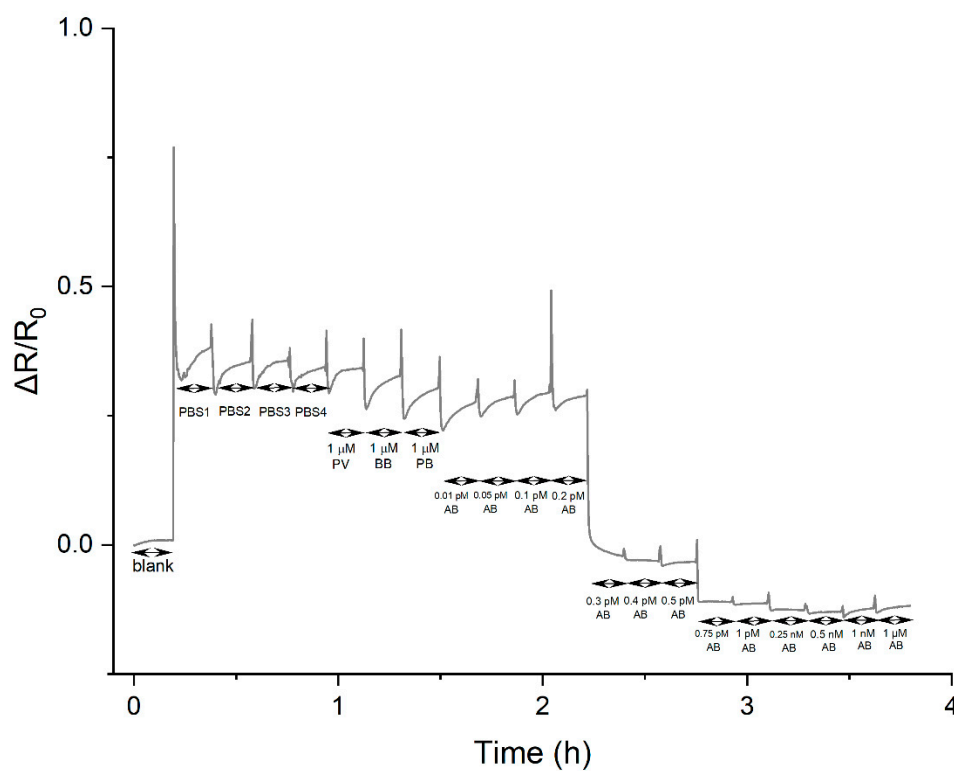


Figure S3. Real-time resistance measurements of the OR2AG1 functionalized graphene sensor. Where $\Delta R/R_0 = R_{\text{device}} - R_0/R_0$ and R_0 is the resistance at $T = 0$ (resistance of OR2AG1 functionalized graphene).