Supporting Information

for

Oxidation of benzyl alcohol catalyzed by gold nanoparticles under alkaline conditions: weak *vs* strong bases

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Table S1. Aqueous oxidation of benzyl alcohol catalyzed by Au/TiO_2 in the presence of K_2CO_3.[a]

#	[base]:[alcohol] ([HO^-]. mol/L)	Time	Initial pH	Final pH	Conv. (%)	Selectivity (%)		
						BnCHO	BnCOOH	BnCOOBn
1	0	60	5.85	3.83	19	92	8	0
2		150		3.33	33	89	11	0
3	0.1 (2.35_x10^{-3})	15	11.37	10.01	22	65	28	7
4		30		9.11	38	56	37	7
5		45		8.54	43	58	37	5
6		60		8.54	48	57	38	5
7		75		8.39	52	49	48	3
8		150		7.17	69	50	45	5
9	0.5 (5.38_x10^{-3})	15	11.73	10.67	24	45	48	7
10		30		10.40	31	43	51	5
11		45		10.22	49	40	55	5
12		60		10.29	65	34	59	6
13		75		10.03	78	25	72	3
14		150		8.39	99	12	83	5
15	1 (7.65_x10^{-3})	15	11.88	10.87	16	35	56	9
16		30		10.80	32	27	66	7
17		45		10.65	48	29	65	6
18		60		10.37	60	29	63	7
19		75		10.29	70	24	70	6
20		150		10.20	99	3	89	8
21	2 (10.86_x10^{-3})	15	12.04	10.87	26	25	73	2
22		30		10.88	44	20	76	3
23		45		10.56	65	16	80	4
24		60		10.39	72	13	87	1
25		75		10.23	69	6	93	1
26		150		9.98	100	0	99	1
27	4 (15.40_x10^{-3})	15	12.19	11.33	24	26	65	8
28		30		11.22	42	23	74	3
29		45		11.17	51	24	74	3
30		60		10.77	66	11	88	1
31		75		10.75	79	8	90	1
32		150		10.60	100	0	99	1

[a]Reaction conditions: benzyl alcohol (0.3 mL, 2.9 mmol), catalyst (15 mg, 1.3 μmol Au), O_2 (6 bar), 100 ^oC, 1 h. BnCHO = benzaldehyde, BnCOOH = benzoic acid; BnCOOBn = benzyl benzoate.

Table S2. Oxidation of benzaldehyde catalyzed by Au/TiO_2 in the presence of K_2CO_3.[a]

Medium	Catalyst	Conv. (%)	Selectivity %
			Benzoic acid
water	no	63	100
	yes	55	100
cyclohexane	no	36	100
	yes	0	0
Solvent-free[b]	no	13	100
	yes	0	0

[a]Reaction conditions: benzaldehyde (0.3 mL, 2.9 mmol), catalyst (15 mg, 1.3 μmol Au), K_2CO_3 (40 mg, [base]:[alcohol] = 0.1), O_2 (6 bar), 100 ºC, 1 h. [b]benzaldehyde (1 mL, 9.7 mmol), catalyst (52 mg, 4.4 μmol Au), K_2CO_3 (133 mg, [base]:[alcohol] = 0.1), O_2 (6 bar), 100 ºC, 1 h.

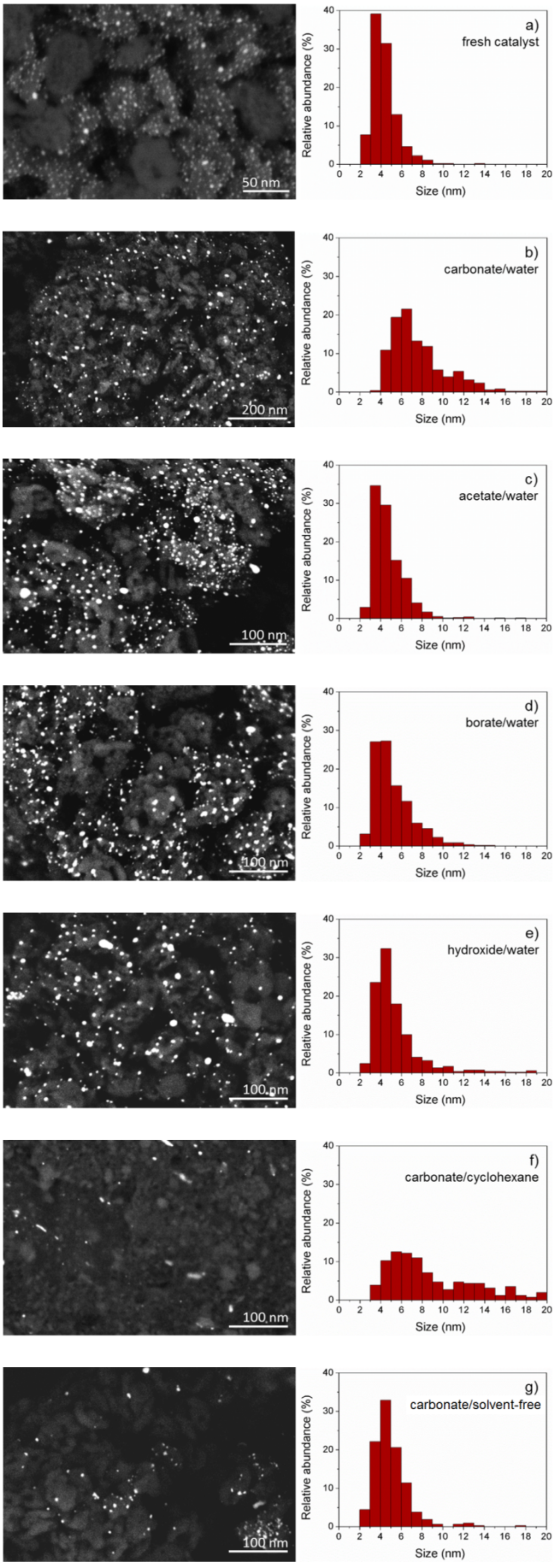

Figure S1. STEM images before and after being exposed to different reaction conditions. a) fresh catalyst, b) K_2CO_3/water, c) $Na(CH_3COO)$/water, d) $Na_2B_4O_7$/water, e) NaOH/water, f) K_2CO_3/cyclohexane and g) K_2CO_3/solvent-free.