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Article

Continuous 2-Methyl-3-Butyn-2-ol Selective Hydrogenation on Pd/γ-Al_2O_3 as a Green Pathway of Vitamin A Precursor Synthesis

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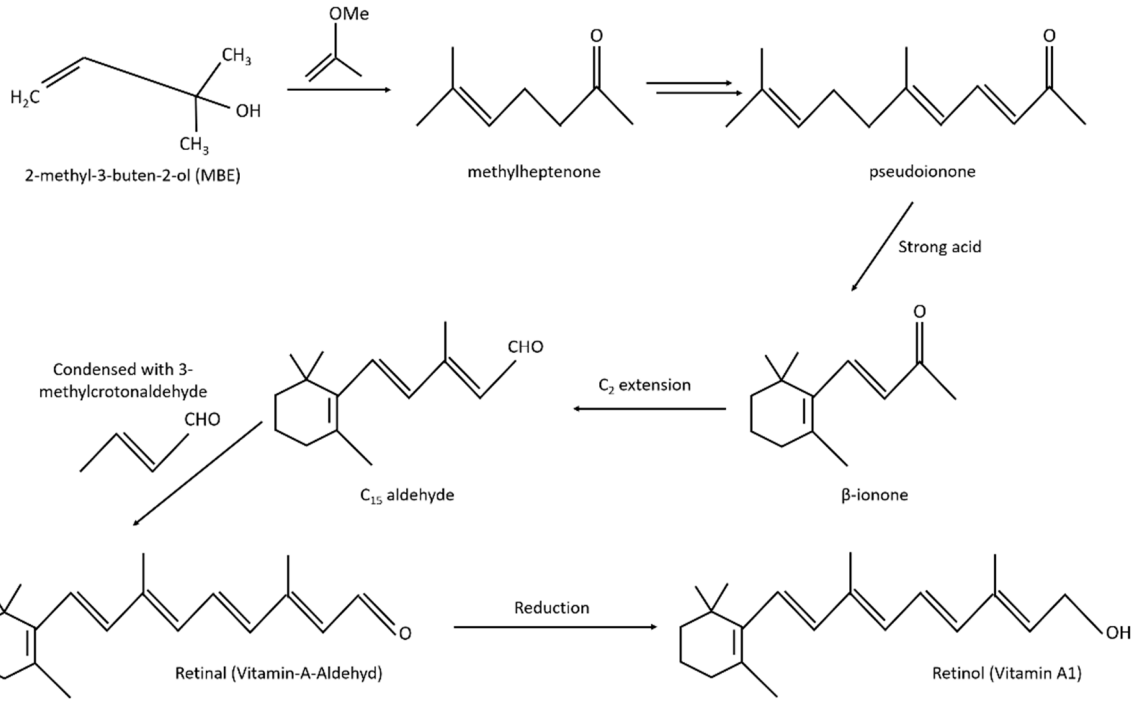


Scheme S1. Scheme of vitamin A synthesis with 2-methyl-3-buten-2-ol as one of the substrate [Eggersdorfer, M.; Laudert, D.; Létinois, U.; McClymont, T.; Medlock, J.; Netscher, T.; Bonrath, W. One Hundred Years of Vitamins-A Success Story of the Natural Sciences. Angew. Chemie Int. Ed. 2012, 51, 12960–12990].

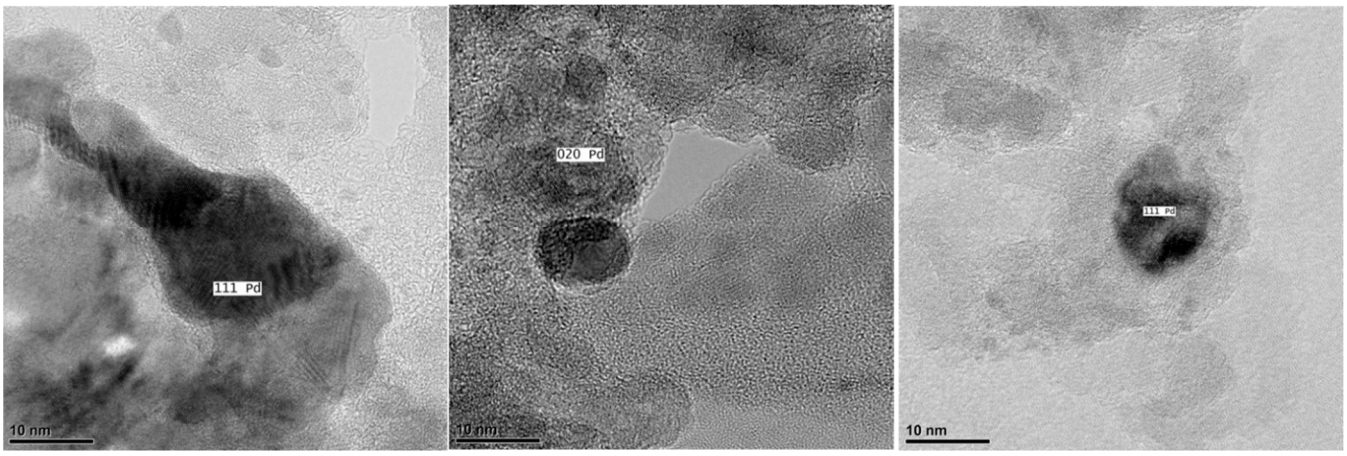


Figure S1. HRTEM images of red(400°C)-Pd/γ-Al_2O_3.

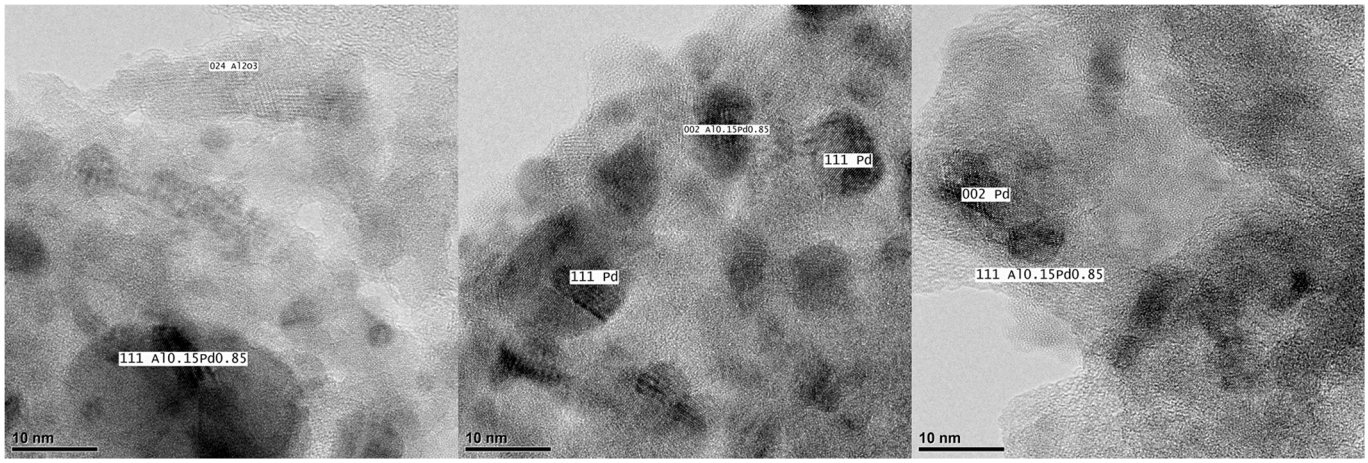
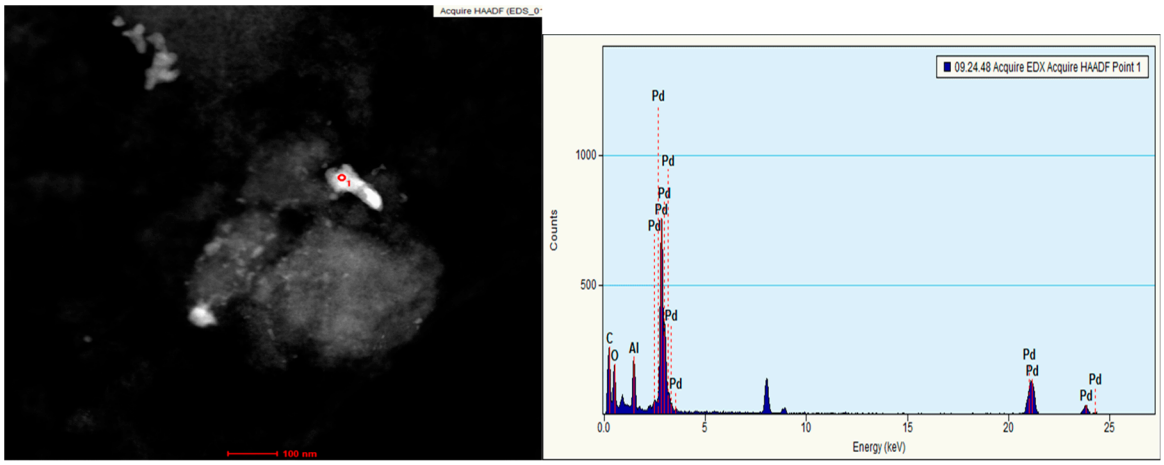
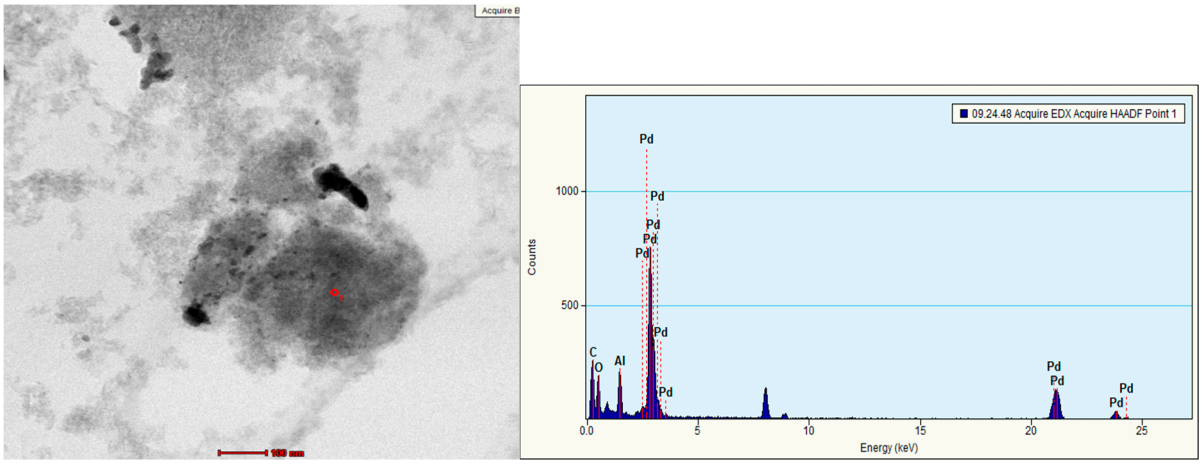


Figure S2. HRTEM images of red(600°C)-Pd/γ-Al_2O_3.



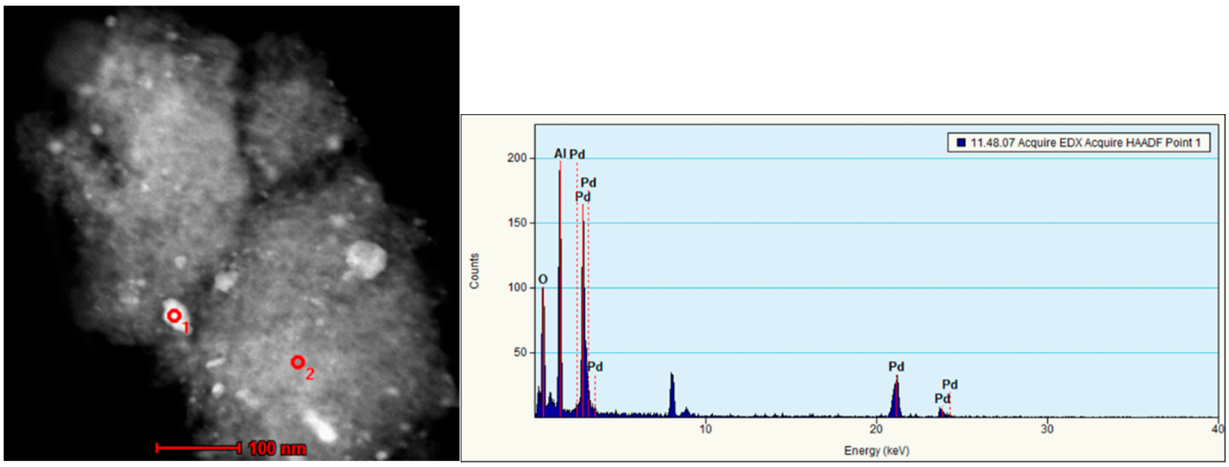
Element	Weight%	Atomic%	Uncert.%	Detector Correction	k-Factor
O (K)	8.28	33.02	0.26	0.51	1.921
Al (K)	6.78	16.05	0.16	0.92	1.033
Pd (K)	84.93	50.92	1.15	0.92	5.849

Figure S3. SEM - EDS analysis of red(400°C)-Pd/γ-Al_2O_3.

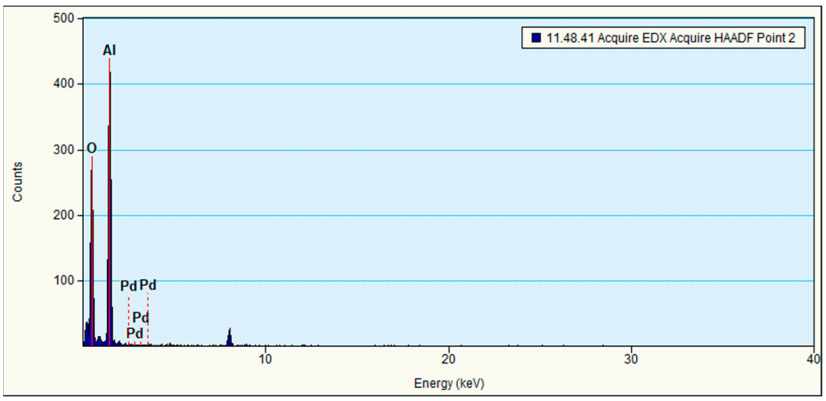


Element	Weight %	Atomic %	Uncert. %	Detector Correction	k-Factor
O (K)	50.21	63.50	1.25	0.51	1.921
Al (K)	48.26	36.20	0.88	0.92	1.033
Pd (K)	1.52	0.28	0.68	0.92	5.849

Figure S4. TEM-EDS analysis of red(400°C)-Pd/γ-Al_2O_3.



Element	Weight %	Atomic %	Uncert. %	Detector Correction	k-Factor
O (K)	20.17	45.66	0.85	0.51	1.921
Al (K)	27.10	36.38	0.65	0.92	1.033
Pd (K)	52.72	17.94	2.00	0.92	5.849



Element	Weight %	Atomic %	Uncert. %	Detector Correction	k-Factor
O (K)	52.79	65.35	1.01	0.51	1.921
Al (K)	47.20	34.64	0.69	0.92	1.033
Pd (K)	0.00	0.00	100.00	0.92	5.849

Figure S5. TEM-EDS analysis of red(600°C)-Pd/γ-Al_2O_3.

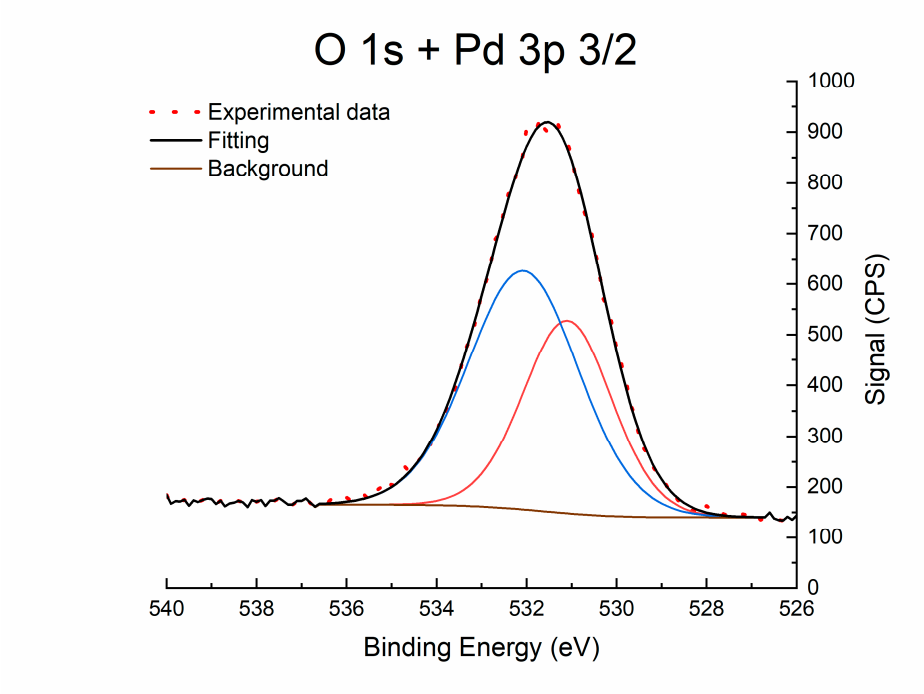


Figure S6. O1s + Pd3p$_{3/2}$ XPS region of red(400°C)-Pd/γ-Al$_2$O$_3$.

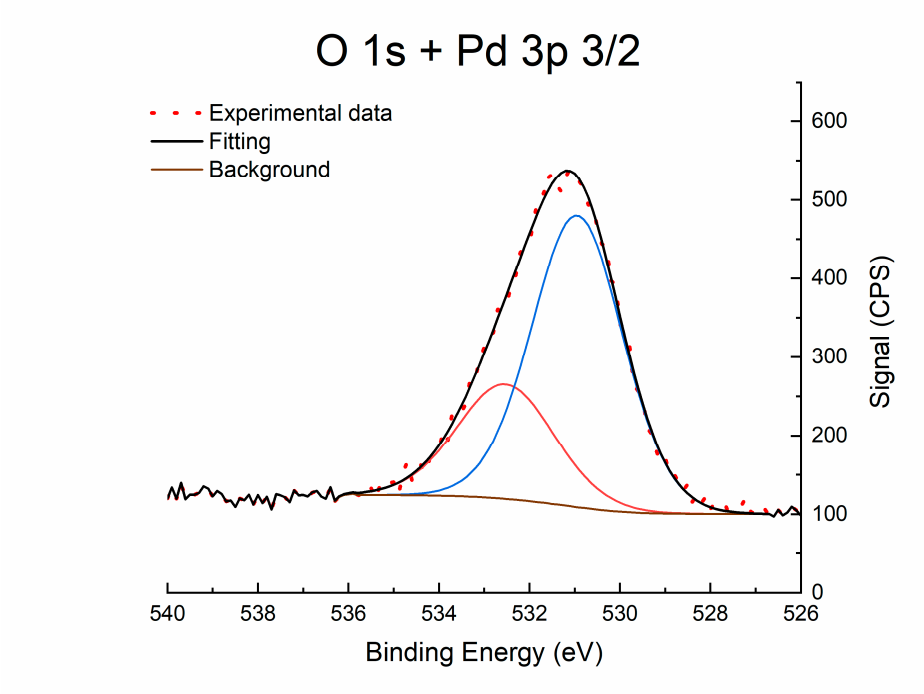


Figure S7. O1s + Pd3p$_{3/2}$ XPS region of red(600°C)-Pd/γ-Al$_2$O$_3$.

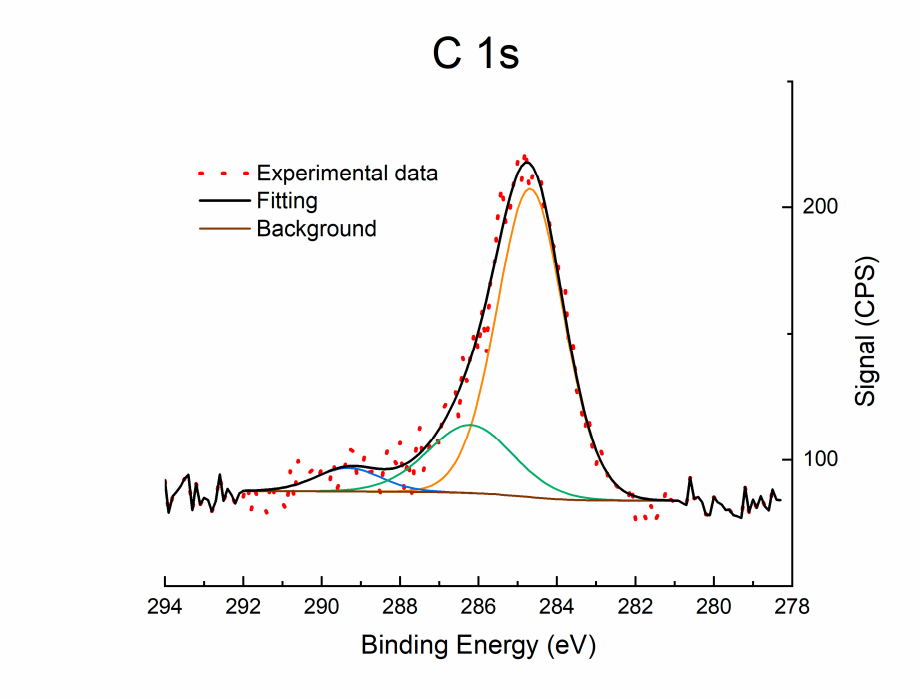


Figure S8. C 1s XPS region of red(400°C)-Pd/γ-Al_2O_3.

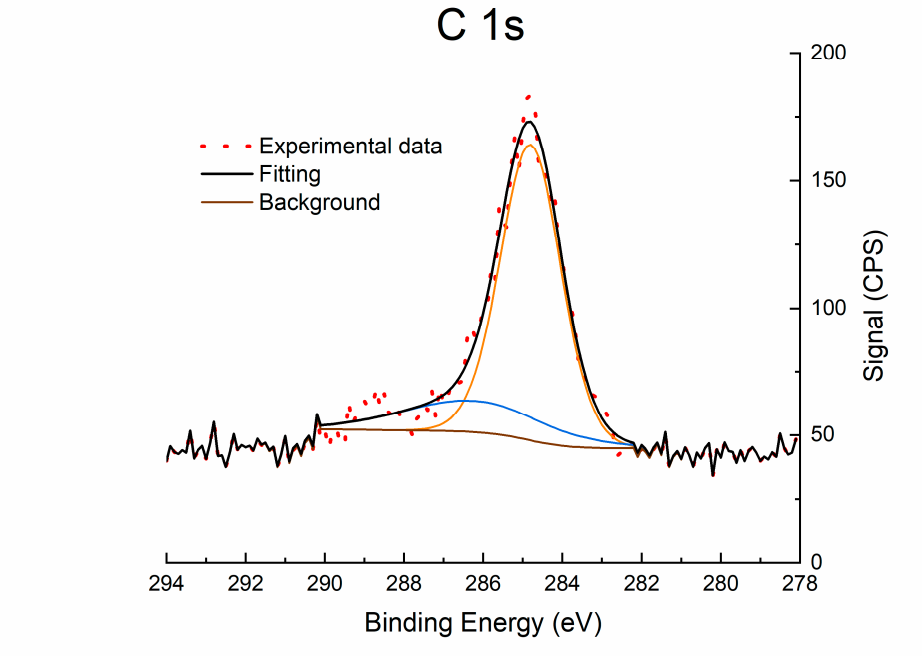


Figure S9. C 1s XPS region of red(600°C)-Pd/γ-Al_2O_3.