

1 Supplementary Materials

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3 CO total and preferential oxidation over stable 4 Au/TiO₂ catalysts derived from preformed Au 5 nanoparticles

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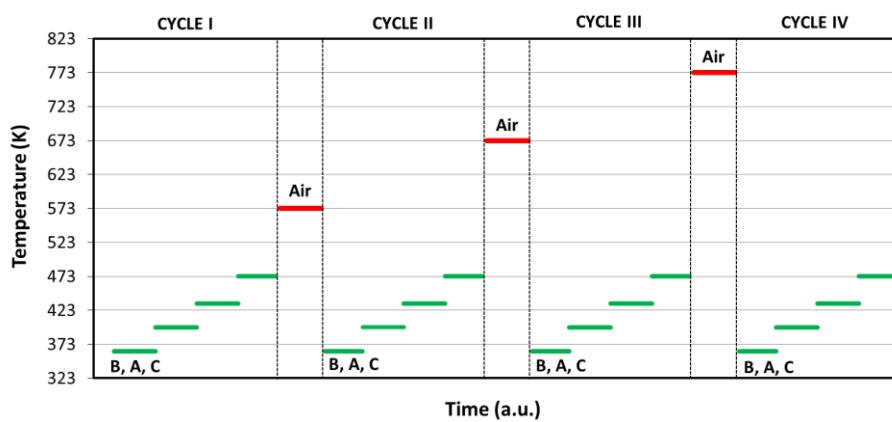
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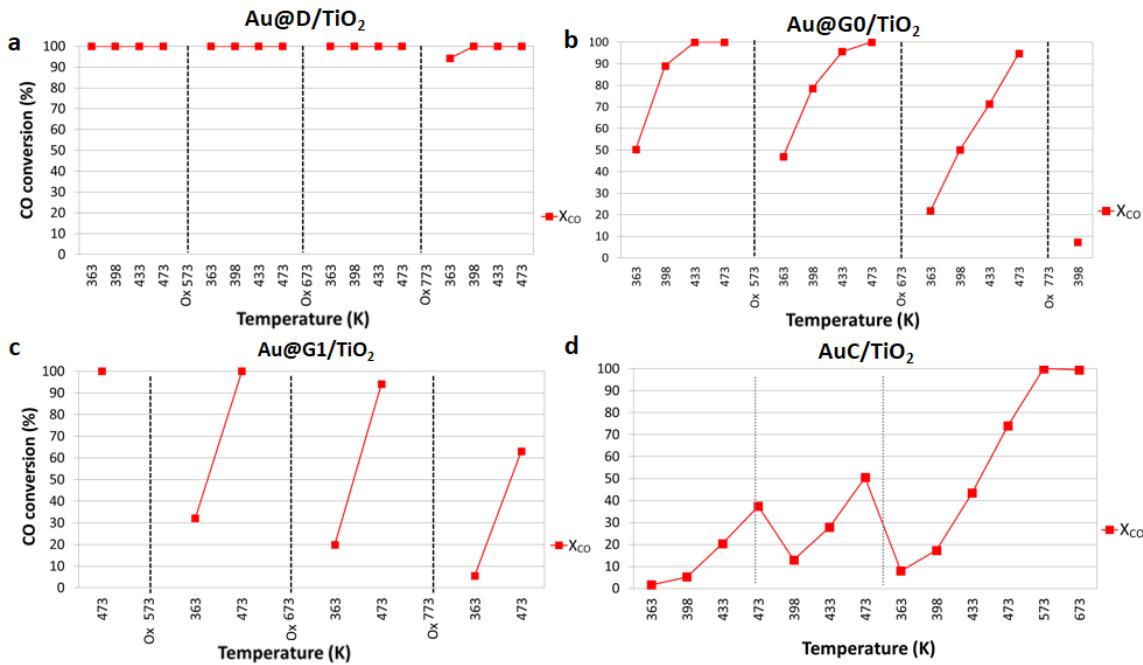
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21 **Figure S1.** Sequence of experimental conditions performed, highlighting the order of the reaction
22 mixtures, temperatures and details of the oxidations performed.

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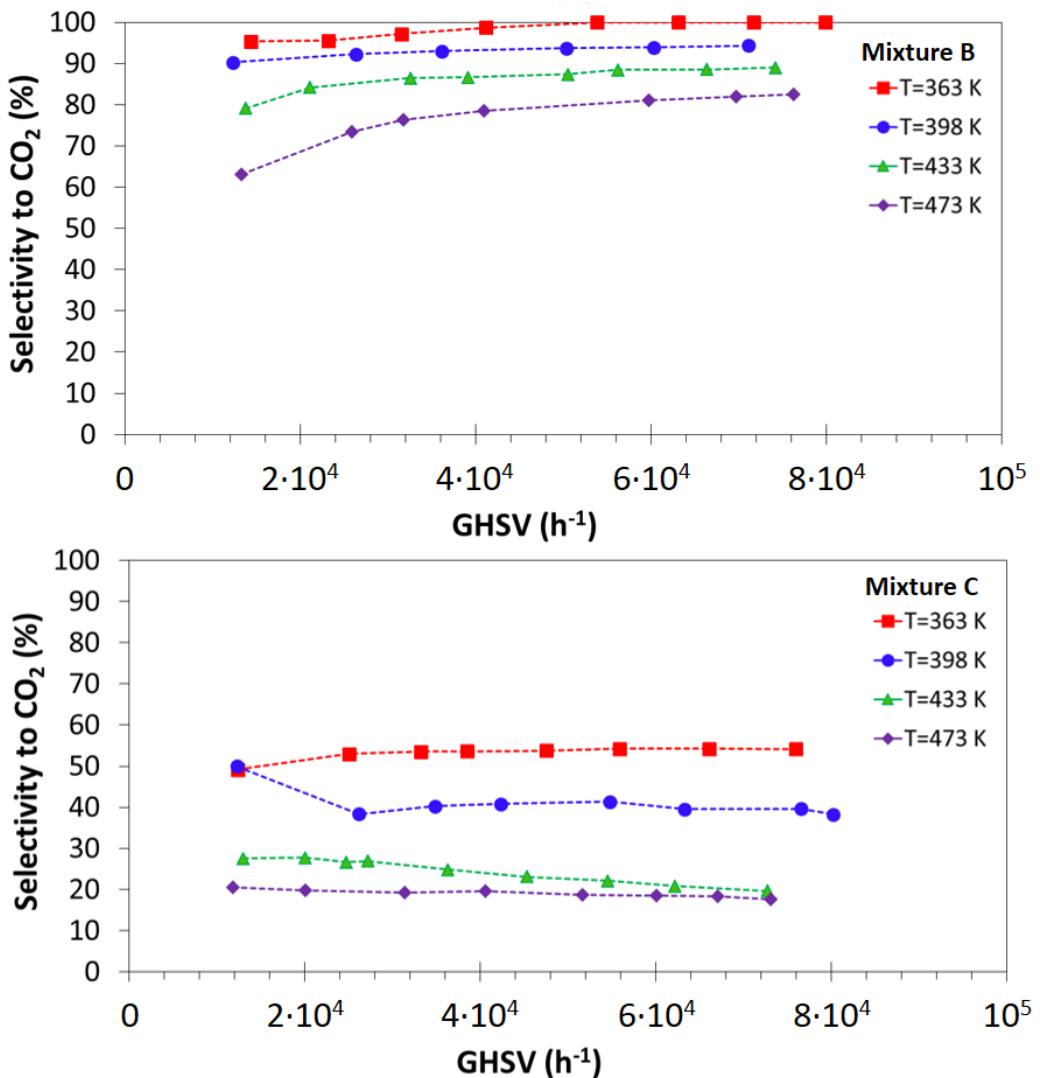
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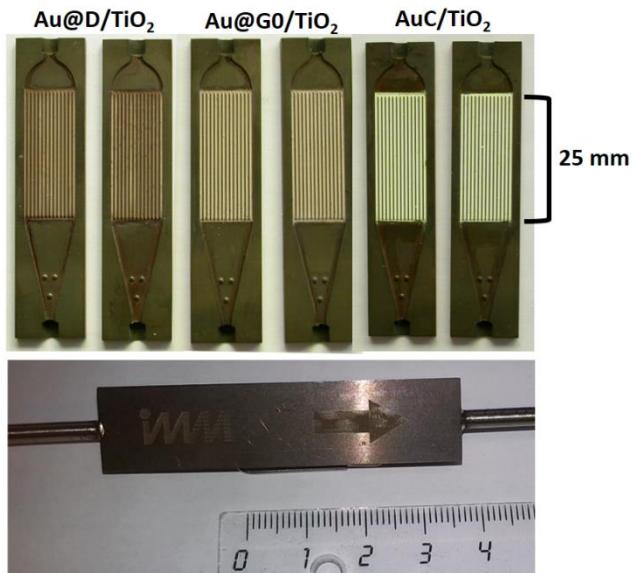
Figure S2. Temperature dependence performance of (a) Au@D/TiO₂, (b) Au@G0/TiO₂, (c) Au@G1/TiO₂, and (d) AuC/TiO₂ catalysts for mixture A. Black vertical lines in (a)-(c) indicate the oxidations performed; grey lines in (d) show when mixture B was dosed at a higher temperature.



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30 **Figure S3.** CO₂ selectivity for the feed load tests carried out for mixtures B and C on the microreactor
31 functionalized with Au@D/TiO₂.

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34 **Figure S4.** Upper photographs: Detail of the inner part of the microreactors showing the
35 microchannels coated with TiO₂ and three different Au precursors: Au@D, Au@G0, and
36 HAuCl₄·3H₂O. Lower photograph: detail of an assembled microreactor. The scale is shown in cm.

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