## SUPPORTING INFORMATION

## A Systematic Study on the Use of Biogenic Acids in Directing the Hyperbranched Growth of Au Nanocorals

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Fig. S1. SEM images of the Au nanostructures that were produced using AA + OA: (a) with Na<sub>3</sub>Cit and (b) without Na<sub>3</sub>Cit. The coral-like structure was obtained even without Na<sub>3</sub>Cit.



**Fig. S2.** SEM images of the Au nanostructures that were produced using (a) Cat only, (b) Pyr only, (c) Cat + OA, and (d) Pyr + OA.



**Fig. S3.** SEM images of the Au nanostructures that were produced using (a) Dop and (b) Dop + OA. The molecular structure of dopamine (Dop) is shown on top.



**Fig. S4.** SEM images of the Au nanostructures that were produced using AA + Gly with Gly/AA molar ratio of (a) 1:1 and (b) 4:1. Inset in (a) shows a higher-magnification image.



**Fig. S5.** SEM images of the Au nanostructures that were produced using AA + LA, where (b) shows a higher-magnification image.



**Fig. S6.** SEM images of the Au nanostructures that were produced using (a) AA + MA, (b) AA + GlA, and (c) AA + AdA.



**Fig. S7.** SEM images of the Au nanostructures that were produced using (a) PA + SA and (b,c) GA + SA with SA/GA molar ratio of (b) 1:1 and (c) 4:1.



**Fig. S8.** XRD patterns of the Au nanocorals obtained using GA + OA (purple), PA + OA (green), AA + OA (blue), and AA + SA (red). The black plot at the bottom is the literature pattern for face-centered cubic Au from the Crystallography Open Database (COD 1100138).



**Fig. S9.** A side-by-side comparison of the SEM images of the Au nanocorals obtained when the biogenic acids were added in solid phase (left panels) and in aqueous phase (right panels). The biogenic acid combinations are: (a,b) AA + OA, (c,d) AA + SA, (e,f) PA + OA, and (g,h) GA + OA.



**Fig. S10.** SEM images of the Au nanostructures that were produced using GA + OA with a GA/OA molar ratio of 2:1, and where the reagents were added in (a) solid phase and (b) aqueous phase.



**Fig. S11.** SEM images of the Au nanocorals obtained using (a,b) AA + SA and (c,d) GA + OA with reagent 1/reagent 2 molar ratios of 2:1 (left panels) and 1:2 (right panels).



**Fig. S12.** TEM images of the Au nanostructures that were produced using GA + OA at the early stages of reaction: (a) 10 s stirring and (b) 1 min stirring.