Supplementary document

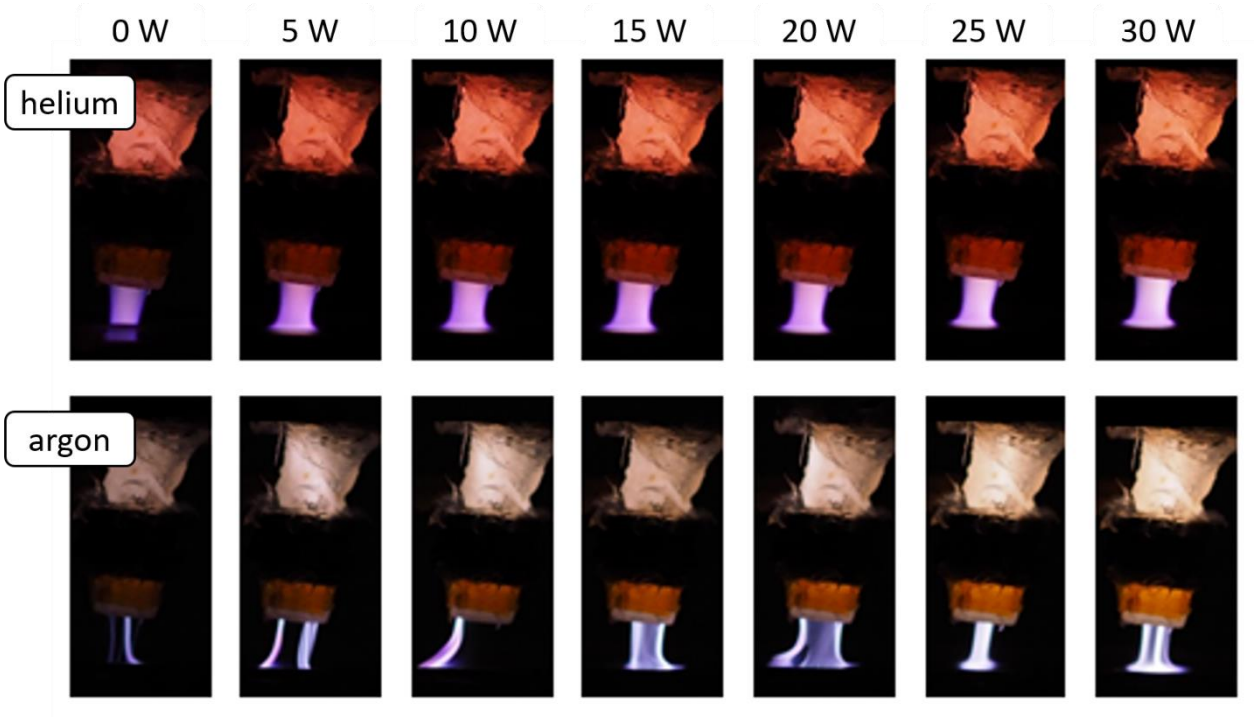

Figure S1. Pictures of the plasma jet in contact with a solution at different RF powers with (top) helium and (bottom) argon as process gases.

The AFM measurements supported the SEM data by confirming the particle sizes. The results are presented below and reinforce the previously reported sizes: an average diameter of 33 nm for the Helium plasma treatment of 10 minutes without the addition of RF power, and an average diameter of 23 nm for the 10-minute Helium plasma treatment with the addition of 30 W RF power.

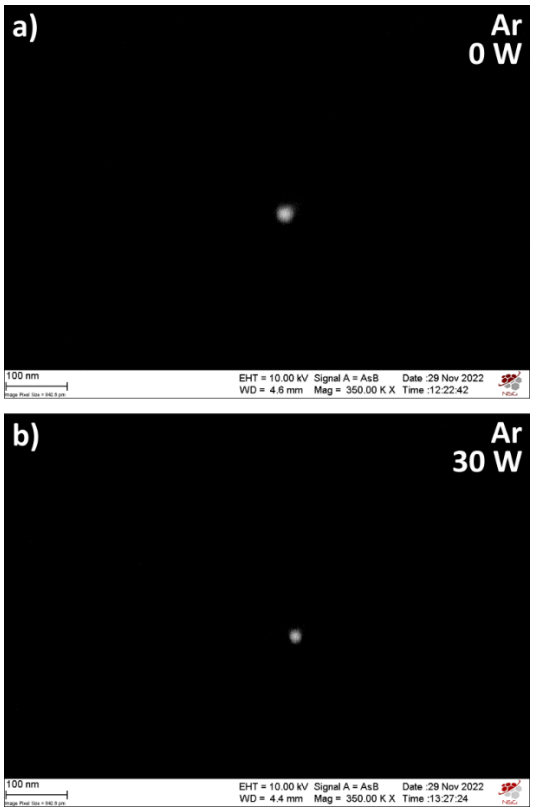

Figure S2. SEM micrographs of the one gold nanoparticles synthesized with a 10 min argon plasma jet exposure at a) 0 W, and b) 30 W RF power.

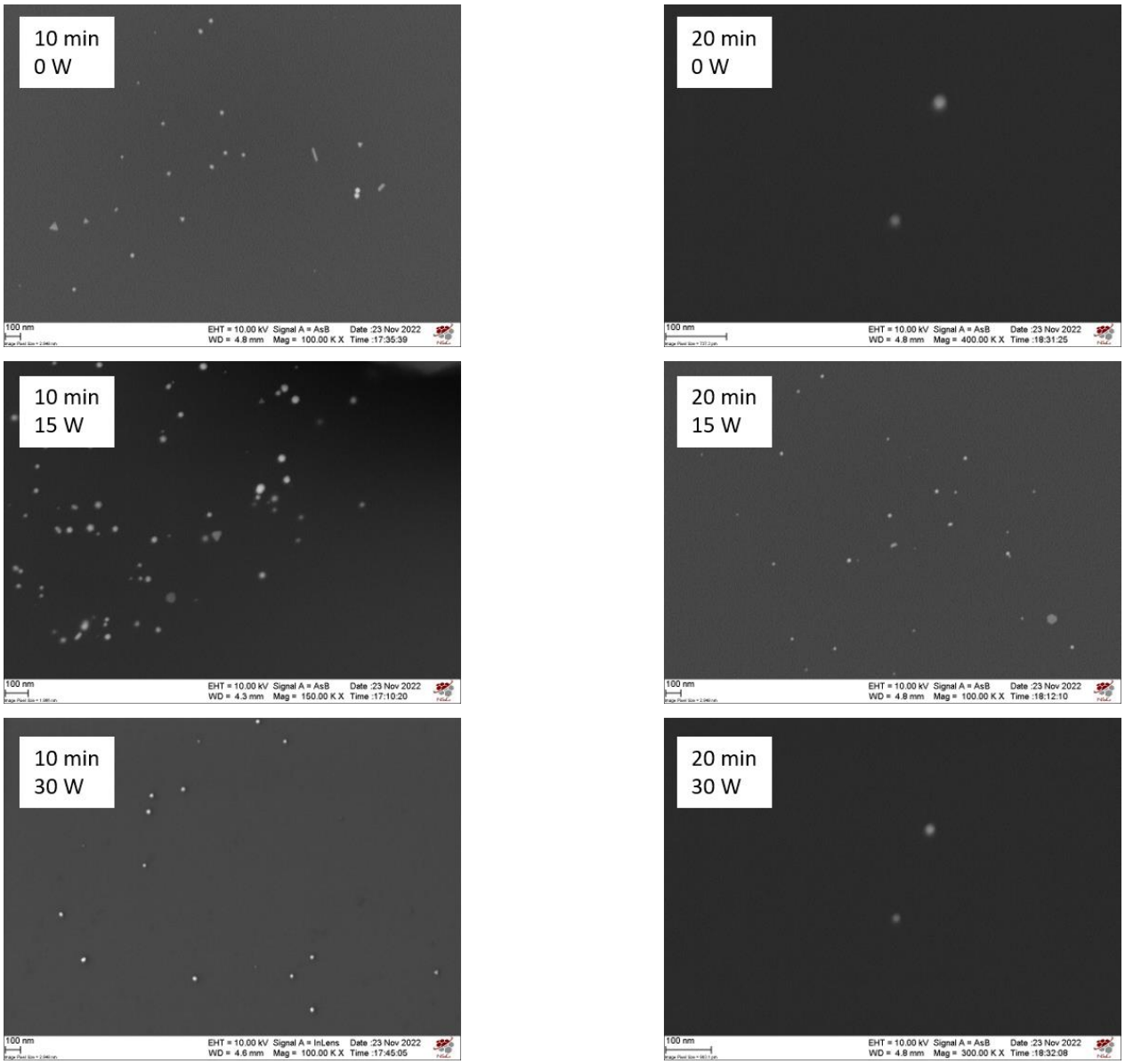

Figure S3. SEM micrographs of gold nanoparticles synthesized by plasma jet at different RF powers and at different plasma exposure duration with helium gas.

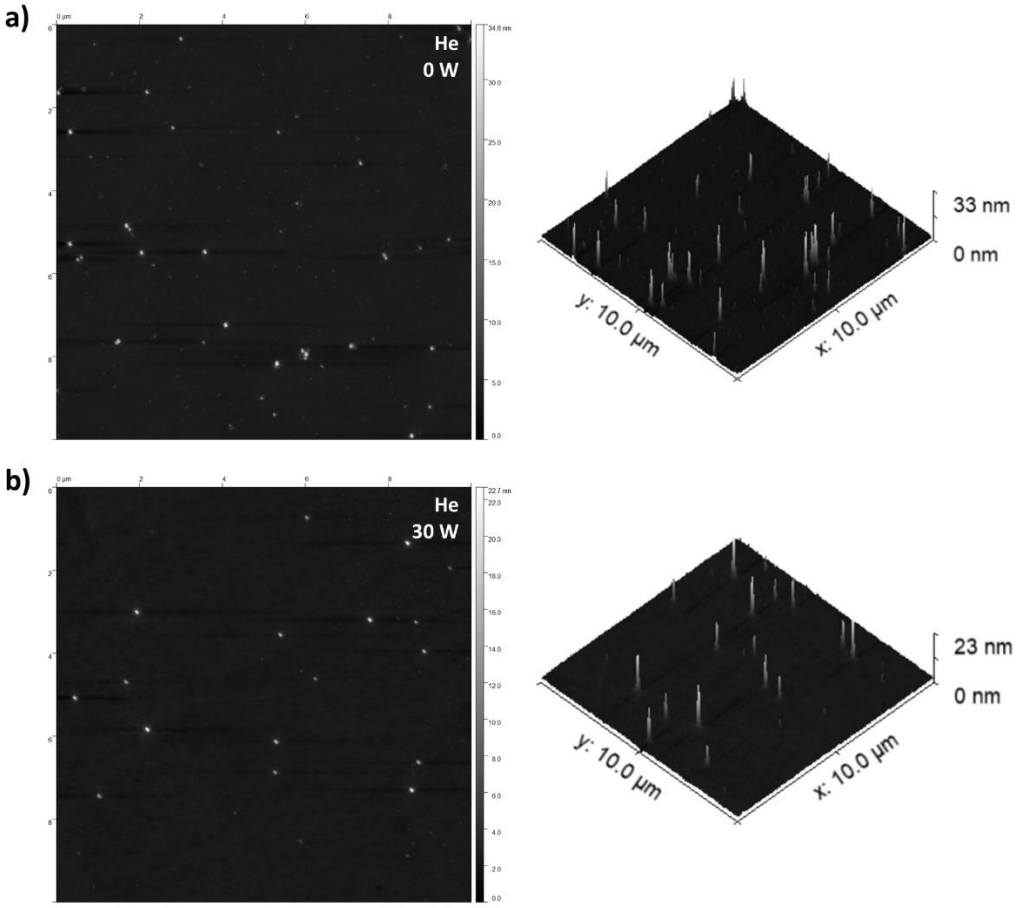

Figure S4. AFM topographical images in 2D and 3D of the synthesized gold nanoparticles with a 10 min helium plasma jet exposure at a) 0 W, and b) 30 W RF power.

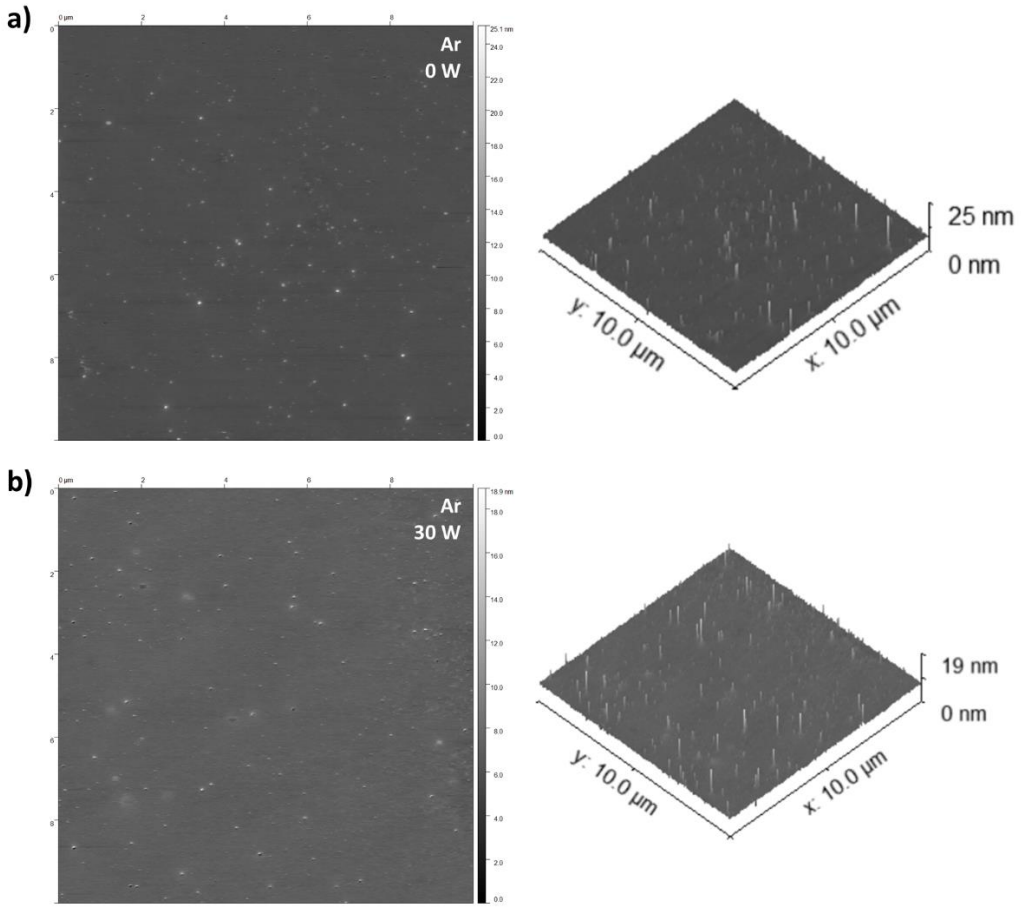

Figure S5. AFM topographical images in 2D and 3D of the synthesized gold nanoparticles with a 10 min argon plasma jet exposure at a) 0 W, and b) 30 W RF power.

These images illustrate nanoparticles treated for 10 minutes with plasma discharge both without the addition of RF power and with the addition of 30 W RF power. These SEM images provide a representation of the particle morphology and support our discussion as the addition of RF is responsible of a change in the distribution and the reduction of nanoparticle sizes.