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Supporting Information

for

Size control of nanoparticles synthesized by pulsed laser ablation in liquids using donut-shaped beams

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Additional experimental data

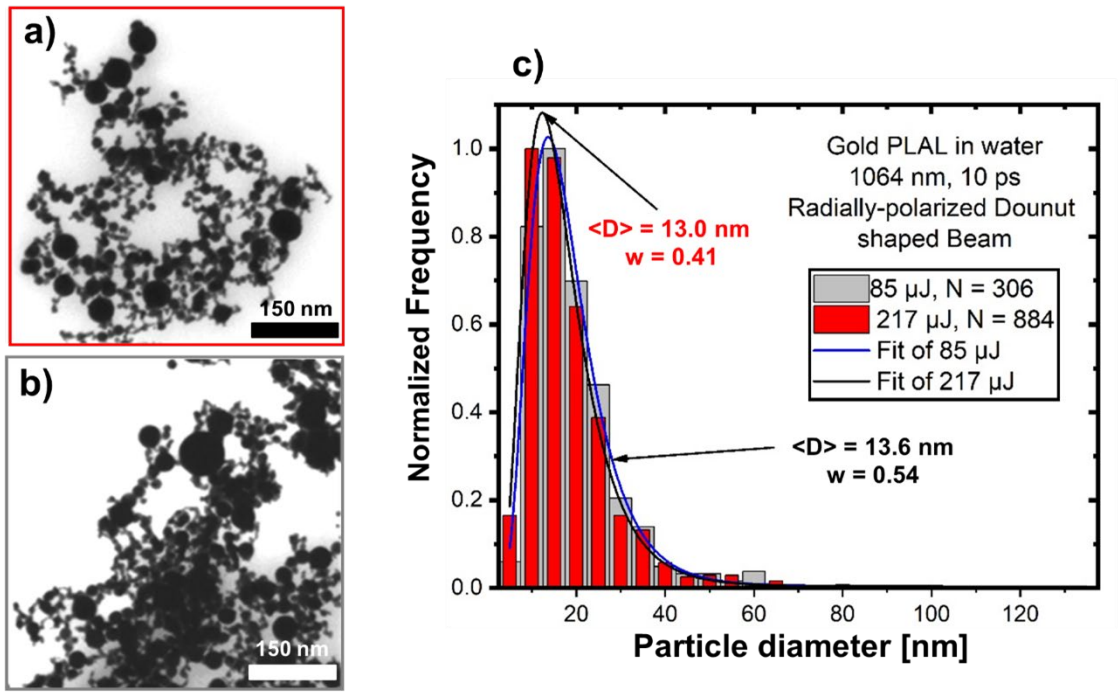

Figure S1: Comparison of gold NPs produced by PLAL with radially polarized donut-shaped laser beams at pulse energies of 85 and 217 µJ. (a, b) SEM micrographs of NPs obtained using pulse energies of 85 and 217 µJ, respectively. (c) NP size distributions showing the number of analyzed NPs (N), the median diameter ($\langle D \rangle$), and the polydispersity index (w) values derived from the log-normal approximations (solid lines).

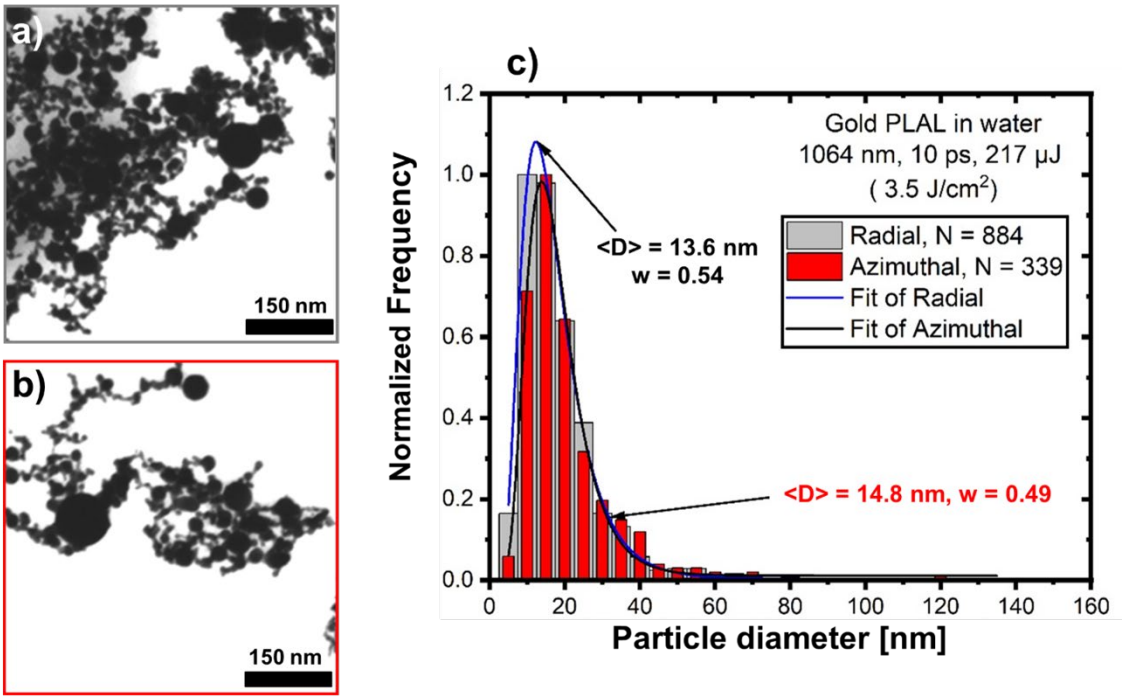

Figure S2: Comparison of gold NPs produced by PLAL with radially polarized donut-shaped and azimuthally polarized donut-shaped laser beams at a pulse energy of 217 µJ. (a, b) SEM micrographs of NPs obtained using the radially polarized donut-shaped and azimuthally polarized donut-shaped beams, respectively. (c) NP size distributions showing the number of analyzed NPs (N), the median diameter ($\langle D \rangle$), and the polydispersity index (w) values derived from the log-normal approximations (solid lines).

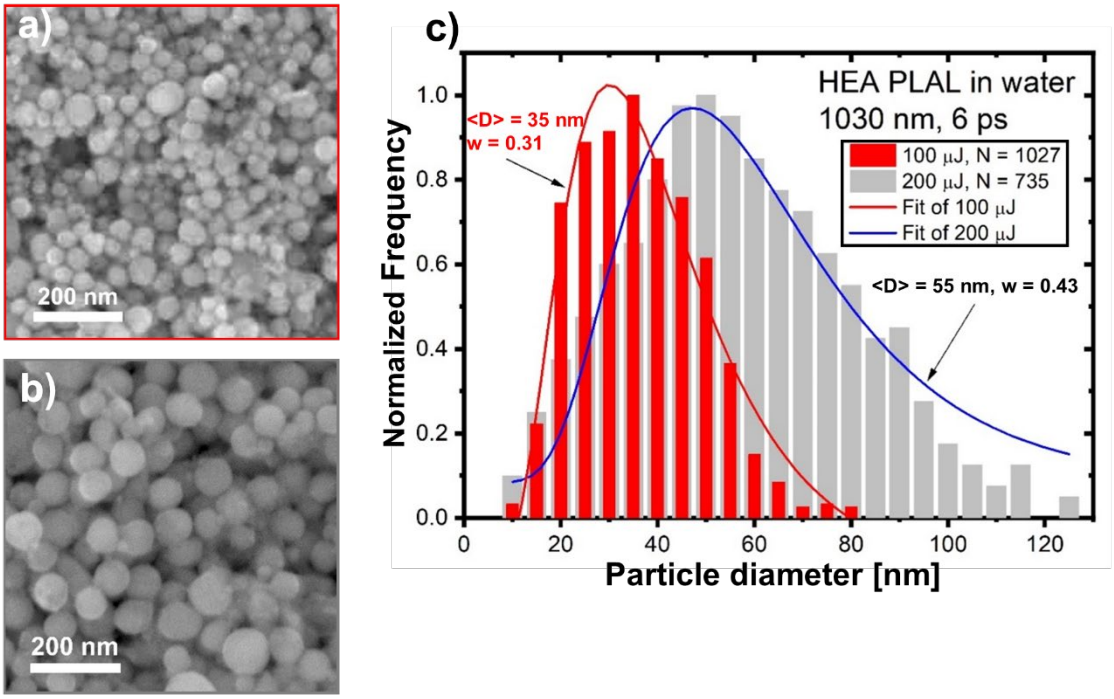

Figure S3: Comparison of HEA NPs produced by PLAL with radially polarized donut-shaped laser beams at pulse energies of 100 and 200 µJ. (a, b) SEM micrographs of NPs obtained using pulse energies of 100 and 200 µJ, respectively. (c) NP size distributions showing the number of analyzed NPs (N), the median diameter ($\langle D \rangle$), and the polydispersity index (w) values derived from the log-normal approximations (solid lines).

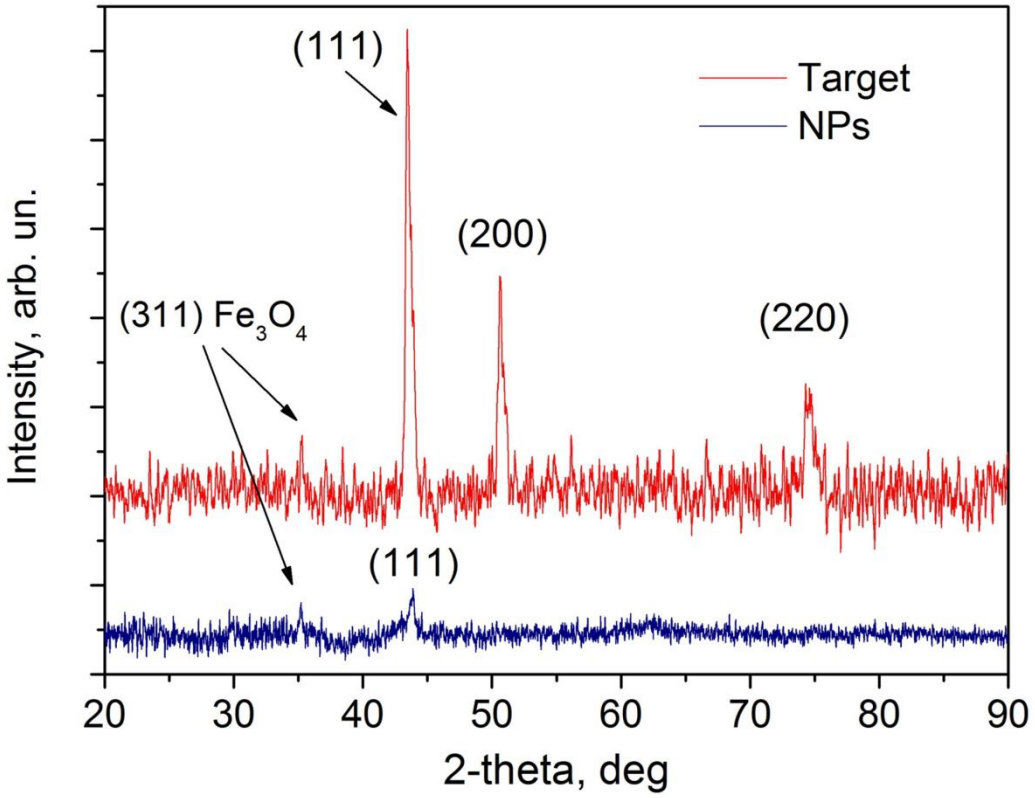

Figure S4: XRD patterns for the HEA target and NPs generated by PLAL by a donut-shaped laser beam at a pulse energy of 100 µJ. The crystalline HEA phase is represented by peaks corresponding to (111), (200), and (220) Bragg reflections of the face-centered cubic lattice. An additional (311) peak at 2θ = 35.2° corresponds to the cubic Fe_3O_4 phase. The height ratio of the oxide peak to the (111) peak is higher for NPs.