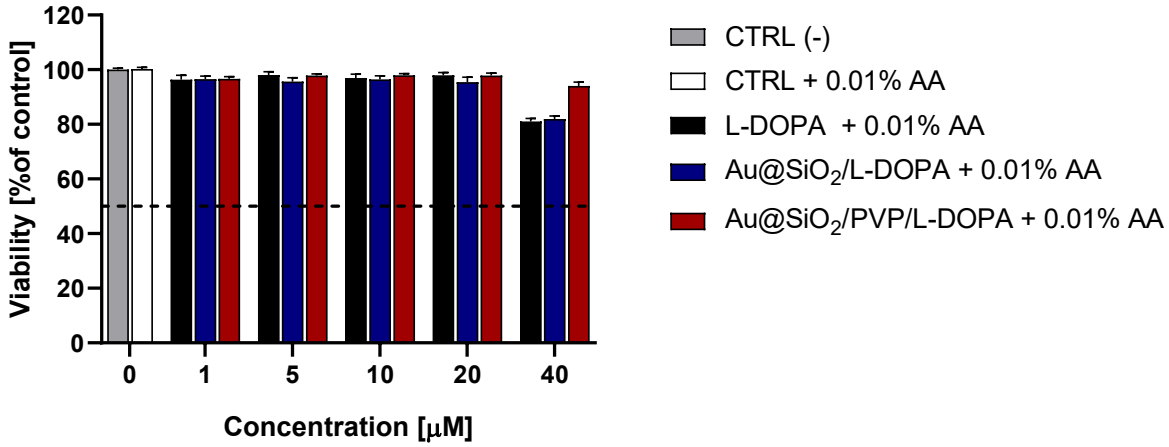

Figure S1. Effect of free L-DOPA and Au@SiO_2-based nanoformulations on SH-SY5Y cell viability after 24 h in the presence of 0.01% ascorbic acid. Cells were exposed to increasing L-DOPA-equivalent concentrations (1–40 μM) delivered as free L-DOPA, Au@SiO_2–L-DOPA, or Au@SiO_2/PVP–L-DOPA. Viability was determined by the Trypan Blue exclusion assay and normalized to the untreated control (CTRL (–); medium only). CTRL + AA refers to cells treated with 0.01% ascorbic acid alone. Bars represent mean ± SD (n = 3). The dashed horizontal line at 50% denotes the IC_{50} threshold.

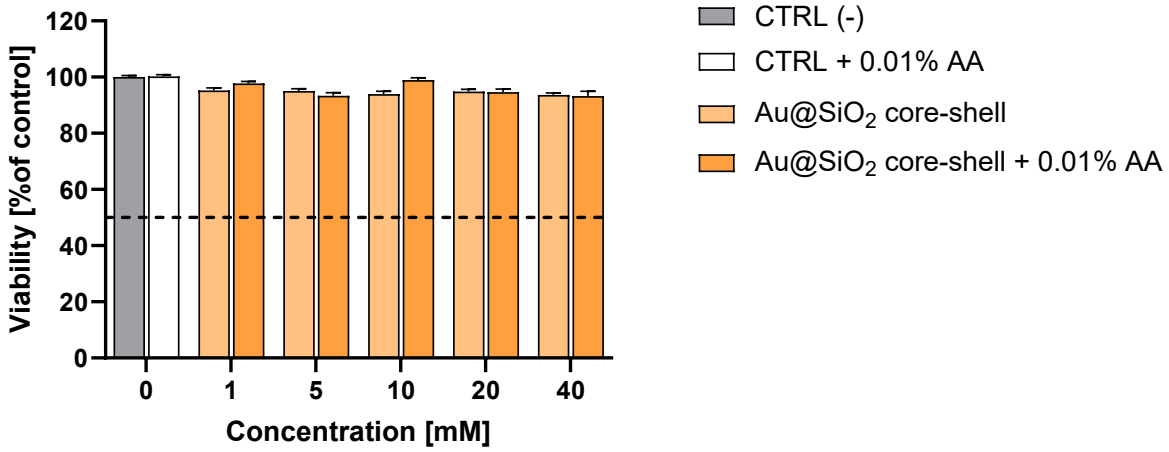

Figure S2. Effect of Au@SiO_2 core–shell nanoparticles on SH-SY5Y cell viability after 24 h with or without 0.01% ascorbic acid. Cells were exposed to increasing nanoparticle concentrations (1–40 mM). Viability was determined by the Trypan Blue exclusion assay and normalized to the untreated control (CTRL; medium only). CTRL + 0.01% AA denotes cells treated with ascorbic acid alone. Bars show mean ± SD (n = 3). The dashed horizontal line at 50% indicates the IC_{50} threshold.

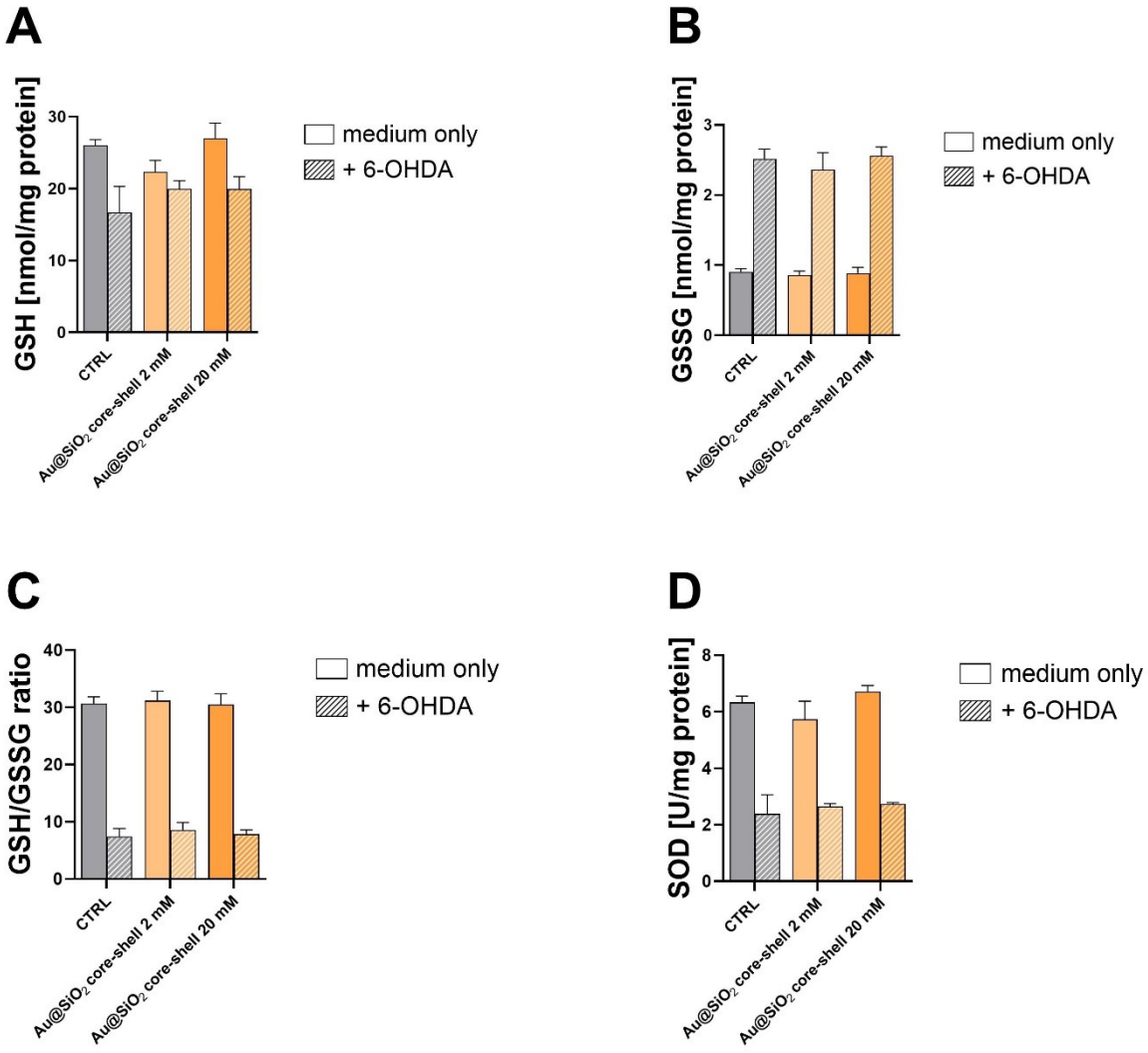

Figure S3. Effects of Au@SiO₂ core–shell nanoparticles on the cellular redox state of SH-SY5Y cells in the absence or presence of 6-hydroxydopamine (6-OHDA). Cells were pre-incubated for 2 h with Au@SiO₂ core–shell at 2 or 20 mM, then either maintained in medium alone to a 6 h total or exposed to 50 µM 6-OHDA for the final 4 h. Open bars: medium only; hatched bars: +6-OHDA; CTRL: untreated cells. Panels: (A) reduced glutathione (GSH), (B) oxidized glutathione (GSSG), (C) GSH/GSSG ratio, (D) superoxide dismutase (SOD) activity. Data are mean ± SD (n = 3).