

Supporting Information

Gold nanoparticles functionalized with peptidoglycan monomer and 1-adamantylamine protect dopaminergic neurons against oxidative damages induced by L-dopa

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Content:

Individual channel images from confocal microscopy uptake studies

Z-stack video sequences of nanoparticle uptake obtained by confocal microscopy

MTS and flow cytometry data demonstrating L-Dopa-induced toxicity in differentiated SH-SY5Y cells

Standard calibration curve for L-Dopa

GFAAS method parameters and standard curve for Au quantification

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Figure S2. MTS viability assay of differentiated SH-SY5Y cells following 24-hour exposure to L-Dopa

Figure S3. Flow cytometry analysis illustrating cellular effects induced by L-Dopa after 24-hour exposure in differentiated SH-SY5Y cells

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Video S1. Confocal Z-stack video demonstrating intracellular uptake of Ad-AuNPs in differentiated SH-SY5Y cells

Video S2. Confocal Z-stack video demonstrating intracellular uptake of PGM-AuNPs in differentiated SH-SY5Y cells

Video S3. Confocal Z-stack video of control differentiated SH-SY5Y cells

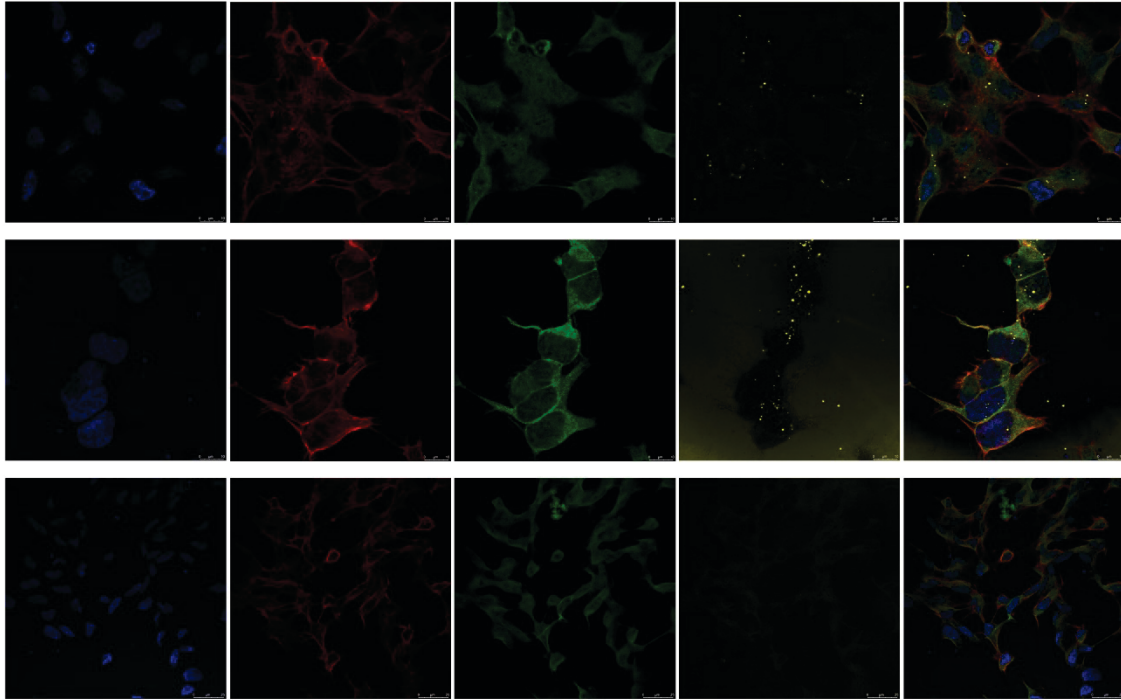


Figure S1. Nanoparticles uptake in differentiated SH-SY5Y cells. Individual channels of images presented in the paper. Nanoparticles were visualized in the contrast reflectance channel and can be seen as yellow dots. Cell nuclei are stained blue, actin fibres red, and β -tubulin green. Upper row: Ad-AuNP, middle row: PGM-AuNP and bottom row: control cells.

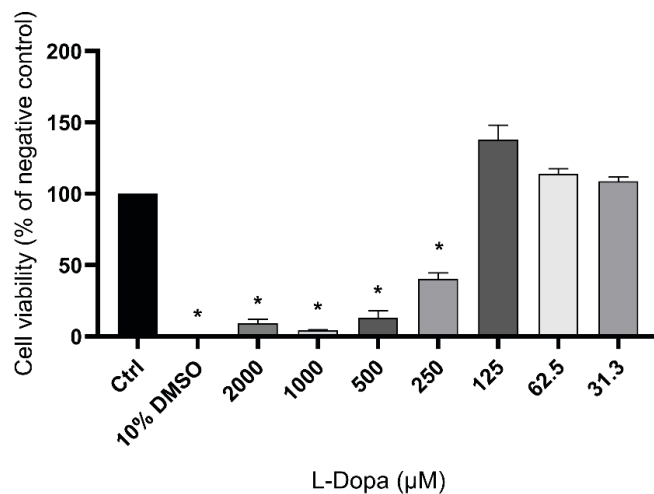


Figure S2. MTS assay results for differentiated SH-SY5Y cells after 24 h L-Dopa treatment at 37°C and 5% CO₂. Untreated cells served as the negative control (Ctrl), while cells treated with 10% dimethyl sulfoxide (10% DMSO) were used as the positive control. Data were analyzed using one-way ANOVA, followed by Dunnett's multiple comparisons test against the control group. Results are expressed as mean \pm SEM (n = 3). Asterisks (*) above bars indicate statistically significant differences (p < 0.05).

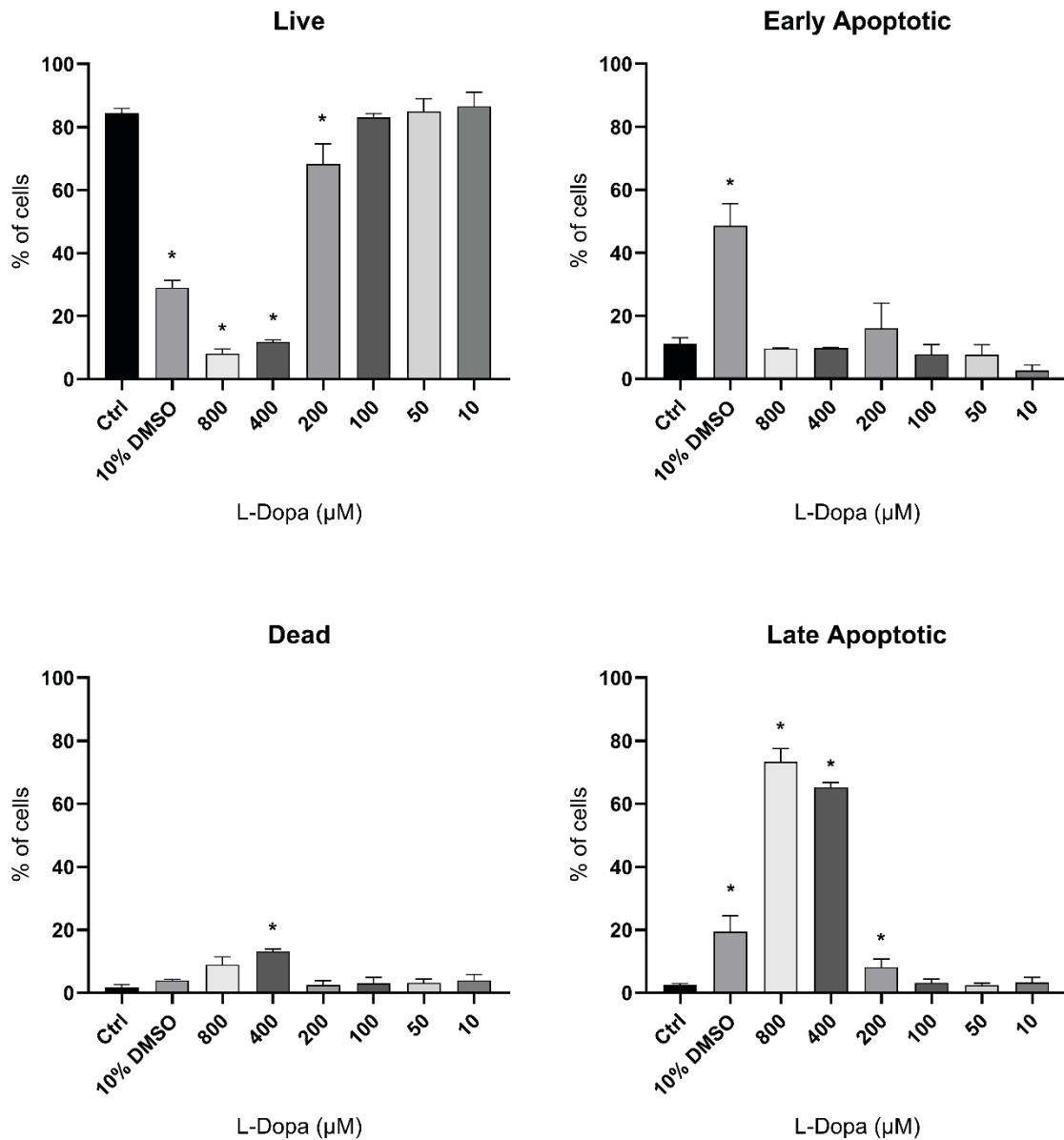


Figure S3. Effect of L-dopa on differentiated SH-SY5Y cells. Cells were treated for 24h at 37°C and 5% CO₂. Live cells; FITC-/PI-, early apoptotic: FITC+/PI-, late apoptotic FITC+/PI+, dead FITC-/PI+. Untreated cells served as the negative (Ctrl), while cells treated with 10% DMSO were used as the positive control. Data were analyzed using one-way ANOVA, followed by Dunnett's multiple comparisons test against the control group. Results are expressed as mean ± SEM (n = 3). Asterisks (*) above bars indicate statistically significant differences (p < 0.05).

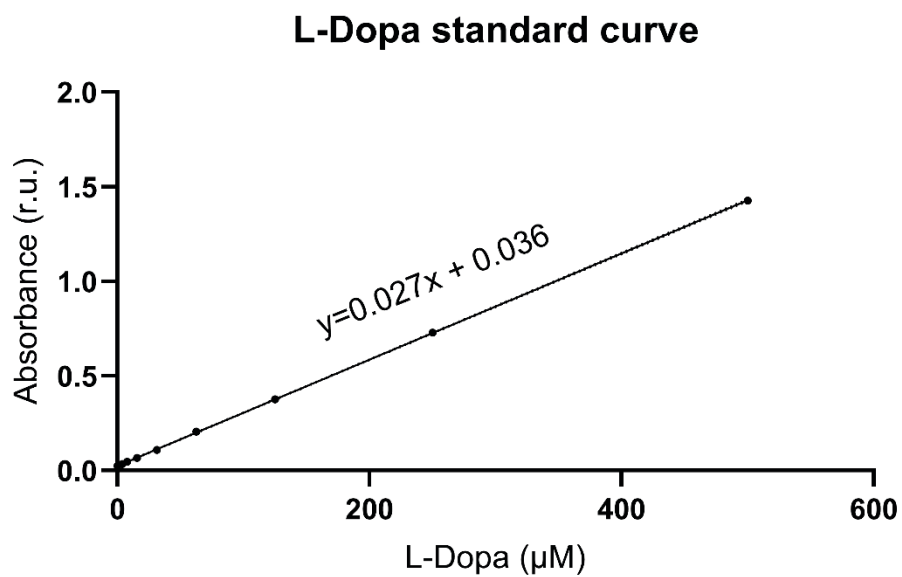


Figure S4. Example of L-Dopa standard curve in ultrapure water (UPW).

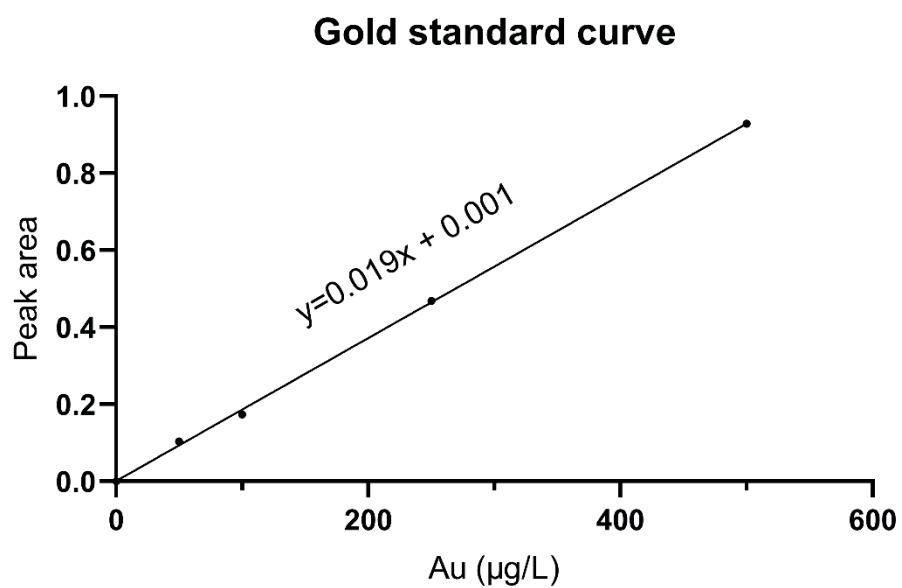


Figure S5. Calibration Curve for Au Determination by GFAAS. Peak area was plotted against Au standard concentrations (0–500 µg/L).

Table S1. GFAAS method parameters for Au quantification

Parameter	Value
Limit of Detection (LOD)	1.787 µg/L
Limit of Quantification (LOQ)	5.195 µg/L
Calibration Range	0 –500 µg/L
Linearity (R ²)	0.9995
Slope	0.0019
Intercept	0.001
Matrix	Ultrapure water

Supplementary video S1.

Control cells:

https://drive.google.com/file/d/1XtRgWGsx_ItbKZhRg6E5IXn5gUoA6INk/view?usp=share_link

Supplementary video S2.

Ad-AuNP:

https://drive.google.com/file/d/1dUJ5uwa3s1NpNzjsGp6K0xNSMLkIONi9/view?usp=share_link

Supplementary video S3.

PGM-AuNP:

https://drive.google.com/file/d/1qsGOW5KDmBk42zVSGINaKE2FItoQmQjc/view?usp=share_link