

Intracellular Synthesis of Metallic Nanoparticles with Living Human Cells

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The formation of metallic nanoparticles (NPs) with microorganisms were reported by several researchers, but there was no report with human living cells. In this study, we treated metal ion solutions such as auric chloride or silver nitrate to human cell lines and monitored the effects of these metallic ions on cell viability and morphology in each cell lines. Also, the cell morphology of each cell lines showed no change in treatment of metallic ion solutions after 4 hours while the cell with pure phosphate buffered saline (PBS) solution shrank. The formation of metallic NPs inside of cell in different size was confirmed based on the AFM, EDX, TEM and UV -Vis absorption techniques. Thus, our discovery can be used as eco-friendly method to develop the new metallic NPs which have specific electrochemical and optical properties. Acknowledgement: This work was supported by Samsung Research Funding Center of Samsung Electronics under Project Number SRFC-MA1401-04.