

# Nanomedicine and Nanotechnology in Health Care

July 25-27, 2016 Bangkok, Thailand

## Enhanced cytotoxic effect of gold nanoparticles and *Colocasia gigantea* extract on A375 melanoma cell line

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Herb is a major basis of modern medicinal discoveries. With the new invention of nanomaterials for biomedical applications, gold nanoparticles (AuNPs) have been proven as a promising drug delivery agent, but its advantage for using with plant extract has never been clearly elucidated. This study aimed to evaluate a combinatory effect of *Colocasia gigantea* extract and gold nanoparticles toward the cytotoxicity of melanoma skin cancer cells. The *Colocasia gigantea* extract (CGE) and AuNPs were separately and combinedly evaluated for their cytotoxic effect against A375 melanoma cells. The results showed that CGE, AuNPs and their mixture exhibited cytotoxic effect toward the melanoma cell line. The mixture of AuNPs and CGE was found to be more effective than the treatment with AuNPs or CGE of the same concentration alone. From the analysis using flow cytometry and confocal images, the major mechanism of cell death following all treatment conditions is by means of apoptosis. Specific to only the cells treated with the mixture of CGE and AuNPs, the nuclear degradation was distinctively observed. The results from this work shed the insight that gold nanoparticles can be applied as a carrier and synergistic agent for topical treatment in conjunction with herbal medicine.

### Biography

Amornpun Sereemaspun received M.D. degree from Faculty of Medicine at Siriraj hospital, Mahidol University. He continued studying Ph.D. (Human molecular biology) in Jichi Medical University, Japan. From 2006-present, he has been working in Nanobiomedicine Laboratory, Division of Histology and Cell Biology, Department of Anatomy, Faculty of Medicine, Chulalongkorn University. His present position is Assistant Professor, Head of Division of Histology and Cell Biology, and Head of Nanobiomedicine Laboratory. His recent research of interest are Nanotechnology application in medicine, Nano-cell interaction in cellular senescence, and Nanotoxicology.

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