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## Graphene quantum dots loaded macrophages mediated drug delivery for imaging guided photodynamic therapy

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Now-a-days macrophages and T cell based drug delivery strategy for imaging guided cancer therapy has gained vast attention due to its tumor homing property and biocompatibility. According to literature it has some limitations including low drug loading, complicated construction and others. In this study, we have loaded graphene quantum dots, promising fluorescent materials which have strong bio-imaging properties and phototherapeutic effects. It was found that graphene quantum dots could be loaded into the mouse macrophage cell line (RAW 264.7) by very simple incubation without affecting any cell viability. Graphene quantum dots could release from the macrophage cells and can show their activity including bioimaging and therapeutic purposes. Mouse macrophage cells showed tumor homing property towards epithelial carcinoma cells. Graphene quantum dots loaded macrophage cells showed potent activity on cells and mice with enhanced cellular uptake in tumor tissues compare than graphene quantum dots only. Finally we can conclude that graphene quantum dots loaded macrophage cells seems to overcome some of important limitations of imaging guided cancer therapy.

### Biography

Yong-kyu Lee has completed his PhD from Gwangju Institute of Science and Technology and Post-doctoral studies from Georgia Institute of Technology Department of Biomedical Engineering (USA). He is the Professor/Director of Chemical and Biological Engineering and 4D Biomaterial Research Center. He has published more than 100 papers in reputed journals and 30 registered patents.

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