

10TH ASIA-PACIFIC PHARMA CONGRESS

May 08-10, 2017 Singapore

Curcumin-conjugated fluorescent gold cluster synthesis and its biocompatibility**Saravanan Govindaraju and Kyusik Yun**
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Fluorescent gold cluster (AuNCs) have gained much attention due to their wide spread property like fluorescence, small size, non-toxic, stable and can be easily conjugated to the biomolecules. Curcumin (CUR), a polyphenol compound derived from *Curcuma longa* plant, is a promising anticancer agent for various tumors. We hypothesized the synthesis of fluorescent gold cluster with the conjugation of curcumin for the evaluation of biophysics, biomechanics and cytotoxicity study in cancer cell. Synthesized nanomaterial gives strong red photoluminescence at 650 nm and FTIR confirms the conjugation of CUR to the AuNCs. HRTEM analysis divulges size range from 4-6 nm of monodispersed particles. CUR-AuNCs didn't show any toxicity to the human fibroblast cell line and more toxic to HeLa cells. Optical fluorescence microscopes exhibited that CUR-AuNCs killed specifically the cancer cells. Bio-AFM image provide the morphological changes of HeLa cells after the treatment of CUR-AuNCs at different time intervals. In future, we extend our research to biophysics and biomechanics study of CUR-AuNCs by Bio-AFM, and the cluster treated for the anticancer effect in xenograft model.

Biography

Saravanan Govindaraju is a PhD student in Prof. Yun's lab, Department of Bionanotechnology, Gachon University, South Korea. He graduated with Master's degree from the same university and Bachelor's degree from Anna University, India. His research experience includes synthesis of nanomaterials, cell cytotoxicity study and bio-AFM imaging.

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