

# 4<sup>th</sup> International Conference on **Nanotek & Expo**

December 01-03, 2014 DoubleTree by Hilton Hotel San Francisco Airport, USA

## Adenosine receptors ligand modulated nanoparticle targeting to human breast cancer cells via over expressed adenosine receptors

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Protein coupled cell surface adenosine receptors (ARs) are found to be up regulated in various tumor cells like breast, prostate and brain tumors. The present study was performed to investigate the efficiency of adenosine receptors ligand to target human breast cancer cell lines MCF-7. Solid lipid nanoparticles (SLN) were prepared by solvent emulsification and evaporation process and further evaluated by various techniques like X-Ray diffraction (XRD), Dynamic light scattering (DLS). Drug loaded SLN were surface modified with ARs ligand using carbodiimide coupling. Conjugation was confirmed using Infrared spectroscopy (IR). *In vitro* drug release was performed by dialysis bag method and conjugated SLN were found to give better sustain drug release as compared to unconjugated nanoparticles and drug solution. Cell toxicity assay were executed and results were encouraging with remarkable decrease in IC<sub>50</sub> values as compared to drug encapsulated unconjugated lipidic nanoparticles and drug control and these results were further substantiated by improved cell uptake assay. Hence, this novel ARs ligand has the capability to target breast tumors and incorporating this ligand on surface of SLN modulates the delivery of nanoparticles specifically to ARs overexpressed tumors.

### Biography

Rajan Swami has completed her MS from NIPER-Ahmadabad, India. Currently, he is a doctoral student in Department of Pharmaceutics, NIPER-Hyderabad, working under the mentorship and co-mentorship of Dr. Ramakrishna Sistla, Scientist E-II, CSIR-Indian Institute of Chemical Technology, Hyderabad, India and Dr. Wahid Khan, Assistant Professor, National Institute of Pharmaceutical Education & Research (NIPER), Hyderabad, India respectively. He was always a front runner in formulating novel drug delivery systems like dendrimers and nanoparticles for gene delivery. He has been working on conjugated nanoparticles for effective targeting to tumors, rheumatoid arthritis and brain diseases like Alzheimers, Parkinson disease etc.

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