

## **International Conference on** nical & Experimental Ophthalmology

July 14-16, 2014 DoubleTree by Hilton Baltimore-BWI Airport, USA

## Modification of adenoviral nuclear localization signal for efficient drug delivery in retinoblastoma Animikh Rav

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) etinoblastoma (RB) is a vision threatening intraocular malignancy. Though chemoreduction has been effective in the Rearly stages of Rb, it is not very effective against extensive and recurrent Rb tumors having vitreal and retinal seeds. There is an urgent need to design a novel targeted drug delivery system. Nuclear localization signal (NLS) can facilitate cargo entry across nuclear membrane. However NLS has limited application in drug delivery due to lack of specificity towards cancer cells. Moreover NLS sequences have not been optimized for selective nuclear transport. Hence this project aims to develop an optimum NLS which would carry cargo selectively to cancer .cells while not affecting normal cells. This optimized NLS will be later conjugated to nanoparticles for efficient drug delivery Synthesis of NLS Peptides-Modified NLSs have been synthesized by solid phase synthesis following general protocol for Fmoc chemistry. The peptide sequences have been purified by preparative HPLC. Structure of peptide and purity have been confirmed by LC/MS. Conjugation to Gold Nanoparticles- Gold nanoparticle has been conjugated to peptides following a published protocol with some modifications (Wang et al pubmed ID:22051699). Uptake of conjugated nanoparticle in y-79 and D407- Uptake studies were performed to determine efficacy of the peptides to transport nanoparticles. Analysis was done with confocal and transmission electron microscopy. It was observed that modified NLSs were able to transport nanoparticles across the nuclear membrane selectively in the cancer cells while not affecting normal cells. Modification of Nuclear Localization Signal might be a novel approach for development of targeted therapeutics.

## **Biography**

Animikh Ray is a doctoral candidate at the Department of Pharmaceutical Sciences, University of Missouri-Kansas City. He has an MS in Biotechnology from Utkal University, India and a BS degree in Microbiology from Saradar Patel University, Gujarat, India. He has 4 published book chapters and four peer reviewed articles in press. He is currently working in Mitra's lab on drug delivery of cancer therapeutics.

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