



UNIVERSITY OF TETOVA  
FACULTY OF MEDICAL SCIENCES

## 2<sup>nd</sup> INTERNATIONAL SCIENTIFIC CONFERENCE OF THE FACULTY OF MEDICAL SCIENCES

ABSTRACT BOOK

# HEALTH CARE CHALLENGES OF THE 21<sup>st</sup> CENTURY



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# Emerging Drug Delivery Systems of Anticancer Agents: Exosomes

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## Abstract

Several properties of exosomes make them potential drug delivery systems, especially the fact that they can be regarded as natural liposomes. Their endogenous origin and potential of reduced side effects and targeted action make them more attractive to researchers worldwide. Since this new technology of implementation of exosomes as drug carriers is just emerging, several authors presented incorporation of anticancer agents into exosomes. Namely, for this purpose, curcumin has been used, thus reportedly resulting with curcumin-loaded exosomes that presented increased solubility, stability, and bioavailability, and its' increased delivery to activated monocytes. Doxorubicin has also been incorporated into exosomes, resulting in its specific delivery to tumor tissues, and leading to inhibition of tumor growth in tumor-bearing nude mice model. In addition, paclitaxel has also been investigated for incorporation in exosomes using different techniques, reportedly showing increased cytotoxicity more than 50 times in drug resistant MDCK<sub>MDR1</sub> (Pgp+) cells and nearly complete co-localization of airway-delivered exosomes with cancer cells in murine model of pulmonary cancer metastases. Other types of cargos have also been loaded to exosomes and explored, mostly of different RNA type. These researches, along with the constant growth of the articles published in this field, leave no doubt that, exosomes as drug delivery systems have big potential to be considered in the development of new anticancer drugs.

*Keywords:* exosomes, drug delivery systems, anticancer agents

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