RESEARCH SEMINAR SERIES – REMOTE

The Center for Dermal Research Welcomes

Dr. Ipek Eroglu, Hacettepe University, Faculty of Pharmacy

"Nano Approaches to the Delivery of Therapeutics"

Monday, July 24, 2023 5:30pm EST remote

Please note this presentation will be a rebroadcast due to the time difference.

Dr. Ipek Eroglu graduated from Ege University Faculty of Pharmacy in 1999 and she received her M.Sc. degree on Pharmaceutical Technology with her thesis on the "*Controlled release drug delivery systems*". She obtained her Ph.D. degree in 2008 with thesis entitled "*Design of nanoparticulate drug delivery systems prepared with biodegradable polymers synthesized for bone targeting and in vitro - in vivo evaluations*". The Ph.D. project was a joint collaboration between the Ege University, Turkey and Université Paris-Sud, France. She has received full Professor position in 2021 from Hacettepe University, Faculty of Pharmacy. Her main expertise areas include nanoparticulate drug delivery systems, liposomes, cancer therapy, drug targeting, wound healing and dermal matrix systems.

Abstract: Nano based drug delivery systems provide an appealing approach to pharmacological therapy. Currently, the development of nanosystems capable of delivering therapeutic drugs to a desired body site is an attractive area of research in the pharmaceutical field. Of these, liposome dosage forms have enormous potential in the field of drug delivery because of their lipid biocompatibility, low toxicity and versatility.

In the first part of presentation, importance of liposome formulations for cancer treatment will be explained within the concept of scientific research project that was carried out in our laboratory. Non-melanoma skin cancer (NMSC) is one of the most common cancers with still no effective treatment. Due to the side effects observed after long and high dose treatments and acquired resistance to the chemotherapy drugs, different attempts have been made to overcome these problems and to provide more effective treatment with low dosing. With successful results and advances in gene therapy, it has been observed that concurrent gene silencing and drug administration may be a better approach in cancer treatment when compared to drug/drug combination therapies. The main purpose of our project was to investigate the therapeutic efficiency of liposomal formulations for delivery of both Janus kinase 1 (JAK1)-siRNA and 5-Fluorouracil (5-FU) in NMSC. Liposome nanocomplexes were prepared by thin film hydration method and characterized in terms of size, polydispersity, zeta potential, morphology, drug encapsulation and stability. Uptake, cytotoxicity and gene silencing studies for prepared nanocomplexes were carried out on human-derived non melanoma carcinoma cell line (A-431). Treatment efficacy of intratumoral injected formulations was evaluated in nude mice with tumor inhibition and histopathological/immunohistochemical analysis. (continued on page 2)

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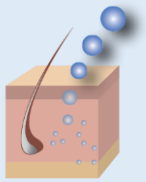

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Based on the findings, the delivery of JAK1-siRNA and 5-FU by novel nanoliposome formulations appears to be a promising treatment strategy for NMSC. In the second part of presentation, the advantages of liposome formulations loaded with different drugs (tretinoin, tetracycline, propolis, L-carnitine, pimecrolimus, favipiravir) will be explained with published articles and patent samples by research team. In the final part, brief information will be given about the studies carried out on the way to the commercialized product.

CONFERENCE LINK:

Meeting link: https://rutgers.zoom.us/j/93131700002?pwd=QzhxaU1JWVVBZUhCWnU5ZXZlWENGdz09

Link is also available on our website: https://sites.rutgers.edu/centerfordermalresearch/

under the Events menu.

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