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### **Photoaging - an overview: Nanotechnology and photoprotection**

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**S**kin is the outermost part of our body which is continuously exposed external assaults especially UV radiations. Prolonged exposure of unprotected skin to ultraviolet radiation (UVR) includes inflammation, premature photoageing, DNA damage, photocarcinogenesis, and immunosuppression. Five most significant signs of aging skin are; wrinkles, dark spots and uneven skin tone, sagging, dry skin and open visible pores. Sunscreen will continue to be an important component of Photoprotection. The active ingredients in topically applied sunscreens generally fall into two categories: organic or inorganic. Among inorganic actives, nanosized TiO<sub>2</sub> and ZnO are being used since 1980. These first generation

nano sunscreens shown various disadvantages which will be discussed in this talk. The current sunscreens on the market are more aesthetically acceptable and superior to older generation sunscreens due to more advanced nanoparticle technology. Emphasis of discussion will be on encapsulation efficiency, stability and degradation in blood circulation, endocytosis by target cells, endosomal escape, delivery efficiency, and toxicity of nanoparticles. To overcome these obstacles, many types of nanocarriers are proposed; broadly into three categories; (i) lipid-based nanoparticles, (ii) polymer-based nanoparticles, and (iii) inorganic nanoparticles (Figure 1).

#### **Biography**

Tariq Mahmood completed his college education in 2001 and moved to Bahawalpur City in order to receive his Pharm D degree in Pharmacy from the Islamia University of Bahawalpur, Bahawalpur, Pakistan, in 2008, and the MPhil and PhD degrees in Pharmaceutics from the Islamia University of Bahawalpur, Bahawalpur, Pakistan, in 2010 and 2013, respectively. In 2013, he joined the Department of Pharmacy, The University of Faisalabad, as an Assistant Professor, and in 2014 joined University of Central Punjab as an Assistant Professor and Deputy Director Research. He has several years of experience as a faculty member at Faculty of Pharmacy and has authored several peer-reviewed publications, oral presentations, and has delivered invited professional presentations. His research interests are centered on outcomes of drug development and nanocarriers. He is HEC approved PhD supervisor and to date, has supervised more than fifteen postgraduate students in discipline of Pharmaceutics. Additionally, he is reviewer / editorial board member of several internationally recognized peer-reviewed journals. He was short-listed for prestigious LUSH prize award, UK in 2013. In Young Researcher Award category, he was the only one short-listed from all over the Asia.

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