Targeted therapy as an effective strategy in the superb modern science and technology era

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I am an assistant professor of pharmacology in the department of pharmacology at Shahroud Medical School. I was born in Zahedan, Iran. I have gained my Doctor of Pharmacy from Tabriz School of Pharmacy in 1990 and a PhD from Bradford University in 2005. Between 2005 and 2006 I was a Post-Doctoral Researcher in the University of Bradford as a member of Professor Anderson's group which I still continue to research with her as an Honorary Visiting Fellow. My research area mainly focused on cancer genetics & molecular pharmacology. I am also interested in medical education. I have gained an e-Learning fellowship from SUMS (2012) and an MSc in medical education from SBMU in 2014. During my studying, teaching and research I have expanded my knowledge and abilities to perform many techniques/assays such as Blotting, Gel Electrophoresis, DNA & Protein isolation, DOP-PCR, ELIZA, MTT, TUNEL, SCGE, CGH, FISH, EFS and karyotyping. I have also worked with TEM. I have published 20 papers generally with ISI indexed and am an editorial board and referee/reviewer of 10 national and international journals mostly related to pharmacy & pharmaceutical sciences. In 2014 Shahroud Medical University granted me as the best researcher in the School.

Science meaning "knowledge" [1] "what is known, knowledge (of something) acquired by study; information;" also "assurance of knowledge, certitude, certainty [1]. Simply, science is about describing our world with the help of models. These models are as such best available descriptions of observations, or measurements. Measurements always depend on the available technology. Technology is the collection of tools, including machinery, modifications, arrangements and procedures used by humans [2]. The term can either be applied generally or to specific areas such as pharmaceutical, information, medical, construction and etc. Technologies significantly affect humans' ability to control and adapt to their natural environments. The 21th century has observed a remarkable growth in drug discovery, development, utilization and usage [3]. Hence, a strategy such as targeted therapy is revolutionizing the expansion of new drugs to suit the needs of superb modern science and technology era for

many diseases such as AIDS, cancer, immune and neurodegenerative diseases [4-8].

The phospholipid-mediated drug delivery has emerged as a powerful methodology for the treatment of various pathologies [9, 10].

Vesicular system has achieved new heights during the last few years as an essential component of drug development [9,11]. Anti-angiogenesis drugs may best be used in the short term, combination with traditional therapies [12-17].

The therapeutic index of traditional and novel drugs is enhanced via the increase of specificity due to targeting of drugs to a particular tissue [18], cell or intracellular compartment [19, 20], the control over release kinetics [21], the protection of the active agent or a combination of the above. From the last two decades, microparticulate lipoidal vesicular systems have been under extensive

investigation as carriers for the improved delivery of a broad spectrum of agents , including chemotherapeutic and imaging agents [22], antigens [23], immunomodulators [24], chelating compounds [25], haemoglobin [26] and cofactors [27], lipids [28], and genetic material [29-31].

The scenario of pharmaceutical research is being progressively changed in 21th century, by encouraging development of novel drug delivery of existing drug molecule instead of development of new chemical entities. The novel drug delivery approaches aim to develop a carrier system which could hold the molecule effectively and then navigate them towards the right destination without affecting the physiological conditions of the body. Researchers agree that targeted therapies are not a replacement for traditional therapies and involve production of components such as monoclonal antibodies [4].

In conclusion there is hope that more sophisticated and potentially more efficacious therapeutic targets will evolve from our current science and technology experiences.

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