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Is light responsible for enhanced tumor uptake and regression?

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Abstract

 $\mathbf{S}_{ ext{timuli}}$ active tumor uptake and regression is being questioned and ongoing discussion though light triggered tumor ablation is an efficient approach in cancer theranostics. In addition, uncontrolled heat dissipation, interaction mechanism of solid nanoparticles with solid tumor and light responsive tumor healing without distressing the surrounding healthy tissues are other challenges. Therefore, the light mediated therapy and mechanism need to be examined in detail. particularly for solid tumor treatment. Hence, various nanosized functional hybrids have been proposed for photo-responsive therapies. However, poor uptake, low binding ability, low therapeutic outcomes and slow degradation are noticed critical concerns of attempted earlier systems. Here, we report a comprehensive study of localized breast tumor diagnosis and regression under light irradiation. The exposed light result cancer cell rupture, enhanced cellular uptake and tumor accumulation, and significant tumor regression using liposomal gold nanorods hybrid. The present work demonstrates a measurement of solid nanoparticles insertion in solid tumor and rapid healing of treated tumor area by laser irradiation. Overall, the exceptional and logistic out-comes of light mediated therapy have been addressed in this manuscript. Obtained results reveal the impact of light in cancer nanomedicine and may open a clear vision of light responsive image guided therapies.

Biography:

Rajendra Prasad has completed his PhD at the age of 29 years from National Chemical Laboratory, Pune, Inida and Research Associate postdoctoral studies from Indian Institute of Technology, Bombay, India. Rajendra is currently working as an IPDF Fellow at Bioscience and Bioengineering department at Indian Institute of Technology, Bombay, India. He has published about 10 papers in reputed journals and has filled more than 10 Patents.

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