Current Trends in Biomedical Engineering & Biosciences
ISSN: 2572-1151

Juniper Publishers
key to the Researchers

Mini Review
Volume 17 Issue 2 - November 2018
DOI: 10.19080/CTBEB.2018.17.555959

Curr Trends Biomedical Eng & Biosci

Nanoparticle Treatment of Cancer

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Submission: October 12, 2018; **Published:** November 20, 2018

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The accompanying figure outlines elements of cell biology which can go awry during cell duplication and division [1,2]. If a duplication problem occurs, the cell often dies. But on occasion the problem can lead to uncontrolled duplication, tumorigenesis, and even cancer [3]. The duplication problem occurs with geometric distortion or over-duplication of centrioles – small perpendicular hollow cylinders lying adjacent to the cell nucleus [4]. The Figure 1 shows how this over-duplication occurs, a cancer cell is created and then how the resulting cancerous tumor can be treated by nanoparticles.

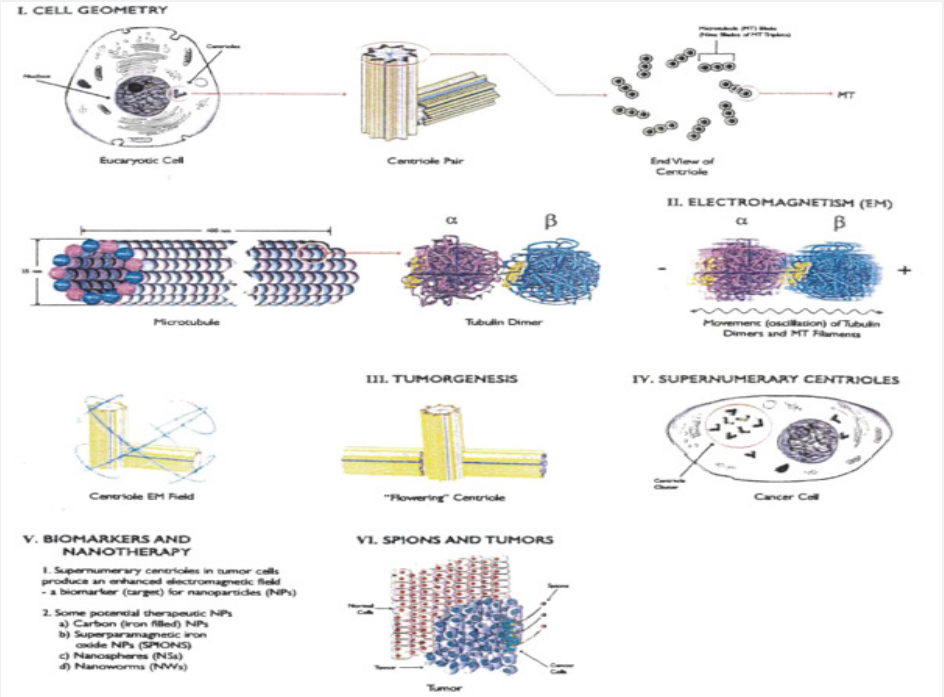

Figure 1: Nanoparticle Treatment of Cancer.

The proposed nanoparticles are superparamagnetic iron oxide particles (SPIONs) which are attracted to the magnetic field surrounding the tumors. The SPIONs can carry toxins which will kill the tumor cells [5], or alternatively by vibration can thermally kill the tumor cells.

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DOI: 10.19080/CTBEB.2018.17.555959

How to cite this article: Ronald L Huston. Nanoparticle Treatment of Cancer. Curr Trends Biomedical Eng & Biosci. 2018; 17(2): 555959. DOI: 10.19080/CTBEB.2018.17.555959.