

Oral Presentations

Application of Nanotechnology in Cancer Therapy: A General Overview

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Abstract

Cancer has increased in the last years, and is becoming a major public health problem in Palestine and many other parts in the world. According to the WHO, Cancer is a leading cause of death worldwide, accounting for 8.2 million deaths in 2012 and it is important to mention that tens of million dollars is spent annually on the treatment of cancer cases locally and abroad. However, drug toxicity and tumor resistance of the traditional chemotherapy are two of the main challenges associated with the traditional anticancer drugs. Toxicity can cause fatal consequences such as heart or bone marrow toxicity that lead to the cessation of the treatment. Moreover, the development of drug resistance by tumors in a lot of cases causes the failure of the treatment. Therefore, there is a huge demand to develop a new strategy to fight this lethal disease. One of the promising approaches is the targeted nano-medicine to fight cancer. Nanomedicine has shown obvious benefits in comparison to the traditional chemotherapy such as increasing the targeting efficacy, enhancing permeability and retention, improving the half-lives and consequently decreasing the side effects.

Therefore, in this overview different aspects will be discussed:

1. An overview of solid tumors and their characteristics.
2. The drawbacks of conventional chemotherapy.
3. The huge advantages of nanomedicine in fighting cancer in comparison to traditional cancer treatment.
4. The new approaches in drug and gene deliveries and their benefits in cancer therapy.
5. Challenges and opportunities.