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Driving nanotechnology towards cancer treatment

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Nanobiotechnology is a revolutionary field that has gained attraction in recent years, especially in the development of drugs that are specific and have reduced side effects and increased efficacy. Nanobiotechnology is a promising field in the treatment of cancer. Cancer is the abnormal growth of cells and it is normally difficult to treat because drugs that are meant to fight cancer often attack healthy cells in the process. The standard drug treatment for cancer is the use of chemotherapy drugs but these drugs often come with severe side effects that reduce a person’s quality of life. Some of the side effects include hair loss, fatigue, loss of appetite, bruising and so on. This is a result of the chemotherapy drugs attacking healthy cells. Nanobiotechnology then comes in with the delivery of cancer-attacking drugs that are specific. Cancerous cells have several biomarkers that set them apart from healthy cells, and therefore, nanodrugs are equipped with receptors for those biomarkers and they are able to attack just the cancerous cells while ignoring the healthy cells. This high specificity greatly reduces the side effects associated with chemotherapy drugs and at the same time improves the efficacy of the cancer-fighting drugs. One nanodrug that has been approved for use as a treatment for certain types of cancers is liposomal doxorubicin. Liposomal doxorubicin is used to treat cancers, such as ovarian cancer and Kaposi’s sarcoma. Liposomal doxorubicin has far fewer side effects in comparison to the conventional form of the drug. Nanobiotechnology is still in its infancy. With greater research, more specialised drugs that have the potential to treat cancer with minimal side effects and have greater efficacy are a possibility.

Keywords: Nanobiotechnology, Cancer, Chemotherapy, Doxorubicin

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