


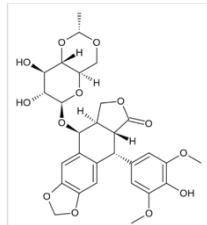

INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

Název: Carbon Nanotubes As Etoposide Nano carrier

Školitel: Amitava Moulick

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Reg. č. projektu: CZ.1.07/2.4.00/31.0023
Název projektu: Partnerská síť centra excelentního bionanotechnologického výzkumu 



➤ Etoposide, etoposide phosphate or VP-16 (current brand name: Etopophos) is a cytotoxic agent (anticancer drug)

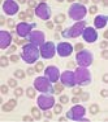
ETOPOSIDE

Administration of Etoposide

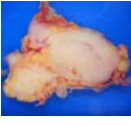


It must be done slowly over a 30- to 60-minute period because it can lower blood pressure


Use of Etoposide



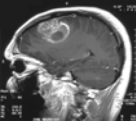
Leukemia




Lymphoma




Lung cancer



Glioblastoma multiforme

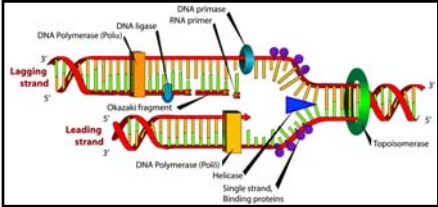


Kaposi's sarcoma



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Mode of action



**Etoposide belongs to the drug type
Topoisomerase Inhibitor**

Mode of action

Etoposide forms a complex with DNA and the **topoisomerase II** enzyme

↓

prevents re-ligation of the DNA strands

↓

by doing so causes DNA strands to break

↓

Cancer cells rely on this enzyme more than healthy cells, since they divide more rapidly. Therefore, this causes **errors in DNA synthesis** and promotes **apoptosis** of the cancer cell

Side Effects

- Chemotherapy (Etoposide) is most effective at killing cells that are rapidly dividing.
- Unfortunately, chemotherapy does not know the difference between the cancerous cells and the normal cells.
- The "normal" cells will grow back and be healthy but in the meantime, side effects occur.
- The "normal" cells most commonly affected by chemotherapy are the blood cells, the cells in the mouth, stomach and bowel, and the hair follicles.



Low blood counts



Mouth sores



Nausea

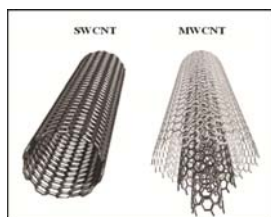


Diarrhea



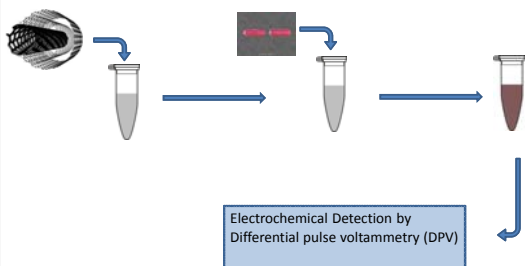
Hair loss

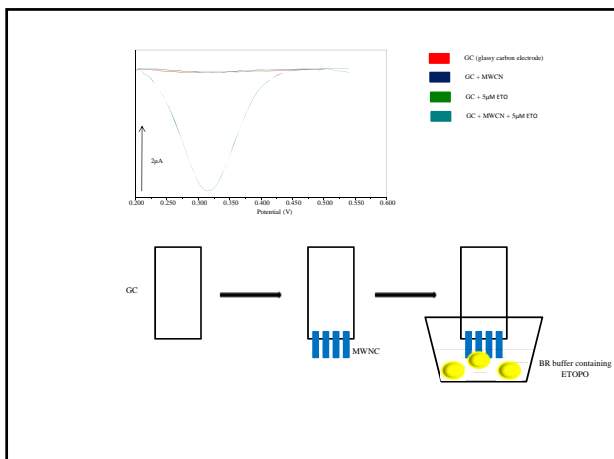
Carbon nanotubes

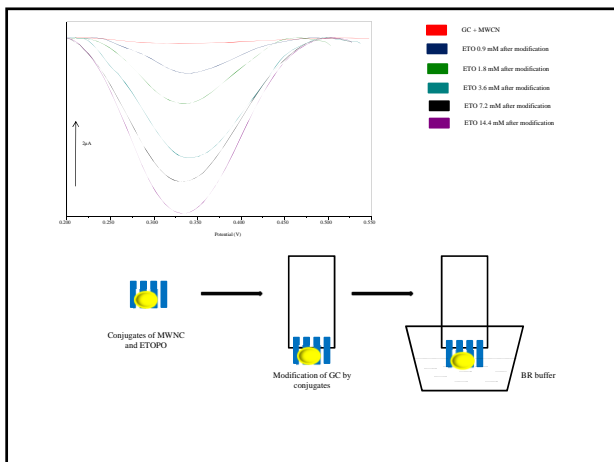


Carbon nanotubes (CNTs) are allotropes of carbon with a cylindrical nanostructure.

Modification of multiwall carbon nanotube with Etoposide







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Acknowledgement

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Thank you

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