

Virtual Learning

Medical Interventions Chemotherapy April 21, 2020



Medical Interventions Lesson: April 21, 2020

Objective/Learning Target:

Describe how specific chemotherapy drugs interact with and destroy cancer cells. (3.3.1)



- 1. Watch this introductory video on <u>chemotherapy</u>.
- 2. Why does chemotherapy result in hair loss?



Let's Get Started: - Answer

- 1. Watch this introductory video on <u>chemotherapy</u>.
- 2. Why does chemotherapy result in hair loss?
 - a. Chemo drugs target all rapidly dividing cells



Using the information on the <u>ACS website</u>, identify the main types of chemotherapy drugs and how they work.

- 1. Alkylating agents
- 2. Antimetabolites
- 3. Antitumor antibiotics
- 4. Topoisomerase inhibitors
- 5. Mitotic inhibitors



Lesson Activity - Answers

Using the information on the <u>ACS website</u>, identify the main types of chemotherapy drugs and how they work.

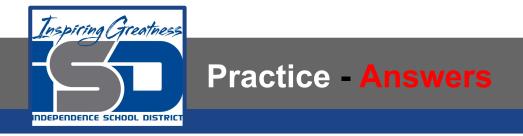
- 1. Alkylating agents drugs that bind to specific DNA cells and stop their replication
- 2. Antimetabolites drugs that block the use of nutrients essential to the growth of cancer cells
- 3. Antitumor antibiotics special types of antibiotics formulated to inhibit RNA synthesis as well as slowing down/preventing mitosis
- 4. Topoisomerase inhibitors interfere with enzymes that separate DNA strands
- 5. Mitotic inhibitors stops the cells from undergoing mitosis



Practice

Indicate which class of chemotherapy drug matches the description.

- 1. Topotecan prevents cancer cell DNA from separating.
- 2. Cabazitaxel prevents microtubules in cancer cells from forming.
- 3. Busulfan works by destroying the DNA of the cancer cell.
- 4. Valrubicin binds directly to the DNA to prevent it from being copied.
- 5. Pentostatin blocks a much needed nutrient for the cell.



Indicate which class of chemotherapy drug matches the description.

- 1. Topoisomerase inhibitor
- 2. Mitotic inhibitors
- 3. Alkylating agents
- 4. Antitumor antibiotics
- 5. Antimetabolites



Additional Practice/Resources

- 1. Review the different ways in which chemotherapy drugs work by creating a visual aid or graphic illustrating each major type.
- 2. Check your understanding by completing this <u>case study</u> (part 3 and 4) over chemotherapy.
- 3. Read <u>this article</u> to learn more about chemotherapy drug resistance and the challenges it provides.