

Chemotherapy

Chemotherapy Methods of Administration

- **Oral**
- **IM**
- **IV**
- **Intrathecal** – into subarachnoid space via lumbar puncture
- **Intraarterial** – into artery the supplies tumor
- **Intravesical (bladder)**
- **Intraperitoneal**
- **Regional Administration**
 - Delivery of drug directly into the tumor site
 - Higher concentrations can be delivered with reduced systemic toxicity

Types of chemotherapy

Many different types of chemotherapy drugs are used to treat cancer. The different types of chemotherapy drugs can be grouped or classified into a variety of categories. These classifications can change as new drugs are developed.

Chemotherapy drugs are usually classified based on their chemical structure and how they act on cancer cells.

Chemotherapy drugs and the cell cycle

The cell cycle describes the steps, or phases, that normal and cancer cells go through when they make new cells. The cell cycle is important in chemotherapy because some drugs work best when the cells are active or quickly dividing, while other drugs work better with cells that are in a certain phase in the cycle. Many drugs also seem to have some effect on cells that are at rest (not in cycle).

Although most drugs fit into more than one category, the following classifications can be helpful in understanding the action of the drug.

Cell cycle–specific drugs

(also called phase-non-specific drugs) are effective on cells that are actively growing and dividing, but they do not need the cell to be in a particular phase of the cell cycle. Some drugs in this group are more effective on cells that are in a specific phase of the cell cycle, although not to the degree of cell cycle phase–specific drugs.

Cell cycle phase–specific drugs

are most active against cells that are in a particular phase of the cell cycle, for example during a growth phase.

Cell cycle–non-specific drugs

appear to be effective on cancer cells on any phase of the cell cycle.