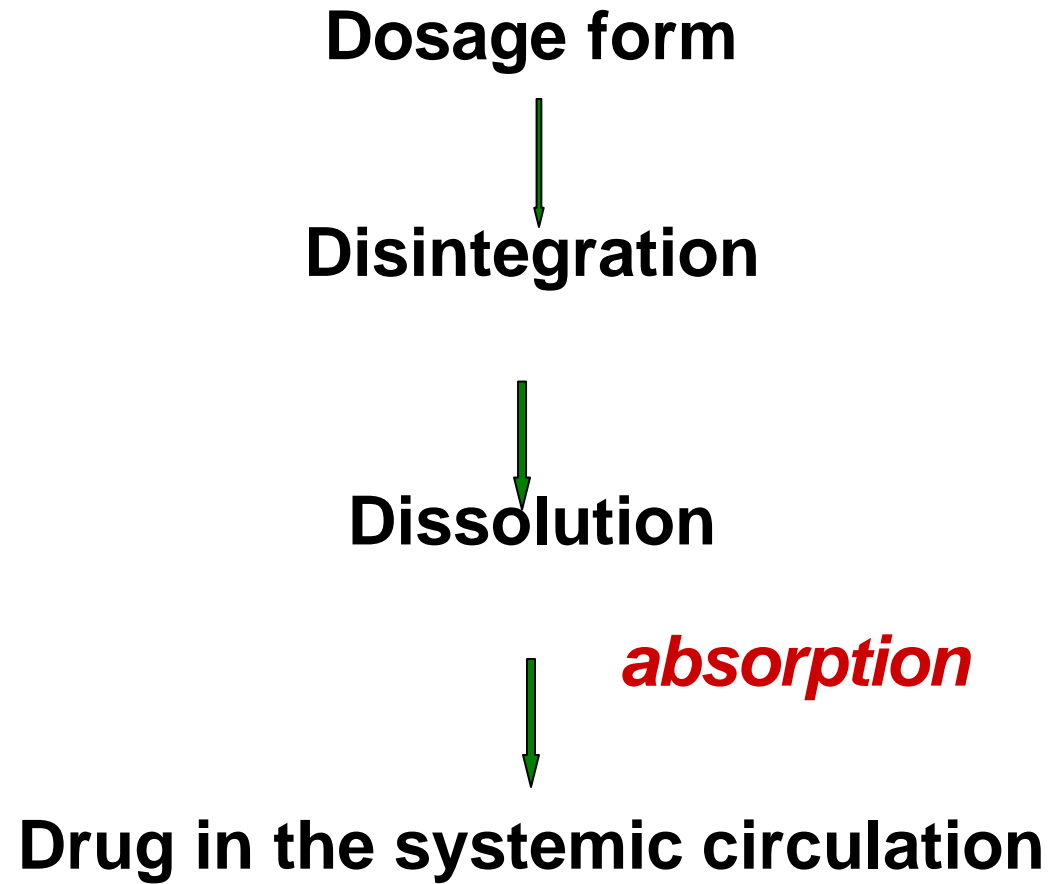
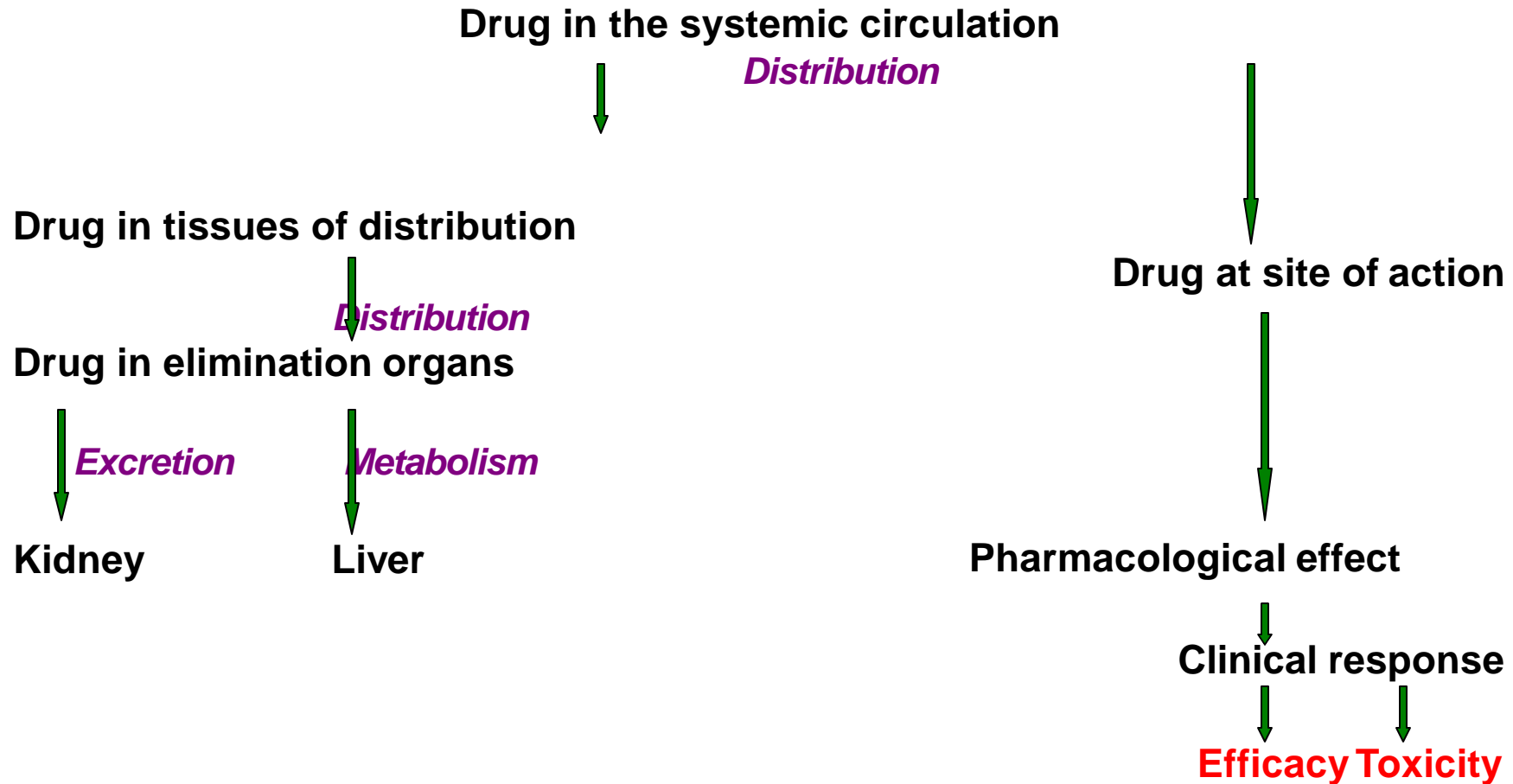


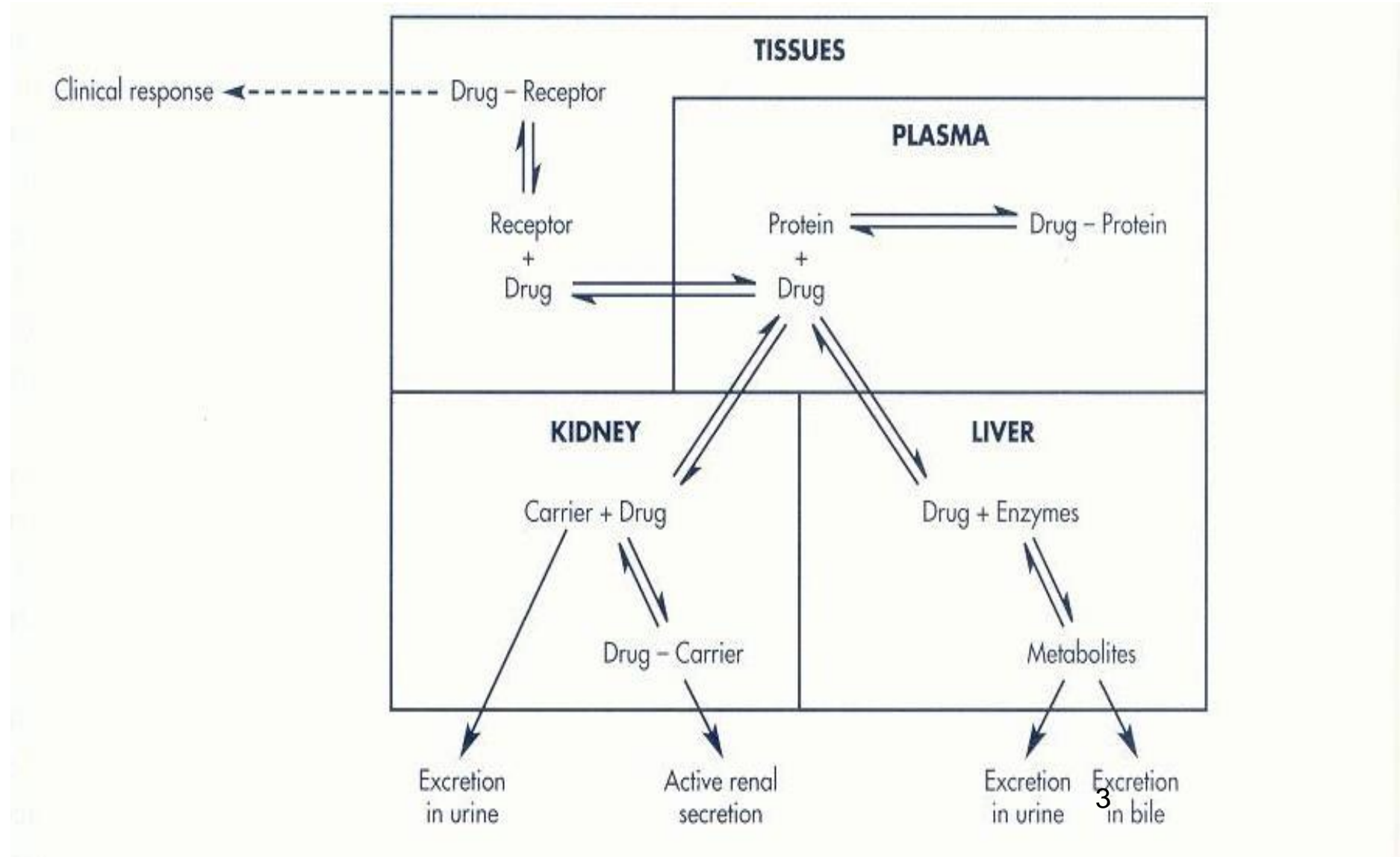
Pharmacokinetics & Pharmacodynamics



Pharmacokinetics & Pharmacodynamics



Drug Disposition



Drug Sources

The doctor skipped these few slides about drug sources and drug naming, we are not required to know all the details, just remember the things we talked about in the first lecture and don't memorize the names of the drugs.

1. Natural Sources:

- **Plants:** include alkaloids , which are substances containing nitrogen groups and give an alkaline reaction in aqueous solution. Including morphine, cocaine, atropine, and quinine.
- **Microbes:** include antibiotics which are isolated from microorganisms, such as *Penicillium* and *Streptomyces* species .

Drug Sources

- **Animal tissues:** The most important are hormones used for replacement therapy (Insulin, growth hormone, thyroid hormones). These days, peptide hormones may be synthesized by recombinant DNA technology.
- **Minerals:** include few useful therapeutic agents, including the lithium compounds used to treat bipolar mental illness.

Drug Sources

.2Synthetic Drugs:

- **Synthesized new compounds:** include aspirin, barbiturates, and local anesthetics which were among the first drugs to be synthesized in the laboratory.
- **Modified naturally occurring drugs:** include Semisynthetic derivatives of naturally occurring compounds, such as the morphine derivative oxycodone.

Drug Sources

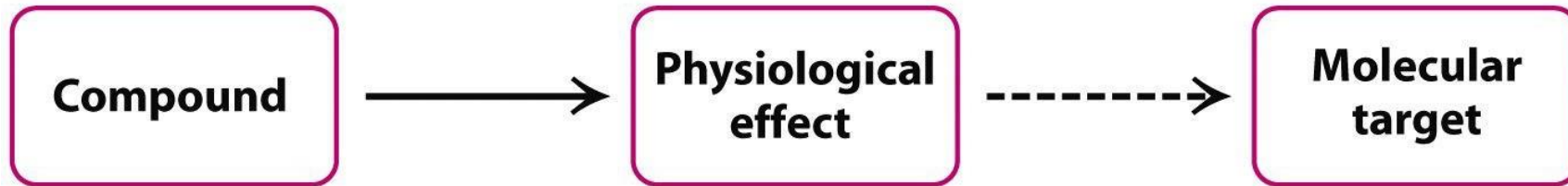
- **In some cases,** new drug uses were discovered by accident when drugs were used for another purpose, or by actively screening a huge number of related molecules for a specific pharmacologic activity.

Drug Sources

- **Medicinal chemists now use molecular modeling software** to utilize structure-activity relationship, which is the relationship between the drug molecule, its target receptor, and the resulting pharmacologic activity.

Drugs have been discovered by two approaches

(A)



(B)



Figure 35-1
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Drug discovery phase :

- Serendipity

- Penicillin

- Sildenafil

- Screening

- aspirin

- Statins/HMG CoA reductase inhibitors

- Design

- HIV protease inhibitors

- COX2 specific inhibitors

Naming the drugs

- Chemical name: atomic/molecular structure
- Generic name
 - derived from chemical name
 - listed in US Pharmacopedia & Formulary
- Trade name
 - selected by Manufacturer
 - copyrighted

Drug Names

<i>Chemical Name</i>	<i>Generic Name</i>	<i>Trade Name</i>
<i>-7chloro-1,3-dihydro-1-methyl-5 phenyl 2H-1,4-benzodiazepin 2-one</i>	<i>diazepam</i>	<i>Valium</i> <input type="checkbox"/>
<i>Ethyl 1-methyl 4-pheyli-sonipecotate hydrochloride</i>	<i>meperidine</i>	<i>Demerol</i> <input type="checkbox"/>
<i>acetylsalicyclic</i>	<i>aspirin</i>	<i>Ecotrin</i> <input type="checkbox"/>