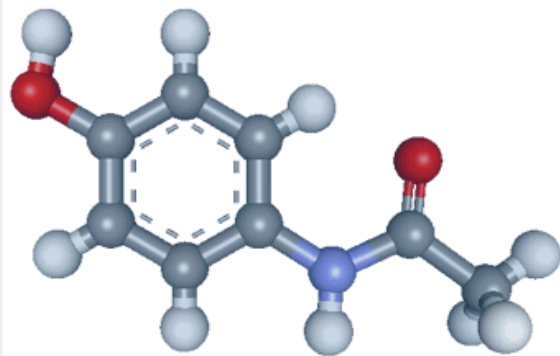


Nanodrugs

an overview by Joey



This is the active ingredient in Tylenol, acetaminophen. It, and most other drugs, are nano-sized, but what makes this different from nanodrugs? Nanodrugs are distributed throughout the body via nano-sized capsules.

Outline

- Setting the pharmaceutical stage
- Conventional methods of administration
- Disadvantages of conventional methods and the antibiotic example
- Potential risks of nano
- Phospholipid transport
- Current toxicity and solutions with nano
- Pharmaceutical and insurance companies and the underlying social ramifications

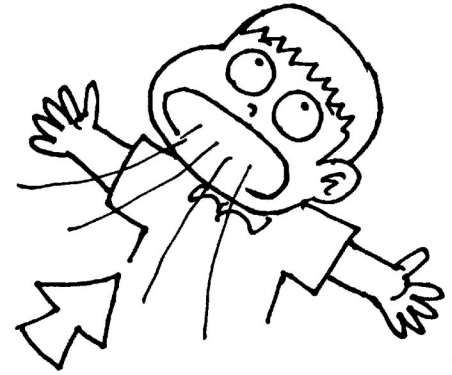
Baby Boomers



- Increased customer volume=increased demand
- High cholesterol and low libido
- Targeted delivery reducing toxicity
- \$\$\$

Methods of Administration

- Oral
- Rectal
- Topical
- Injected
- Inhaled



Oral Administration

This is the most common mode of administration. The drug goes through the digestive system, and encounters various problems along the way.

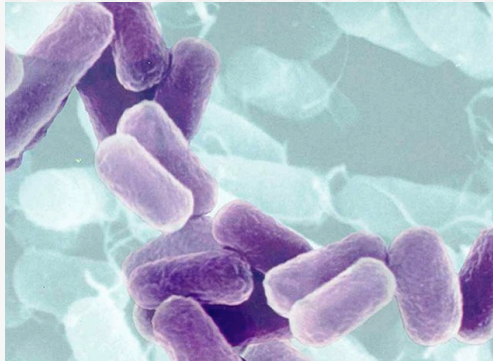


Drug decomposition

- Mouth – digestive enzymes
- Stomach – acids
- Duodenum – bile salts
- Intestines – majority absorbed here
- Excretion – some of the drug fails to be absorbed

Antibiotic Problem

- Antibiotics kill any susceptible bacteria
- Bad for normal flora



- Change delivery, avoid the problem

Nano Toxicity

Little is known about toxicity of nanoparticles in humans. Our cells may not detect nanoparticles, so they may linger in our bodies.



Lingering drugs may become active later on, giving rise to ailments analogous to acid flashbacks experienced by LSD users.

Massive doses

Sometimes mega doses are required to achieve the desired effect of a drug. There are usually adverse side effects to large doses. If we were able to selectively target the tissues needing the drug, mega doses (and their side effects) will disappear.

It is important to note that not all massive drug doses are harmful, some are even beneficial.

Phospholipid transport

Phares, a drug delivery company in Switzerland, has presented a new way for drugs to be delivered. Phospholipids will surround a drug molecule and enable a drug with poor solubility to be absorbed by the body in larger than normal doses. Enables drugs that the body could not absorb normally to enabling them to become a viable treatment option.



Current Toxicity and Nano

- Usually, drugs are toxic because they affect parts of the body not intended for drug treatment. Think back to the antibiotic example.
- Nanodelivery systems will eventually selectively target specific sites, keeping drugs where they are intended for use.

Pharmaceutical Companies

- Expensive to develop drugs
- Patents = \$\$\$
- How to make more money? Extend patents.
- How to extend patents, new discoveries



Insurance Companies

- Tactics at the counter
 - Undermining M.D.'s and Pharm.D.'s, the anti-inflammatory story
 - Regulation may be the answer
-
- Legal thievery, how anyone can make and sell a drug discount card legally from their own home

Conclusion

In conclusion, nanodrugs are the future of healthcare and are full of promise. However, a tremendous amount of research needs to be conducted before nano is a common sight in pharmacies. Insurance reform will also be necessary to maintain the physicians' and pharmacists' role of counseling patients on drug therapies. Without cooperation from insurance companies, nanodrugs may be out of reach, financially, for most of the world.