

# CHEM 4170

## Drug Research Assignment

**This assignment asks you choose a drug and learn how it works.** This is NOT a writing assignment, this is a literature research project. The data for your drug will be presented in "bullet" form, not as prose. Present your findings under the headings listed below and in the order shown below. Do not choose a drug that has been discussed in detail in Silverman's Book or in class. You may cover an experimental drug if it is at some stage of Clinical Trials.

You must provide information in (at least) nine of the eleven categories listed below. This may *not* be possible with every drug, so you might have one or two "false starts" on this project! That is, some clinically used drugs may not be suitable for this assignment because there is not enough detailed information known or available in the public domain (as opposed to patent literature). You must provide literature citations indicating where you obtained your information. At least three citations **must be** to primary scientific literature (that is, scientific journals that report *actual data* – not the PDR, reference books, or review articles that summarize reports of data). If you *also* used a good review article or reference book to find citations to the primary literature that is fine; just provide a citation to this reference source or review article at the beginning of your paper.

- (1) Drug "Trade" Name, Manufacturer's Name
- (2) Drug Chemical Name
- (3) Structure
- (4) Synthesis - Preferably, the Actual Synthesis Used to Produce Drug Commercially
- (5) Medicinal Use(s) - What disease(s) is the drug used to treat?
- (6) Classify Drug Target(s) (enzyme, receptor, DNA, RNA, membrane)
- (7) Normal Physiological Role of Target
- (8) Short Explanation of Why Drug Action at the Target Elicits Physiological Response
- (9) Mode of Interaction of Drug with Target - i.e. covalent bond formation, non-covalent binding, amino acid contacts?
- (10) Identify the Pharmacophore. May be speculation but must be supported by literature.]
- (11) Name and Structure of One Additional Drug that "Hits" the Same Target

### How to get started:

Start by choosing a drug that you are genuinely interested in... a drug that you take or have taken, a drug that a family member takes, a drug that you've seen advertised on TV or in a magazine, a drug targeted at a disease you are interested in... etc.

Then go to the reference section of the Medical School Library. Look up your choice in drug reference books like the Physician's Desk Reference or the Merck Index. This will give you some basic information and will make sure that you know all the various names for the compound. You might also want to try the Internet for information to get you going. Check out the class Webpage for drug databases!

Then go to online databases like Medline, Scifinder or Science Citation Index and look up literature in scientific journals about your drug. Check under all the various names that you have for the compound. You also can use "off line" databases like Chemical Abstracts, Biological Abstracts, etc. Compile promising citations to the primary literature (Scientific Journals), look them up, read them, and find the information you seek.

**The Friday After Spring Break: Turn In Your Choice of Drug For Approval**

**Due: On the Last Day of Class by 5:00: To Gates in Class or to Chem Dept Office**