

Part A: Structure Analysis
Mother's Little Helper Project: Prescription Drug Analysis

I. Analyze the structural aspects of the drug:

1) "Lookin' through chemistry-colored glasses": What does my drug look like?

Give an accurate, neatly drawn (preferably with a program that can draw molecules... ACD/ChemSketch is a freeware example of such a program) structure of the drug.

2) "Ebony and ivory, together in perfect harmony?": What solubility issues does my drug have?

On still another copy of the drug molecule, circle and label the polar and non-polar regions of your drug.

Given these distributions of polarity, speculate on whether you expect the drug to be soluble in water (i.e. in your stomach?)

What official information can you find about the solubility of the drug?

Does this information make sense, given the distribution of polar / non-polar parts in your molecule? Explain.

3) "Am I too sexy for my functional groups?": What molecular parts does my drug have?

On another copy of the drug molecule, circle and identify all functional groups present.

List the intermolecular interactions in which each would most likely participate.

II. Analyze the pharmacology of the drug

4) "You say dissolve, and I say absorb": How does the drug get into my blood stream?

What information can you find about the dissolution (dissolving) of your drug?

What information can you find about the absorption of your drug from the digestive tract into the blood stream?

What is the timeline for bioavailability (how quickly absorbed so it can work?) Does this make sense given what you learned about dissolving/absorbing issues above? Explain

5) "Go on now GO! Excrete out the door!": How do I get rid of my drug?

What information can you find on how the drug is metabolized and excreted?

Part B: Disease and Mechanism of Action
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I. Disease / Disorder Background and Chemistry

1) "Doctor, Doctor, gimme the news!": What disorder / disease does my drug treat?

Give general information about the disorder treated by your drug such as people most likely to suffer, the frequency of occurrence, and the expected outcomes with treatment and without.

What is believed to be the biochemical basis for the disease? (what is messed up or not working right?)

2) "Just nod if you can hear me... Is anyone at home?": How is the disorder diagnosed?

How is the disorder diagnosed officially? Make sure to include any lab tests that are helpful in diagnosis.

What are the distinguishing symptoms?

II. Drug Mechanism of Action and Side Effects

3) "Left a good job in the kidney...or wherever": How does your drug work?

Given your disorder and the chemistry behind it, how does your drug help people with the disease?

What is the chemistry behind the way it works?

Does your drug treat a symptom of the disease or the underlying cause of the disease?

How well does it work?

4) "Lord Almighty, I feel my temperature risin'..." What are the side effects of your drug?

Describe the side effects of your drug. Try to find one or two that you can explain with respect to your drug's mechanism of action.

Who shouldn't take your drug and why?

Part C: Marketing Analysis
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I. Commercial / Advertisement Analysis

1) **“Welcome back, my friend, to the show that never ends...”: How is my drug advertised?**

Find an advertisement (online or magazine) or commercial for your drug.

Describe the general "tone" of the ad / commercial. What feeling does this tone attempt to evoke? What imagery is used in the commercial to accomplish its goal?

How is the commercial selling the drug? What is it trying to convince you about yourself (if you had the disorder) and about the benefits of the drug itself?

2) **“One way or another, I’m gonna find you, Im gonna getcha...”: Who is the target group?**

Describe the profile of the people the commercial is targeting.

Advertisers strategize about when and where to air their commercials where the largest interested audience will be influenced. Speculate about the times, channels, and shows during which you most expect your commercial to air. Explain your reasoning.

3) **“Money, so they say, is the root of all evil today.”: What does the drug cost?**

What is the cost of this drug? Does this seem reasonable given the price of alternatives or considering the severity of the disorder treated?

Is there an alternative drug or generic available for the drug?

Part D: Case Story
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For your drug, develop a novel, creative case story involving a person who (1) suffers from a disorder/disease for which the drug would be prescribed, (2) has taken an overdose of your drug, *or* (3) who has taken the drug when they shouldn't have. The description should be creative and make you care about that person described. It should be written more like an episode of E.R. or CSI than the dry, basic case information found in the vast majority of text books. Try to make the description intriguing so that further investigation is encouraged. The description should include a significant number of symptoms related to the disease/disorder