

DEPARTMENT OF MEDICINAL CHEMISTRY
SCHOOL OF PHARMACY

Introduction to Pharmaceutical Sciences
Exam 1

PCEU/MEDC 607
October 27, 2005

STUDENT NAME

HONOR PLEDGE

Dr. Yan Zhang's Section

The essay for natural product:

"Find a drug either is or derived from natural product and finish a short essay about it. Contents should include but not limited to: name (trade name, or generic name), chemical structure, nature resource(s), brief historical review, major pharmacology and toxicology study, side effects, possible future development. All the literature (author, title, journal, year, volume, page number) 2-5 pages. Due 5pm, Oct. 28, 2005, Smith Room 548, Dr. Zhang's mail box."

Please initial here indicating that you know of this assignment.

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Dr. Susanna Wu-Pong's Section

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Briefly describe one way in which biotechnology will change health care in the future. Use examples to support your statement. (10 points)

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Dr. Glen Kellogg's Section

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1. Explain the difference between a 'global' energy minimum and a 'local' energy minimum. (6 pts)

2. What are the two common ways that a local minimum can be overcome? (4 pts)

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Dr. Jason Rife's Section

Match the following attributes to each technique of gene therapy. Each technique will have more than one attribute. Some attributes will be used more than once; others may not be used at all. Answer by using the one letter code. (2.5 pts each)

- A. Requires the RISC complex.
- B. Usually utilizes RNaseH.
- C. Chemical modification of Nucleic acid drug is necessary.
- D. Can be used to up-regulate gene expression.
- E. Can be used to repair a gene.
- F. Can be used to replace an absent/non-functioning gene.
- G. Relies on efficient cellular uptake of nucleic acid drug.
- H. Requires that the gene/disease state link be known.
- I. Can require dicer.

1. The technique of antisense technology _____.

2. The technique of ribozyme technology _____.

3. The technique of siRNA technology _____.

4. The technique of exogenous gene introduction _____.

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Dr. Lemont Kier's Section

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Define and reveal the information coming from the Hammett sigma value and the Log P measurement. (10 pts)

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Dr. Umesh Desai's Section

1. Draw a diagram showing the combinatorial synthesis of at least 9 different peptides using split and mix strategy. Clearly identify any symbols/labels you use. (10 pts)

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2. In one sentence define combinatorial synthesis. What are its advantages? What are its disadvantages? Use bullets, instead of complete sentences, for advantages and disadvantages. (10 pts)

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3. What is rational drug design? Define in one or two sentences. What are the advantages of rational drug design? What are its disadvantages? Use bullets, rather than complete sentences, for advantages and disadvantages. (10 pts)