Assignment Introduction to Systems Biology Sept 7th 2011

The goal of this lecture and exercises is to provide an overview of the introductory course and to wet your appetite about the need and/or potential of the Systems Biology approach. Today you will read two papers, one sketching the field and its approaches, one providing the rationale and need for the Systems Biology approach.

“Systems Biology, a brief overview” by Hiroaki Kitano, Science 295: 1662 (2002)

Kitano mentions four key properties for systems level understanding.

1. Describe the properties in your own words, and provide biological examples for each, to test if you understand what Kitano means by them
2. Do you agree, or do you miss properties or elements you deem important?

Kitano mentions that in model building it is important to define the purpose and scope of the model.

3. Reflect on possible purposes that computational models could have in biology. Give specific examples.

“Can a biologist fix a radio - Or, what I learned while studying apoptosis” by Yuri Lazebnik, Cancer Cell 2: 179 (2002)

4. What is the main argument of Lazebnik for the failure of experimental biologists to fix the radio?

Kitano is stressing high throughput techniques such as omics technology; Lazebnik is not.

5. What could be the role of such omics technologies in the process of fixing the radio?