In-class Activity: HIV Protease Proteopedia Assignment

- **Key Points**
  - Exploration of protein structure and function
  - Introduction to protein visualization and analysis
  - Review levels of protein structure, structure determination, and stabilization of protein structure.
  - Apply class material to a biochemical problem

You are going to explore the basic structure of HIV protease using Protopedia. Protopedia is like Wikipedia, but for protein structures. Protopedia has a short description of the structure of HIV protease along with green links that change the structure of HIV protease to highlight specific characteristics of the protein.

2) Read the four narrative paragraphs describing the structure of HIV protease.
3) Rotate the structure of HIV protease on the right of the page. Look at the dimer interface and the orientation of the two subunits.
4) Click the green links in the narrative text and watch how the structure of HIV changes.
5) Answer the following questions about the structure and properties of HIV protease.
   a. Where in the structure of HIV protease does saquinivir bind?
   b. Would you expect the Asp-Thr-Gly residues in catalytic triad of HIV to be completely conserved? Why?
   c. Why is the flap region of the protease likely not stabilizing to HIV protease dimerization?
   d. When the video shows the flaps on HIV protease moving, how was this video created? Have scientists actually visualized the movement of the flaps on HIV?

6) Upload your answers to Moodle. Copy the answers directly into the answer textbox on Moodle.