



Dear Teachers and Teams,

We are looking forward to seeing everyone at the Protein Modeling Trial Event at the NJ Science Olympiad State Tournament.

Participating teams should bring their prebuilt Insulin model (and its corresponding written description) to be impounded on the day of the event. If your team still needs an Insulin kit, please email your request to buildmodels@rcsb.rutgers.edu. If desired, teams may use materials not included in the kit, to further illustrate details or structural features of the protein.

At the event, teams will answer written questions about the structure, function, importance, and history of the modeled protein based on material provided.

Tools and activities from the model lending library, to learn about protein structure, may be borrowed from the RCSB PDB. (see <http://education.pdb.org/olympiad/mini.html>).

When building the models, teams may want to think about:

- Which are the N and C terminal ends? How do you know? Which colors are used to represent them?
- Which toobar corresponds to which chain?
- Are the helices right-handed or left-handed?
- The protein in this structure is composed of more than one chain. How are these chains held together?
- What is the nature of the residues on the surface of the protein. Why?

Hints:

- The scale of the model should be determined before you start building the model. At this stage you should identify which toobar will correspond to which chain in the PDB file.
- If you wish you can mark each residue on strips of paper that match the length of the protein chains in this structure. This may help in building the models.
- Teams are encouraged to email their questions about building protein structures to buildmodels@rcsb.rutgers.edu.

See you in March!

The RCSB PDB