Model Design Checklist

Before you submit your SMART Team's model design, be sure to review your model file using the following checklist of required features!

1. **Alpha-carbon backbone format:** ______________

2. **Disulfide bonds added:** ______________

3. **Design Values:**

    a. **Backbone 1.5** ______________

    b. **Hbonds 1.0** ______________

    c. **Wireframe 1.0** ______________

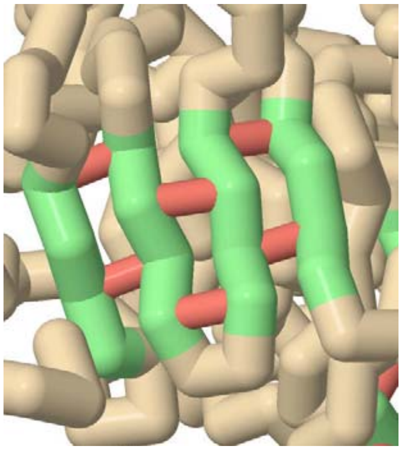
    d. **Spacefill 1.25** ______________

    e. **Struts 1.0** ______________

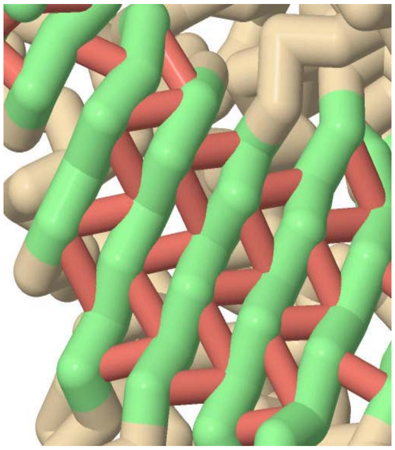
    f. **Disulfide bonds 1.0** ______________

4. **Hbond Specifics:**

    a. **Add Hbonds to beta sheets only** ______________



Hbond configuration (shown in salmon) between anti-parallel beta sheet strands
CORRECT!

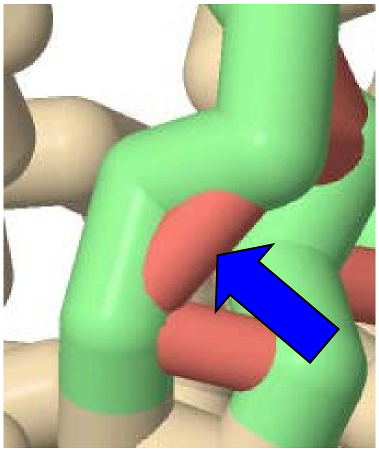


Hbond configuration (shown in salmon) between parallel beta sheet strands
NOTE: These are NOT "triangle" bonds!
ALSO CORRECT!

    b. **Set Hbonds backbone** ______________

    c. **Set Hbonds solid** ______________

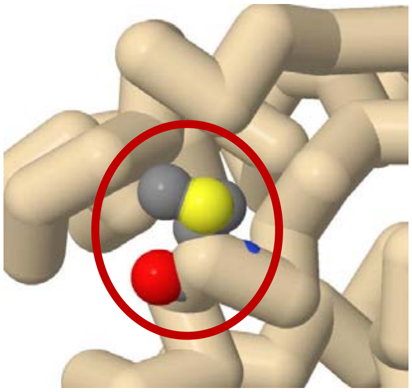
d. Identify and remove "triangle" Hbonds ______________



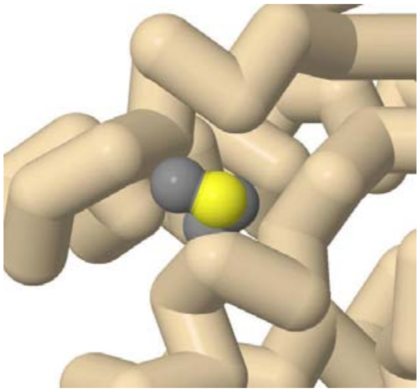
Remove "triangle" Hbonds indicated by the blue arrow in the picture at left.

NOTE: A true "triangle" Hbond is never found between two different beta strands in a beta sheet but rather within the same beta strand. The amino acids forming the bond are 2 positions apart from one another. For example, the Hbond forms between amino acid 201 and amino acid 203.

5. Relevant sidechains are displayed with a "clean backbone": ______________

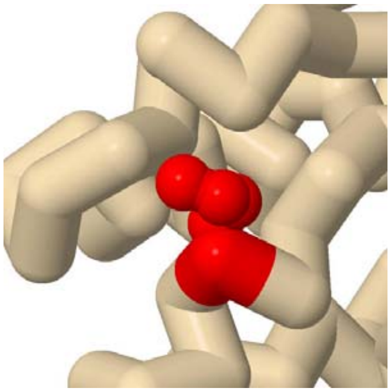


Bumpy backbone circled in red
INCORRECT!

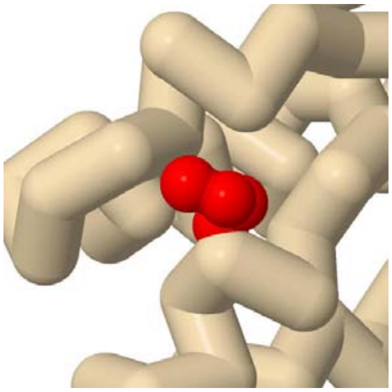


Sidechain added with "clean backbone"
CORRECT!

6. Relevant sidechains are appropriately colored without coloring the alpha-carbon backbone: ______________



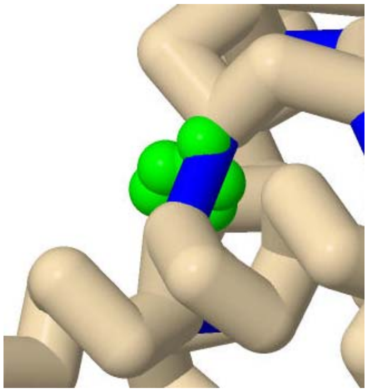
Sidechain and backbone colored
INCORRECT!



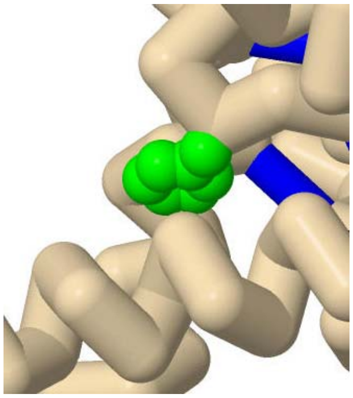
Only the sidechain is colored
CORRECT!

7. **Struts added:** ______________

8. **Remove Hbonds that obscure relevant sidechains:** ______________

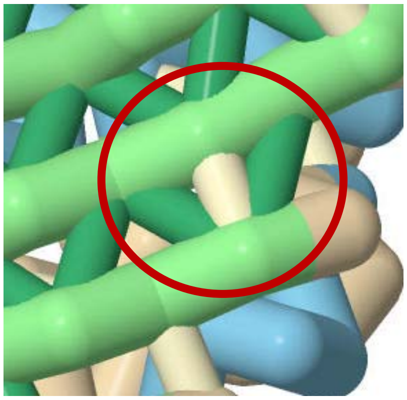


Sidechain “skewered” by strut
INCORRECT!

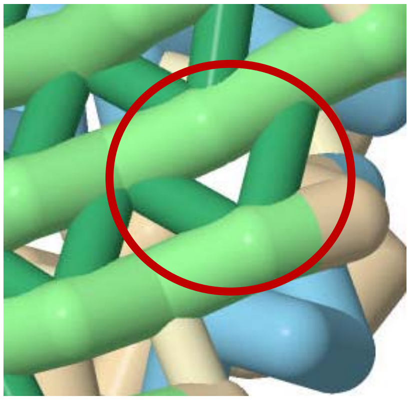


Strut removed
CORRECT!

9. **Remove extraneous struts:** ______________



Strut (colored lemon chiffon) splits
Hbonds (colored medium sea green)
INCORRECT!



Strut removed
CORRECT!

10. **SEND YOUR MODEL DESIGN DETAIL SHEET WITH YOUR MODEL DESIGN!** ______________

Please refer to the digital version or the printable version of the Jmol Training Guide in the “Team Resources” section of the SMART Team website to address any model design flaws.

http://cbm.msoe.edu/smartTeams/smartTeamsResources.php