

This is a big title

Sometimes I like a subtitle too

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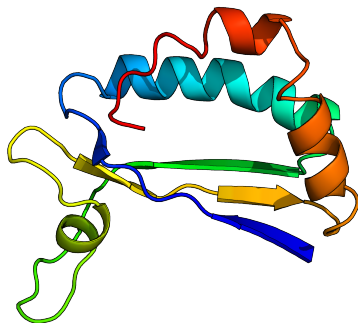
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Template-Free Protein Structure Prediction

- Current structure prediction heuristics are limited by the enormous conformational search space
- Proteins adopt their native structures *in vivo* by searching conformational space very efficiently
- Biologically-inspired sequential prediction has improved protein structure prediction
- Blah blah

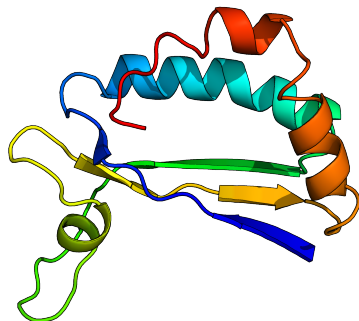
Figure-on-top slide example

NEW



- On this slide, the figure is on top and the text is underneath
- This is also an example of the new label for exciting new things

Figure on one side slide example

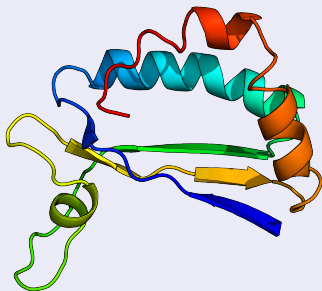


- This text is to the right of the figure
 - ▶ Wow look at that structure
 - ▶ Over there on the left
 - ▶ I like it
 - ▶ Very nice
- Models are ranked and grouped into confidence categories

Block slide example

Block title

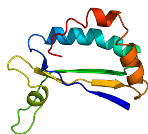
- I'm partial to a block slide:
 - ▶ To be honest
 - ▶ I don't know why
 - ▶ I just like it
 - ▶ sometimes
- Models are ranked and grouped into confidence categories



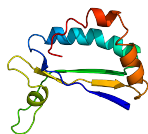
Protocol and set of example cases

NEW

- Slide for presenting examples of targets or models
 - ▶ Some details in case I need them
- Some more details about the structures
- Validation: aligned RMSD ($\leq 5\text{\AA}$) and minimised RMSD ($\leq 2.5\text{\AA}$) of sampled region



2.32, 1.99
Good



9.56, 8.58
Bad



11.20, 8.16
Bad



2.67, 1.75
Good

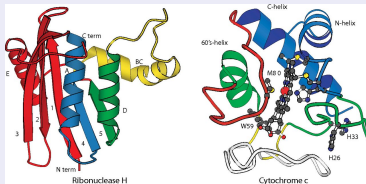


6.05, 3.48
Okay

Foldons and Protein Folding

The Foldon Hypothesis

- **Foldons: small, separately cooperative units**
- Folding occurs via an ordered process of foldon-determined steps, in which formed foldons guide and stabilise the next foldons
- Foldons are...
 - ▶ small enough to overcome the Levinthal time scale problem
 - ▶ large enough to provide the energy bias to drive folding



Jeng, M.F., Englander, S.W., 1991. Stable submolecular folding units in a non-compact form of cytochrome c. J. Mol. Biol. 221, 104561.

Maity, H., Maity, M., Walter Englander, S., 2004. How cytochrome c folds, and why: Submolecular foldon units and their stepwise sequential stabilization. J. Mol. Biol. 343, 223233.

Hu, W., Kan, Z.-Y., Mayne, L., Englander, S.W., 2016. Cytochrome c folds through foldon-dependent native-like intermediates in an ordered pathway. Proc. Natl. Acad. Sci. U. S. A. 113, 380914.

To do list

- Big difficult task
 - ☒ A task I've completed already
 - ☒ Another task I've completed already
 - ☐ A task I haven't completed
 - ☐ A task I haven't completed
- Another related big difficult task on the same topic
 - ☒ Something that I've already done
 - ☒ Something that I haven't yet done
 - ☆ Something that I would do in my dreams

Acknowledgements



EPSRC



EPSRC and MRC Systems Approaches to
Biomedical Science CDT

