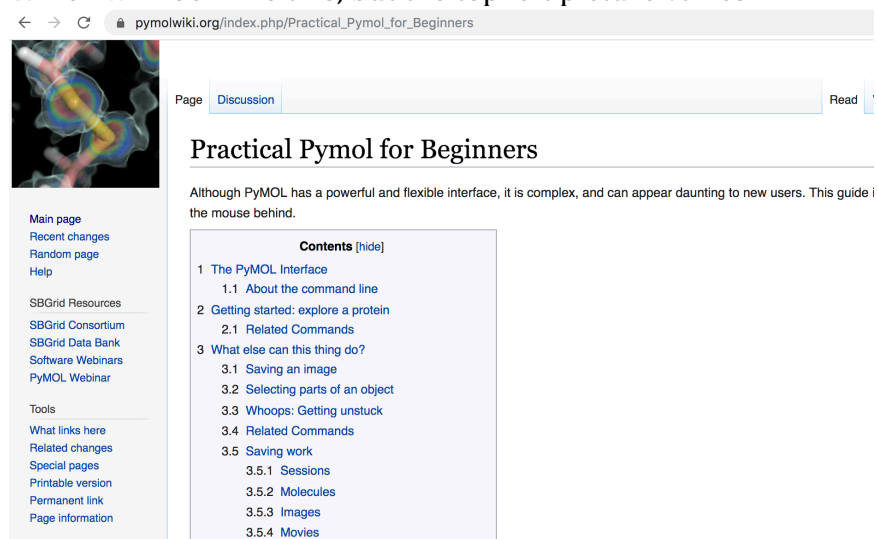


## PyMol Assignment 2: Tutorial from Pymol Wiki And Creating and Manipulating Objects

Go to this webpage:

[https://pymolwiki.org/index.php/Practical\\_Pymol\\_for\\_Beginners](https://pymolwiki.org/index.php/Practical_Pymol_for_Beginners)

Which will look like this, but the top left picture varies.



Read through the page, look at the Pymol window for every button and feature mentioned, perform the actions as directed in this tutorial, including loading the PDB file 1BL8, which is potassium channel protein from *Streptomyces Lividans*, and saving an image that looks like that shown for this protein shown in the tutorial.

Going beyond the tutorial, enter the following in the command line:

**PyMOL>reinitialize** (resets Pymol to its initial state)

**PyMOL>fetch 1AHO** (to load in the structure of the scorpion protein toxin).

**PyMOL>bk\_ground white**

Look on the RH side of the Pymol window and you will see

all           ASHLC

1AHO       ASHLC



“1AHO” is the object that contains the coordinates of the protein you have downloaded. ASHLC are pulldown windows.

A = actions

S = show

H = hide

L = label

C = color

On the 1AHO panel

Click H

Click Everything (hides everything; everything should disappear)

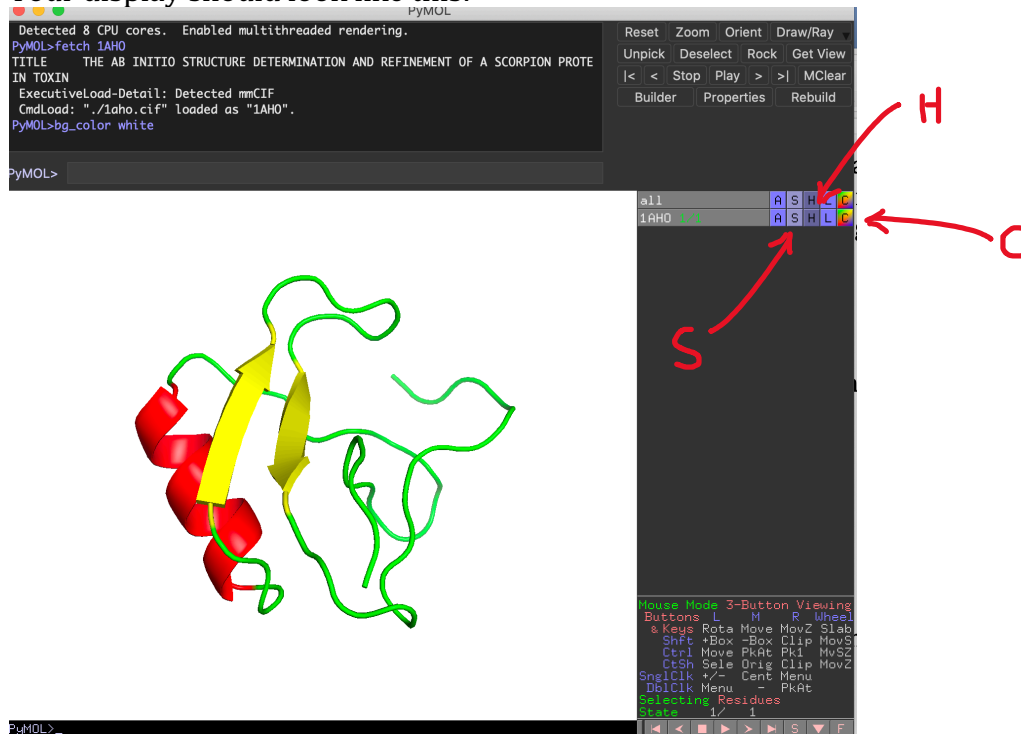
Click S

Click Cartoon (show cartoon; the protein will show as a cartoon)

Click C

Click by ss (color by secondary structure; the loops, helices and  $\beta$ -strands show in different colors)

Your display should look like this:



Pymol allows you to make as many “objects” as you like, each with its own set of attributes. To illustrate this feature, and how to work with objects, make objects from subsections of this protein that are associated with different elements of secondary structure.

type

**PyMOL>** create loop1, resi 1-18

all	A	S	H	L	C
1AHO 1/1	A	S	H	L	C
loop1 1/1	A	S	H	L	C

Now you have three objects.

all is there by default and you will not use it.

1AHO contain the protein plus all the waters, ions and ligands in the 1AHO coordinate file.

loop1 contains residues 1-18 of the protein.

Now go to “H” button of loop1 and hide everything, then show it as stick

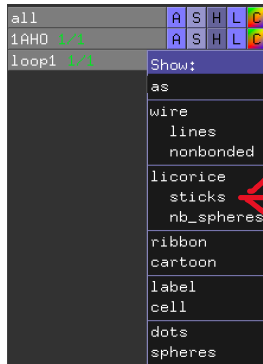
Click H (of loop 1)

Click everything

Click S (of loop 1)

Click S

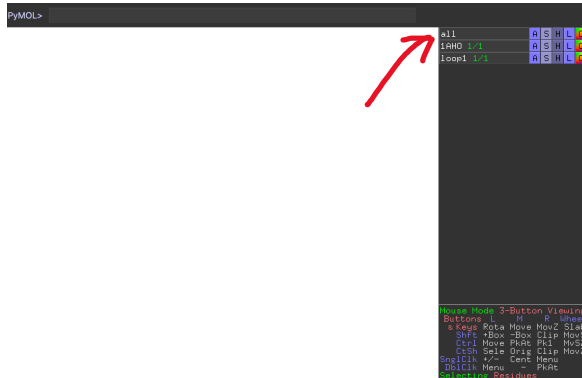
Click licorice sticks



Click C

Click by element (color atoms by element type)

Turn all objects off by clicking on all



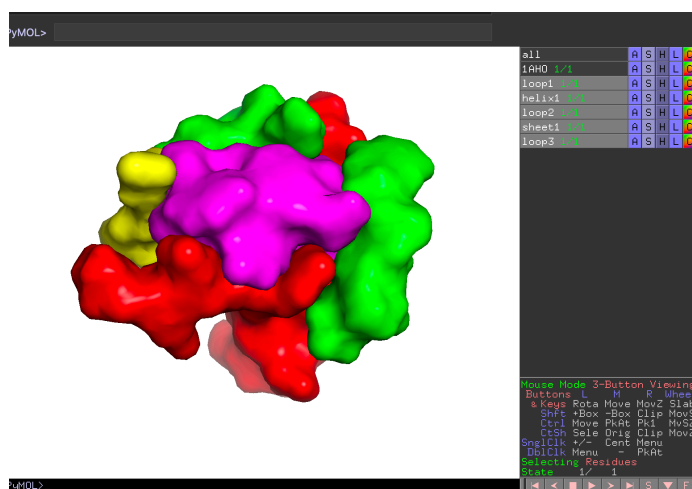
Turn on loop1 by clicking on loop1





Give each object a different color

It should look something like this.



Send a ray 2000,2000 image to Loren