

Quick Reference Guide for Jmol

About Jmol

Jmol is a Java based application and is commonly used as a web-applet for displaying 3D structural information.

Launch the program

You can access this from the RCSB PDB website by clicking on the Jmol icon in the images and visualization box on the right hand side of the page. The molecule is launched in a cartoon representation.

Manipulating the molecule

Move the mouse while holding the left button down. This allows you to rotate the molecule and orient it to see the features clearly. Press shift and drag the mouse vertically to zoom in and out, while press shift and drag horizontally to rotate around Z axis.

Menu based functions

Launch the functions menu by clicking on the right mouse button while the mouse is anywhere in the Jmol display area. In the menu you should see options to select, color, zoom etc. Use the various options here to display the molecules or parts of it to highlight the desired features. Double click on any atom in the display and drag the mouse to measure distances.

Using the command line

Launch the Jmol console by clicking on the menu Console > Open. A new window should open. You can type in the desired command in the bottom section of the window and click on execute. The programs response to your command is recorded in the top section of the console window. If you are familiar with RasMol commands you and try using them from the console window. Many of them will work here, for example:
select <expression> select the part of molecule in expression
restrict <expression> show only the part of molecule in expression

The expression could be a residue number (113), or a residue type (His), or combinations of the above using boolean operators like AND, OR, NOT.

Display commands include:

wireframe <value> display stick bonds

spacefill <value> display stick bonds

For more information on expressions and other commands see the Jmol help pages at:

<http://jmol.sourceforge.net/docs/JmolUserGuide/ch04.html>

There are also help documents available from RCSB.

SHORTHAND SYMBOLS FOR AMINO ACIDS

One letter	Three letter	Amino Acid		
A	Ala	Alanine		
R	Arg	Arginine		
N	Asn	Asparagine		
D	Asp	Aspartic acid		
B	Asx	Asn or Asp		
C	Cys	Cysteine		
Q	Gln	Glutamine		
E	Glu	Glutamic acid		
Z	Glx	Gln or Glu		
G	Gly	Glycine		
H	His	Histidine		
I	Ile	Isoleucine		
L	Leu	Leucine		
K	Lys	Lysine		
M	Met	Methionine		
F	Phe	Phenylalanine		
P	Pro	Proline		
S	Ser	Serine		
T	Thr	Threonine		
W	Trp	Tryptophan		
Y	Tyr	Tyrosine		
V	Val	Valine		
Amino acids with nonpolar [hydrophobic] groups	Amino acids with uncharged polar groups [pH = 6-7]	Amino acids with acidic groups [pH = 6-7]	Amino acids with basic groups [pH = 6-7]	
Ala	Asn	Asp	Arg	
Ile	Cys	Glu	His	
Leu	Gly		Lys	
Met	Gln			
Phe	Ser			
Pro	Thr			
Trp				
Val				