

# INTERACTORIUM

# RELEASE

# NOTES

# 1.0

Supplementary material for:

Widjaja YY, Pang CNI, Li SS, Wilkins MR, Lambert TD (2009). The Interactorium: visualising proteins, complexes and interaction networks in a virtual 3D cell. *Proteomics*, in preparation.

## The Interactorium

The Interactorium has two views: the 'Complex Viewer' (which shows the interactome without localisation data), and the 'Virtual Cell' (with localisation data).

The Interactorium visualises the cell from 3 different levels: from the cell, to protein complexes and interactions, and into protein structure.

You can download The Interactorium at: <http://www.interactorium.net>.

### *Installing & Running The Interactorium*

1. Extract the ZIP file.

2. Open `interactorium.exe`.

If the program does not run, check the `trace` file inside the directory.

If there is an "OpenGL 2.0 not supported" error message, your computer does not have an OpenGL 2.0 compliant graphics card, which is required to run the program.

3. You can run the program at a larger resolution (depending on your monitor) by typing the following on the command line:

<code>interactorium larger</code>	<code>1500 x 900</code>
<code>interactorium smallwide</code>	<code>1400 x 800</code>
<code>interactorium 1080p</code>	<code>1920 x 1080</code>
<code>interactorium 19in</code>	<code>1280 x 1024</code>
<code>interactorium 17in</code>	<code>1024 x 768</code>

Adding `fullscreen` after the command will make the program fit the screen.

Adding `stereo` will display the network in stereo 3D view.

### *Controls*

You can navigate the networks using the mouse or the keyboard.

You can zoom in on an area of interest using the mouse scroll wheel.

Clicking on a node will bring it into focus and further navigation of the network will be centred on it. To undo this, right click on the node and drag it to the bottom-right corner of the screen.

The **W**, **S**, **A** and **D** keys can also be used to zoom in, zoom out, and rotate left and right of the network, respectively.

The filter menu can be invoked using the **tab** key. You can hide/highlight elements by clicking on the appropriate letters, or by typing them. However, please note that all commands are case sensitive.

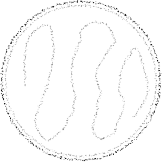


### ***Example Navigation Scenario***





Say, for example, you wish to find Calmodulin protein CMD1.

1. Type /a to display the list of all proteins in the network.
2. Type CMD1. Note that the search function is case sensitive, that is, typing cmd1 will return nothing.
3. The Interactorium will then focus on protein CMD1. You can hover the mouse over the node and its edges to view information about the protein and its interactions.
4. You can then click on another node to view information about that particular protein and its interactions.

### ***Available Cell Localisations***

There are a number of localisations available in the current version of The Interactorium:

<b>Compartment</b>	<b>Location</b>	<b>Decoration</b>
ER	Floating Spherical Compartment	
ER to Golgi	Floating Spherical Compartment	
Golgi	Floating Spherical Compartment	
Early Golgi	Floating Spherical Compartment	
Late Golgi	Floating Spherical Compartment	
Actin	Cytoplasmic (no compartment)	None
Bud	Fixed Spherical Compartment, next to the nucleus	
Bud neck	Short pipe between bud and nucleus	None
Cell periphery	Floating Spherical Compartment (will be changed next version)	Default
Cytoplasm	Cytoplasmic (no compartment)	None

Endosome	Floating Spherical Compartment	Default
Lipid particle	Floating Spherical Compartment	Default
Microtubule	Floating Spherical Compartment	Default
Mitochondrion	Floating Spherical Compartment	
Nuclear periphery	Floating Spherical Compartment (may change next version)	Default
Nucleolus	Fixed Spherical Compartment inside Nucleus	None (inside nucleus with a different colour)
Nucleus	Fixed Spherical Compartment, in the middle of the display.	
Peroxisome	Floating Spherical Compartment	
Punctate composite	Floating Spherical Compartment	Default
Spindle pole	Floating Spherical Compartment	Default
Unknown	Cytoplasmic (no compartment)	None
Vacuolar membrane	Floating Spherical Compartment (will become attached to the vacuole on the next version)	
Vacuole	Floating Spherical Compartment	

## ***Installing Protein Structures***

To view the 3D structures of proteins of interest, copy their PDB files into the `pdbdb` directory. A list of PDB files currently used by the Interactorium can be viewed on the website.

## ***Notes***

The Interactorium is continually under development and new features will be added in the near future. If you have any additional questions, please subscribe to the Skyrails mailing list:

<http://groups.google.com/group/skyrails-public> public discussion list

<http://groups.google.com/group/skyrails> announcements

## ***License & Disclaimers***

You can use Skyrails / the Interactorium for any non-commercial research purposes (ie. academic purposes). Please remember to cite the Interactorium paper.

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**Special thanks** to Dr Bruno Gaeta for teaching me everything about proteins.