# **Tutorial:Cluster Maker**

### ClusterMaker

**Biological Use Case**: Find possible complexes, protein families, functional relationships and view in biological context.

Dependencies: For group features, please also install the MetaNodePlugin2 and the NamedSelection plugin.

### Procedure

1. Start with expression data for studies into mechanism for galactose utilization. Go to **File->Open** and select *galfiltered.cys* to load a session.

#### Run clustering to determine interesting subnets

- 1. Select Plugins->Cluster->Hierarchical cluster.
- 2. In the Source for array data box, select node.gal1RGexp, node.gal4RGexp, and node.gal80Rexp.
- 3. Deselect Only use selected nodes/edges for cluster.
- 4. Click Create Clusters.
- 5. When you have created the clusters, the **Visualize Clusters** clusters button should become active. Click **Visualize Clusters**.

\varTheta 🔿 🔿 Hierarchic	al cluster Settings
Hierarchical cluster Settings	
Linkage	pairwise average-linkage 🛟
Distance Metric	Euclidean distance
Source for array data	
Array sources	node.gal1RGexp node.gal1RGsig node.gal4RGexp node.gal4RGsig
Only use selected nodes/edges for cluster	
Cluster attributes as well as nodes	
Ignore nodes with no data	
Create groups from clusters	<b>I</b>
Create Clusters Visualize Clusters	Save Settings Cancel Done

#### Visualize and navigate the clusters

1. You will now see an Eisen treeview visualization. On the treeview window, explore by clicking on points on the dendogram. Clicking/selecting a particular row in the heatmap will result in the expression values for that column being overlaid on the network view.

. \varTheta 🔿 🔿	ClusterMaker TreeView : galFiltered.sif			
View Status Select Node to view annotatior	4 A	Usage Hints Click to select node – use arrow keys to navigate tree		
	<u> </u>			
	¥.			
Settings Save Data Export Graphics Map Colors Onto Network Close				

- 1. Use **shift-drag** to draw a box and see results on network.
- 2. Use **shift-click** to pick individual columns.
- 3. Select an individual row by clicking on it.
- 4. You can adjust the color scheme and contrast by going to **Settings**. For this demo, select **YellowBlue** in the colors window. This will change the Red/Green color scheme to Yellow/Blue. Click **Close**.

	Cluste O O		Pixel Settings	
View Status Mouseover Sele	Global:	X: • Fixed Scale • Fill	Y: 59.0 ● Fixed Scale 2.0 ○ Fill	
	- Zoom:	X: Fixed Scale Fill	Y: 12.0 • Fixed Scale 12.0 Fill	
	Contrast:	Value: 3.0		
	LogScale:		(base 2) Center: 1.0	
		Colors: Load	e Zero Negative Missing	
	L	(	RedGreen YellowBlue	
	×		Close	
Settings Save Data	Export Grap	hics Map Co	lors Onto Network Close	P

- 1. Press Map Colors Onto Network and select one of the options from the Attribute List.
- 2. Click **Create Vizmap**. This will map the colors onto the network.



#### Animate expression values over time

- 1. Go to Map colors onto network.
- 2. On the pop-up screen, click on specific attributes to select. For this example, select gal4RGexp and gal80Rexp.
- 3. Press Animate Vizmap. This will animate the image on the main Cytoscape session screen.

## **Article Sources and Contributors**

Tutorial: Cluster Maker Source: http://labrador.library.ucsf.edu/opentutorials/index.php?oldid=399 Contributors: AnnaKuchinsky

### **Image Sources, Licenses and Contributors**

Image:Create Clusters.png Source: http://labrador.library.ucsf.edu/opentutorials/index.php?title=File:Create\_Clusters.png License: unknown Contributors: -Image:Treeview.png Source: http://labrador.library.ucsf.edu/opentutorials/index.php?title=File:Treeview.png License: unknown Contributors: -Image:YellowBlue.png Source: http://labrador.library.ucsf.edu/opentutorials/index.php?title=File:YellowBlue.png License: unknown Contributors: -Image:MappedNetwork.png Source: http://labrador.library.ucsf.edu/opentutorials/index.php?title=File:YellowBlue.png License: unknown Contributors: -

## License

Attribution-Noncommercial-Share Alike 3.0 Unported http://creativecommons.org/licenses/by-nc-sa/3.0/