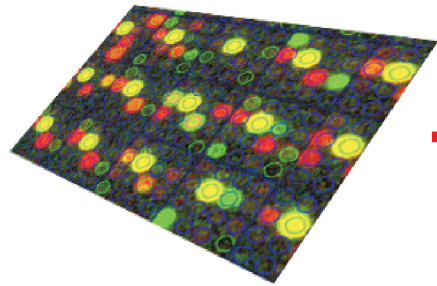


Dynamic Signaling Maps™ – Gene Network Topology tool

The Gene Network Topology module (GeneNets) uses time-series expression profiles to generate phenomenological gene interaction networks that could correspond to actual genetic regulatory networks.



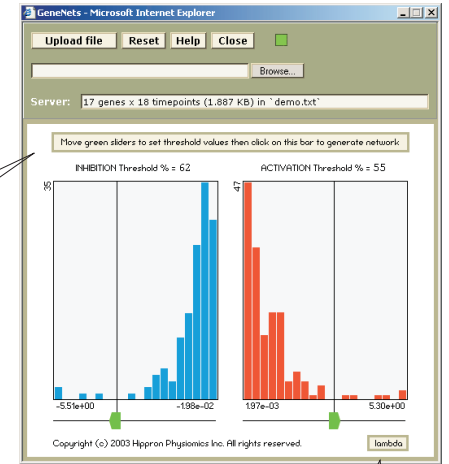
Perform time-series microarray experiment

Microsoft Excel - gen-demdata

	A	B	C	D	E	F	G	H	I	J	
1	# Data by Spelتمان et al. (1998)										
2											
3	CLN3	2.956	1.141	1.385	0.443	0.648	0.824	1.072	0.968		
4	NSL7	0.946	0.603	0.801	0.747	1.057	1.057	0.866	1.595		
5	PCL9	2.956	0.707	0.847	0.206	0.335	1.073	0.801	0.449		
6	PCL9	0.503	0.647	0.599	0.737	0.629	0.893	0.510	0.763		
7	PDS1	0.692	0.697	1.197	1.149	1.395	1.395	1.206	1.007		
8	SWI5	0.499	0.616	0.786	0.543	0.877	1.036	0.914	1.602		
9	SWI4	0.432	0.835	2.567	2.585	1.454	1.133	0.555	0.566		
10	ORF2	1.125	1.014	0.978	0.620	0.655	0.693	0.803	1.414		
11	CLB1	0.272	0.510	0.429	0.467	0.532	0.899	1.414	2.297		
12	CLB4	0.269	1	4.377	3.94	1	1.11	0.633	0.586		
13	PCL7	0.653	0.653	0.774	1	0.986	1.24	0.957	1.257		
14	FAR1	0.947	1.004	0.555	0.376	0.633	0.511	0.633	0.603		
15	SWI1	0.54	0.664	1.007	1.474	1.357	0.958	0.908	0.817		
16	NSL1	0.824	0.742	0.896	1.301	1.741	0.896	1.125	0.895		
17	SIC1	0.833	1.072	0.674	0.846	0.732	0.747	0.568	0.693		
18	CLB4	1.035	1.007	0.829	1.173	1.283	1.201	1.283	0.979		
19	NSL1	0.94	0.59	1.014	0.841	1.157	0.841	1.293	1.301		
20	* * * * *										

Organize time-series expression data in tabular format

GeneNets control panel: import expression data and set activation/inhibition thresholds



Compute and display gene network

Computed Gene Network - Microsoft Internet Explorer

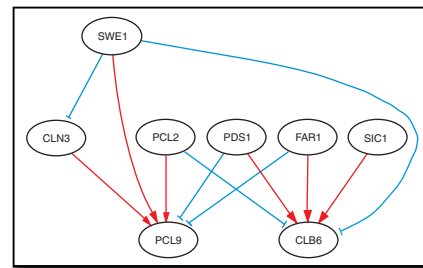
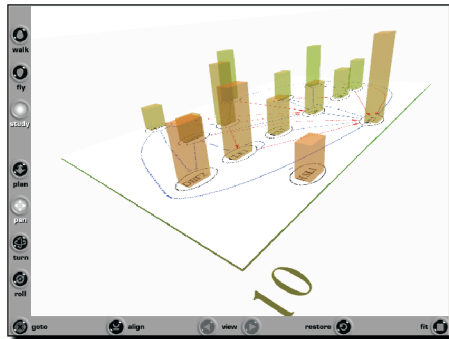
Overlay Expression Preview Network File DSML Copy Print Close

```

"CLN3" -> "PCL9";
"PCL9" -> "PCL9";
"PCL9" -> "CLB6";
"PDS1" -> "PCL9";
"PDS1" -> "CLB6";
"SWI1" -> "PCL9";
"SWI1" -> "CLB6";
"NSL1" -> "CLB6";

```

Overlay expression data onto gene network diagram (Web3D/VRML)



Preview network (Flash MX)

Import gene network in DSM Console for Analysis and/or visualization in other graphics formats (PDF, SVG, AI, EMF, PNG)

Microsoft Excel - connectivity

	A1	B	C	D	E	F	G	H	I	J	
1	CLN3		PCL9								
2	NSL7	7.35E-02	1.84E+00	5.29E+00	1.09E+00	9.69E-01	6.11E-01	-3.93E-01	-8.42E-01		
3	PCL9	2.07E-01	4.24E-01	6.91E-01	1.03E-01	-1.73E-01	4.51E-01	1.72E+00	2.06E-01		
4	PDS1	2.13E-01	1.05E+00	3.47E+00	-7.39E-01	-1.79E-01	-1.99E+00	1.02E-01	1.08E-01		
5	FAR1	2.41E-01	5.63E-02	6.71E-02	-7.79E-01	-2.23E-01	4.26E-01	-2.57E-01	-5.02E-01		
6	SIC1	-1.25E+00	5.55E-01	4.12E+00	1.06E-01	3.29E-01	1.99E-01	2.22E+00	8.47E-01		
7	PCL9	-8.92E-02	8.76E-01	1.95E+00	1.55E-01	-2.94E-01	1.89E-01	-5.01E-01	-3.69E-01		
8	CLB4	-1.04E+00	9.24E-01	2.81E+00	16.63E-01	1.23E+00	7.02E-02	-1.44E-01	8.97E-02		
9	NSL1	-4.92E-01	6.19E-01	-3.55E-01	-2.40E-02	-6.44E-01	4.01E-03	-4.04E-01	-9.45E-01		
10	SWI1	-7.79E-01	-1.27E-01	-3.76E-01	-9.71E-01	1.30E+00	-1.12E+00	-1.71E-01	1.21E+00		
11	SWI4	3.90E-01	8.28E-01	-2.24E+00	-2.25E-01	-7.23E-01	3.19E-01	2.73E-01	1.01E-01		
12	CLB6	6.09E-01	-8.95E-01	1.92E+00	1.15E+00	-6.51E-01	1.02E+00	6.99E-01	-1.28E+00		
13	ORF2	-5.05E-01	-1.20E+00	4.42E+00	8.96E-01	9.35E-02	1.09E+00	-3.93E-01	1.99E-01		
14	CLB4	1.20E+00	1.52E+00	4.44E+00	-5.32E-01	1.71E-01	-6.13E-01	-1.74E+00	-1.84E+00		
15	NSL1	-8.97E-01	3.44E-01	-6.99E-01	-2.20E-01	-1.84E-01	-1.54E-01	2.02E-02	-6.99E-01		
16	SWI4	3.19E-01	4.12E-01	-6.07E-01	3.16E-01	1.44E-01	1.20E+00	1.27E+00	1.43E+00		
17	NSL7	7.87E-01	-2.41E-02	3.74E-02	4.90E-01	4.10E-01	3.08E-01	1.00E+00	1.19E+00		
18	NSL1	1.54E+00	-1.95E+00	-2.09E+00	1.22E+00						
19	* * * * *										

Display gene network connectivity table λ