Med&Omix

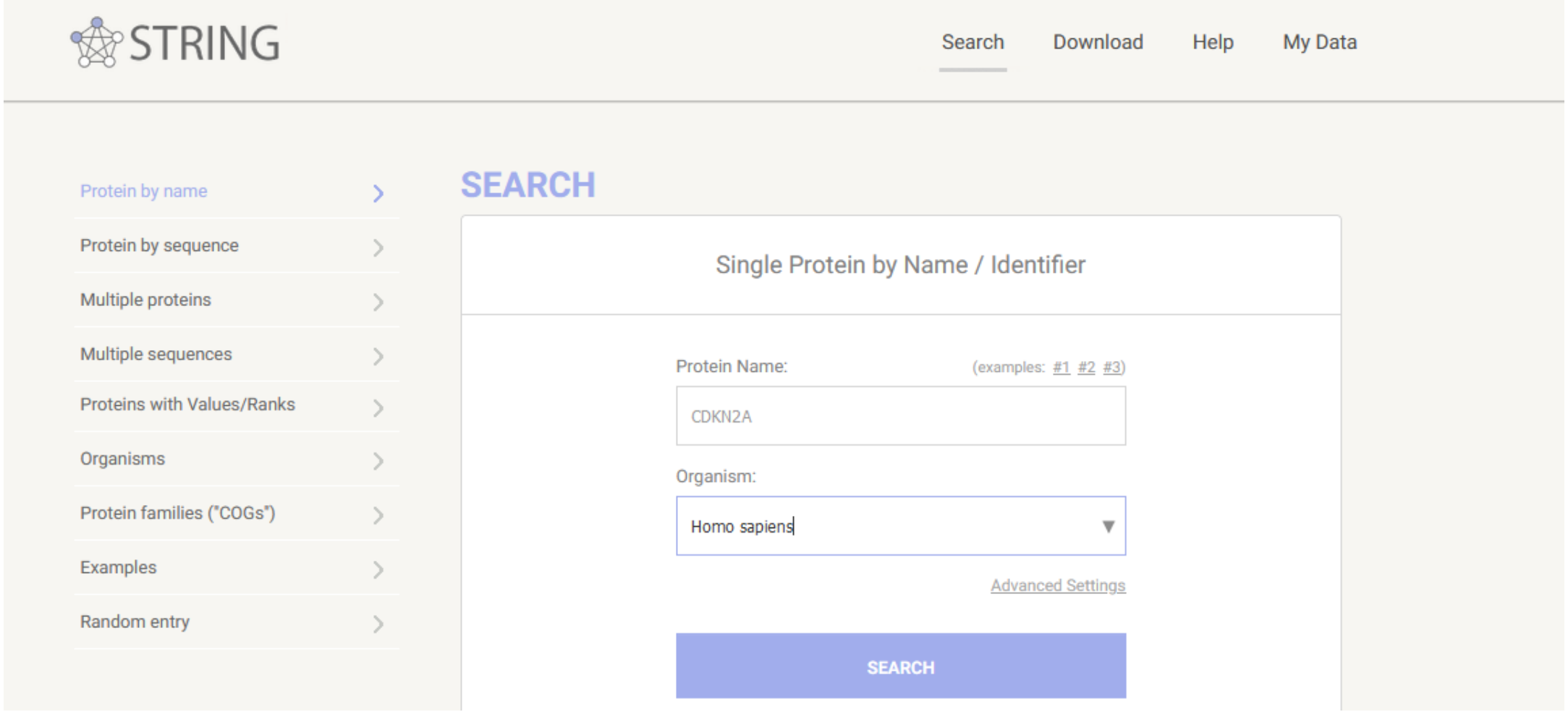
Third Meeting STRING-ing

Previously Discussed in Med&Omix Meeting

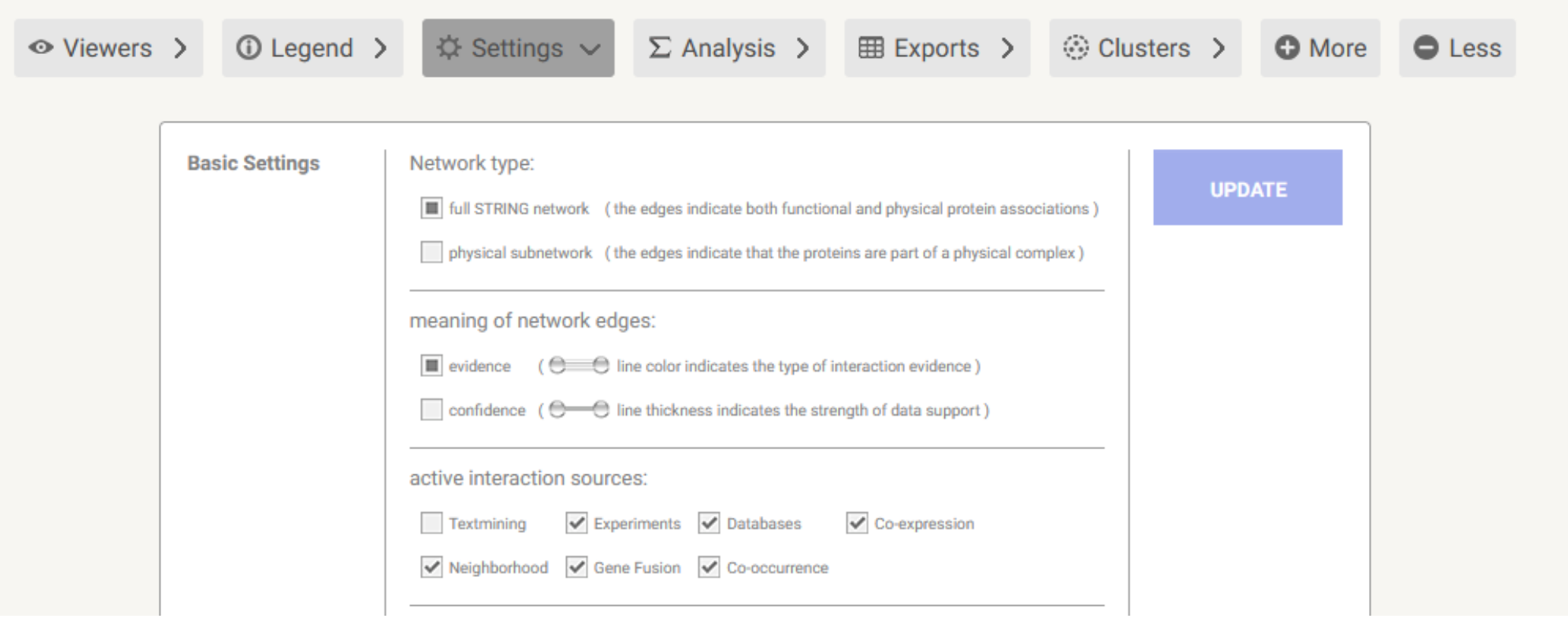
- How to use STRING
- How to apply on our hypothesis

So, I basically will do simple STRING protein-protein inetarcaction query-ing

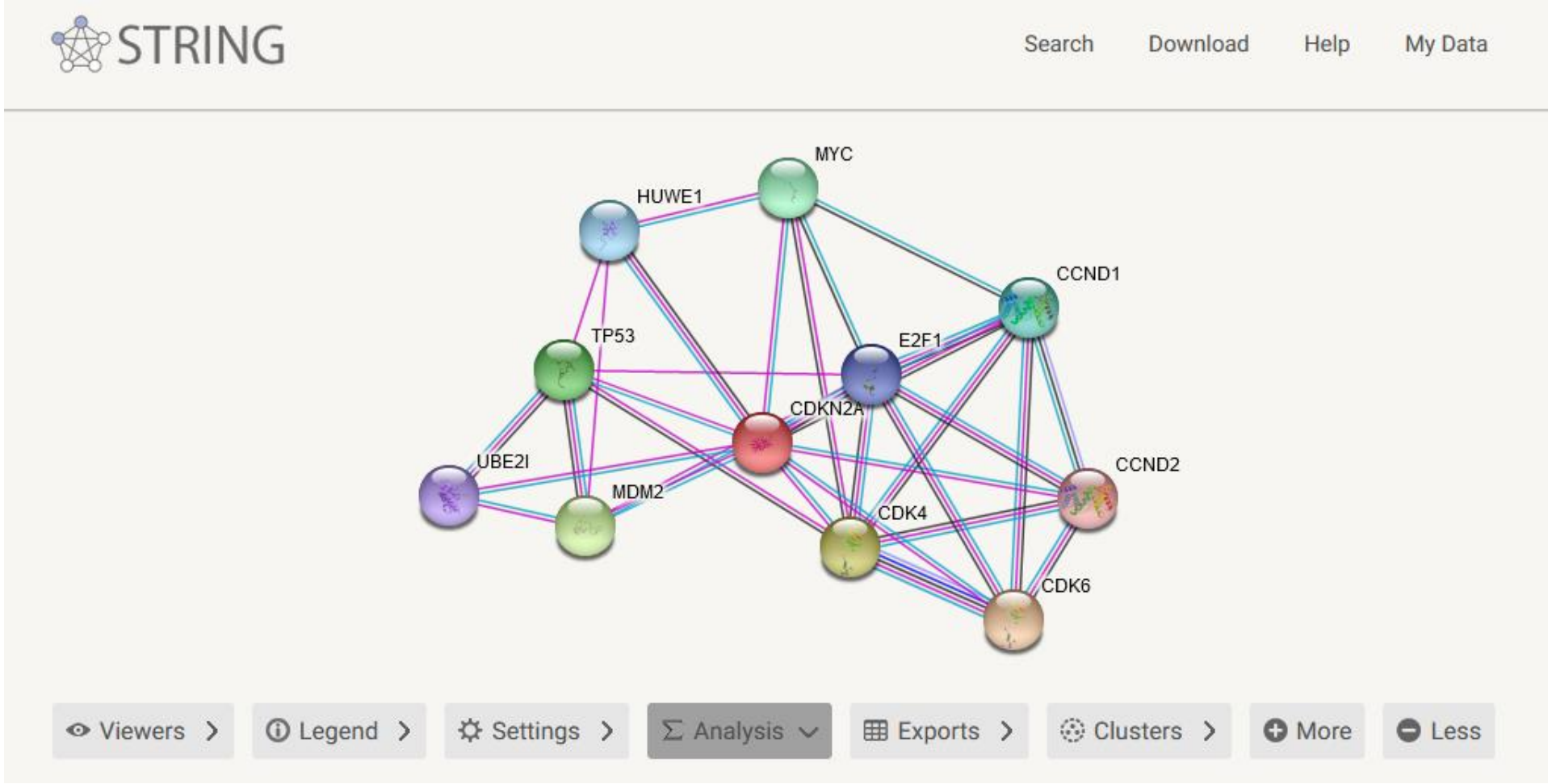
How to Find the Connections of a Protein)



Remove «Text-Mining»



Small Interaction Hub of our precious Protein



See the Processes&Functions Involved etc.

Network Stats

number of nodes:	11	expected number of edges:	13
number of edges:	32	PPI enrichment p-value:	9.07e-06
average node degree:	5.82		
avg. local clustering coefficient:	0.759		

your network has significantly more interactions than expected (what does that mean?)

Functional enrichments in your network

Note: some enrichments may be expected here (why?

explain column

Biological Process (Gene Ontology)

GO-term	*description*	*count in network*	*strength*	*false discovery rate*
GO:0072717	Cellular response to actinomycin d	2 of 3	3.07	0.00039
GO:0071494	Cellular response to uv-c	2 of 7	2.71	0.0010
GO:0045656	Negative regulation of monocyte differentiation	2 of 7	2.71	0.0010
GO:1990000	Amyloid fibril formation	2 of 13	2.44	0.0025
GO:0090399	Replicative senescence	2 of 13	2.44	0.0025

(more ...)

Molecular Function (Gene Ontology)

GO-term	*description*	*count in network*	*strength*	*false discovery rate*
GO:0097371	MDM2/MDM4 family protein binding	2 of 9	2.6	0.0064
GO:0019789	SUMO transferase activity	3 of 22	2.38	0.00049
GO:0097718	Disordered domain specific binding	3 of 34	2.2	0.00082
GO:0016538	Cyclin-dependent protein serine/threonine kinase regulator ...	4 of 48	2.17	4.66e-05
GO:0004693	Cyclin-dependent protein serine/threonine kinase activity	2 of 30	2.07	0.0304

(more ...)

All Virus Releated Connections

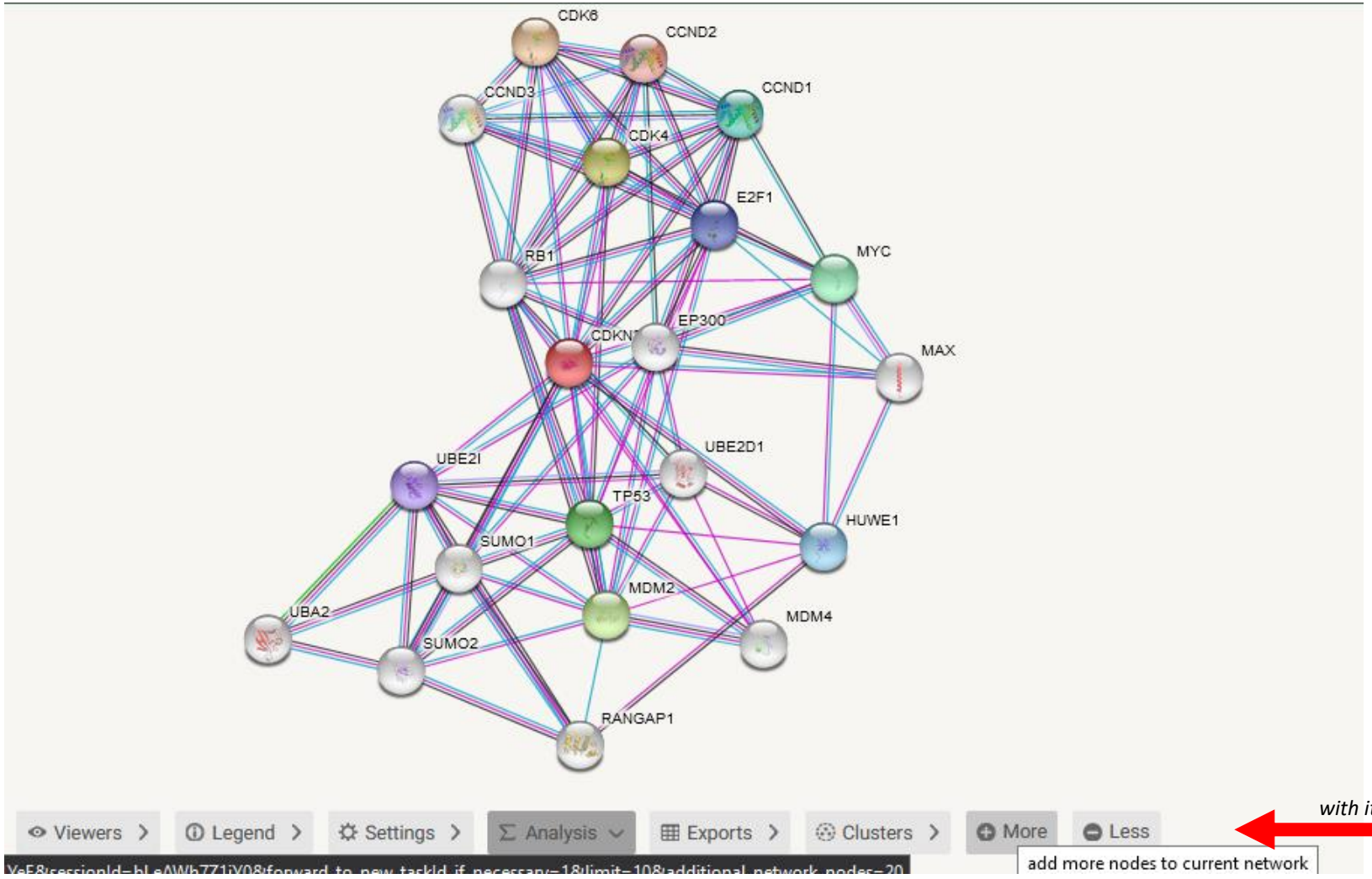
KEGG Pathways

pathway	description	count in network	strength	false discovery rate
hsa05219	Bladder cancer	7 of 41	2.48	7.42e-15
hsa05220	Chronic myeloid leukemia	8 of 75	2.28	1.30e-15
hsa05218	Melanoma	7 of 72	2.24	2.42e-13
hsa05214	Glioma	7 of 72	2.24	2.42e-13
hsa04115	p53 signaling pathway	7 of 72	2.24	2.42e-13
hsa05223	Non-small cell lung cancer	6 of 68	2.2	2.79e-11
hsa05165	Human papillomavirus infection	7 of 325	1.58	1.98e-09

Annotated Keywords (UniProt)

keyword	description	count in network	strength	false discovery rate
KW-0435	Li-Fraumeni syndrome	2 of 3	3.07	0.00048
KW-0195	Cyclin	2 of 30	2.07	0.0119
KW-0132	Cell division	5 of 379	1.37	0.00027
KW-0656	Proto-oncogene	3 of 226	1.37	0.0149
KW-0131	Cell cycle	8 of 644	1.34	1.48e-07
KW-0160	Chromosomal rearrangement	3 of 307	1.24	0.0333
KW-0945	Host-virus interaction	4 of 534	1.12	0.0120

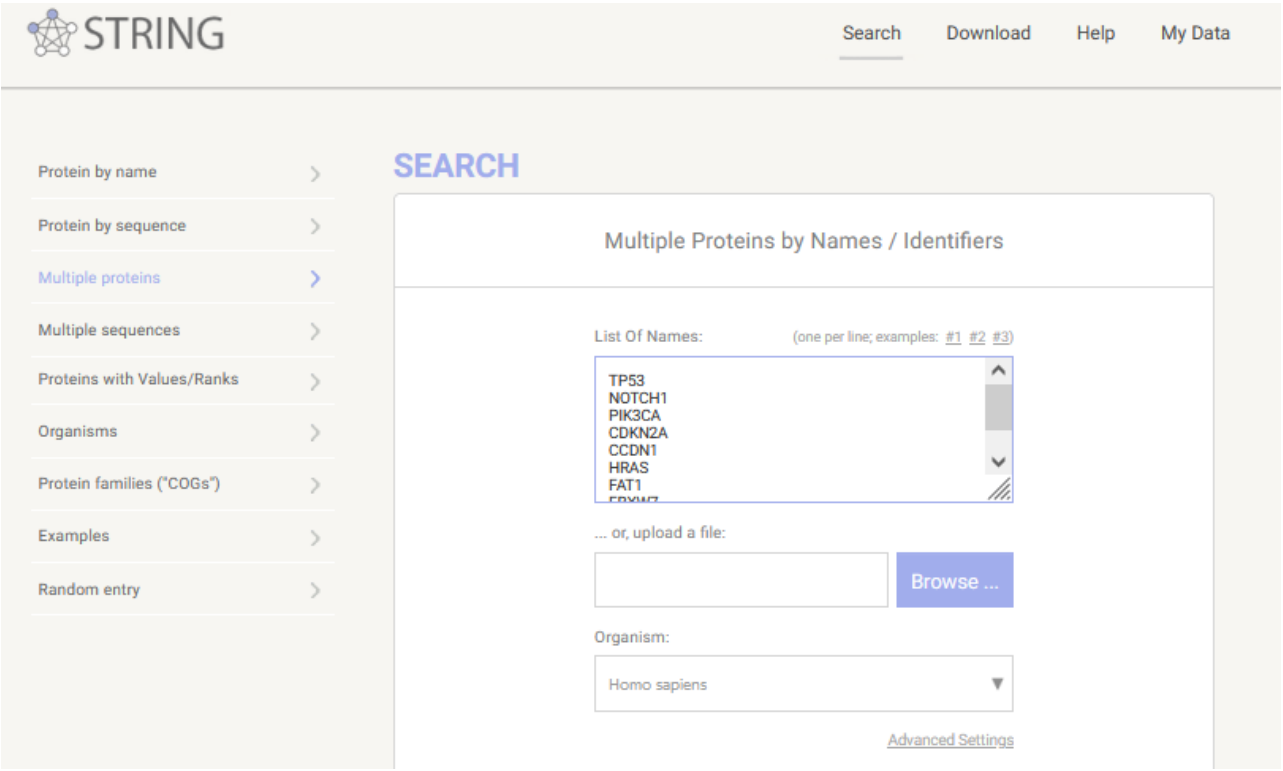
Ta-Da!

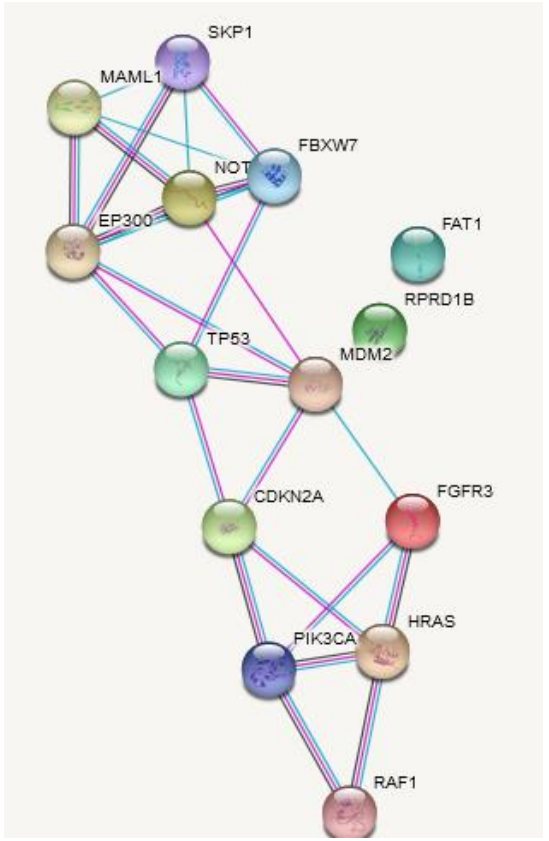


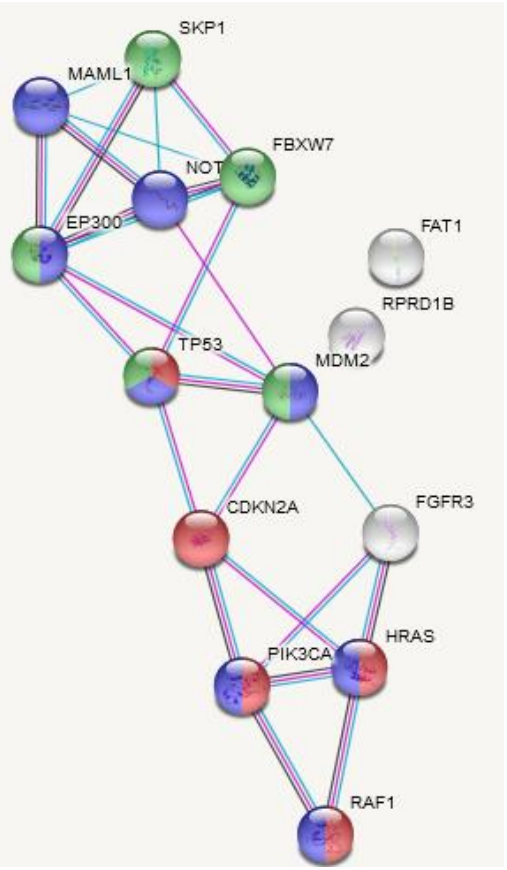
with its extended network

https://string-db.org/cgi/network?taskId=b5A0kPGL1YeE&sessionId=bLeAWh7Z1jY0

Alternatively







https://string-db.org/cgi/network?taskId=bUHrseQT2AU7&sessionId=bUKic79icSsy

https://string-db.org/cgi/network?taskId=bUHrseQT2AU7&sessionId=bUKic79icSsy