

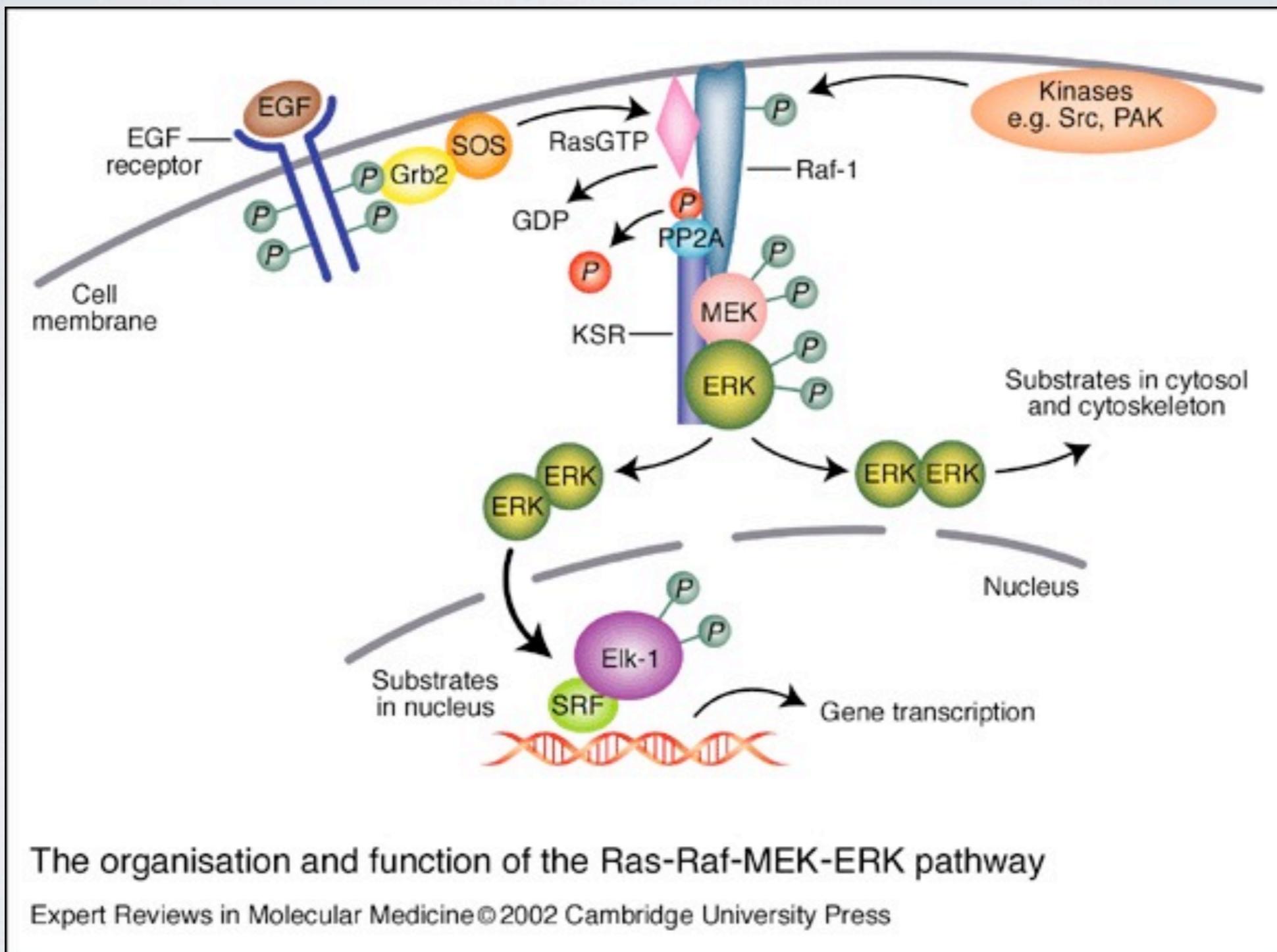
BIOKNOWLEDGE VIEWER : A NETWORK GENERATION TOOL, USING TEXT MINING OF BIOMEDICAL LITERATURE

2012. 4. 18

Ali Zeeshan Ijaz

Korea Institute of Science
and Technology
Information

BIOLOGICAL NETWORK



PUBMED DATA

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US National Library of Medicine
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PubMed

1500:2100[dp]

 Search



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Display Settings: Summary, 20 per page, Sorted by Recently Added

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Filter your results:

All (21507693)

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Review (1651710)

Results: 1 to 20 of 21507693

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- [Suppressive effects of peptide antibiotics against proliferation and cytokine production in mitogen-activated human peripheral-blood mononuclear cells.](#)

1. Maeda M, Tanaka S, Ishizawa H, Nakamura Y, Onda K, Hirano T.
Arzneimittelforschung. 2011;61(12):734-41.
PMID: 22282962 [PubMed - in process]
[Related citations](#)

- [Effect of triptolide on aromatase activity in human placental microsomes and human placental JEG-3 cells.](#)

2. Zhang J, Jiang Z, Zhang L.
Arzneimittelforschung. 2011;61(12):727-33.
PMID: 22282961 [PubMed - in process]
[Related citations](#)

- [Utility of methyl 2-isothiocyanatobenzoate in the synthesis of some new quinazoline derivatives as potential anticancer and radiosensitizing agents.](#)

3. Ghorab MM, Ragab FA, Heiba HI, Bayomi AA.
Arzneimittelforschung. 2011;61(12):719-26.
PMID: 22282960 [PubMed - in process]
[Related citations](#)

- [Synthesis, characterization and cytotoxic activity of new salicylaldehyde benzoylhydrazone derivatives as potential anti-proliferative agents.](#)

4. Nikolova-Mladenova B, Halachev N, Iankova R, Momekov G, Ivanov D.
Arzneimittelforschung. 2011;61(12):714-8.

Titles with your s

Emergence of a new mechanism in India.

Cancer statistics, 20

Detection of Enterobacteri carrying m [MMWR

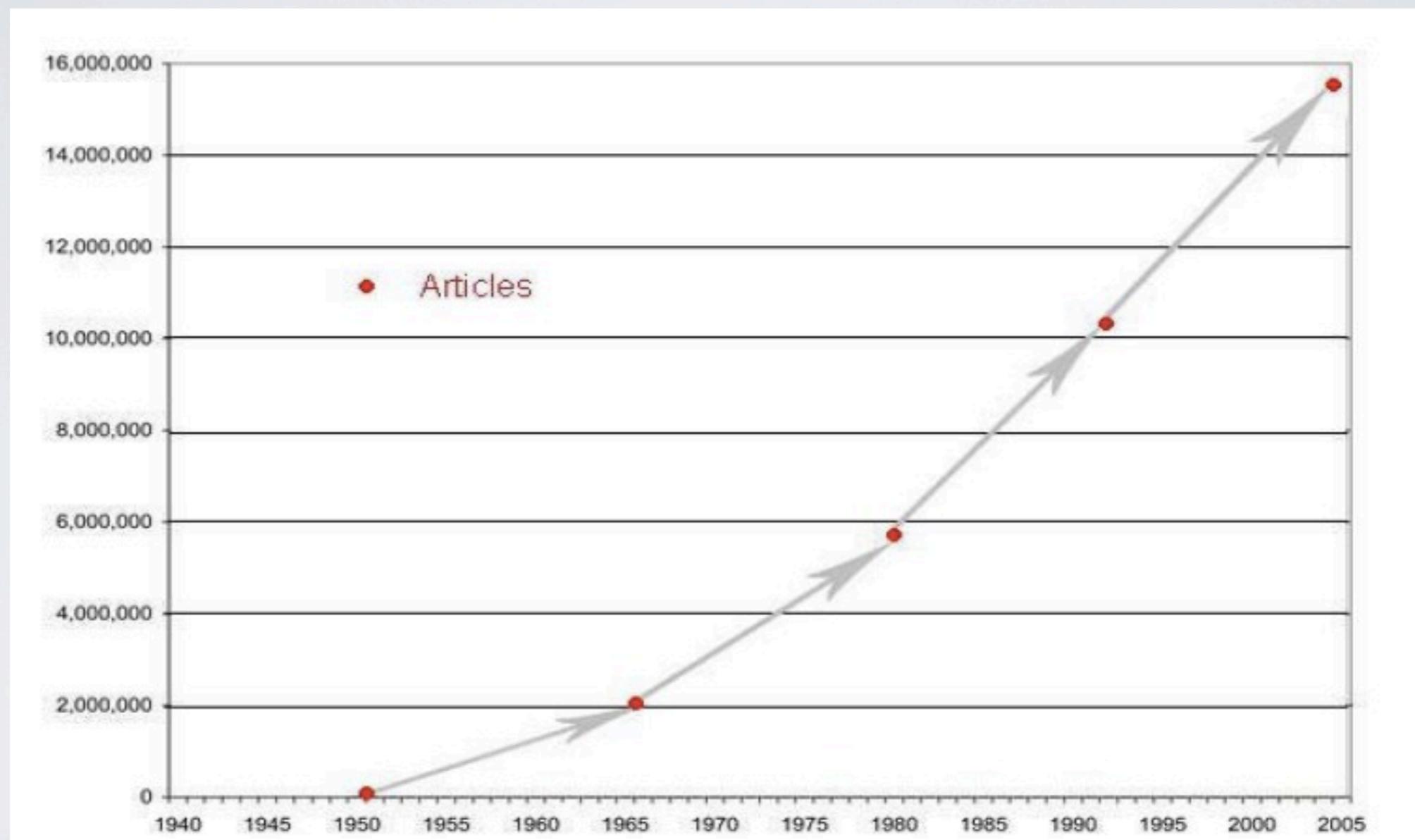
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Skp2 is a promising cancer.

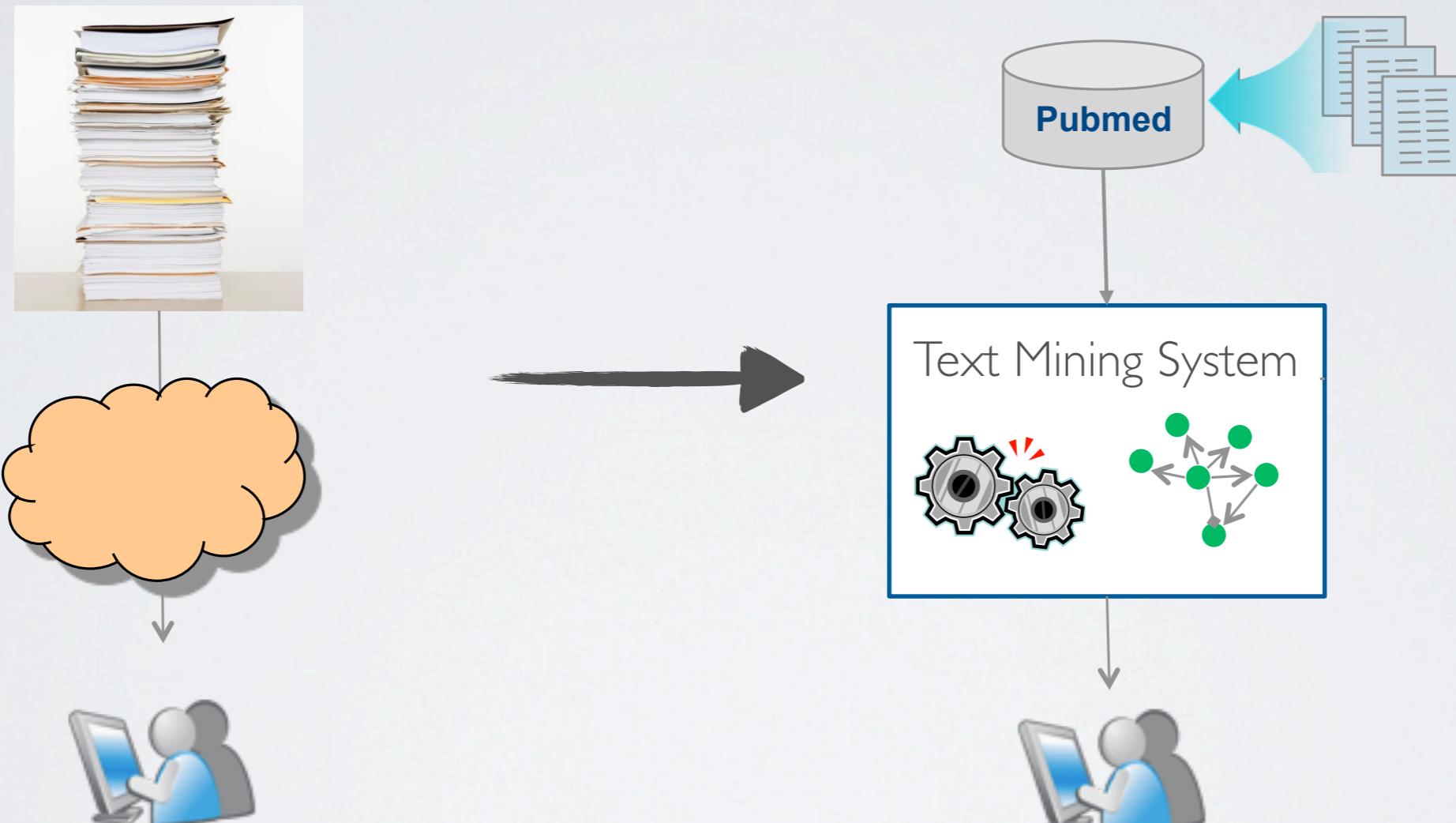
Identification of the from deficient spir

AP180 and CALM: for the retrieval of sy

MEDLINE INCREASE



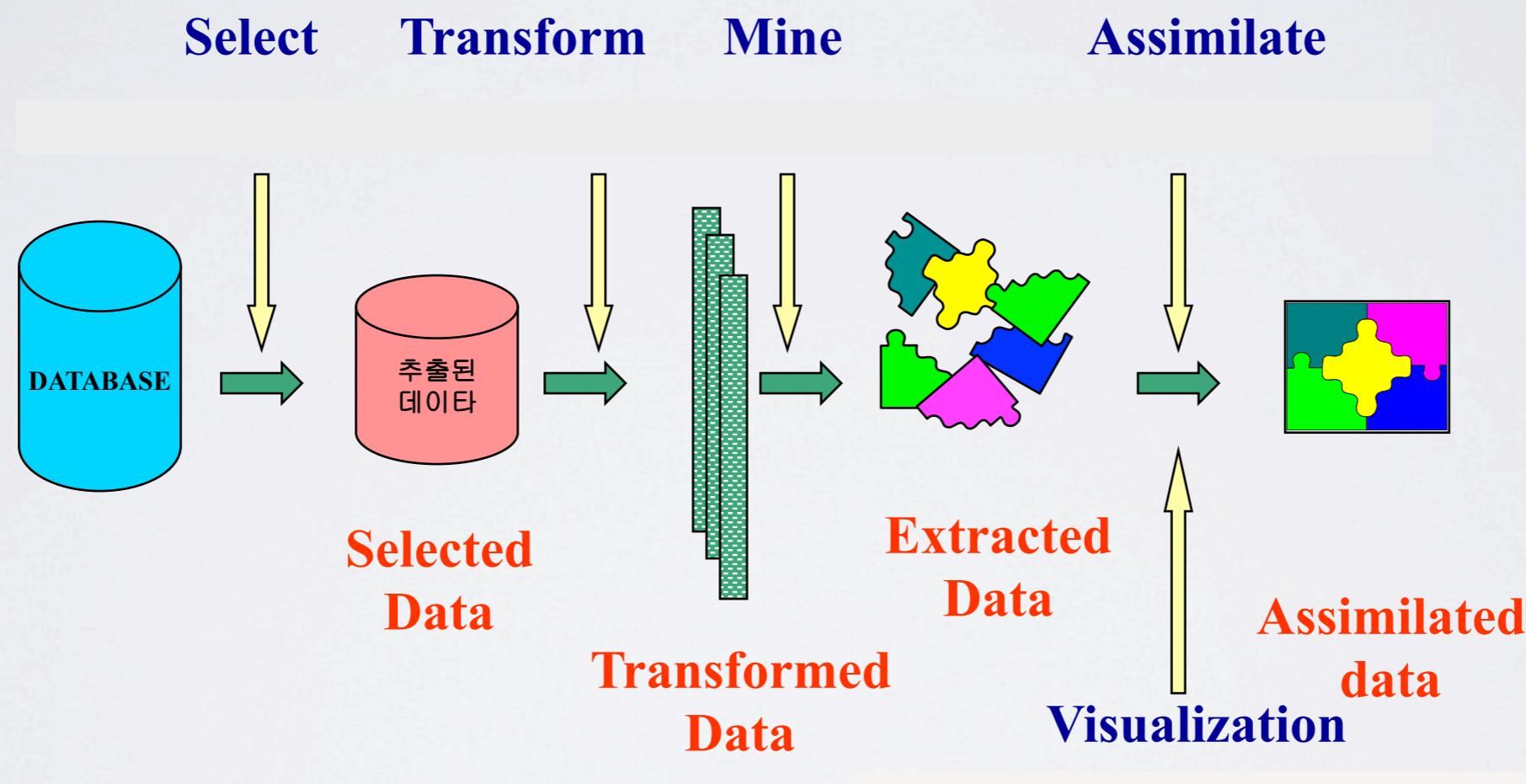
LITERATURE MINING



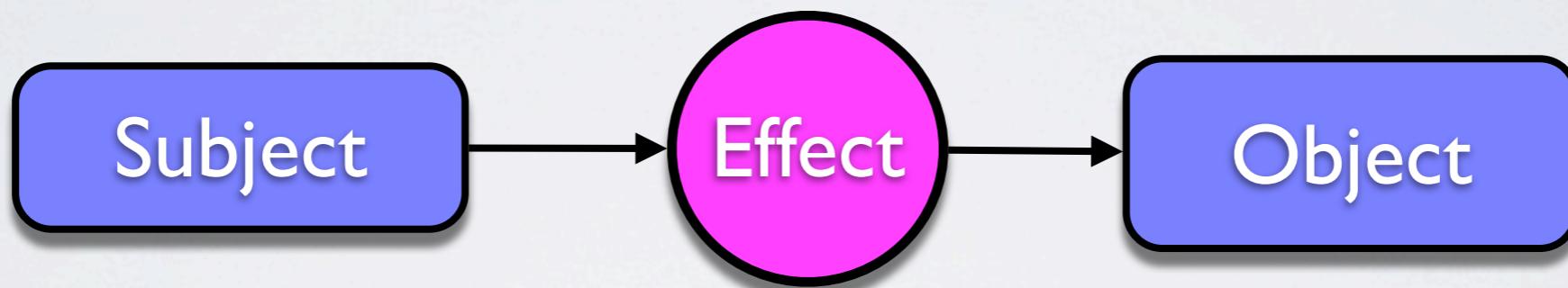
Researcher should spend massive time
to read papers

Text mining system can help the researcher
by supporting the biological interaction data

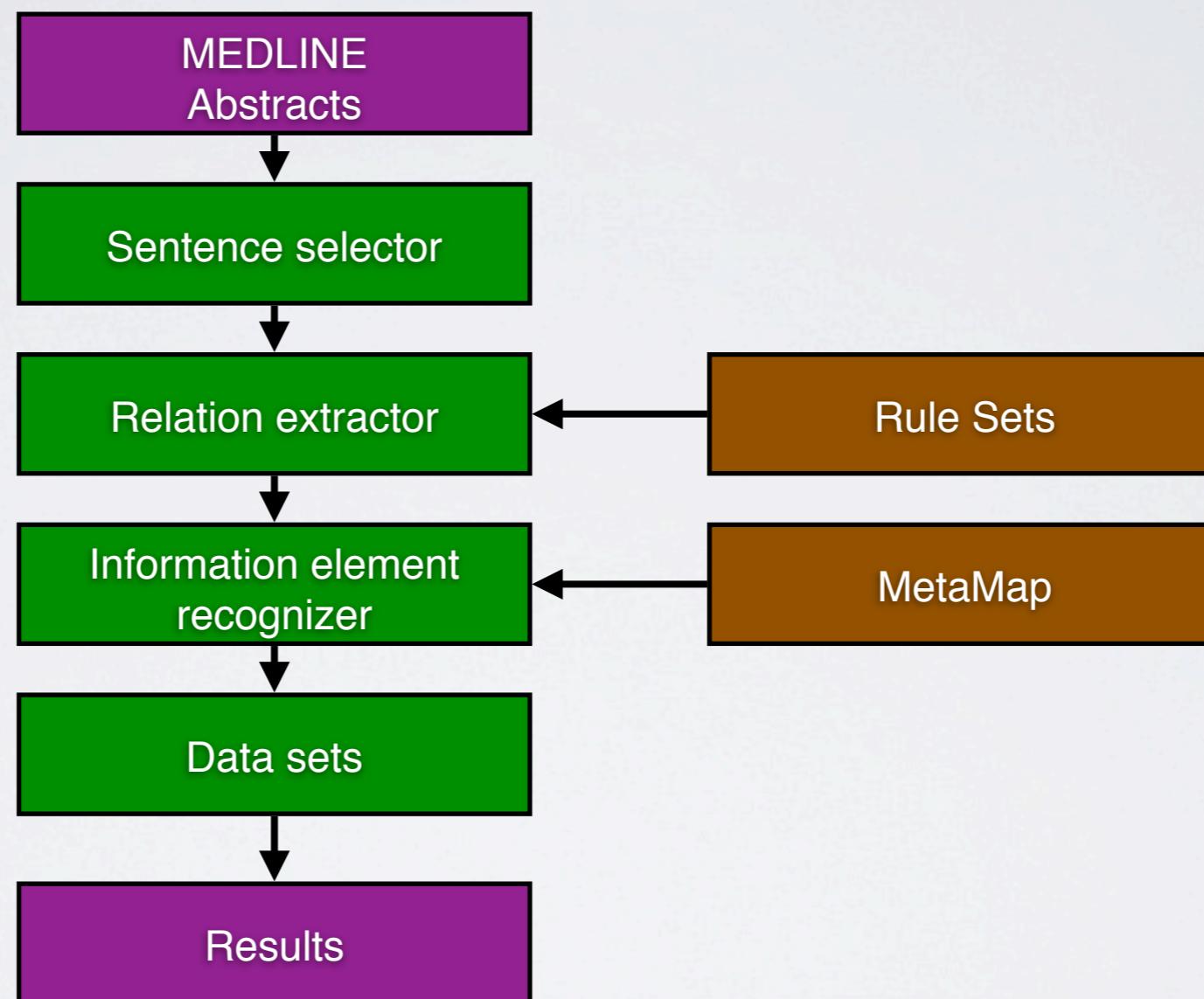
DATA MINING PROCESS



INFORMATION MODEL



EXTRACTION FLOWCHART



THE PARSER



The Stanford Natural Language Processing Group

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The Stanford NLP Group

The Natural Language Processing Group at Stanford University is a team of faculty, research scientists, postdocs, programmers and students who work together on algorithms that allow computers to process and understand human languages. Our work ranges from basic research in computational linguistics to key applications in human language technology, and covers areas such as sentence understanding, machine translation, probabilistic parsing and tagging, biomedical information extraction, grammar induction, word sense disambiguation, and automatic question answering.

A distinguishing feature of the Stanford NLP Group is our effective combination of sophisticated and deep linguistic modeling and data analysis with innovative probabilistic and machine learning approaches to NLP. Our research has resulted in state-of-the-art technology for robust, broad-coverage natural-language processing in many languages. These technologies include our competition-winning [coreference resolution system](#); a state-of-the-art [part-of-speech tagger](#); a [high performance probabilistic parser](#); a competition-winning biological named entity recognition system; and algorithms for processing Arabic, Chinese, and German text.

The Stanford NLP Group includes members of both the [Linguistics Department](#) and the [Computer Science Department](#), and is affiliated with the [Stanford AI Lab](#) and the [Stanford InfoLab](#).



Contact Information

Stanford NLP Group
Gates Computer Science Building
353 Serra Mall
Stanford, CA 94305-9010

Here are [directions](#) to the Gates Computer Science Building, along with information on parking.



What's new?

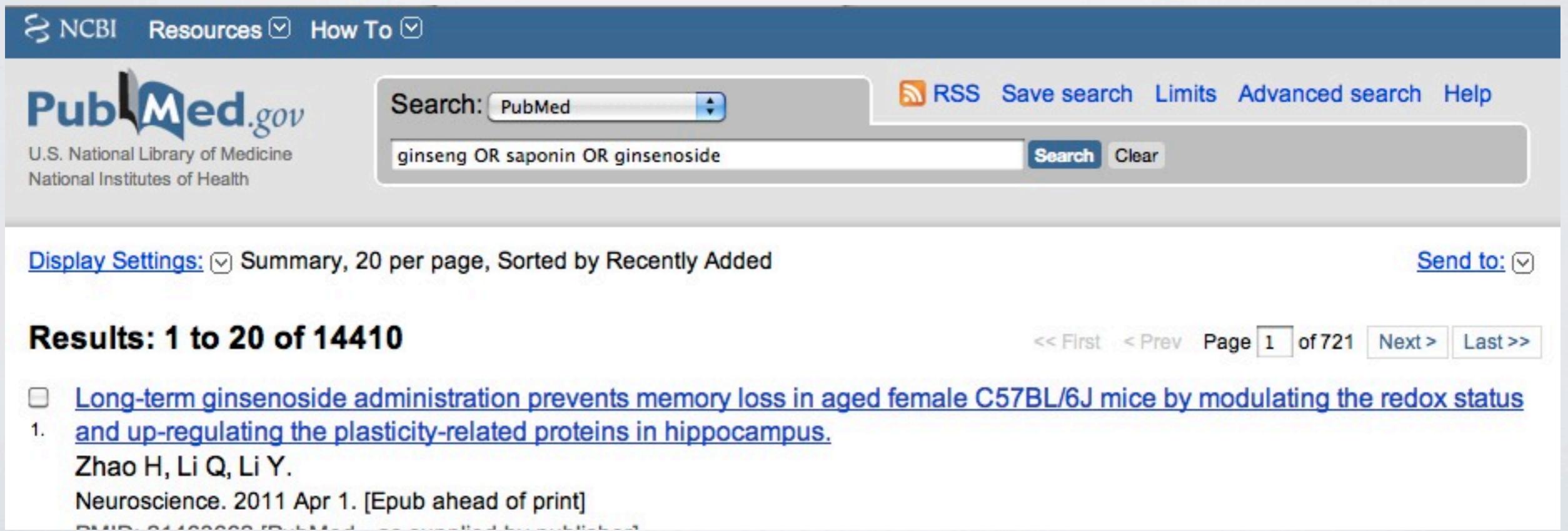
Dan Jurafsky and Chris Manning's free online course on Natural Language Processing starts Jan 23. Come join us! [\[Older news\]](#)

A CASE STUDY FOR GINSENG RESEARCH

- ginseng saponin ginsenoside



14,410 articles



The screenshot shows the PubMed search interface. The search bar contains the query "ginseng OR saponin OR ginsenoside". Below the search bar, the results are displayed with a title, author information, and journal details. The results are paginated at the bottom.

NCBI Resources How To

PubMed.gov U.S. National Library of Medicine National Institutes of Health

Search: PubMed RSS Save search Limits Advanced search Help

ginseng OR saponin OR ginsenoside Search Clear

Display Settings: Summary, 20 per page, Sorted by Recently Added Send to:

Results: 1 to 20 of 14410 << First < Prev Page 1 of 721 Next > Last >>

Long-term ginsenoside administration prevents memory loss in aged female C57BL/6J mice by modulating the redox status
1. and up-regulating the plasticity-related proteins in hippocampus.
Zhao H, Li Q, Li Y.
Neuroscience. 2011 Apr 1. [Epub ahead of print]
PMID: 21402000 DOI: 10.1016/j.neuro.2011.02.050

THE RESULTS OF THE TEXT MINING

PMID:21253944

Sentence: The findings here show the differentiation of hMSCs into cells with phenotypic features of endothelial cells using indirect co-culture with mature endothelial cells and provide the evidence that **ginsenoside-Rg1 can promote the milieu-dependent endothelial differentiation of hMSCs** in vitro.

ginsenoside-Rg1:29:[strd]promote:31:EFFECT:INCREASE milieu-dependent endothelial differentiation of hMSCs:35:[qlco]

PMID:21122802

Sentence: Ox-LDL induced an increase in scavenger receptor A (SR-A) expression, and **ginsenoside-Rd inhibited this effect of ox-LDL** significantly.

ginsenoside-Rd:15:[strd] inhibited:16:EFFECT:REDUCE effect of ox-LDL:18:[qlco]

PMID:21080338

Sentence: **Rh2 treatment significantly inhibited viability of both MCF-7 and MDA-MB-231 human breast cells** in a concentration-dependent manner, which correlated with mitochondria-mediated apoptosis.

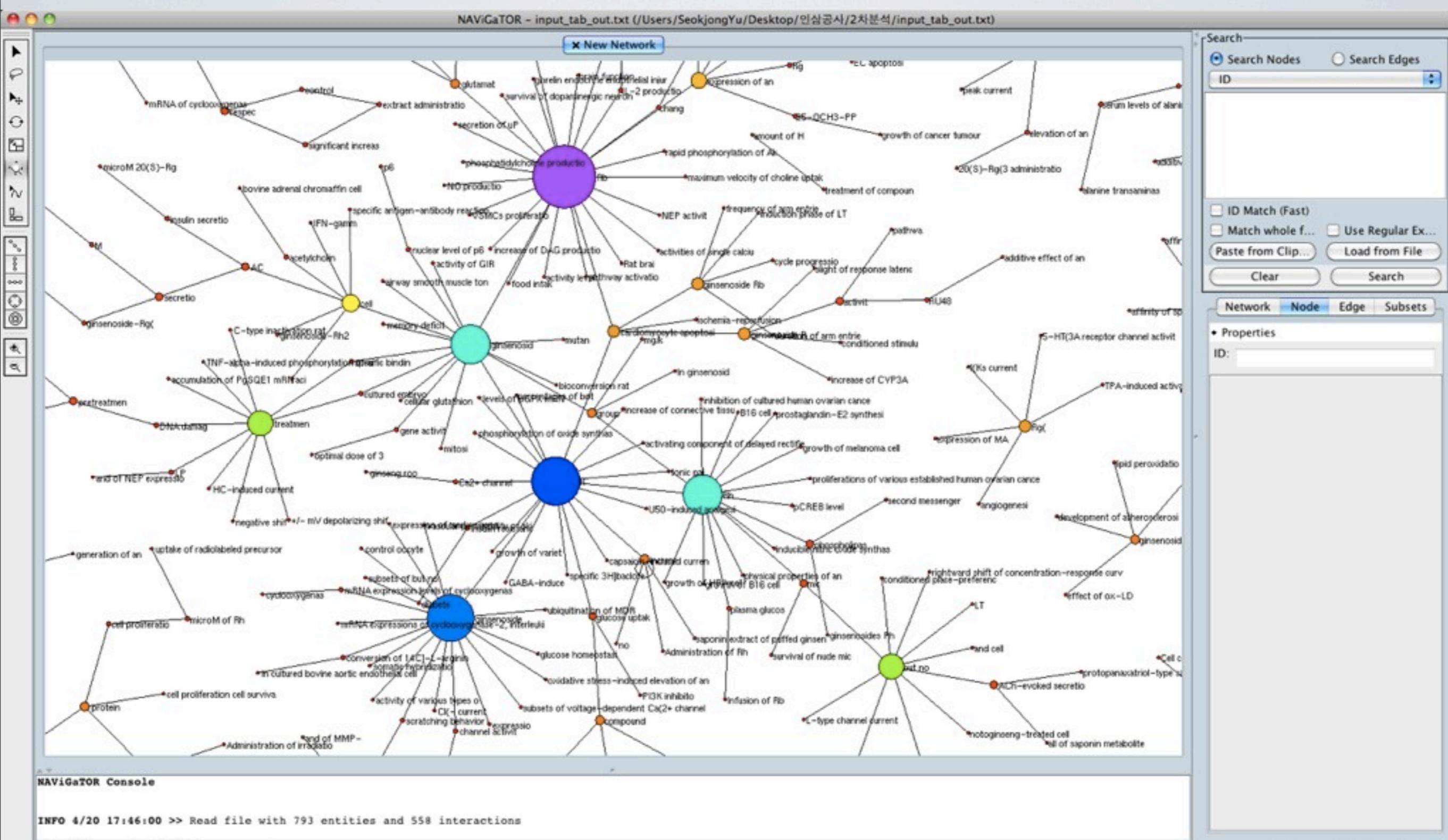
Rh2 treatment:2:[gnpm] inhibited:4:EFFECT:REDUCE viability of breast cells:5:[cell] concentration-dependent manner:17:[qnco]

PMID:20662827

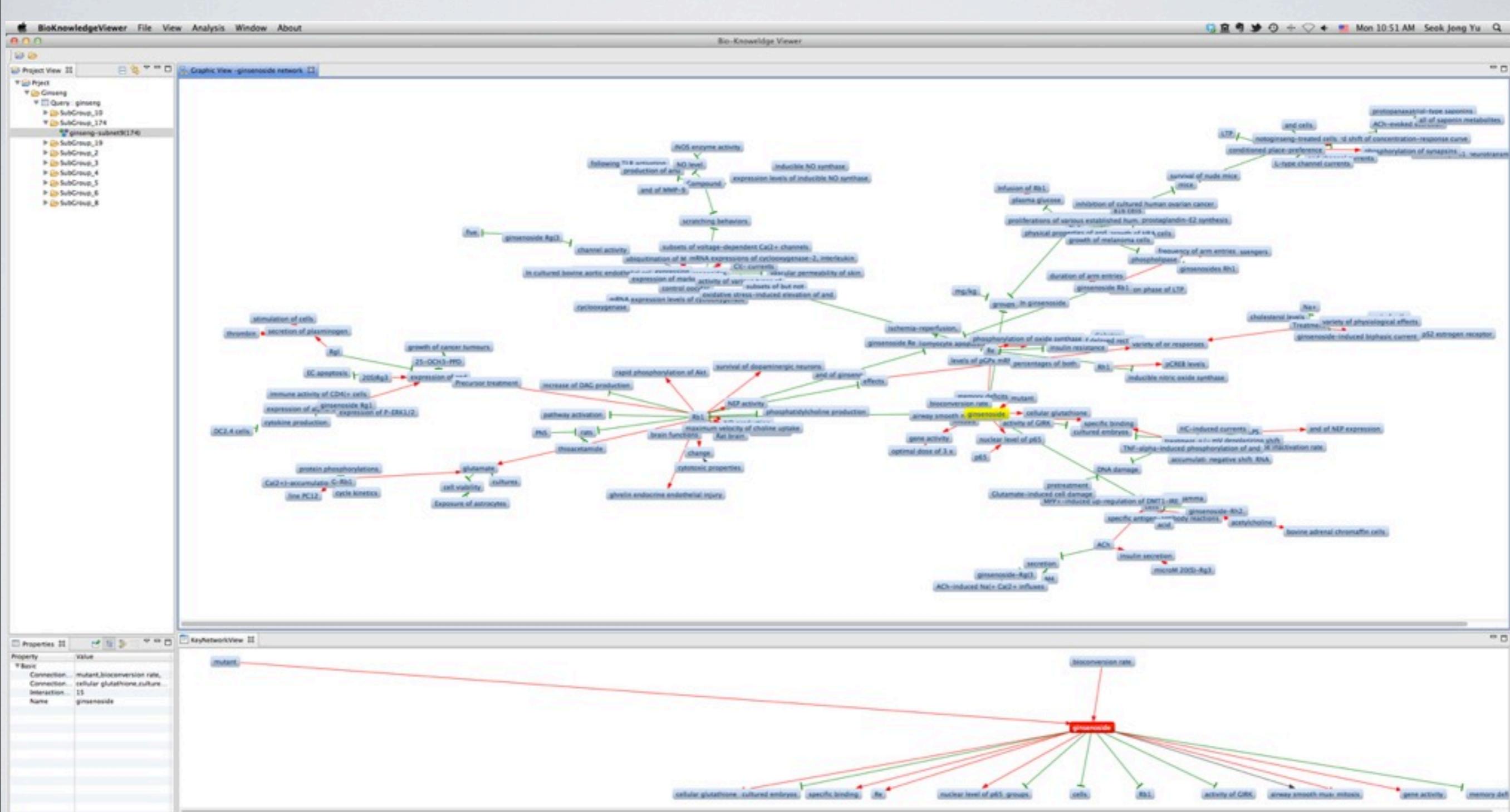
Sentence: This study showed that **ginsenoside Rb3 inhibited Ang II-induced VSMCs proliferation**, at least in part by inhibiting Ang II-induced G(0)/G(1) to S phase transition and attenuating the expression of mRNA of c-fos, c-jun and c-myc.

Rb3:6:[gnpm] inhibited:7:EFFECT:REDUCE VSMCs proliferation:11:[ftcn]

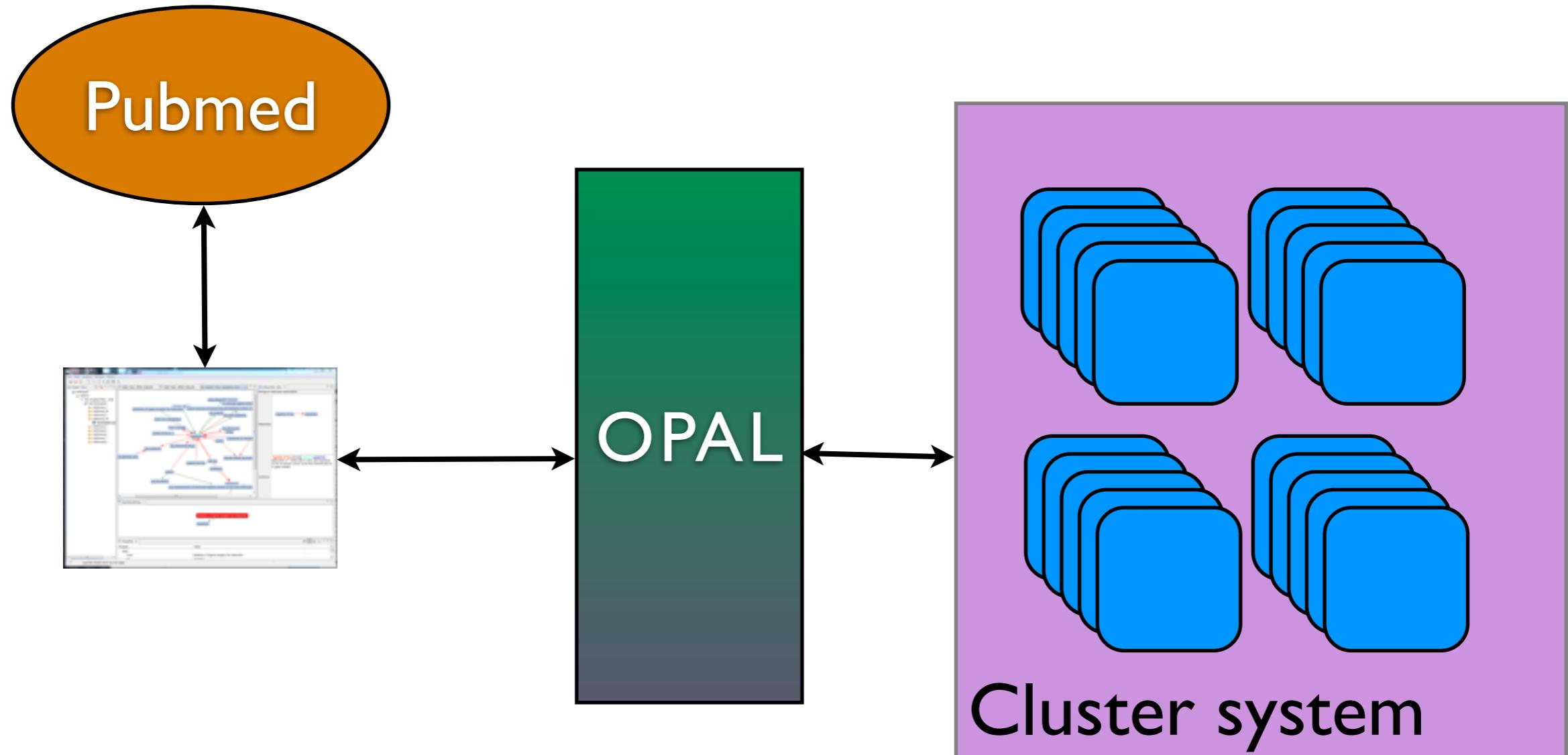
RELATION MAP



DEVELOPMENT OF BIOKNOWLEDGE VIEWER

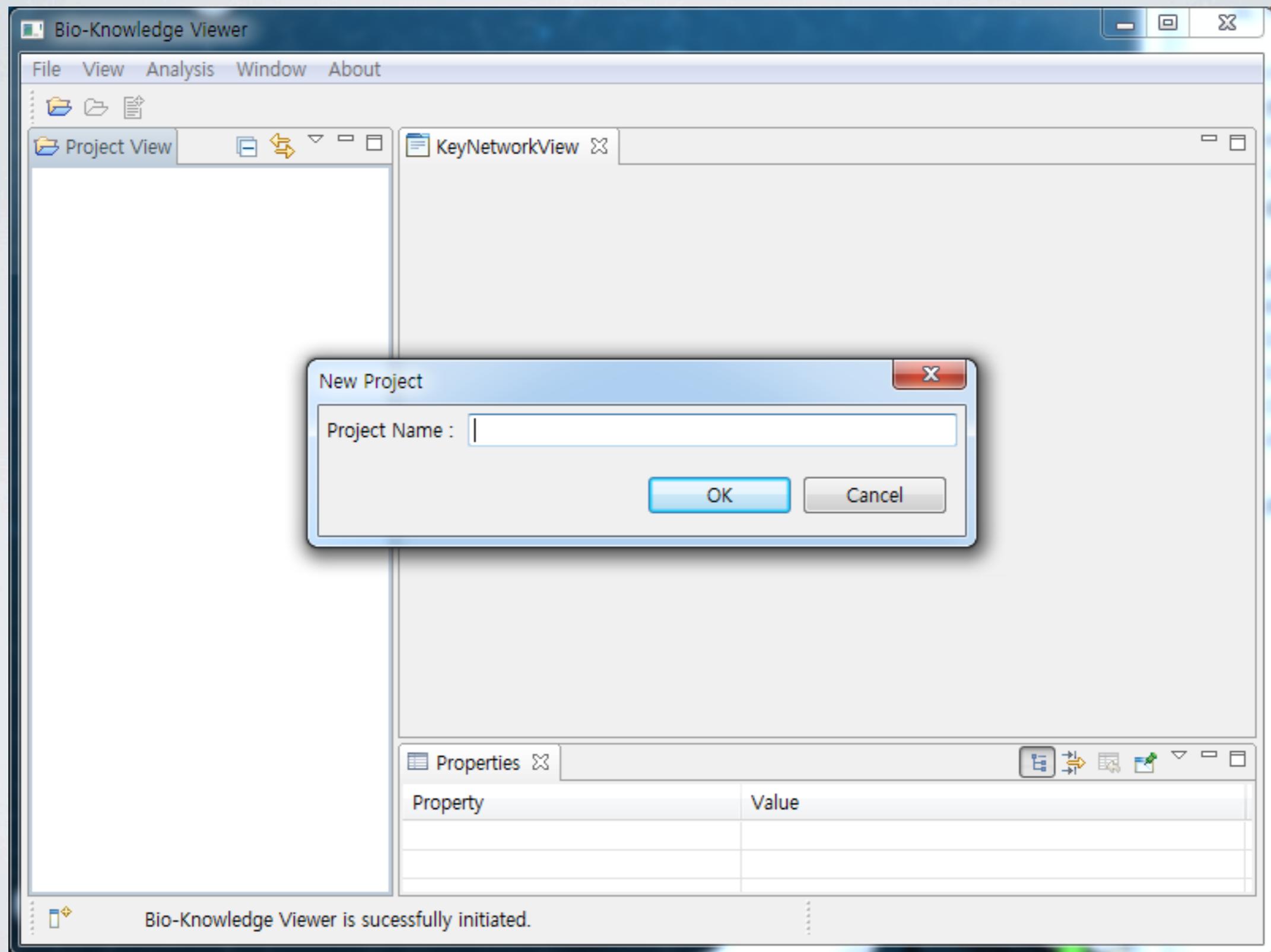


BioKnowledge Viewer Service using OPAL

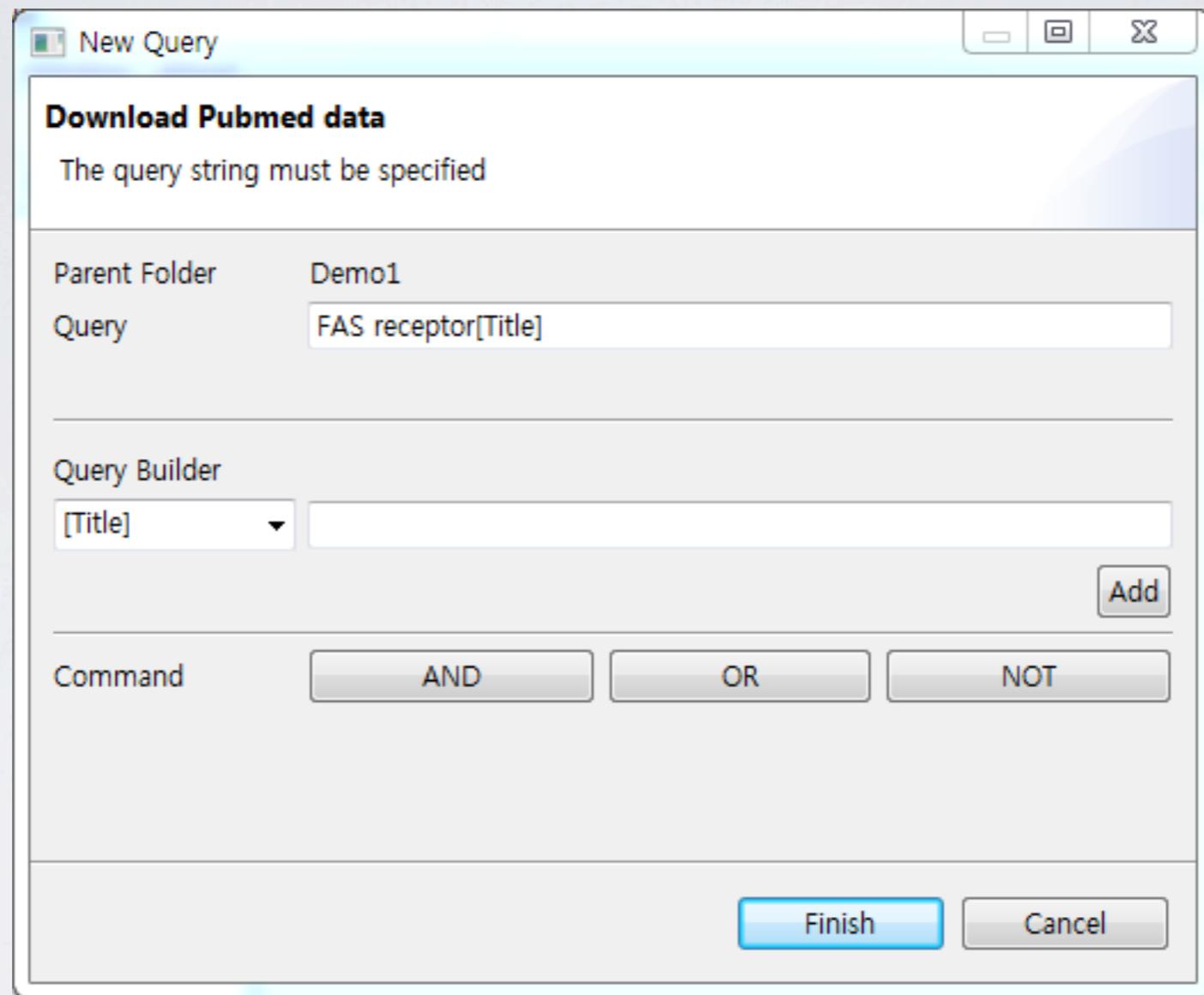


Demo

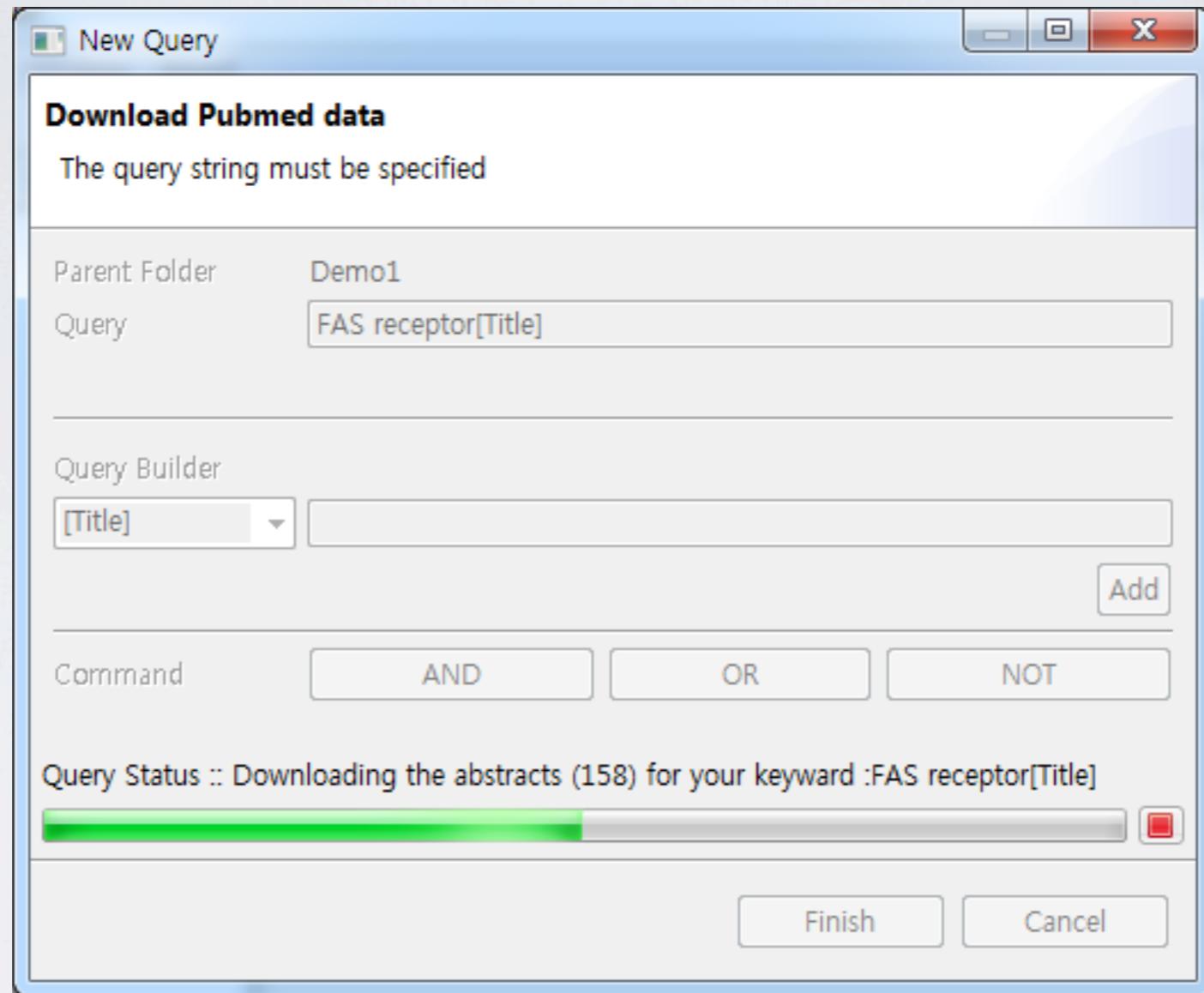
PROJECT MANAGEMENT



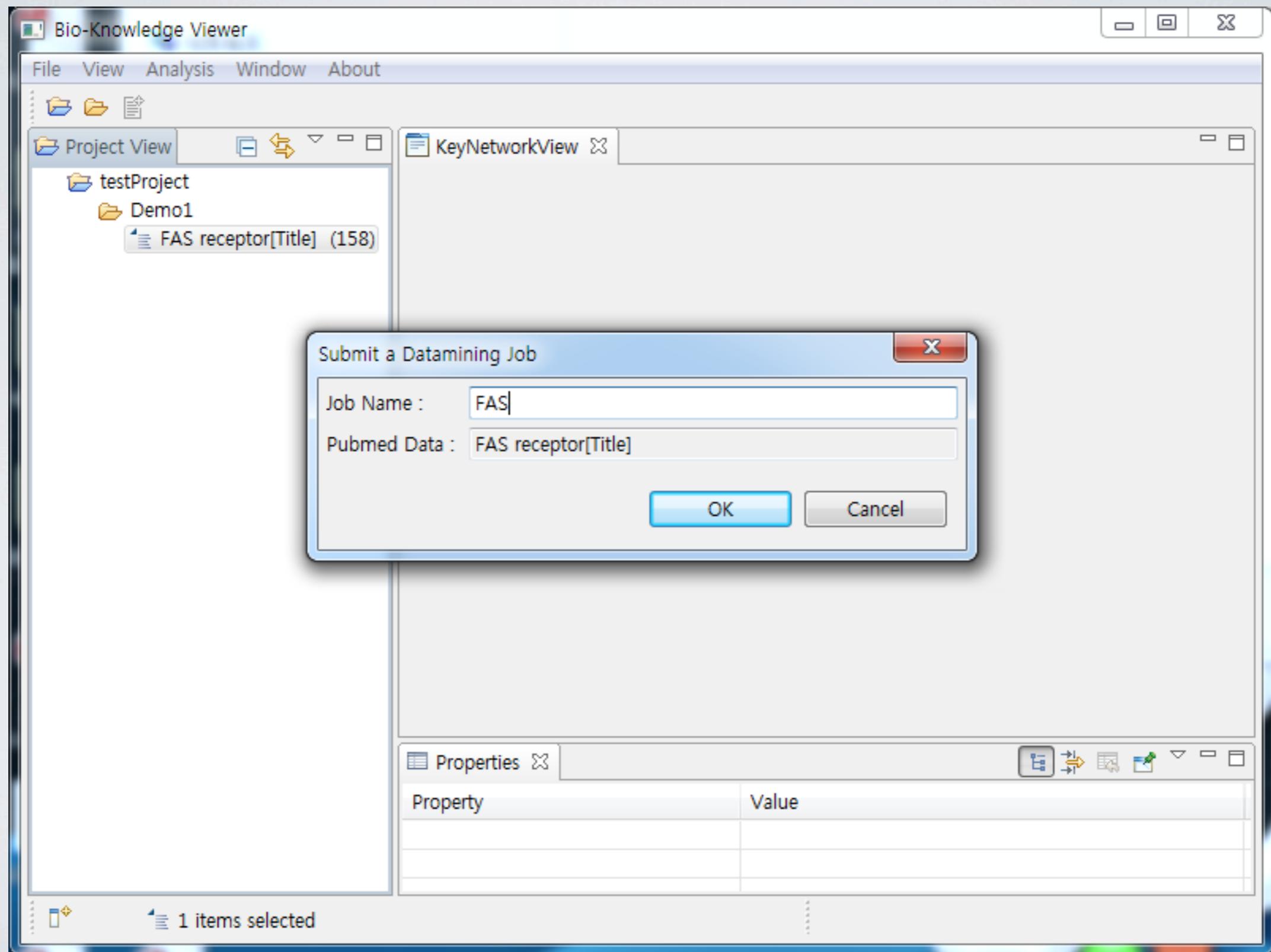
NCBI QUERY BUILDER



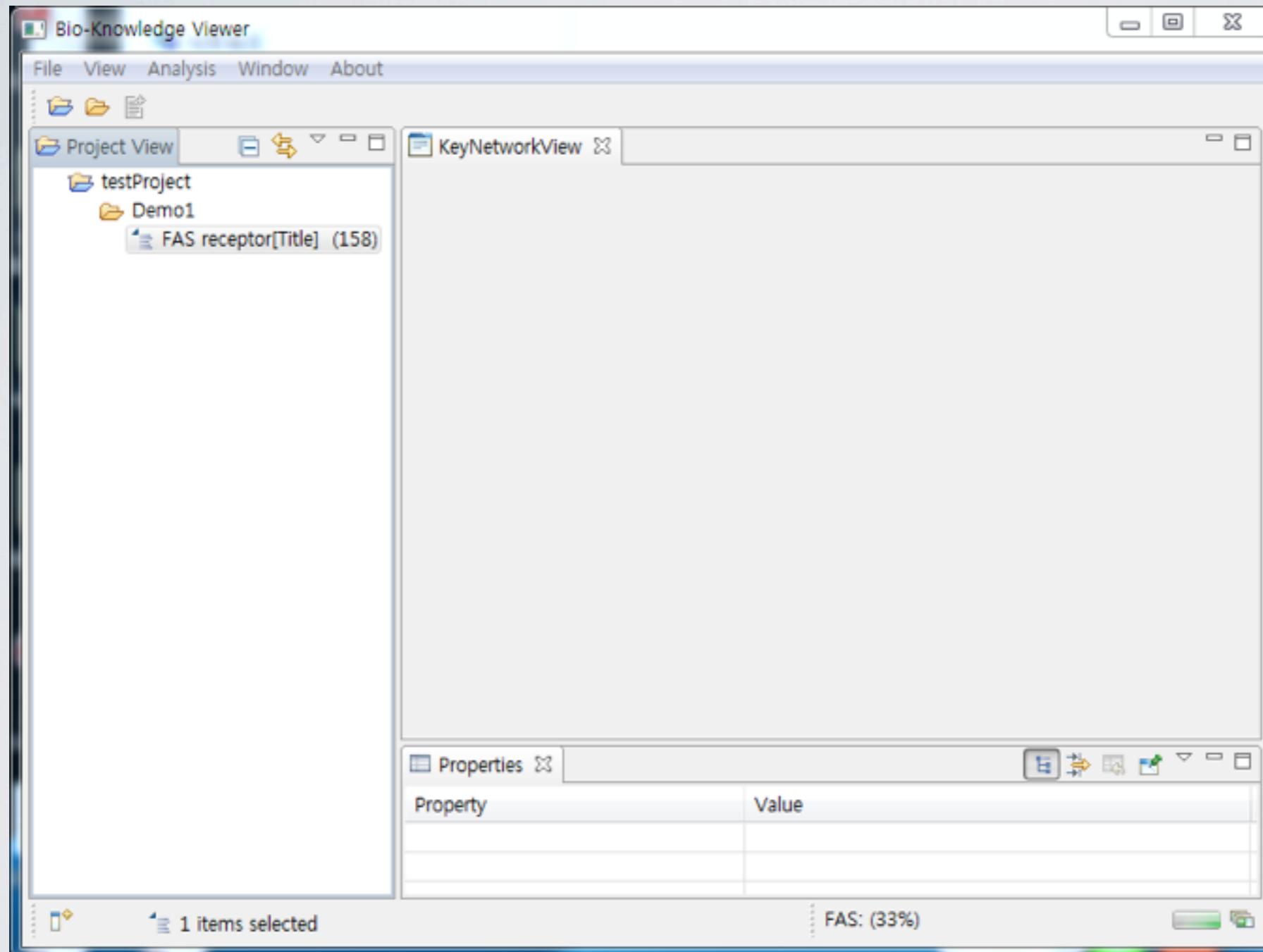
DOWNLOADING PROCESS FOR THE QUERY



SUBMIT THE DATA MINING JOB



JOB MONITORING



JOB MONITORING

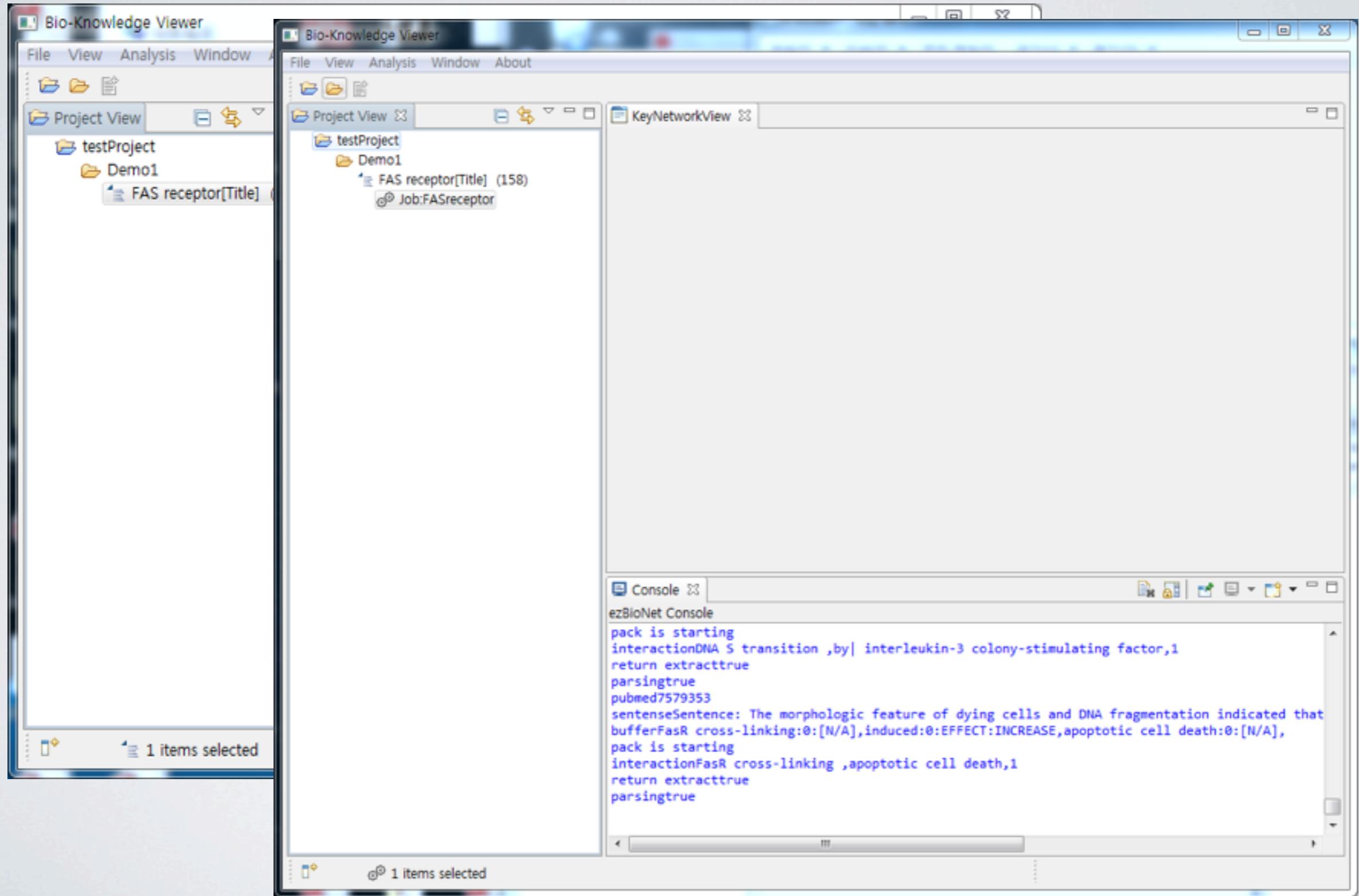
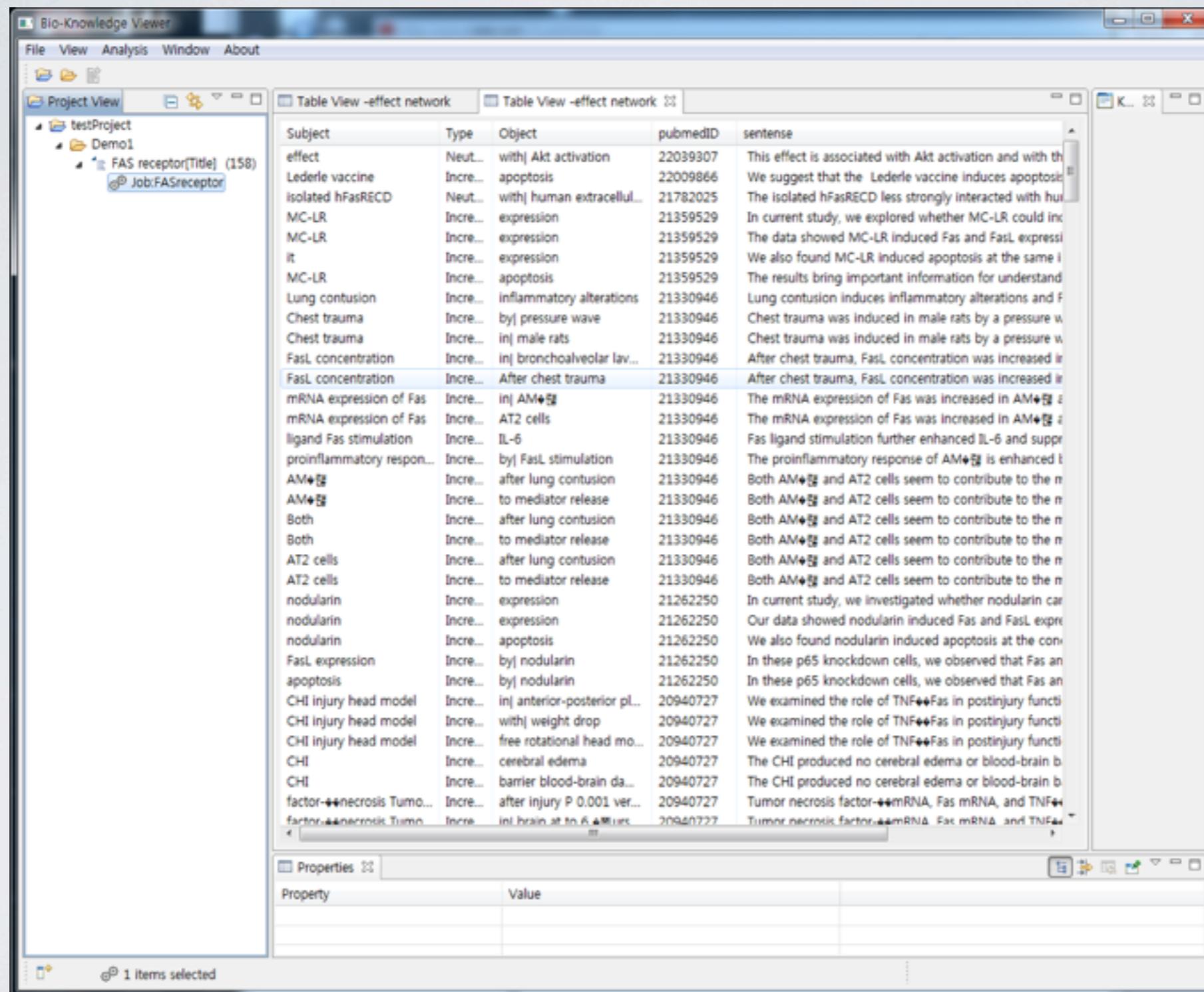
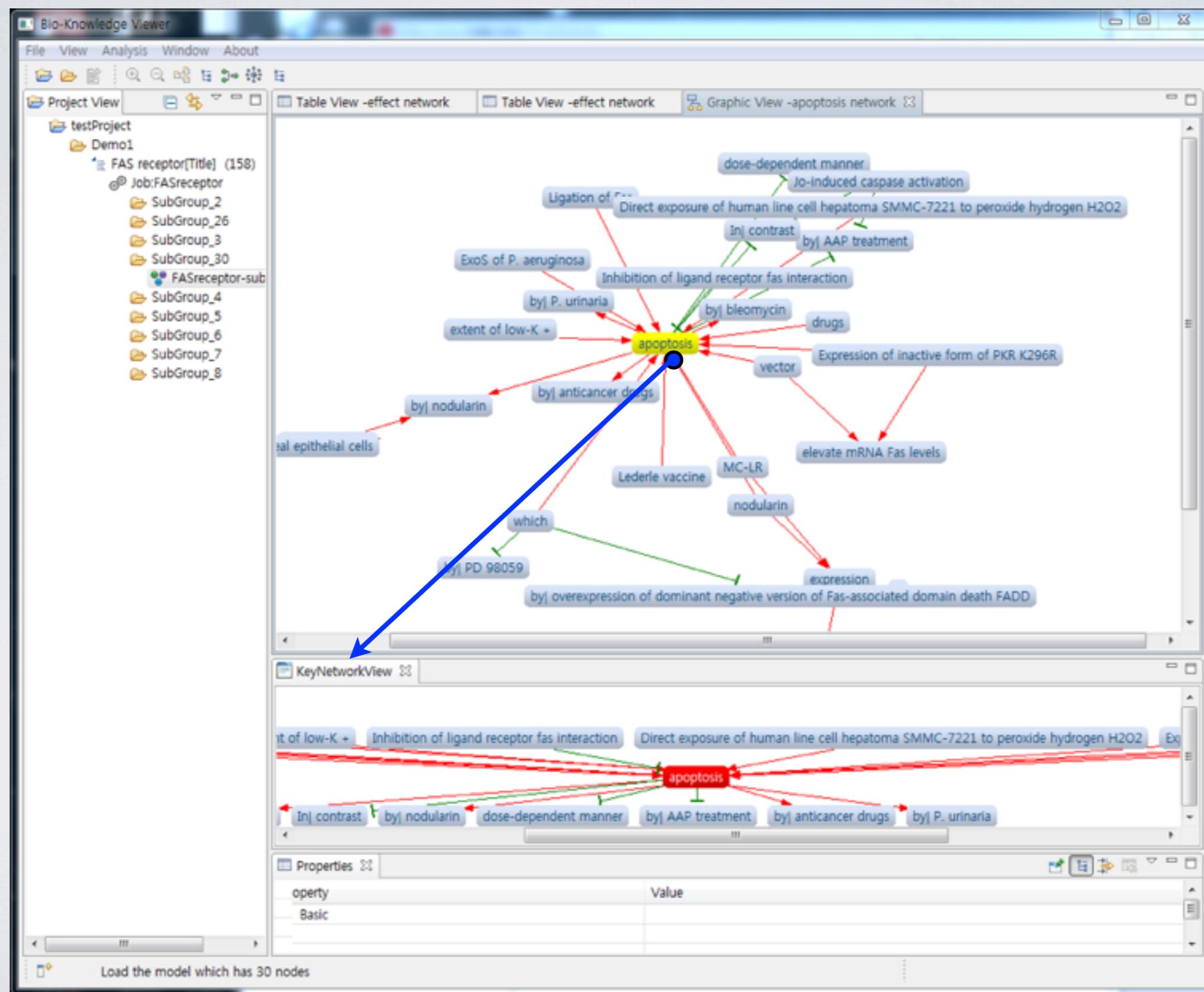


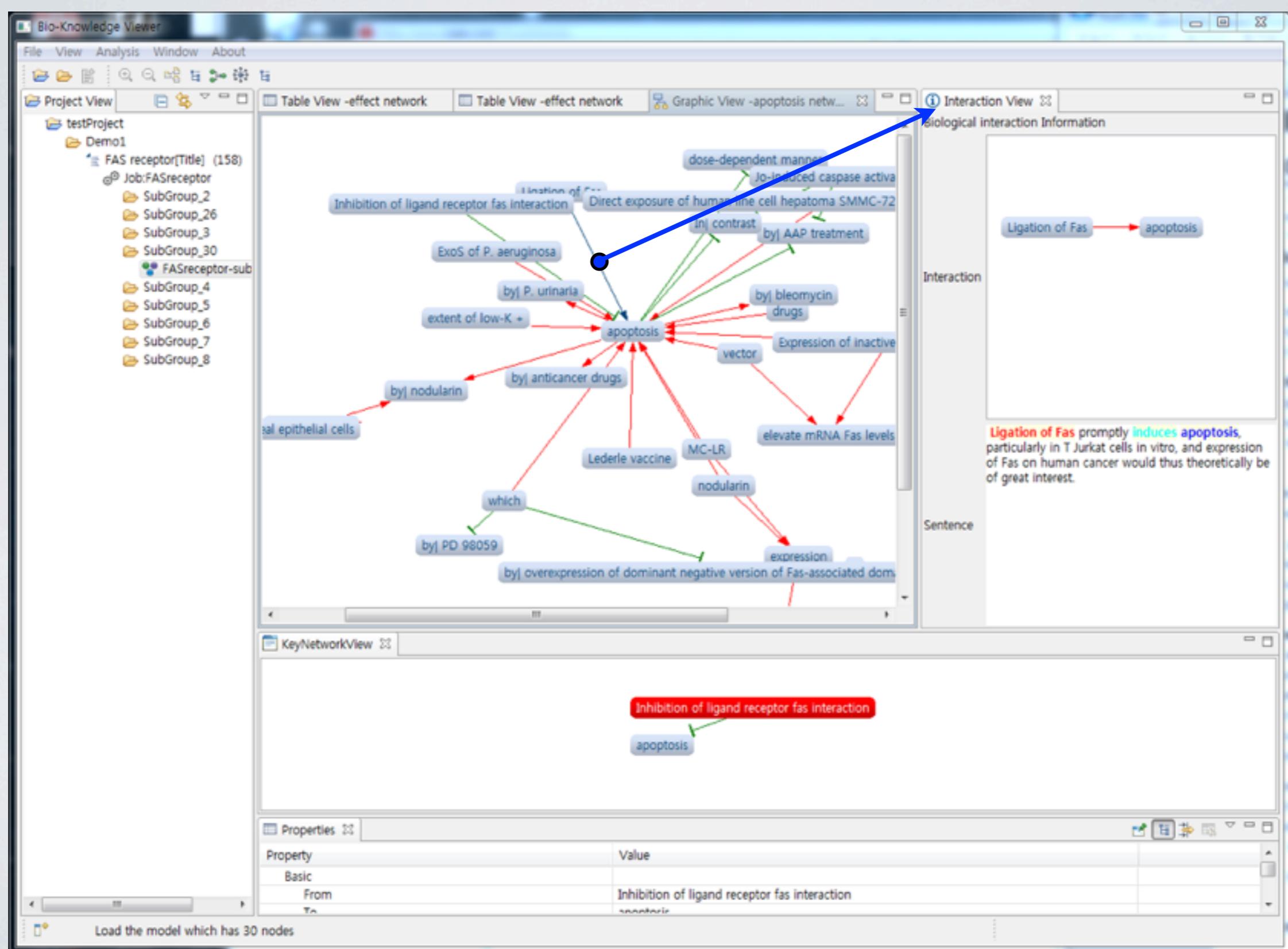
TABLE VIEW



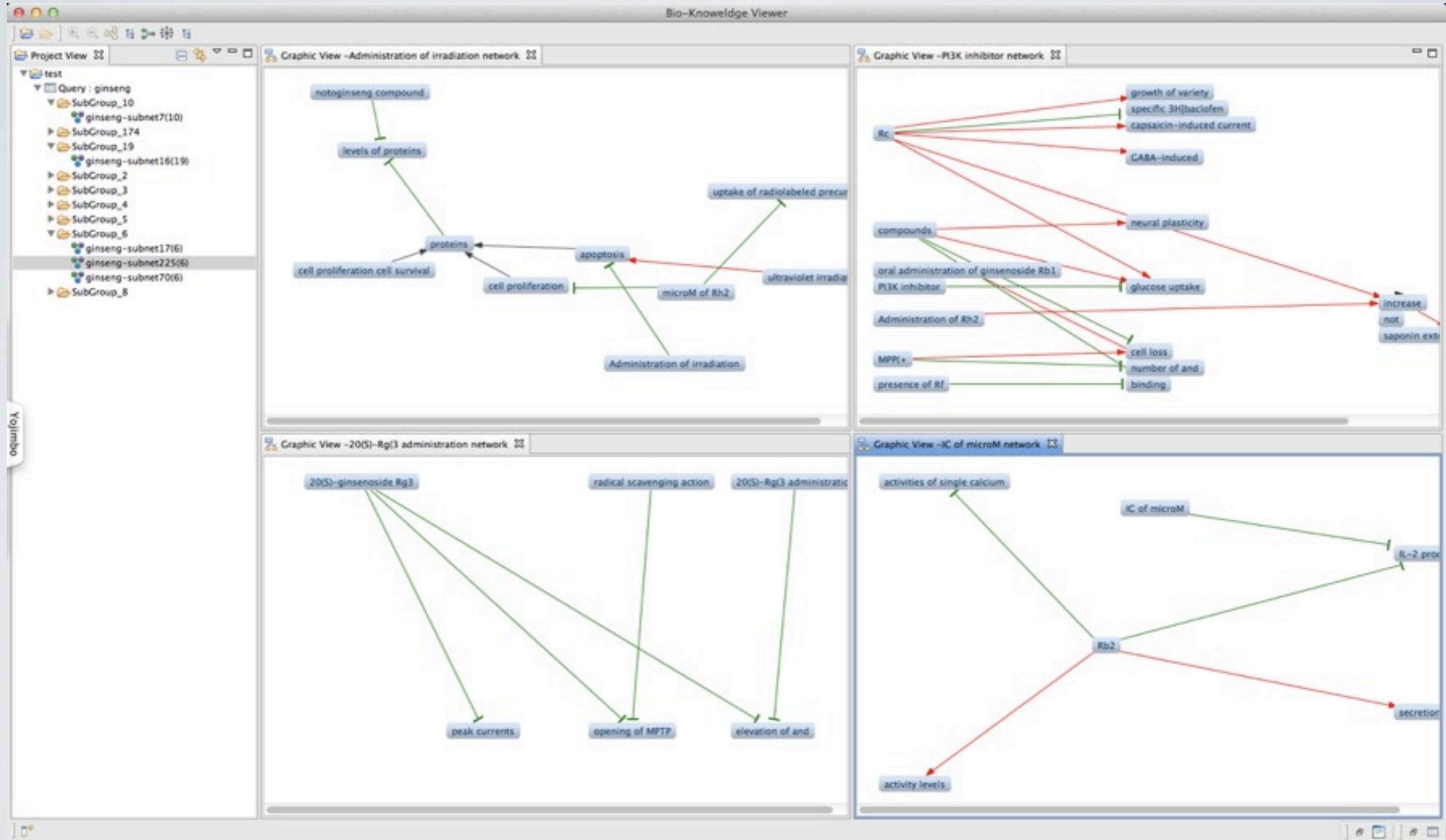
SUBNETWORK GENERATION



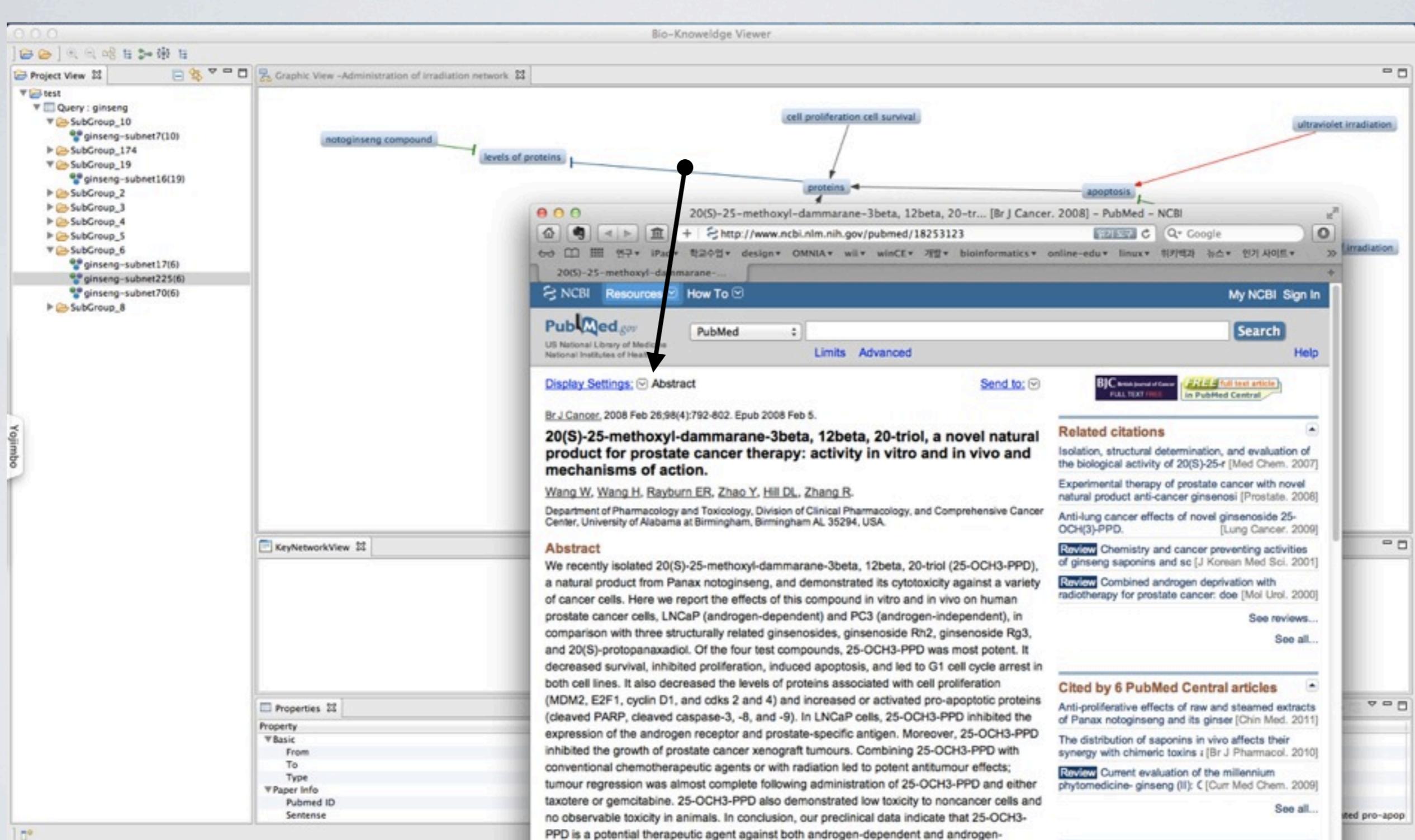
INTERACTION VIEW



Layout algorithms



Link Out



FILTERING VIEW

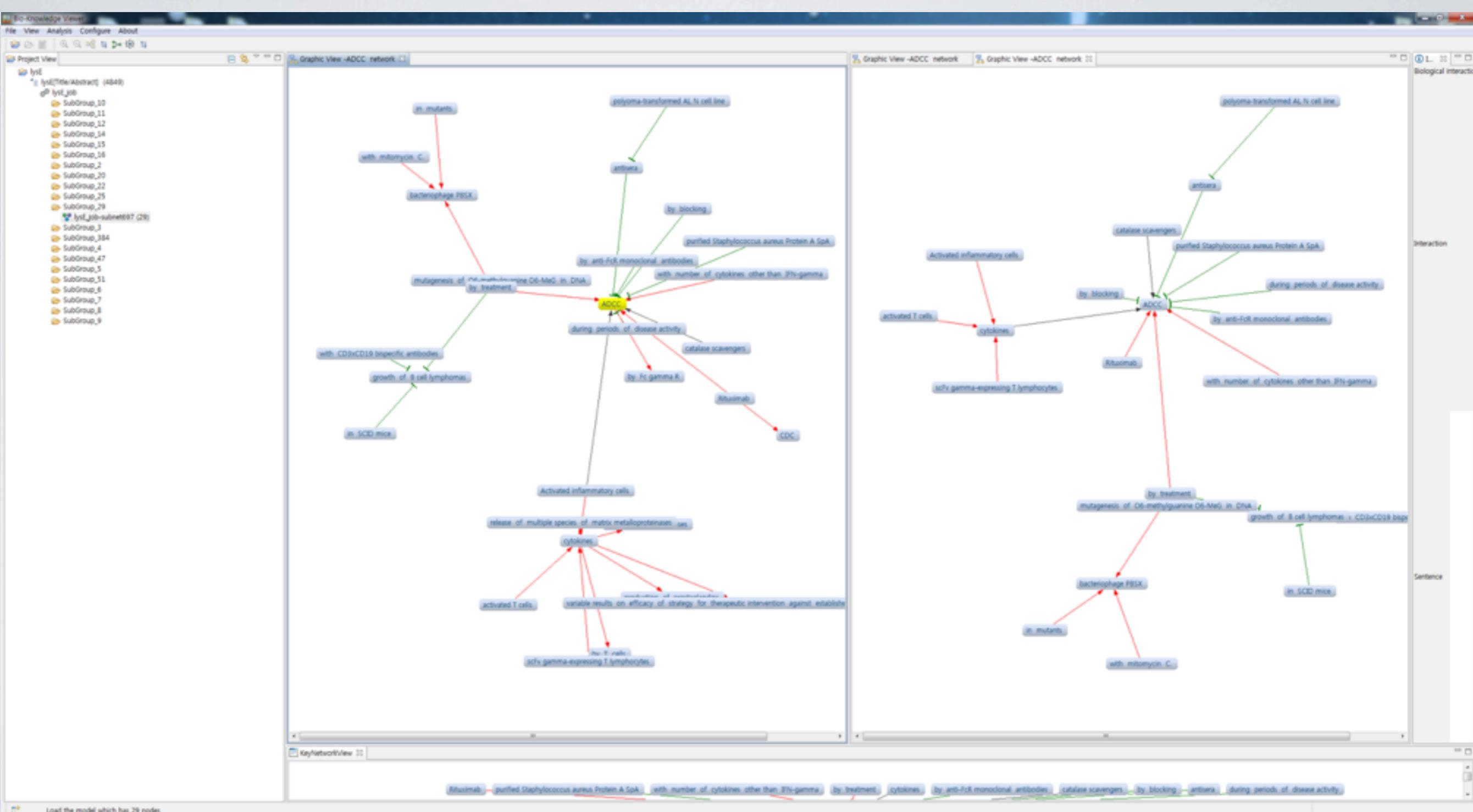
Select the metamap categories

Meta map categories

Short name	Full name
amas	Amino Acid Sequence
arch	Archaeon
fndg	Finding
geoa	Geographic Area
fish	Fish
gnhm	Gene or Genome
socb	Social Behavior
rcpt	Receptor
enzy	Enzyme
orga	Organism Attribute
anst	Anatomical Structure
horm	Hormone
diap	Diagnostic Procedure
elli	Element, Ion, or Isotope
hlca	Health Care Activity
hcgp	Human-caused Phenomenon or Process

OK Cancel

BACKBONE VIEW



Thank you!