QIAGEN IPA

IPA以數據演算及人工閱讀的資料庫文獻，
提供您快速的在數千萬筆的研究分析資料中，
找到最關鍵的生物途徑與分子間調控關係。

Zoe Huang 黃柔諭

Ingenuity **Pathway** Analysis

Office: 02-2795-1777#3024 E-mail: ZoeHuang@gga.asia

Agenda

1. Introduction to IPA
2. Learn how to search database in IPA
3. Draw the relationship between 3 nodes (Gene/Disease/Pathway)
4. Upload dataset to IPA and create core analysis
5. Comprehend the biological meaning of the IPA analysis result

Copyright©2023 GGA Corp. All rights reserved.

Sample to Insight Workflow

Sample

Insight

Sample Prep → Assay Data → Sequence-Level Statistics → Biology of Interest (Genes, Variants, etc) → Comparative Statistical Analysis → Biological Interpretation

Upstream Analysis | "primary" | "secondary" | "tertiary"

QIAGEN

QIAcube
GeneRead™ Panel

Sequencer

CLC bio A QIAGEN Company

Genomics
Workbench

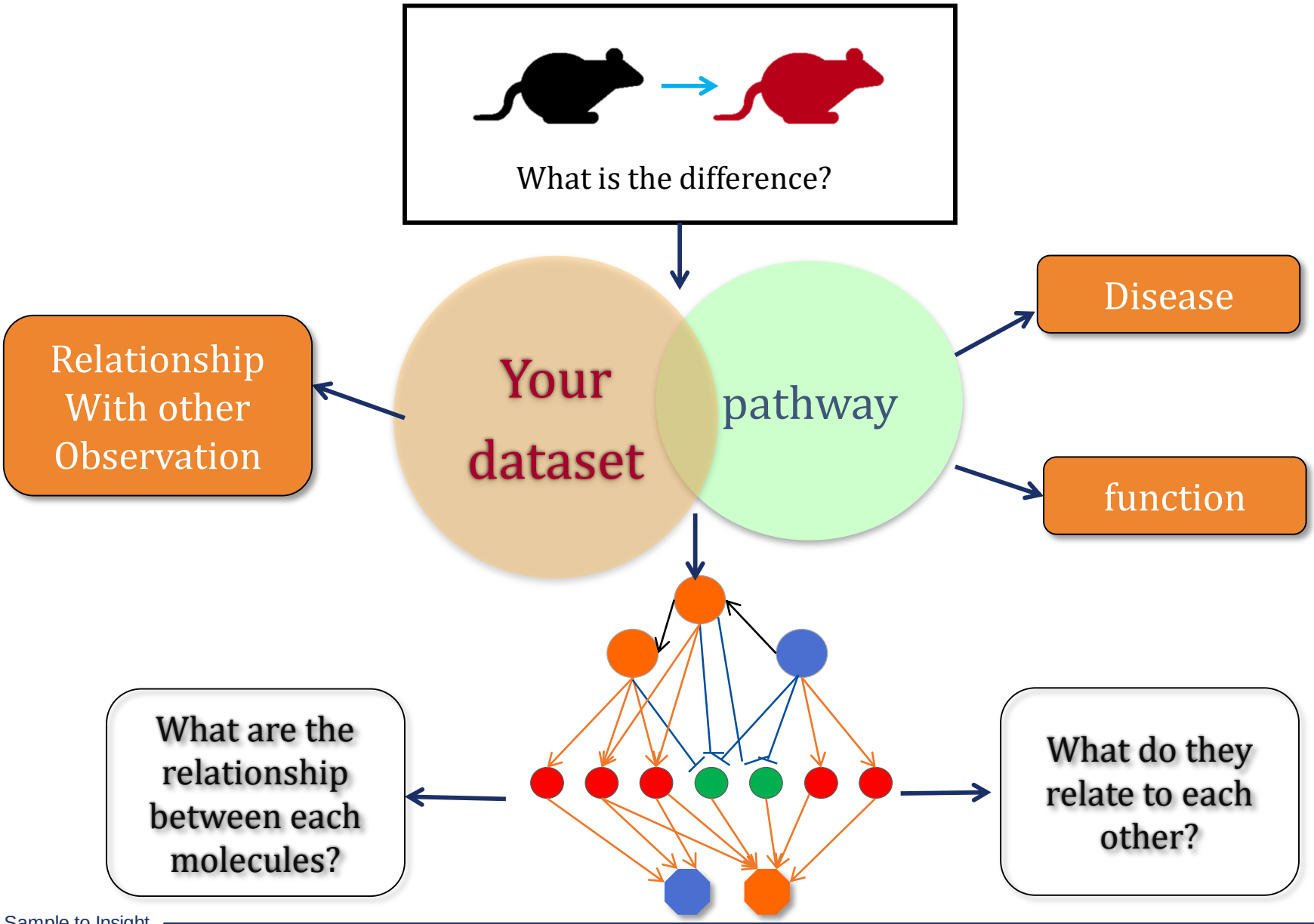
POWERED BY INGENUITY

Variant/Pathway
Analysis

Streamline Integration and Workflow Embedding

Copyright©2023 GGA Corp. All rights reserved.

Why are we using IPA?



Copyright©2023 GGA Corp. All rights reserved.

IPA Supported

IPA orthologous (25 species):

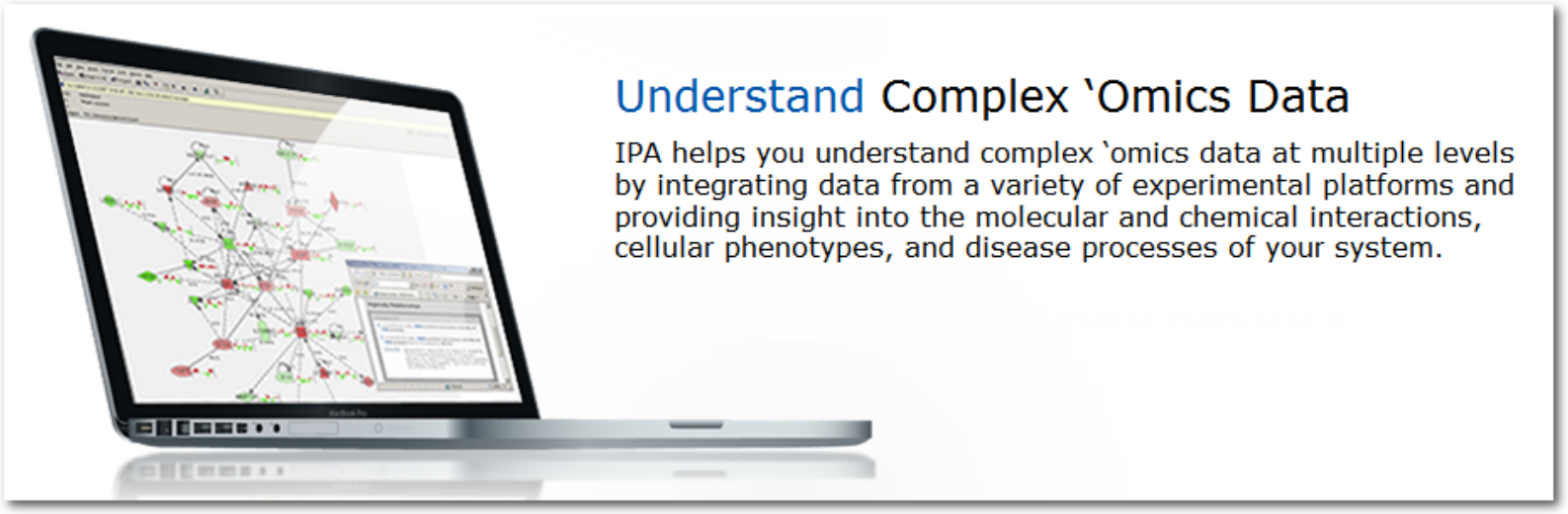
- Arabidopsis thaliana
- Bos taurus (bovine)
- Caenorhabditis elegans
- Gallus gallus (chicken)
- Pan troglodytes (chimpanzee)
- Danio rerio (zebrafish)
- Canis lupus familiaris (canine)
- Drosophila melanogaster
- Macaca mulatta (Rhesus Monkey)
- Saccharomyces cerevisiae
- Schizosaccharomyces pombe

IPA supported platform :

- **Gene expression:**
  - qPCR analysis
  - Microarray
  - RNA-Seq (NGS)
  - microRNA
  - mRNA
- **Proteomics**
  - PhosphoProteomics
- **Metabolomics**

IPA application:

- Biomarker finding
- Toxicity functions
- Diseases regulation



Copyright©2023 GGA Corp. All rights reserved.

Supported Identifiers for Data Upload

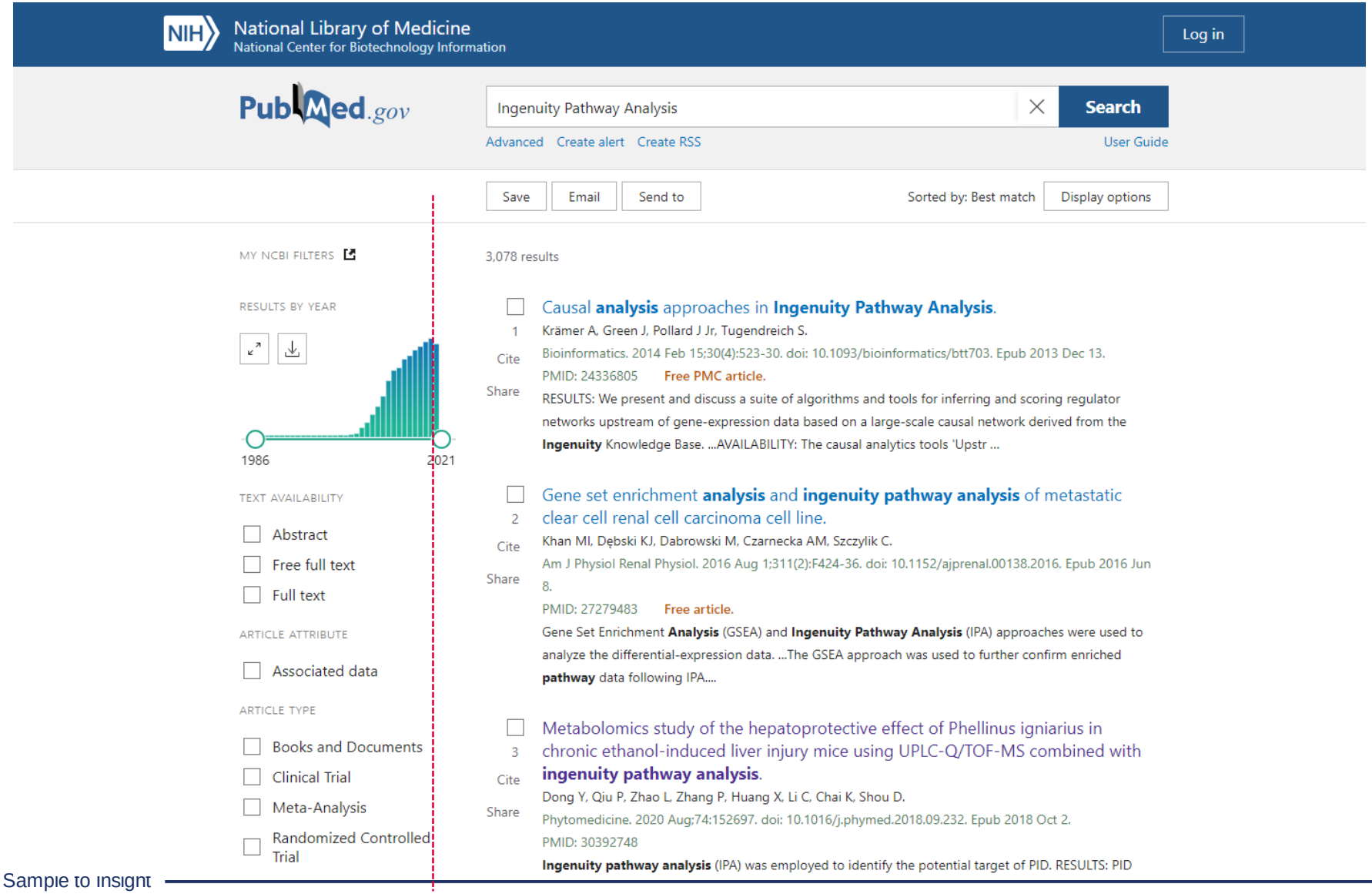
Get more complete mapping during dataset upload!

Vendor IDs	Gene	Protein	Transcript	microRNA	SNP	Chemical
Affymetrix (na36)	Entrez Gene (2020/10)	GenPept	Ensembl (101)	miRBase (mature)	Affy SNP IDs	CAS Registry Number
Agilent	GenBank (239)	International Protein Index (IPI)	RefSeq (human、mouse)	miRBase (stemloop)	dbSNP	HMDB
Life Tech (ABI)	Symbol-human (HUGO/ HGNC, EG)	UniProt/ Swiss-Prot Accession (2020_03)	UCSC (hg18)			KEGG
Codelink	Symbol- mouse (EG)		UCSC (hg19)			PubChem CID
Illumina	Symbol- rat (EG)		UCSC (hg38)			
Ingenuity	GI Number					
	UniGene					

Copyright©2023 GGA Corp. All rights reserved.

Peer-reviewed publications citing Ingenuity apps

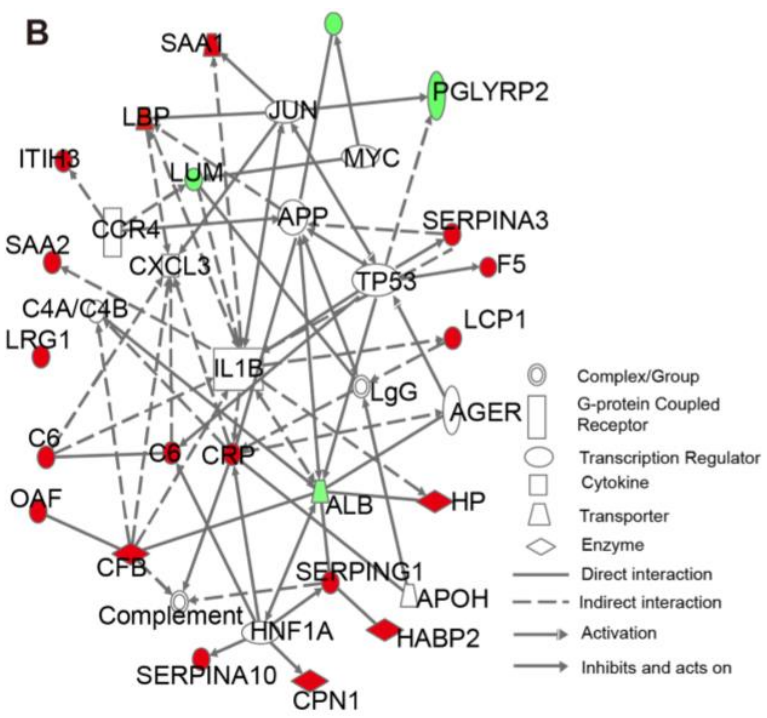
>53,800 publications that used IPA and growing! (Search Google Scholar for publications that cite IPA.)

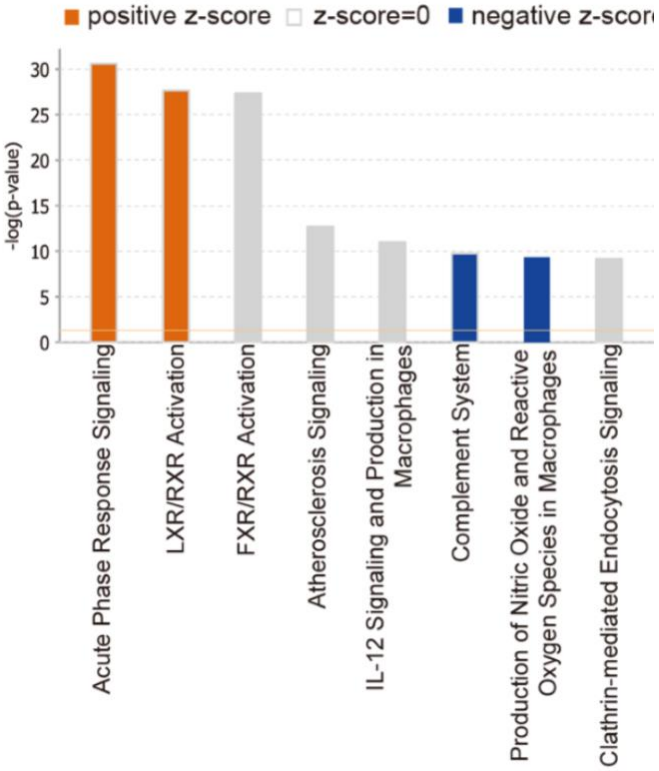


Copyright©2023 GGA Corp. All rights reserved.

IPA was cited in paper to study severe COVID-19

Here is one latest paper submitted to medRxiv using IPA to identify potential protein and metabolite biomarkers in severe COVID-19 disease. In this study, IPA was used to identify most significantly relevant pathways and build regulation networks. It is welcome to share with your customers or distributor, and please let me know if you need further help.





https://www.medrxiv.org/content/10.1101/2020.04.07.20054585v1

Copyright©2023 GGA Corp. All rights reserved.

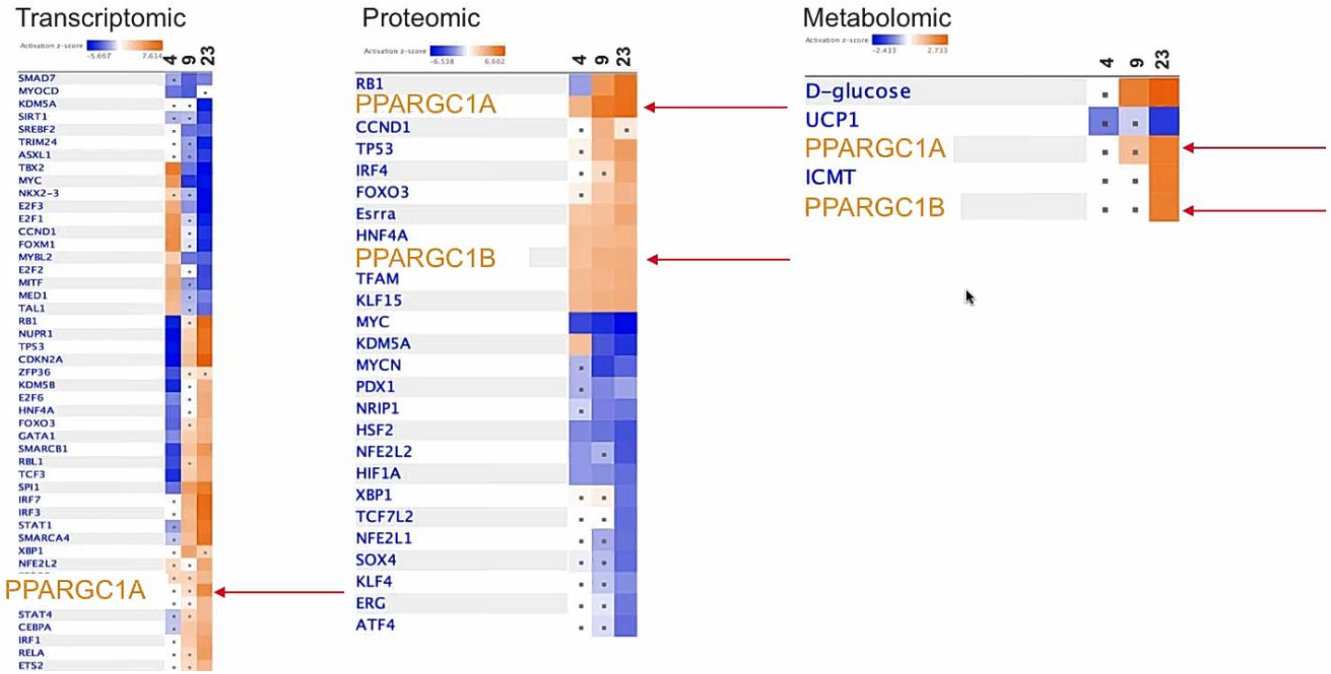
Multi-Omics Analysis using IPA

Integrate and compare genomics, transcriptomics, proteomics and metabolomics data to see the big picture on your focus research

Transcriptomics, proteomics and metabolic changes in the postnatal mouse heart identified by QIAGEN IPA and OmicSoft

Multi-omics analysis indicate similar transcriptional drivers

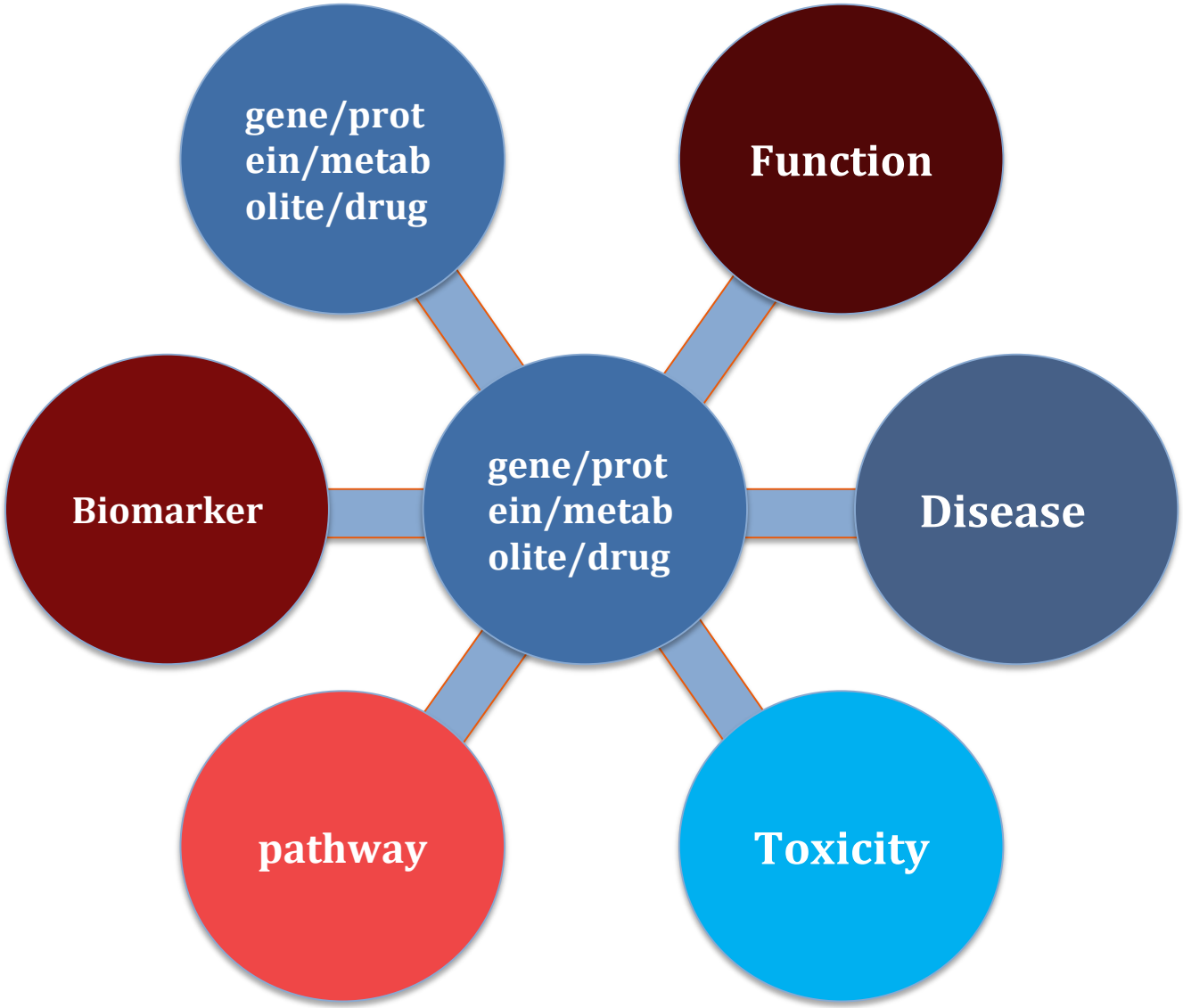
Upstream Analysis of transcriptomic, proteomic, and metabolomic data show induction of fatty oxidation regulation by PPARG coactivators.

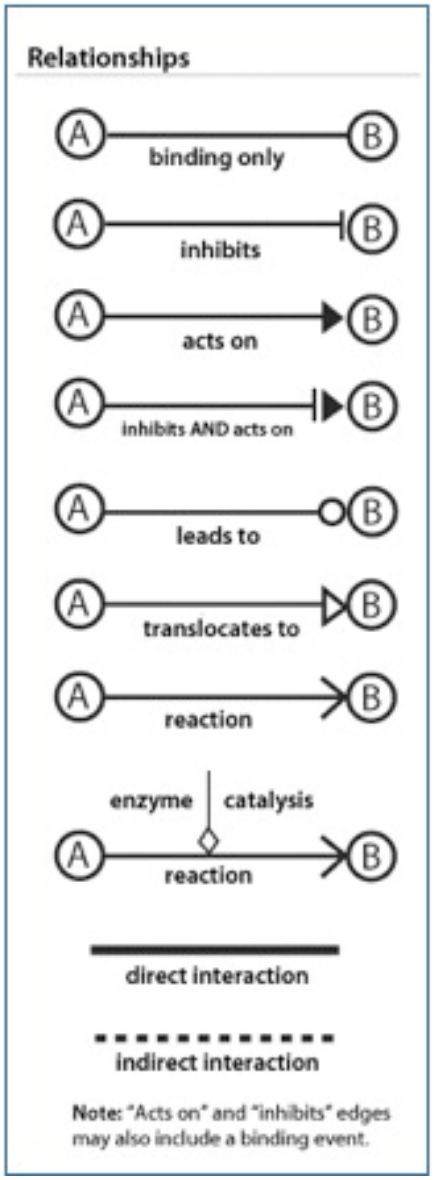


https://go.qiagen.com/IPA-multi-omics-analysis-webinar

Copyright©2023 GGA Corp. All rights reserved.

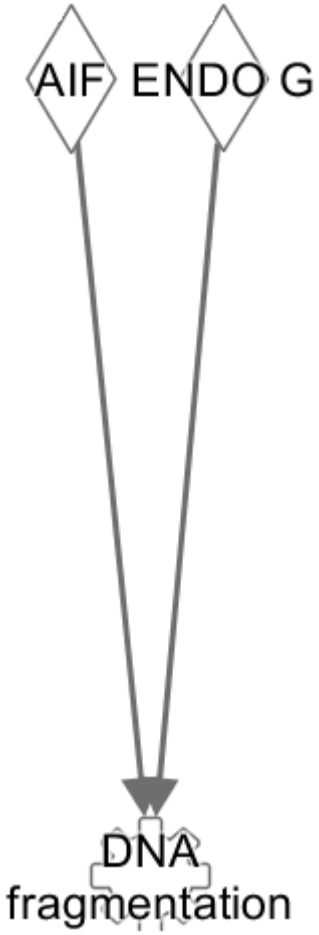
Using IPA to Discover Relationships in Experimental Data





Copyright©2023 GGA Corp. All rights reserved.

How IPA content is different: context and direction of effect



IPA Relationships: ENDO G|DNA fragmentation

Review the information that supports the gene-to-function relationship. Click the plus icon to view the reference infor

EndNote ▼ EXPORT REFERENCES

Ingenuity Relationships

causation [16]

Translocation of ENDONUCLEASE G [ENDOG] protein to nuclei from mammal cultured hepatocytes **increases**

18691057 Gómez-Lechón MJ, O'Connor JE, Lahoz A, Castell JV, Donato MT. Identification of apo 2008;15(20):2071-85.

Source: Ingenuity Expert Findings

Rat Endog protein in a cell free system **increases fragmentation of** nucleosomal **Deoxyribonucleic Acid** in nuc

Experiment Type: agarose gel electrophoresis

16407272 Ishihara Y, Shimamoto N. Involvement of endonuclease G in nucleosomal DNA fragm 10;281(10):6726-33. Epub 2006 Jan 4.

Source: Ingenuity Expert Findings

In cytoplasm, **Endo G protein increases fragmentation of DNA**.

15182854 Lemarié A, Lagadic-Gossmann D, Morzadec C, Allain N, Fardel O, Vernhet L. Cadmiur oxidative stress-related impairment of mitochondria and relocation of endonuclease C

Source: Ingenuity Expert Findings

ENDOG protein in a cell-free system **increases fragmentation of DNA** in nuclei.

15077142 Cregan SP, Dawson VL, Slack RS. Role of AIF in caspase-dependent and caspase-ind

Source: Ingenuity Expert Findings

zVAD causes little or no change in fragmentation of DNA that is mediated by **ENDOG protein**.

15077142 Cregan SP, Dawson VL, Slack RS. Role of AIF in caspase-dependent and caspase-ind

Source: Ingenuity Expert Findings

Copyright©2023 GGA Corp. All rights reserved.

Third Party Database

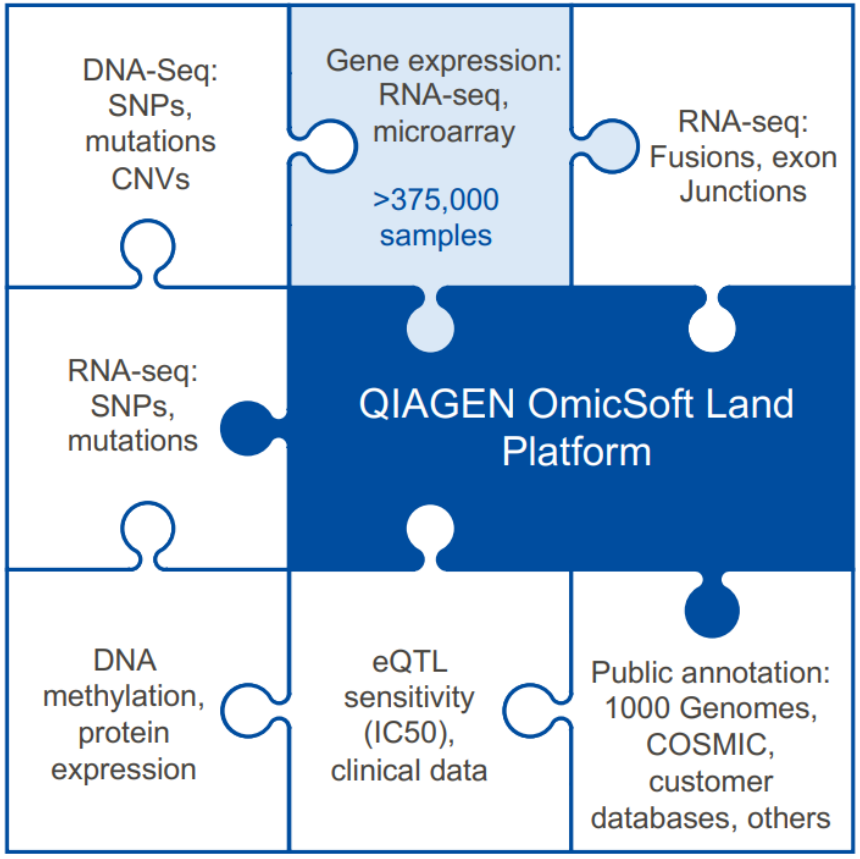
- **Synonyms, Protein Family, Domains**
  - GO, Entrez Gene, Pfam
- **Tissue and Biofluid Expression & Location**
  - GNF, Plasma Proteome
- **Molecular Interactions**
  - BIND, DIP, MIPS, IntAct, Biogrid, MINT, Cognia, etc.
- **miRNA/mRNA target databases**
  - TarBase, TargetScan, miRecords
- **Gene to Disease Associations**
  - OMIM, GWAS databases
- **Metabolomics**
  - HumanCyc
- **Clinical Trial information**
  - ClinicalTrials.gov

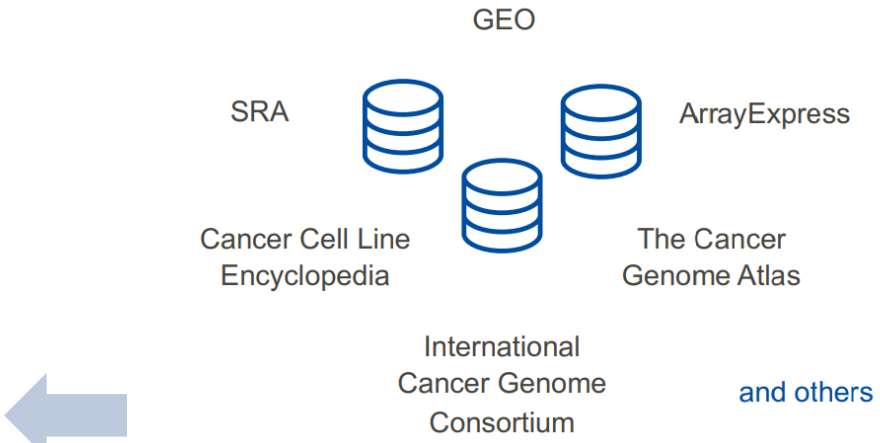
Copyright©2023 GGA Corp. All rights reserved.

OmicSoft Lands and findings in QIAGEN IPA

- More than **12 million** findings from literature source or database.
- More than **124,927** comparison datasets from QIAGEN OmicSoft Lands.

Lands provide expression data to QIAGEN IPA



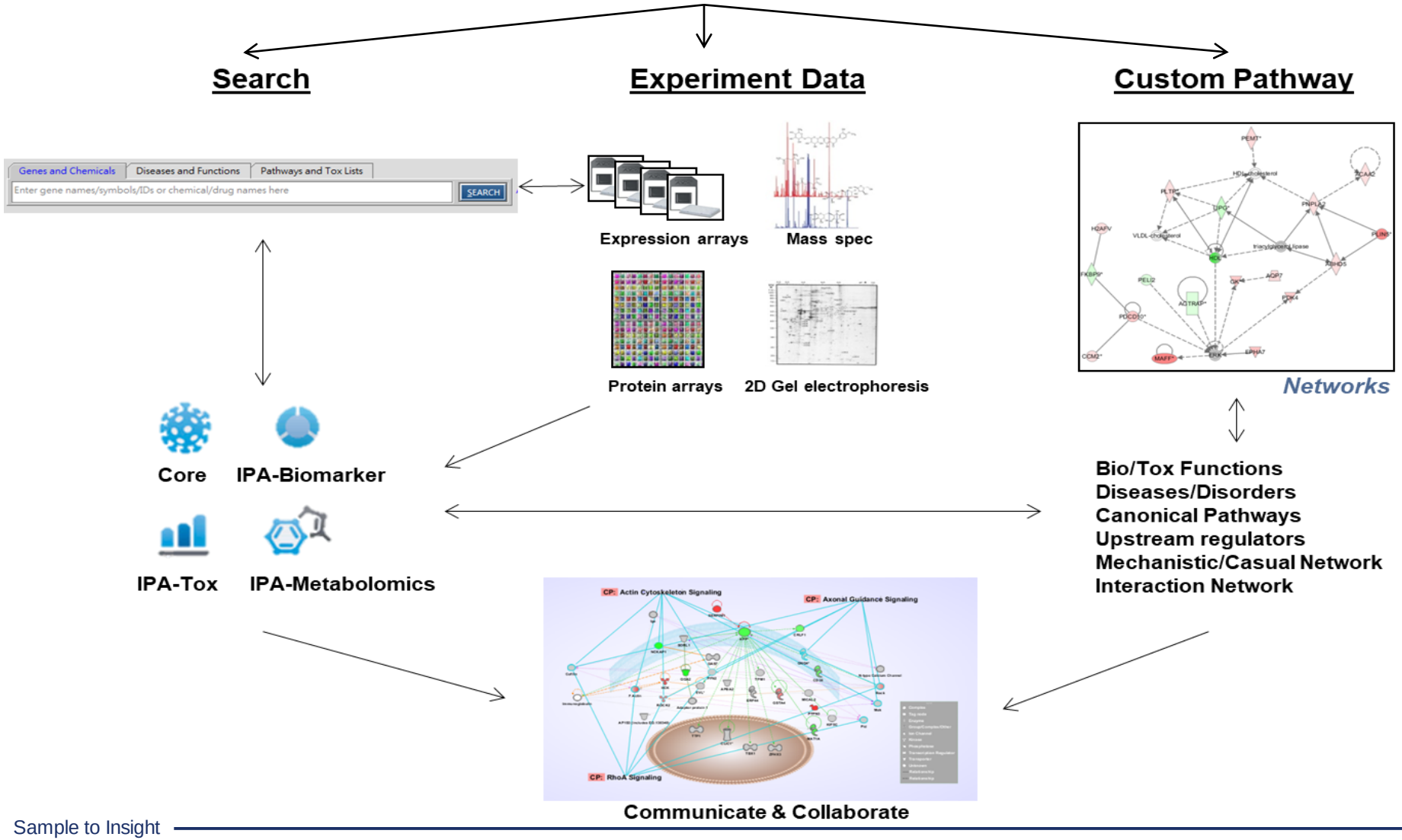


Land	Repository	Datasets Q3 2022	Datasets Q4 2022	Increase
DiseaseLand	HumanDisease	31,041	32,092	1,051
	MouseDisease	24,411	24,506	95
	RatDisease	7,900	7,900	
	LINCS	28,234	28,234	
OncoLand	OncoHuman (Formerly OncoGEO)	13,360	14,131	771
	OncoMouse	1,054	1,054	
	TCGA	4,438	4,438	
	MetastaticCancer	81	81	
	Hematology	4,267	4,267	
	Pediatrics	444	444	
	ENCODE RNA Binding	486	486	
Single Cell Land	SingleCellHuman	194	194	
	SingleCellHumanUmi	2056	2056	
	SingleCellHumanUmiLite	603	603	
	SingleCellHumanHCL	1,476	1,476	
	SingleCellMouse	81	81	
	SingleCellMouseUmi	1,457	1,457	
	SingleCellMouseUmiLite	115	115	
Normal Cells and Tissues	Human Tissues (GTEx)	52	1,312	1,260

Copyright©2023 GGA Corp. All rights reserved.

Entry Points in IPA

1) What does the data reveal about the underlying biology in the sampled cells or tissues?
2) What relevance does that biological information have with respect to other biological samples?



Copyright©2023 GGA Corp. All rights reserved.

Agenda

1. Learn how to search database in IPA
2. Draw the relationship between 3 nodes (Gene/Disease/Pathway)
3. Upload dataset to IPA and create core analysis
4. Realize the meaning of the IPA analysis result

Copyright©2023 GGA Corp. All rights reserved.

Live Demo

Learn how to search database in IPA

Copyright©2023 GGA Corp. All rights reserved.

Search gene database

- Search (Genes and Chemicals) : IL1B

Search Results

Genes and Chemicals | Diseases and Functions

Add To My Pathway | Add To My List | Create Dataset | BioProfiler | Interaction Network | Activity Plot

The search for IL1B matched 1 items.

#	Symbol	Matched Term	Synonym(s)	Entrez Gene Name	Location
1	IL1B	IL1B, Il1b	IL-1, IL1-BETA, IL-1F2, IL-1 β, interleukin 1 beta, Interleukin 1 β, OAF, Osteoclast-Activating Factor, Pro-IL-1beta, Pro-IL-1β	interleukin 1 beta	Extracellular Spac

IPA Gene View

IPA Gene View: IL1B (Mammalian) > Interaction Network — Contact Support | Help Documentation

Review the categorized literature findings and database information for this node.

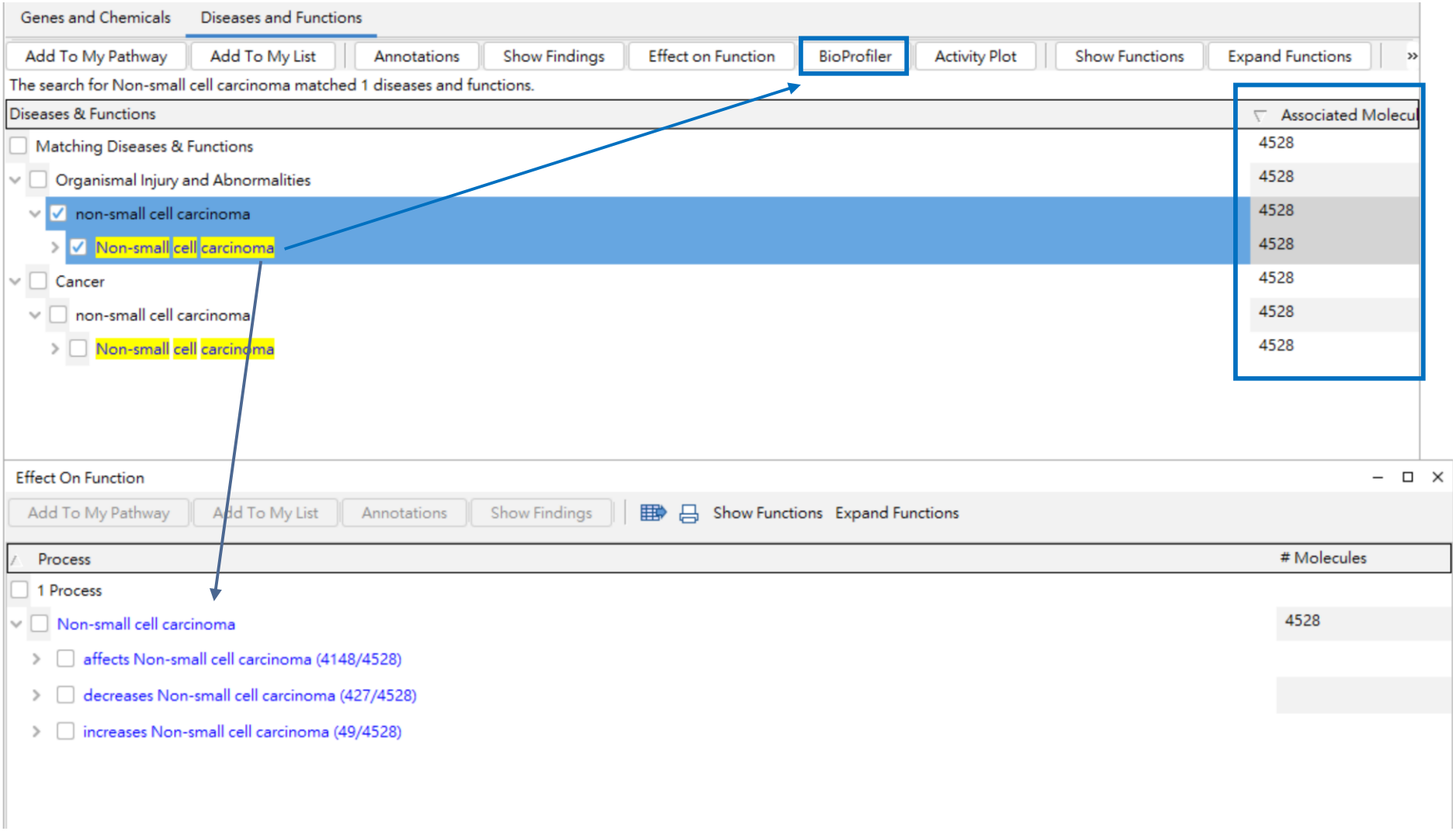
Summary | Human | Mouse | Rat

Member Of:	cytokine, IL1, IL1/IL6/TNF, Pro-inflammatory Cytokine
Entrez Gene Name:	interleukin 1 beta
Synonym(s):	IL-1, IL1-BETA, IL-1F2, IL-1 β, interleukin 1 beta, Interleukin 1 β, OAF, Osteoclast-Activating Factor, Pro-IL-1beta, Pro-IL-1β
NCBI CDD Domains (Superfamilies / Multi-Domains):	IL1, Interleukin-1 propeptide
Protein Functions / Functional Domains:	cytokine, integrin binding, protein binding, protein domain specific binding
Subcellular Location:	axons, cell surface, cellular membrane, Cytoplasm, cytosol, endosomes, Extracellular Space, granules, intracellular space, lysosome, Nucleus, plasma, Plasma Membrane, secretory granules, vesicles
Canonical Pathway:	Acute Phase Response Signaling; Adrenomedullin signaling pathway; Agranulocyte Adhesion and Diapedesis; Airway Pathology in Chronic Obstructive Pulmonary Disease; Altered T Cell and B Cell Signaling in Rheumatoid Arthritis; Aryl Hydrocarbon Receptor Signaling; Atherosclerosis Signaling; Cardiac Hypertrophy Signaling (Enhanced); CDX Gastrointestinal Cancer Signaling Pathway; Cholecystokinin/Gastrin-mediated Signaling; Communication between Innate and Adaptive Immune Cells; Coronavirus Pathogenesis Pathway; Dendritic Cell Maturation; Differential Regulation of Cytokine Production in Intestinal Epithelial Cells by IL-17A and IL-17F; Differential Regulation of Cytokine Production in Macrophages and T Helper Cells by IL-17A and IL-17F; Docosahexaenoic Acid (DHA) Signaling; Erythropoietin Signaling Pathway; FXR/RXR Activation; GADD45 Signaling; Glucocorticoid Receptor Signaling; Graft-versus-Host Disease Signaling; Granulocyte Adhesion and Diapedesis; Granzyme A Signaling; Hepatic Cholestasis; Hepatic Fibrosis / Hepatic Stellate Cell Activation; Hepatic Fibrosis Signaling Pathway; HMGB1 Signaling; IL-10 Signaling; IL-17 Signaling; IL-23 Signaling Pathway; IL-6 Signaling; Immunogenic Cell Death Signaling Pathway; Inflammasome pathway; LPS/IL-1 Mediated Inhibition of RXR Function; LXR/RXR Activation; Macrophage Alternative Activation Signaling Pathway; Macrophage Classical Activation Signaling Pathway; Multiple Sclerosis Signaling Pathway; Neuroinflammation Signaling Pathway; Neutrophil Extracellular Trap Signaling Pathway; NF-κB Signaling; Osteoarthritis Pathway; Oxytocin In Brain Signaling Pathway; p38 MAPK Signaling; Pathogen Induced Cytokine Storm Signaling Pathway; PPAR Signaling; PPARα/RXRα Activation; Pulmonary Fibrosis Idiopathic Signaling Pathway; Pyroptosis Signaling Pathway; Role Of Chondrocytes In Rheumatoid Arthritis Signaling Pathway; Role of Cytokines in Mediating Communication between Immune Cells; Role of Hypercytokinemia/hyperchemokinemia in the Pathogenesis of Influenza; Role of IL-17F in Allergic Inflammatory Airway Diseases; Role of Macrophages, Fibroblasts and Endothelial Cells in Rheumatoid Arthritis; Role of MAPK Signaling in Inhibiting the Pathogenesis of Influenza; Role of Osteoblasts, Osteoclasts and Chondrocytes in Rheumatoid Arthritis; Role Of Osteoblasts In Rheumatoid Arthritis Signaling Pathway; Role Of Osteoclasts In Rheumatoid Arthritis Signaling Pathway; Role of Pattern Recognition Receptors in Recognition of Bacteria and Viruses; Role of PKR in Interferon Induction and Antiviral Response; Role of Tissue Factor in Cancer; S100 Family Signaling Pathway; STAT3 Pathway; Systemic Lupus Erythematosus In B Cell Signaling Pathway; Systemic Lupus Erythematosus Signaling; Th17 Activation Pathway; Toll-like Receptor Signaling; TREM1 Signaling; Tumor Microenvironment Pathway; Type I Diabetes Mellitus Signaling; Wound Healing Signaling Pathway; Xenobiotic Metabolism AHR Signaling Pathway; Xenobiotic Metabolism Signaling
Targeted By miRNA Functional Cluster: (showing 50 out of 120) show all	miR-1178-3p (miRNAs w/seed UGCUCAC), miR-1199-5p (and other miRNAs w/seed CUGAGCC), miR-1202 (and other miRNAs w/seed UGCCAGC), miR-1233-5p (and other miRNAs w/seed GUGGGAG), miR-1256 (miRNAs w/seed GGCAUUG), miR-125b-1-3p (miRNAs w/seed CGGGUUA), miR-125b-5p (and other miRNAs w/seed CCCUGAG), miR-1291 (and other miRNAs w/seed GGCCCUG), miR-135a-1-3p (and other miRNAs w/seed AUAGGGA), miR-138-5p (miRNAs w/seed GCUGGUG), miR-144-3p (miRNAs w/seed ACAGUAU), miR-149-5p (miRNAs w/seed CUGGCUC), miR-152-5p (miRNAs w/seed AGGUUCU), miR-185-5p (and other miRNAs w/seed GGAGAGA), miR-190a-3p (miRNAs w/seed UAUAUAU), miR-1912-5p (miRNAs w/seed GCUCAUU), miR-1966-5p (miRNAs w/seed AGGGAGC), miR-204-5p (and other miRNAs w/seed UCCCUUU), miR-205-3p (miRNAs w/seed AUUUCAG), miR-21-5p (and other miRNAs w/seed AGCUUAU), miR-221-5p (and other miRNAs w/seed CCUGGCA), miR-2682-5p (and other miRNAs w/seed AGGCAGU), miR-26b-3p (and other miRNAs w/seed CUGUUCU), miR-27b-5p (miRNAs w/seed GAGCUUA), miR-28b (and other miRNAs w/seed GGAGCUC), miR-297a-3p (and other miRNAs w/seed AUACAUA), miR-298-3p (miRNAs w/seed AGGAACU), miR-299a-3p (and other miRNAs w/seed AUGUGGG), miR-29b-5p (and other miRNAs w/seed UGGUUUC), miR-3063-5p (and other miRNAs w/seed GGAGAUC), miR-3064-5p (and other miRNAs w/seed CUGGCUG), miR-3066-5p (miRNAs w/seed UGGUUGC), miR-3070-2-3p (and other miRNAs w/seed GGUGCUA), miR-3072 (and other miRNAs w/seed GCCCCCU), miR-3083-5p (and other miRNAs w/seed GGCUGGG), miR-3084a-3p (and other miRNAs w/seed UCUGCCA), miR-3099-5p (miRNAs w/seed CAGCUUC), miR-30a-3p (and other miRNAs w/seed UUUCAGU), miR-3100-3p (miRNAs w/seed UGUGACA), miR-3145-3p (miRNAs w/seed GAUAUUU), miR-3147 (miRNAs w/seed GUUGGGC), miR-3174 (miRNAs w/seed AGUGAGU), miR-3194-5p (miRNAs w/seed GCCAGCC), miR-3200-5p (miRNAs w/seed AUCUGAG), miR-328-3p (and other miRNAs w/seed UGGCCCU), miR-330-3p (and other miRNAs w/seed CAAAGCA), miR-331-3p (miRNAs w/seed CCCCUGG), miR-344a-5p (and other miRNAs w/seed CAGGCUC), miR-3473f (miRNAs w/seed AAAUAGG), miR-3542 (and other miRNAs w/seed AGGCUCU)...(more)
Targeted By miRNA Family:	mir-21

Copyright©2023 GGA Corp. All rights reserved.

Search diseases and functions

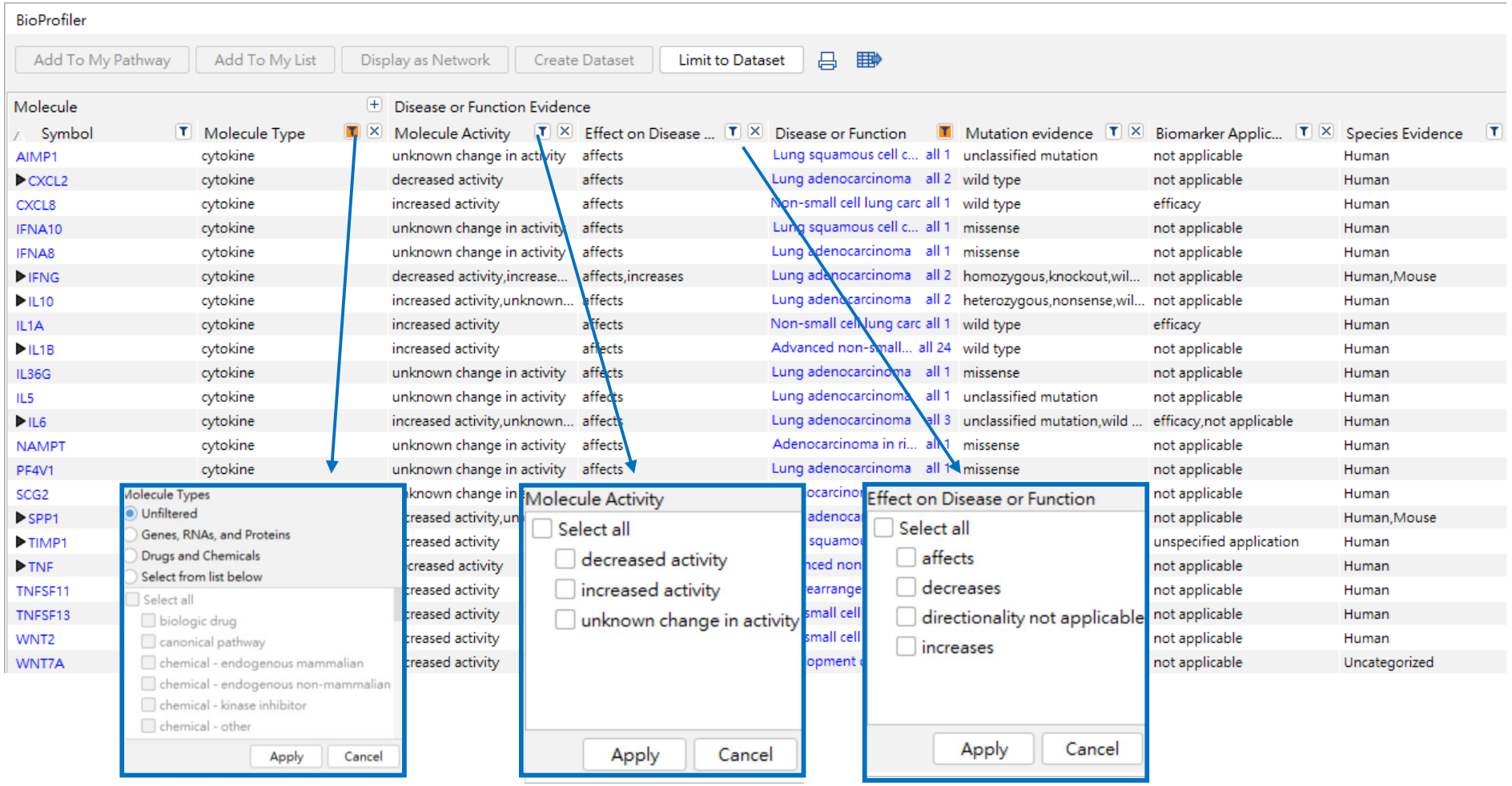
- Search (Diseases and functions) : Non-small cell lung carcinoma



Copyright©2023 GGA Corp. All rights reserved.

Profile key immune molecules in the context of cancer

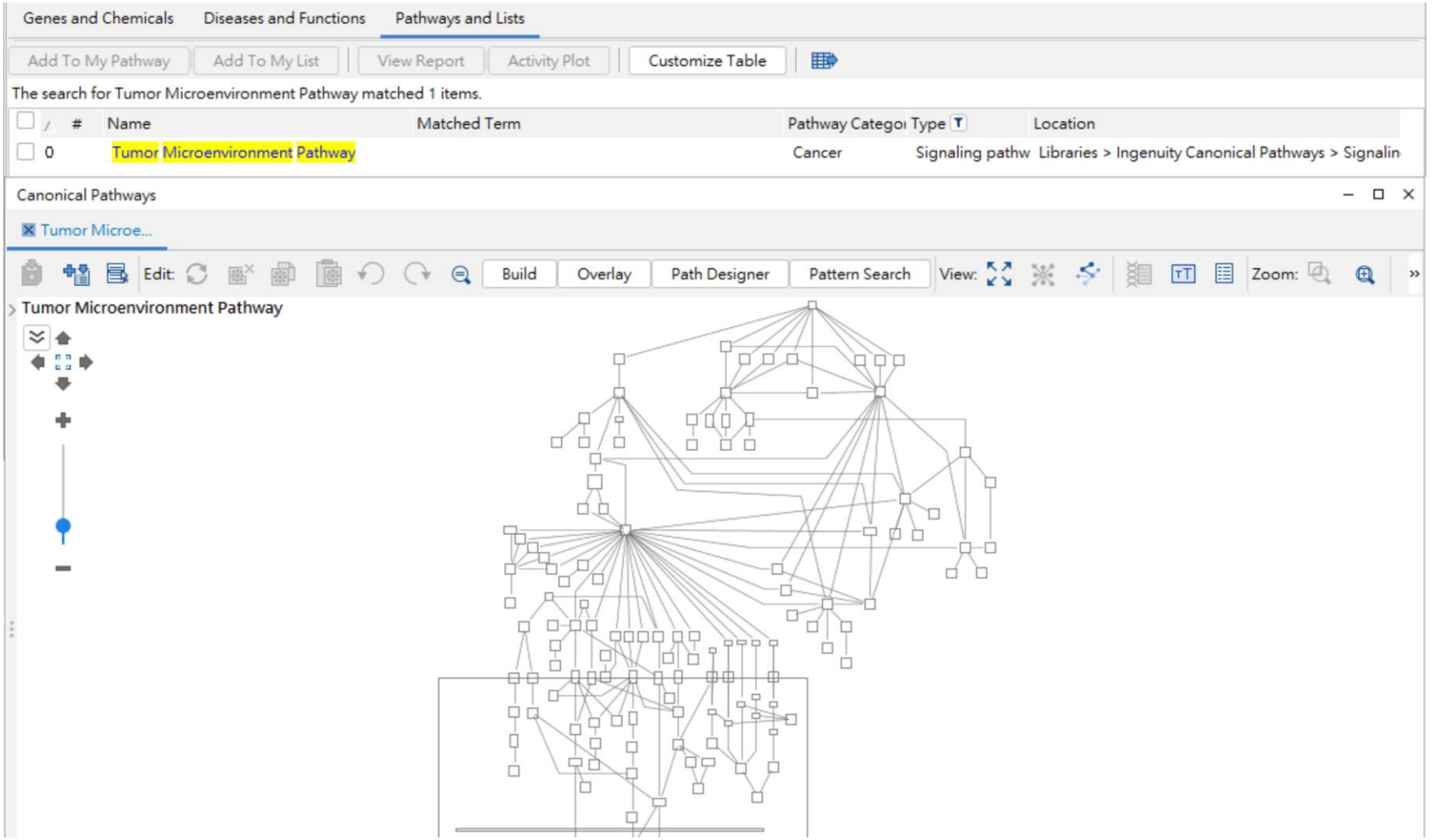
- Search (Diseases and functions) : Non-small cell lung carcinoma
- BioProfiler: Cytokine



Copyright©2023 GGA Corp. All rights reserved.

Search pathways and lists

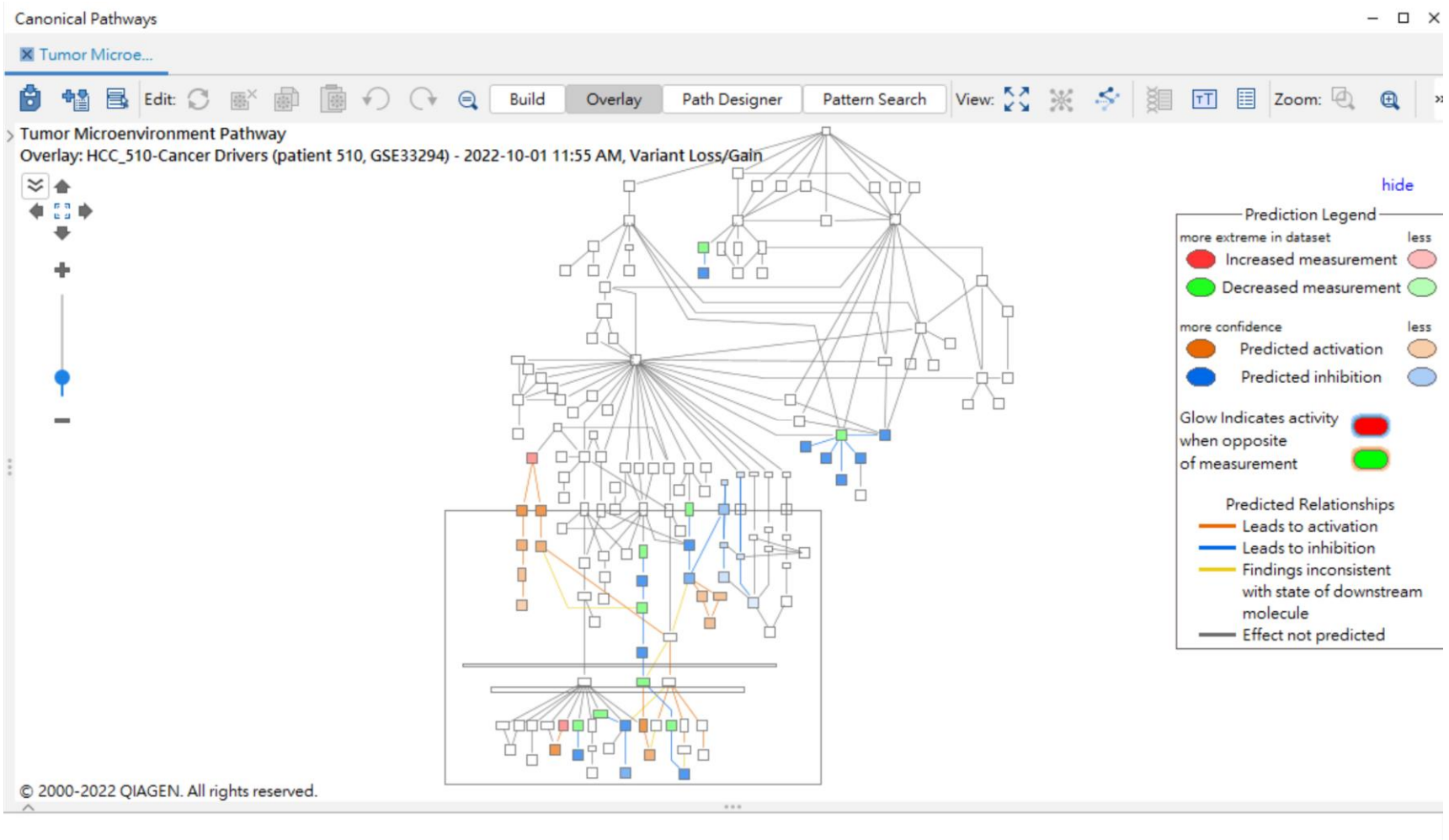
- Search : Tumor Microenvironment Pathway



Copyright©2023 GGA Corp. All rights reserved.

Search pathways and lists : pathway overlay

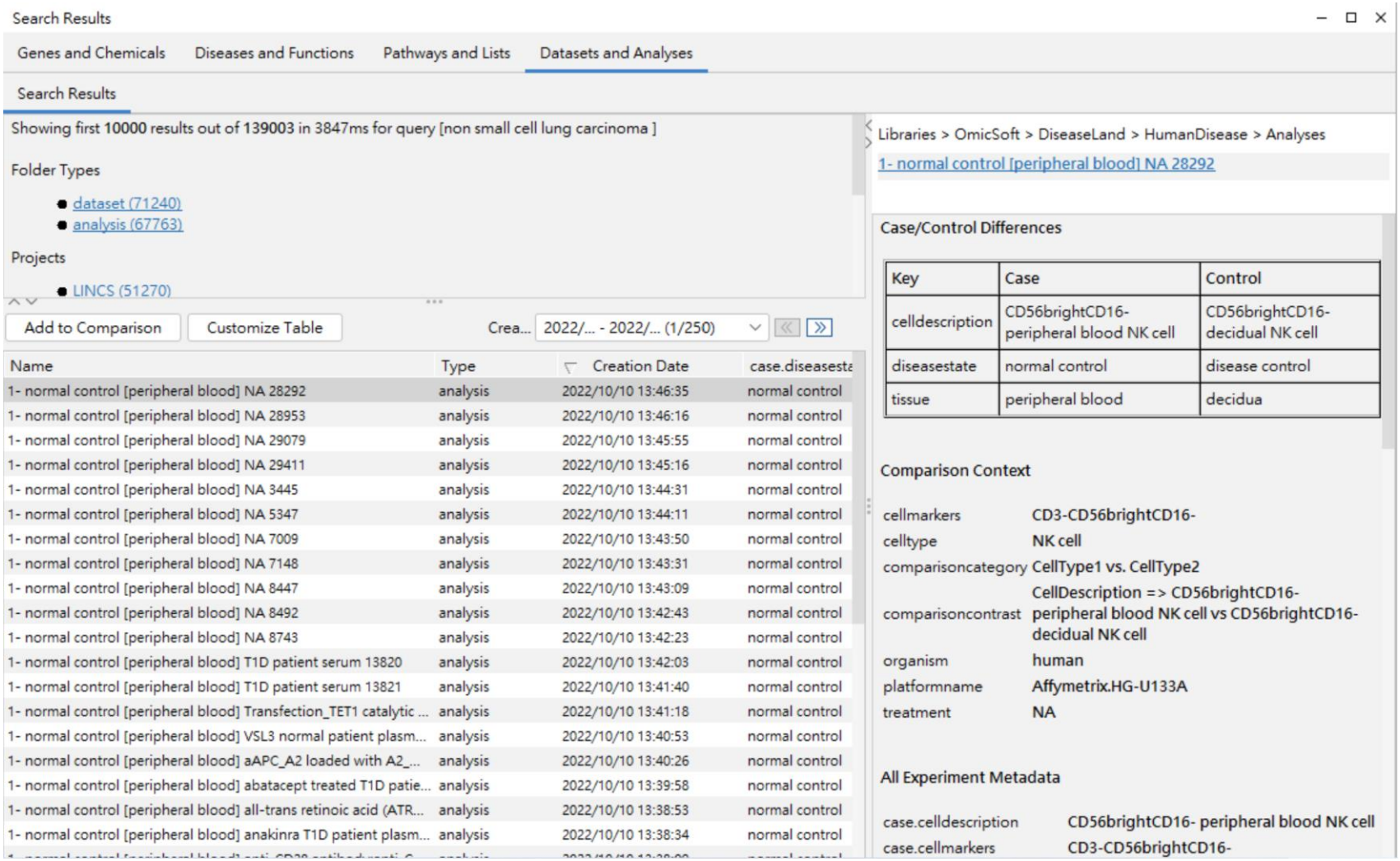
- Search : Tumor Microenvironment Pathway
- pathway overlay



Copyright©2023 GGA Corp. All rights reserved.

Search databases and analyses

- Search : non small cell lung carcinoma



Copyright©2023 GGA Corp. All rights reserved.

Live Demo

Case Study: Investigating the tumor microenvironment

Copyright©2023 GGA Corp. All rights reserved.

Explore key target molecules and disease indications

Construct networks based on key targets and predict molecule activity

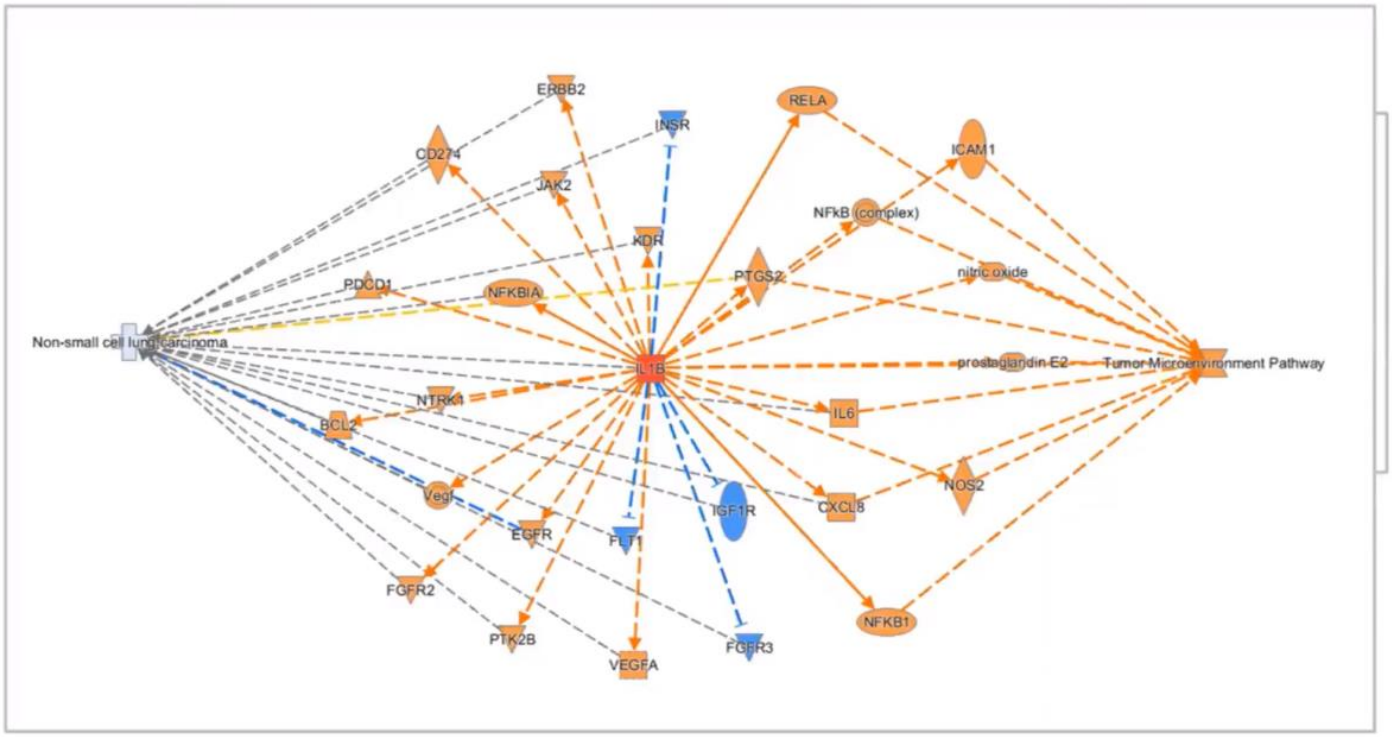
Review > Curr Pharm Des. 2017;23(32):4893-4905. doi: 10.2174/1381612823666170613080919.

Targeting the Tumor Microenvironment by Intervention in Interleukin-1 Biology

Elena Voronov [1], Ron N Apte [1]

Affiliations + expand

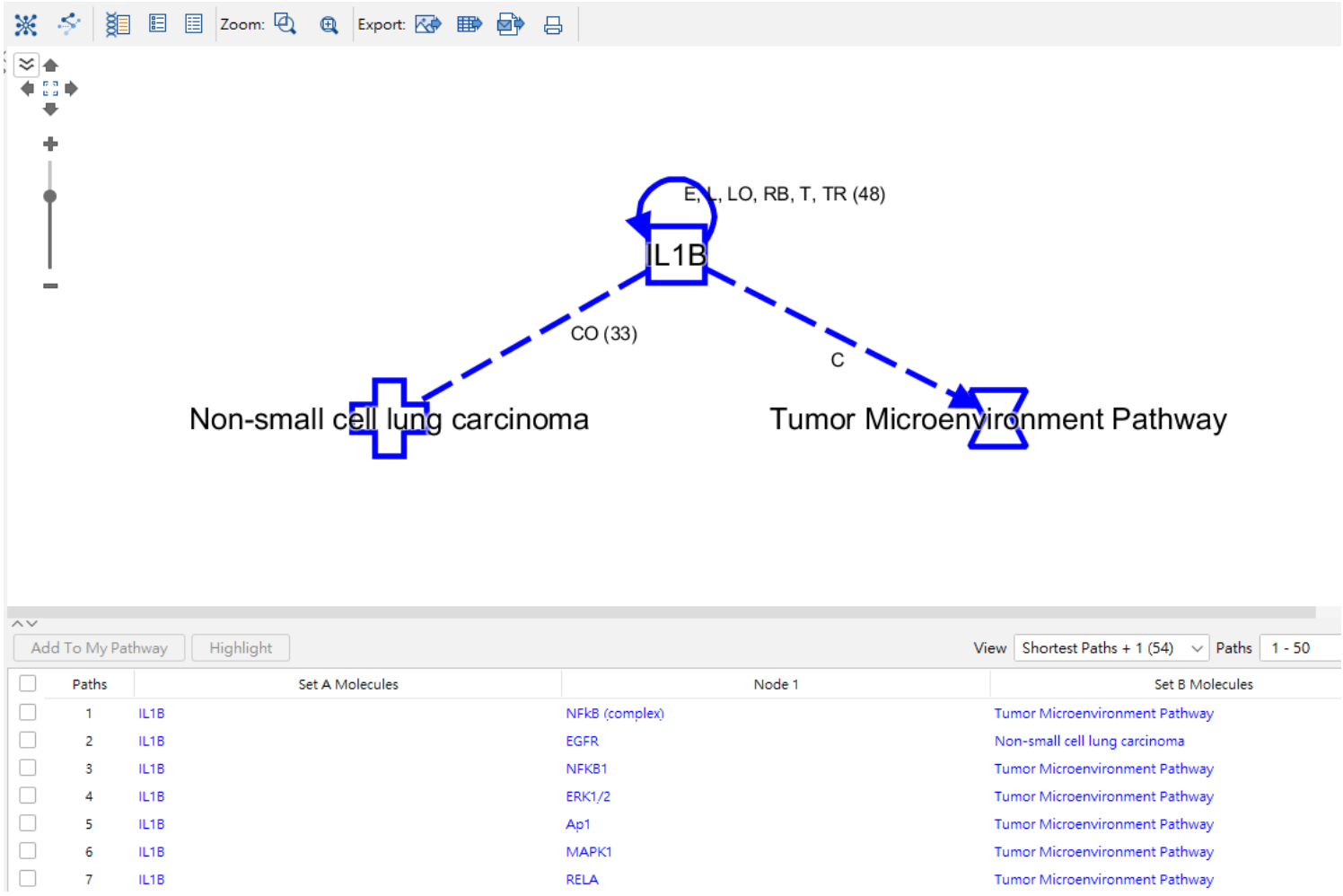
PMID: 28606052 DOI: 10.21



Copyright©2023 GGA Corp. All rights reserved.

Build networks linking molecules to the TME and disease endpoints

- Search: IL1B、Non-small cell lung carcinoma、Tumor Microenvironment Pathway(TME)
- Path Explore: activation、causation、inhibition

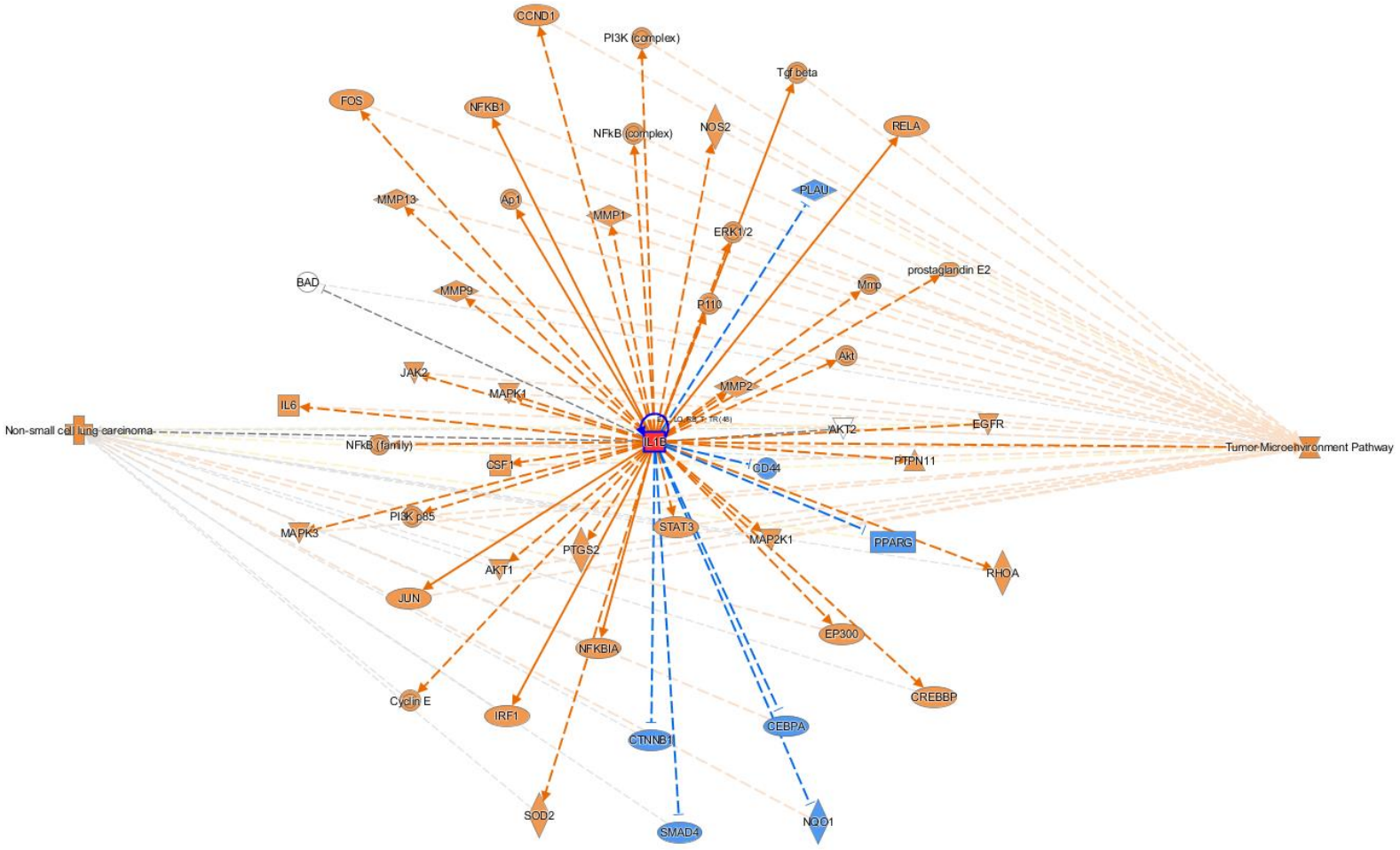


Paths	Set A Molecules	Node 1	Set B Molecules
1	IL1B	NFkB (complex)	Tumor Microenvironment Pathway
2	IL1B	EGFR	Non-small cell lung carcinoma
3	IL1B	NFKB1	Tumor Microenvironment Pathway
4	IL1B	ERK1/2	Tumor Microenvironment Pathway
5	IL1B	Ap1	Tumor Microenvironment Pathway
6	IL1B	MAPK1	Tumor Microenvironment Pathway
7	IL1B	RELA	Tumor Microenvironment Pathway

Copyright©2023 GGA Corp. All rights reserved.

Predict molecule activity of IL1B

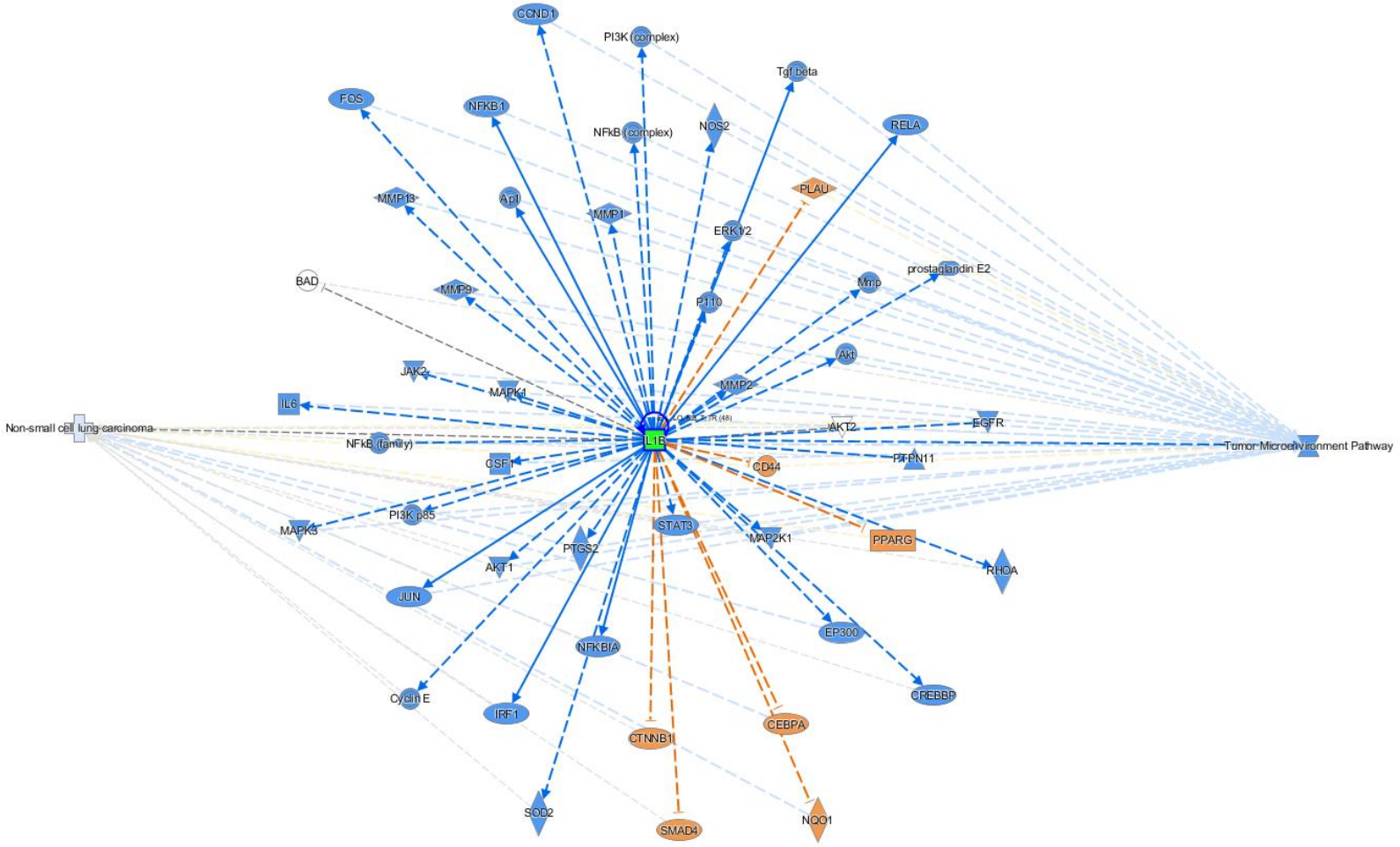
- MAP: IL1B Increased
- Lead to Tumor Microenvironment Pathway activation
- Correlation Non-small cell lung carcinoma activation



Copyright©2023 GGA Corp. All rights reserved.

Predict molecule activity of IL1B

- MAP: IL1B Decreased
- Lead to Tumor Microenvironment Pathway inhibition
- Correlation Non-small cell lung carcinoma inhibition



Copyright©2023 GGA Corp. All rights reserved.

Live Demo

Data Upload

Copyright©2023 GGA Corp. All rights reserved.

Data Upload Workflow

- ID、Observation
- Annotated Dataset

Dataset Preparation

- Create Core Analysis
  - Expression type
  - Measurement type
- Create Expression Analysis
  - Criteria
  - Cutoffs

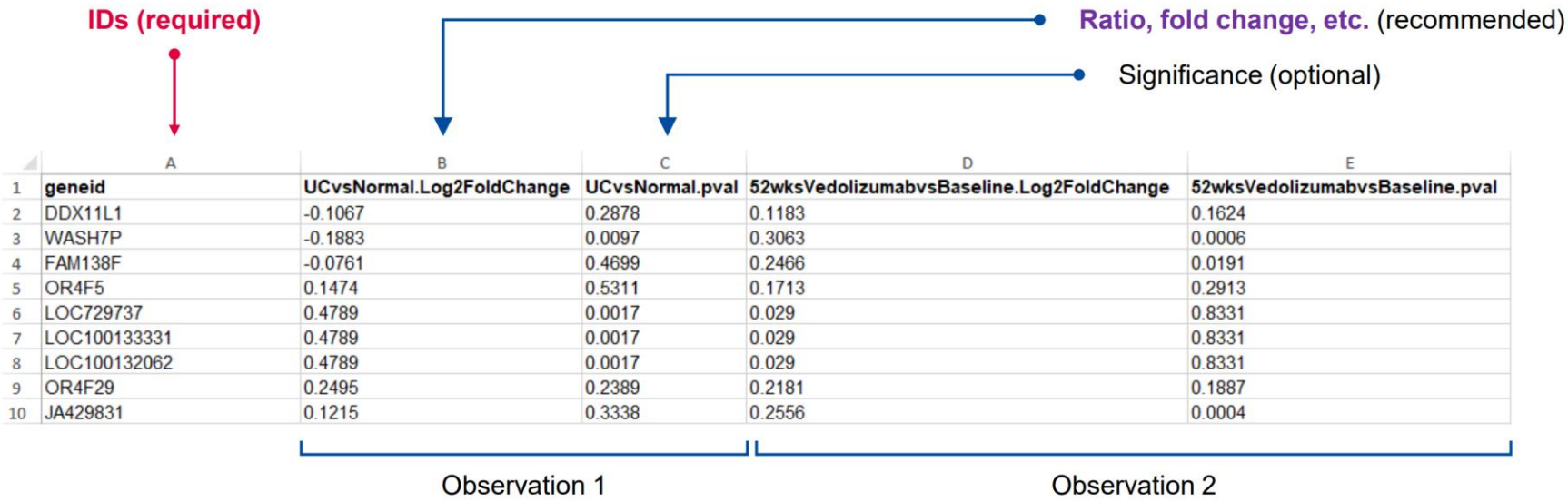
Analyze Dataset

- Summary
- Diseases/Disorders
- Canonical Pathways
- Upstream regulators
- Interaction Network

Expression Analysis

Copyright©2023 GGA Corp. All rights reserved.

Formatting transcriptomics data before uploading to IPA



	A	B	C	D	E
1	**geneid**	**UCvsNormal.Log2FoldChange**	**UCvsNormal.pval**	**52wksVedolizumabvsBaseline.Log2FoldChange**	**52wksVedolizumabvsBaseline.pval**
2	DDX11L1	-0.1067	0.2878	0.1183	0.1624
3	WASH7P	-0.1883	0.0097	0.3063	0.0006
4	FAM138F	-0.0761	0.4699	0.2466	0.0191
5	OR4F5	0.1474	0.5311	0.1713	0.2913
6	LOC729737	0.4789	0.0017	0.029	0.8331
7	LOC100133331	0.4789	0.0017	0.029	0.8331
8	LOC100132062	0.4789	0.0017	0.029	0.8331
9	OR4F29	0.2495	0.2389	0.2181	0.1887
10	JA429831	0.1215	0.3338	0.2556	0.0004

Common identifier types

- Arrays from Affymetrix, Illumina, etc.
- Gene symbols (Entrez or HUGO)
- Ensembl, RefSeq, UCSC, etc.

Accepted file formats

- .txt (tab-delimited text files)
- .xls, .xlsx, .csv (Excel tables)
- .diff (Cuffdiff output)

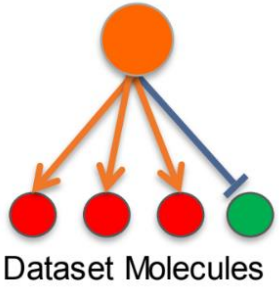
IDs are the only **required** column

Change measurements are needed for IPA to make activity predictions

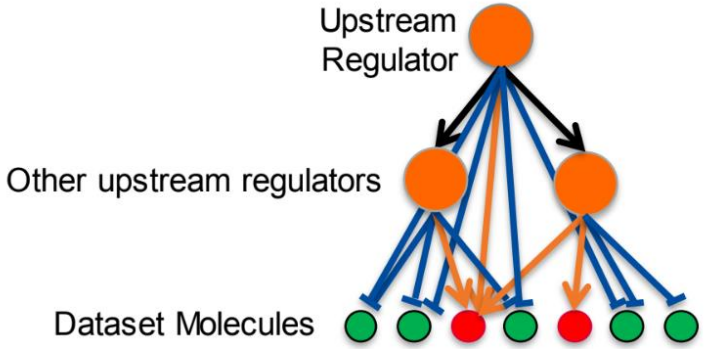
Copyright©2023 GGA Corp. All rights reserved.

Network types in IPA Core Analysis

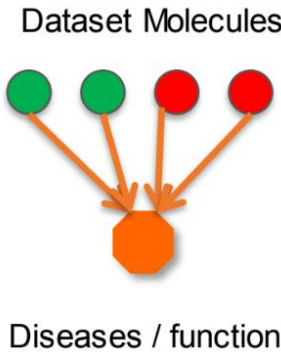
Upstream Analysis



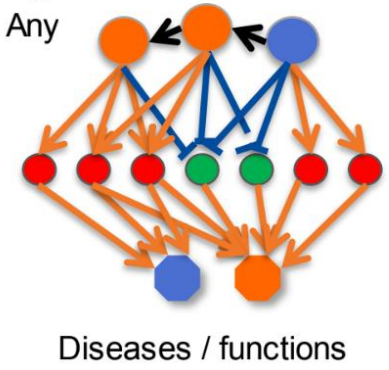
Mechanistic Network of Upstream Regulators



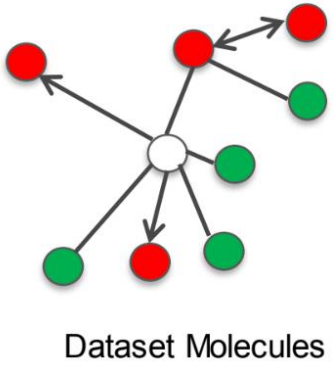
Function Analysis



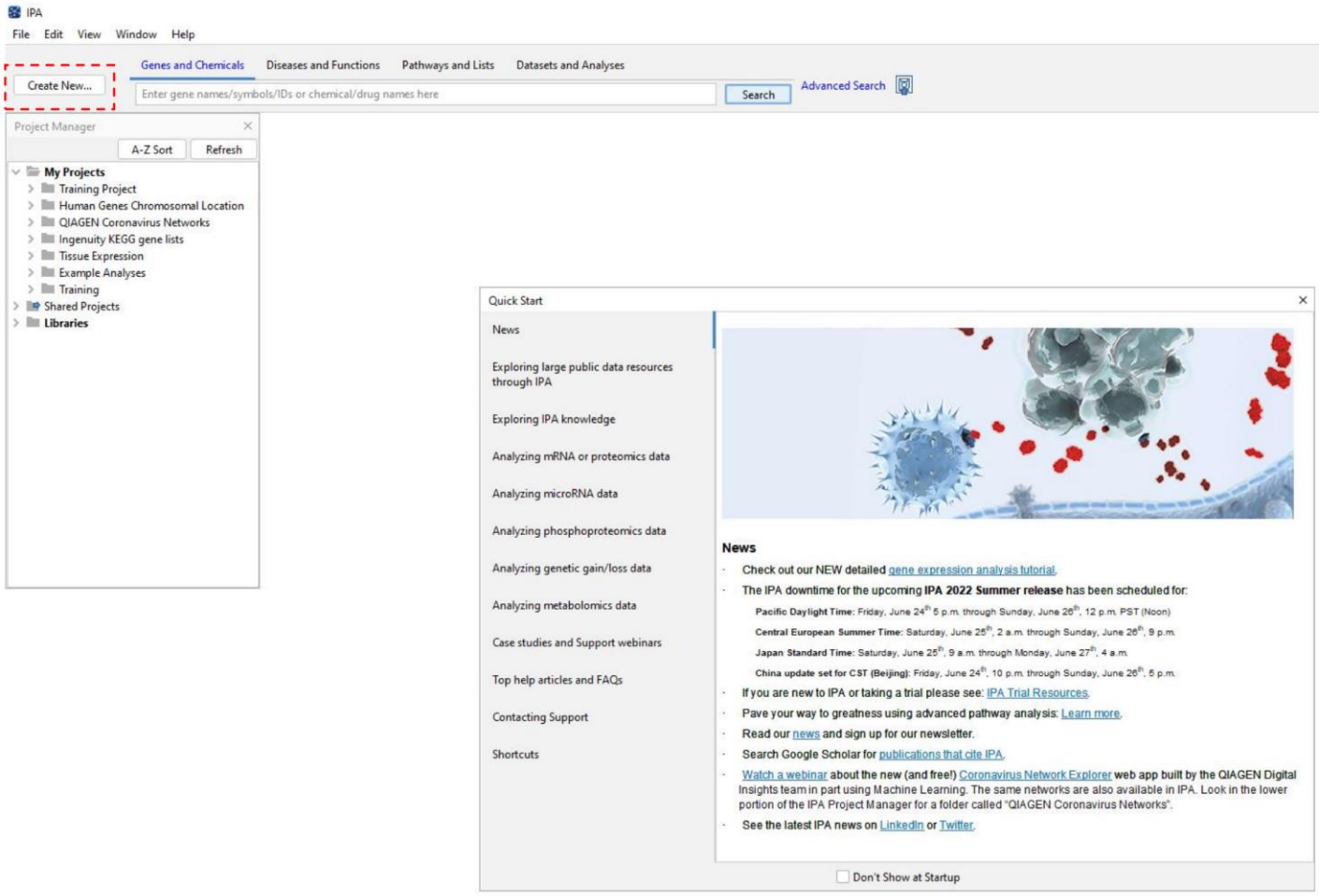
Regulator Effect Network



Interaction Network

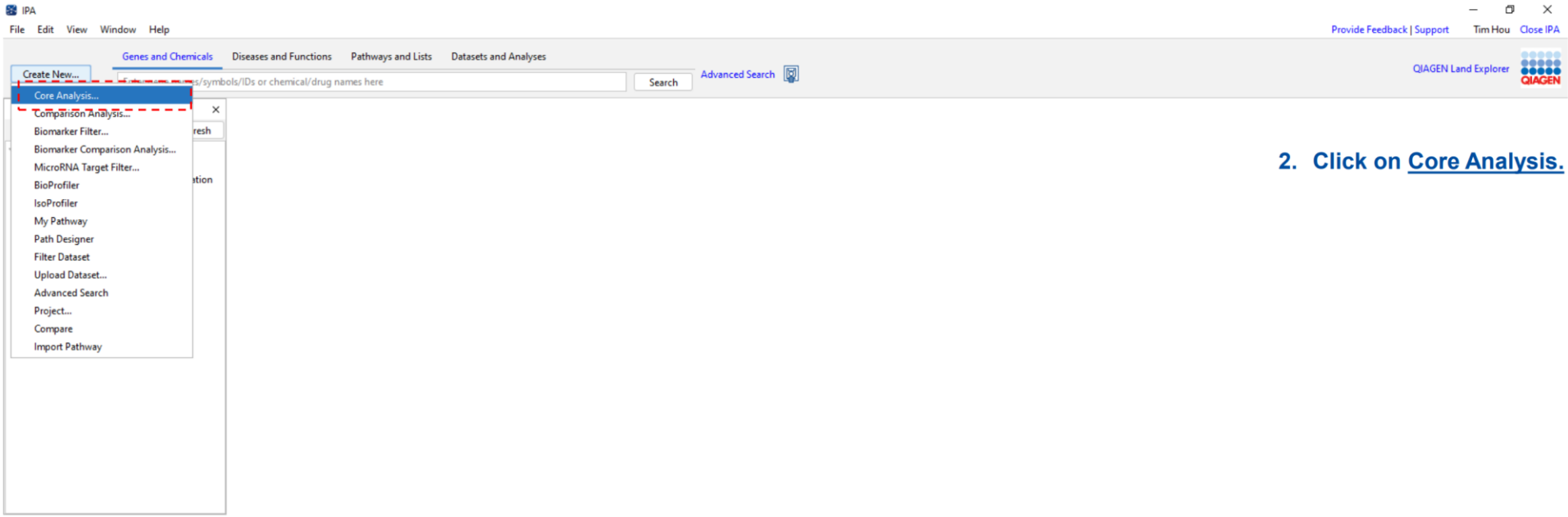


Copyright©2023 GGA Corp. All rights reserved.



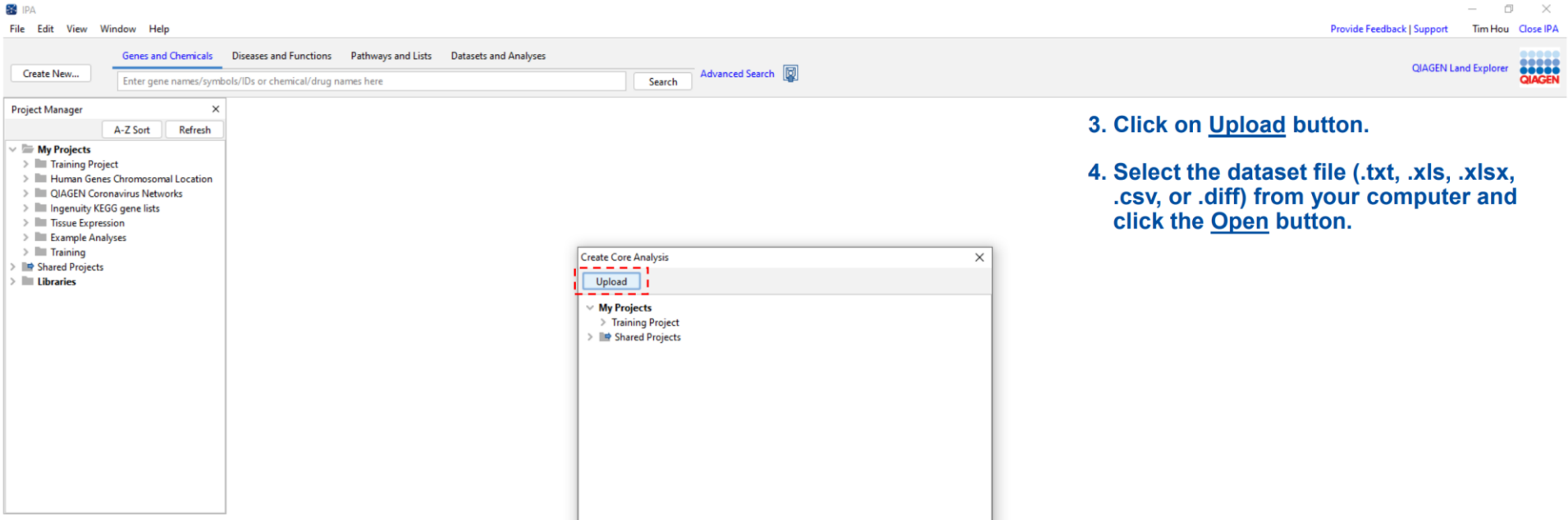
1. Click on Create New.

Copyright©2023 GGA Corp. All rights reserved.



2. Click on Core Analysis.

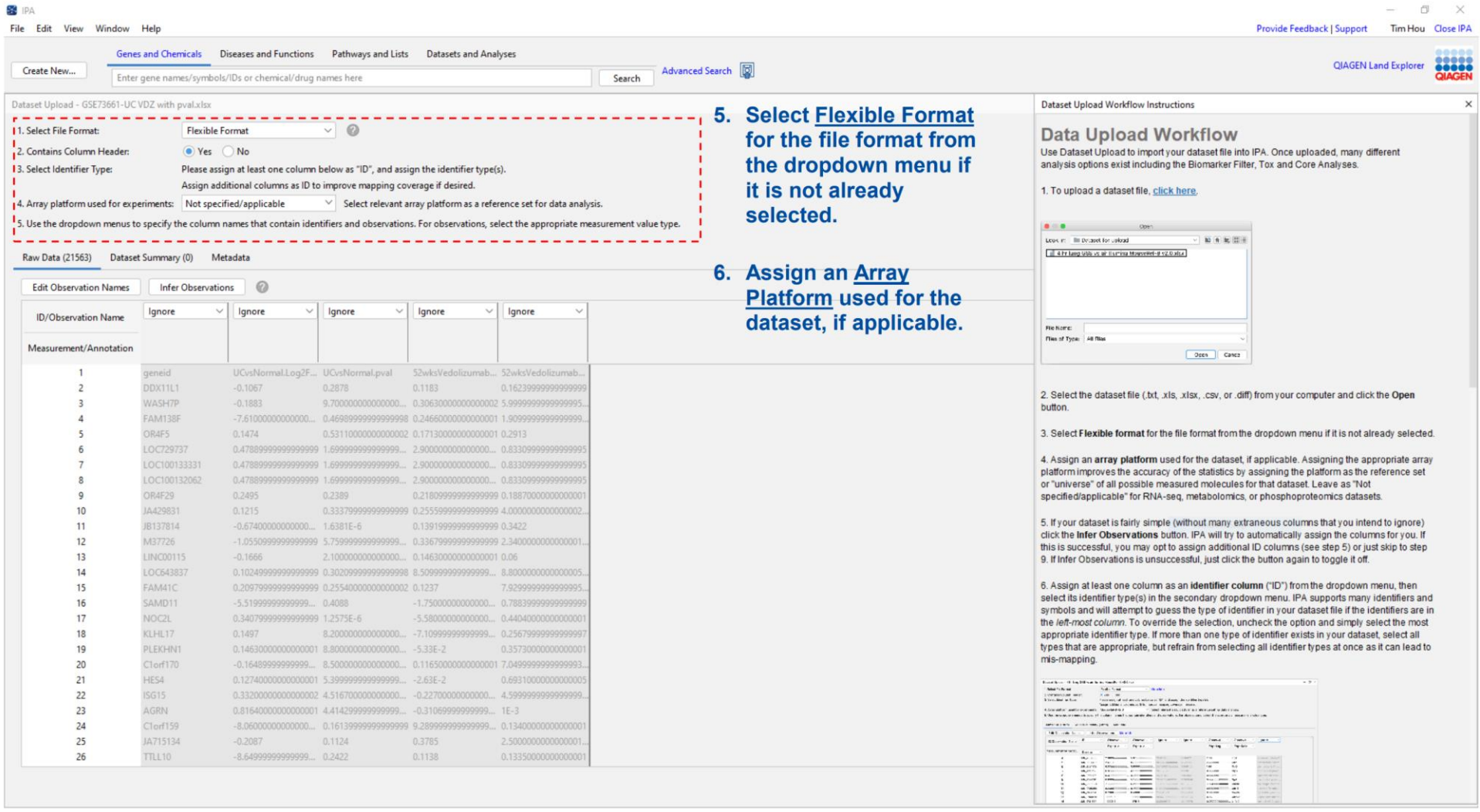
Copyright©2023 GGA Corp. All rights reserved.



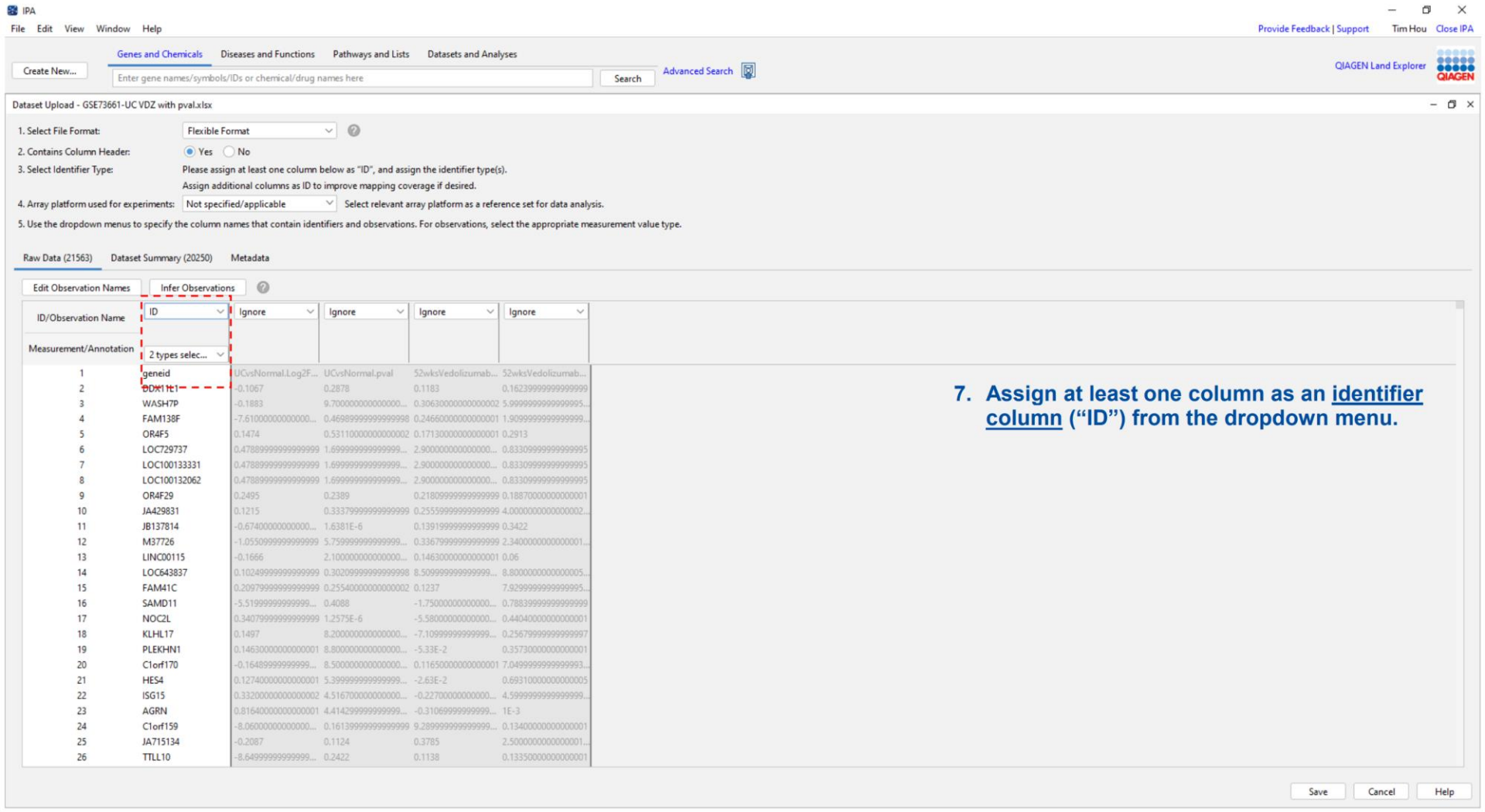
3. Click on Upload button.

4. Select the dataset file (.txt, .xls, .xlsx, .csv, or .diff) from your computer and click the Open button.

Copyright©2023 GGA Corp. All rights reserved.

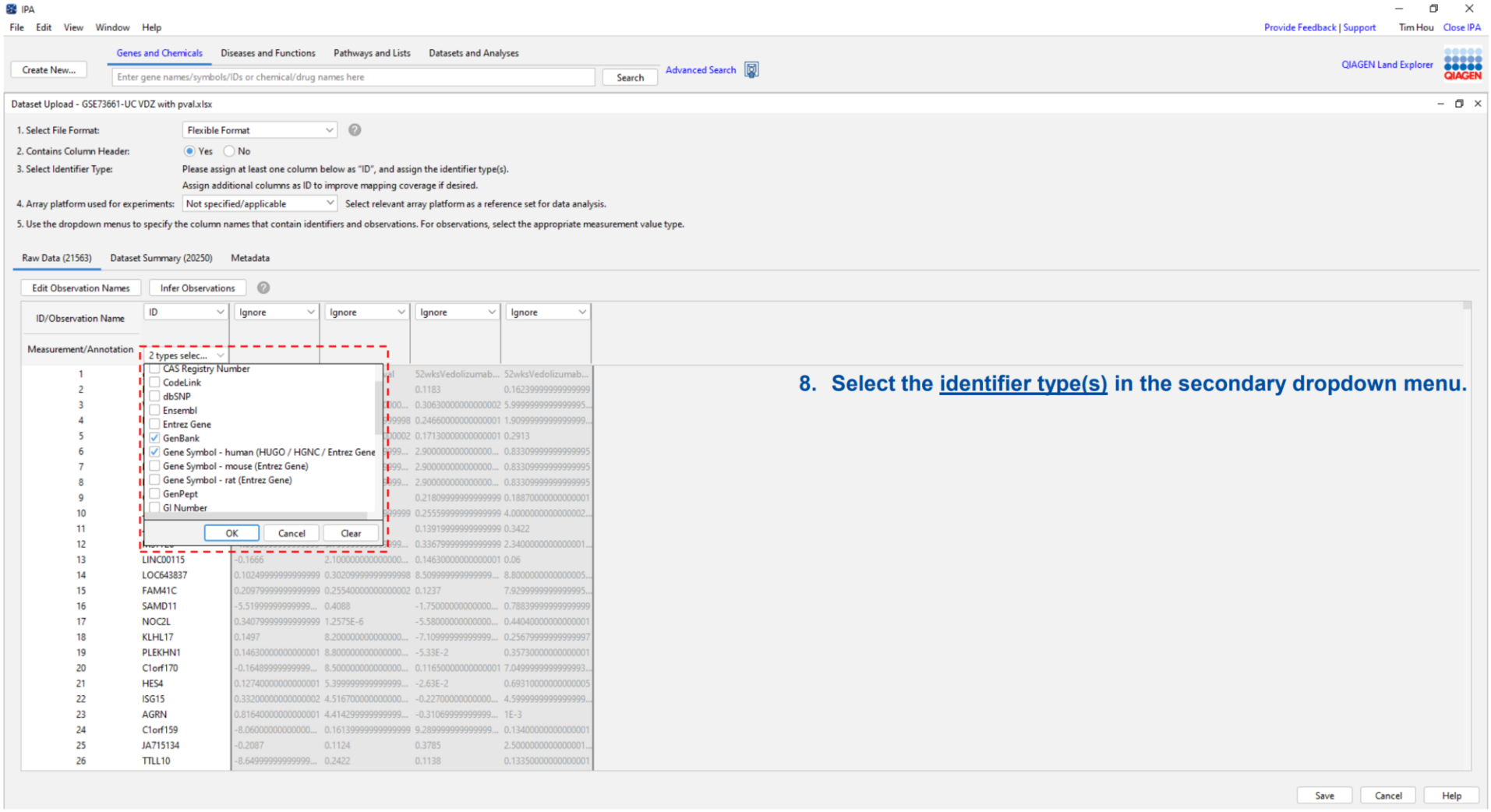


Copyright©2023 GGA Corp. All rights reserved.



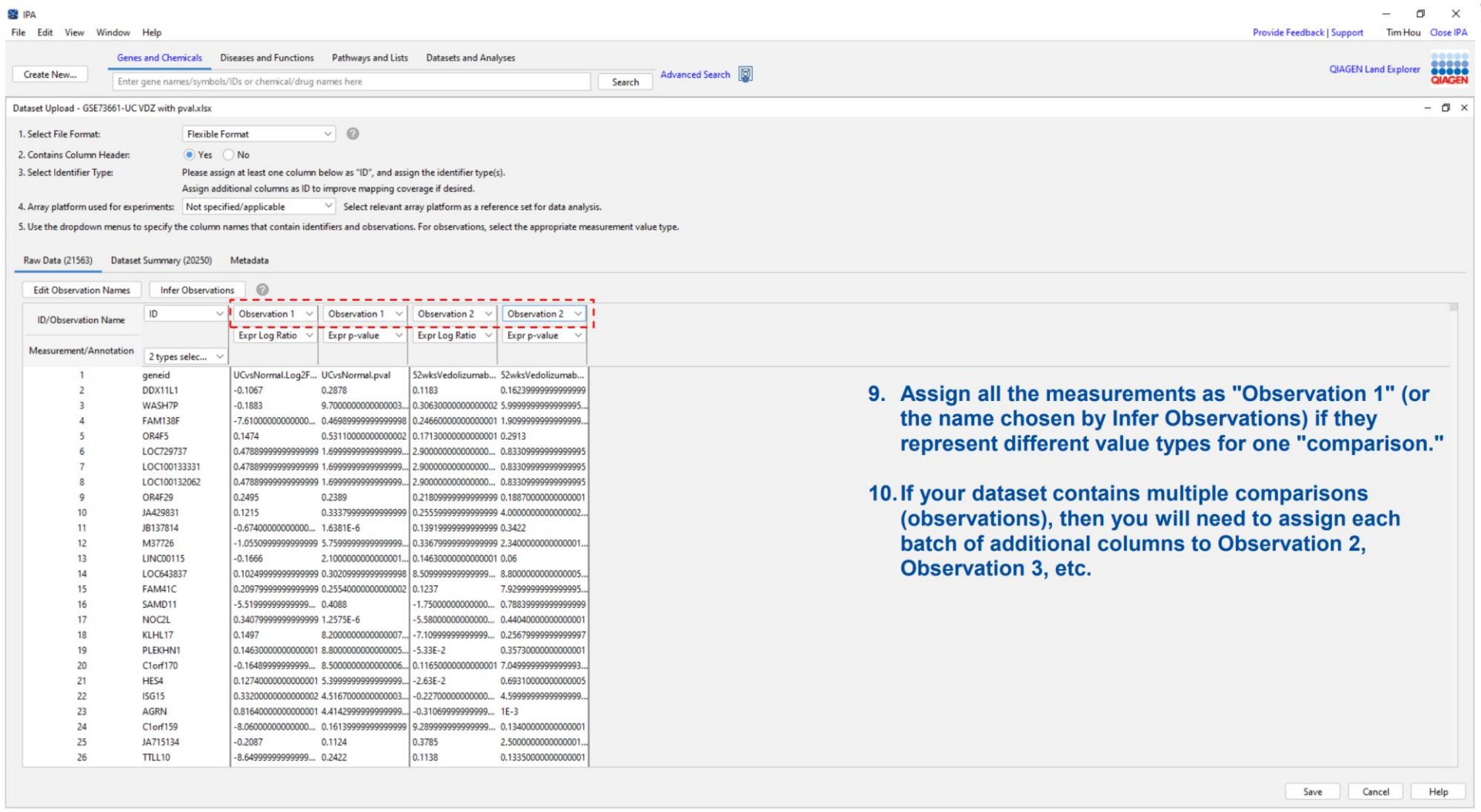
7. **Assign at least one column as an identifier column ("ID") from the dropdown menu.**

Copyright©2023 GGA Corp. All rights reserved.



8. Select the identifier type(s) in the secondary dropdown menu.

Copyright©2023 GGA Corp. All rights reserved.

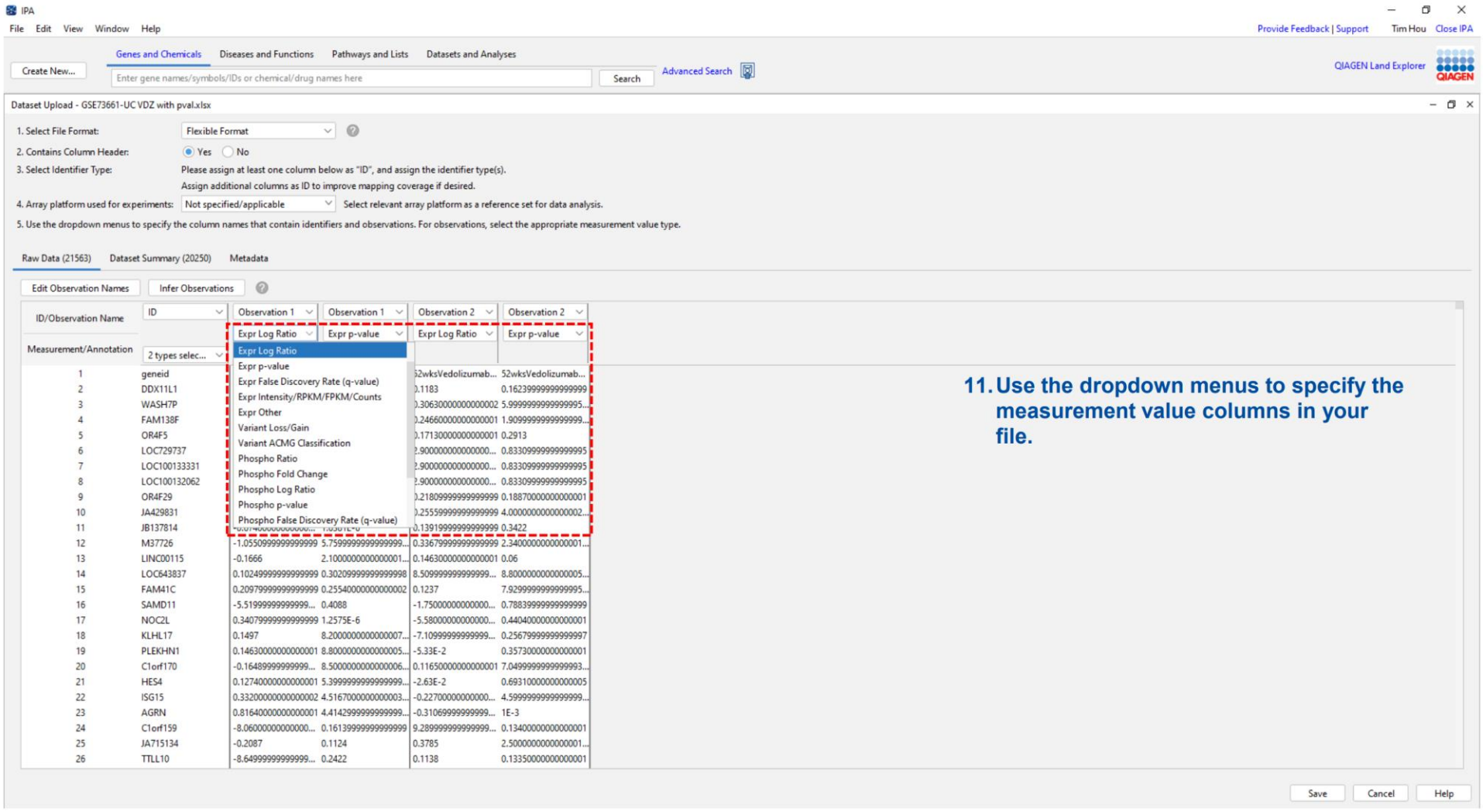


	ID/Observation Name	ID	Observation 1	Observation 1	Observation 2	Observation 2
	Measurement/Annotation	2 types selec...	Expr Log Ratio	Expr p-value	Expr Log Ratio	Expr p-value
1	geneid	UCvsNormal.Log2F...	UCvsNormal.pval	52wksVedolizumab...	52wksVedolizumab...	
2	DDX11L1	-0.1067	0.2878	0.1183	0.162399999999999	
3	WASH7P	-0.1883	9.7000000000000003...	0.306300000000000002	5.99999999999999...	
4	FAM138F	-7.610000000000000...	0.469899999999999998	0.246600000000000001	1.90999999999999...	
5	OR4F5	0.1474	0.531100000000000002	0.171300000000000001	0.2913	
6	LOC729737	0.478899999999999999	1.699999999999999...	2.900000000000000...	0.833099999999999995	
7	LOC100133331	0.478899999999999999	1.699999999999999...	2.900000000000000...	0.833099999999999995	
8	LOC100132062	0.478899999999999999	1.699999999999999...	2.900000000000000...	0.833099999999999995	
9	OR4F29	0.2495	0.2389	0.218099999999999999	0.188700000000000001	
10	JA429831	0.1215	0.333799999999999999	0.255599999999999999	4.000000000000002...	
11	JB137814	-0.674000000000000...	1.6381E-6	0.139199999999999999	0.3422	
12	M37726	-1.055099999999999999	5.759999999999999...	0.336799999999999999	2.340000000000001...	
13	LINC00115	-0.1666	2.100000000000001...	0.146300000000000001	0.06	
14	LOC643837	0.102499999999999999	0.302099999999999998	8.509999999999999...	8.800000000000005...	
15	FAM41C	0.209799999999999999	0.255400000000000002	0.1237	7.929999999999995...	
16	SAMD11	-5.519999999999999...	0.4088	-1.750000000000000...	0.788399999999999999	
17	NOC2L	0.340799999999999999	1.2575E-6	-5.580000000000000...	0.440400000000000001	
18	KLHL17	0.1497	8.200000000000007...	-7.109999999999999...	0.256799999999999997	
19	PLEKHN1	0.146300000000000001	8.800000000000005...	-5.33E-2	0.357300000000000001	
20	C1orf170	-0.164899999999999...	8.500000000000006...	0.116500000000000001	7.049999999999993...	
21	HES4	0.127400000000000001	5.399999999999999...	-2.63E-2	0.693100000000000005	
22	ISG15	0.332000000000000002	4.516700000000003...	-0.227000000000000...	4.599999999999999...	
23	AGRN	0.816400000000000001	4.414299999999999...	-0.310699999999999...	1E-3	
24	C1orf159	-8.060000000000000...	0.161399999999999999	9.289999999999999...	0.134000000000000001	
25	JA715134	-0.2087	0.1124	0.3785	2.500000000000001...	
26	TTLL10	-8.649999999999999...	0.2422	0.1138	0.133500000000000001	

9. **Assign all the measurements as "Observation 1" (or the name chosen by Infer Observations) if they represent different value types for one "comparison."**

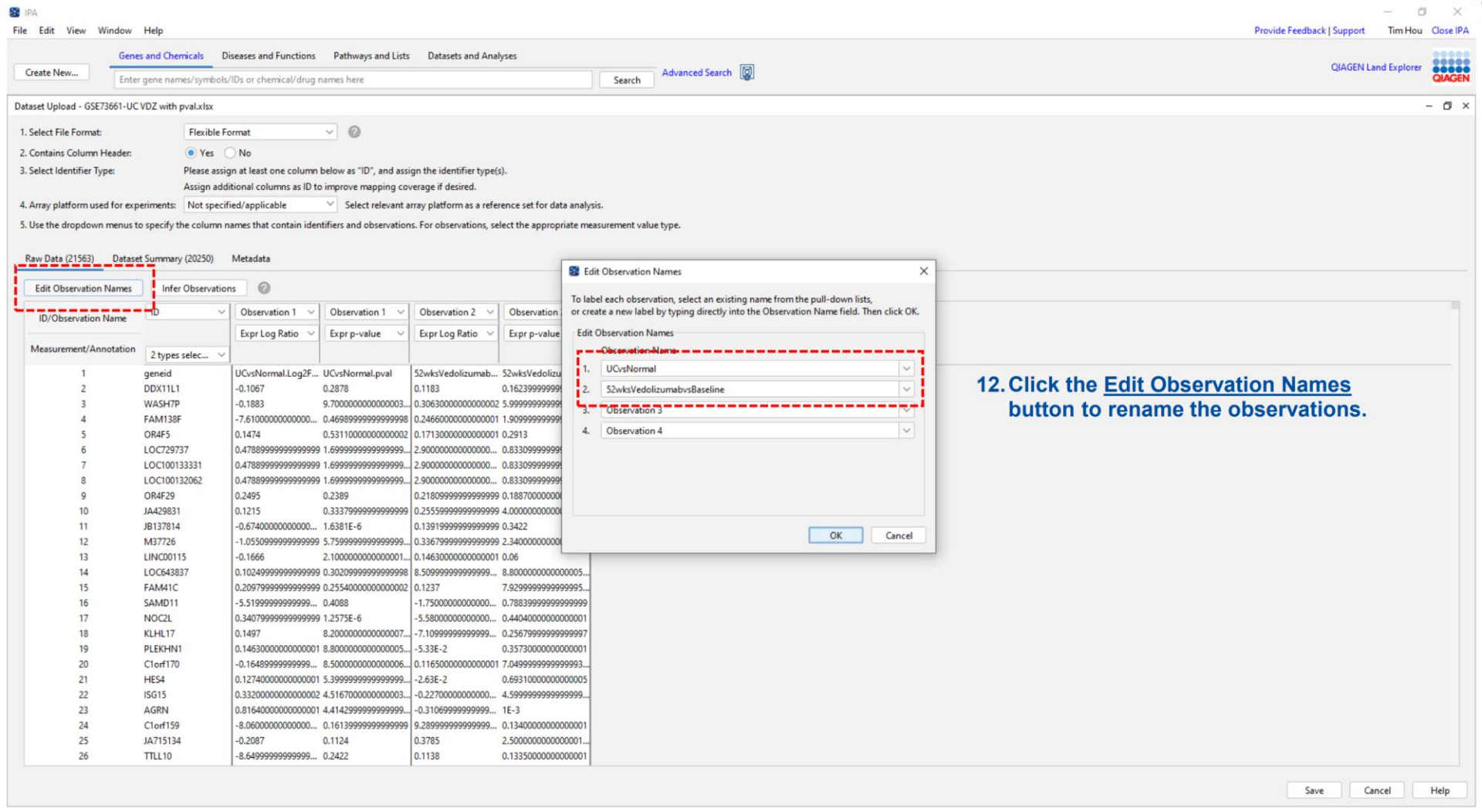
10. **If your dataset contains multiple comparisons (observations), then you will need to assign each batch of additional columns to Observation 2, Observation 3, etc.**

Copyright©2023 GGA Corp. All rights reserved.



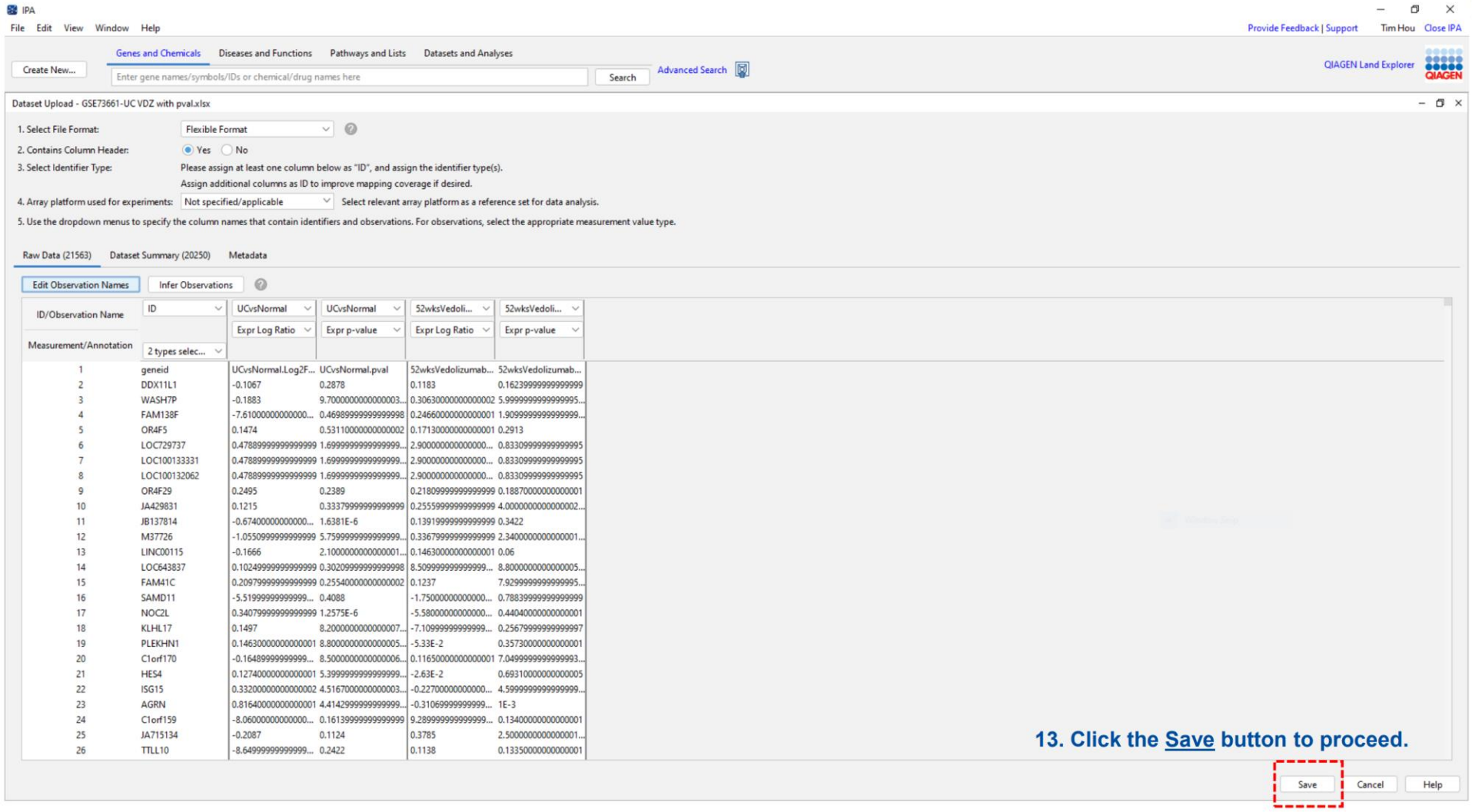
11. Use the dropdown menus to specify the measurement value columns in your file.

Copyright©2023 GGA Corp. All rights reserved.

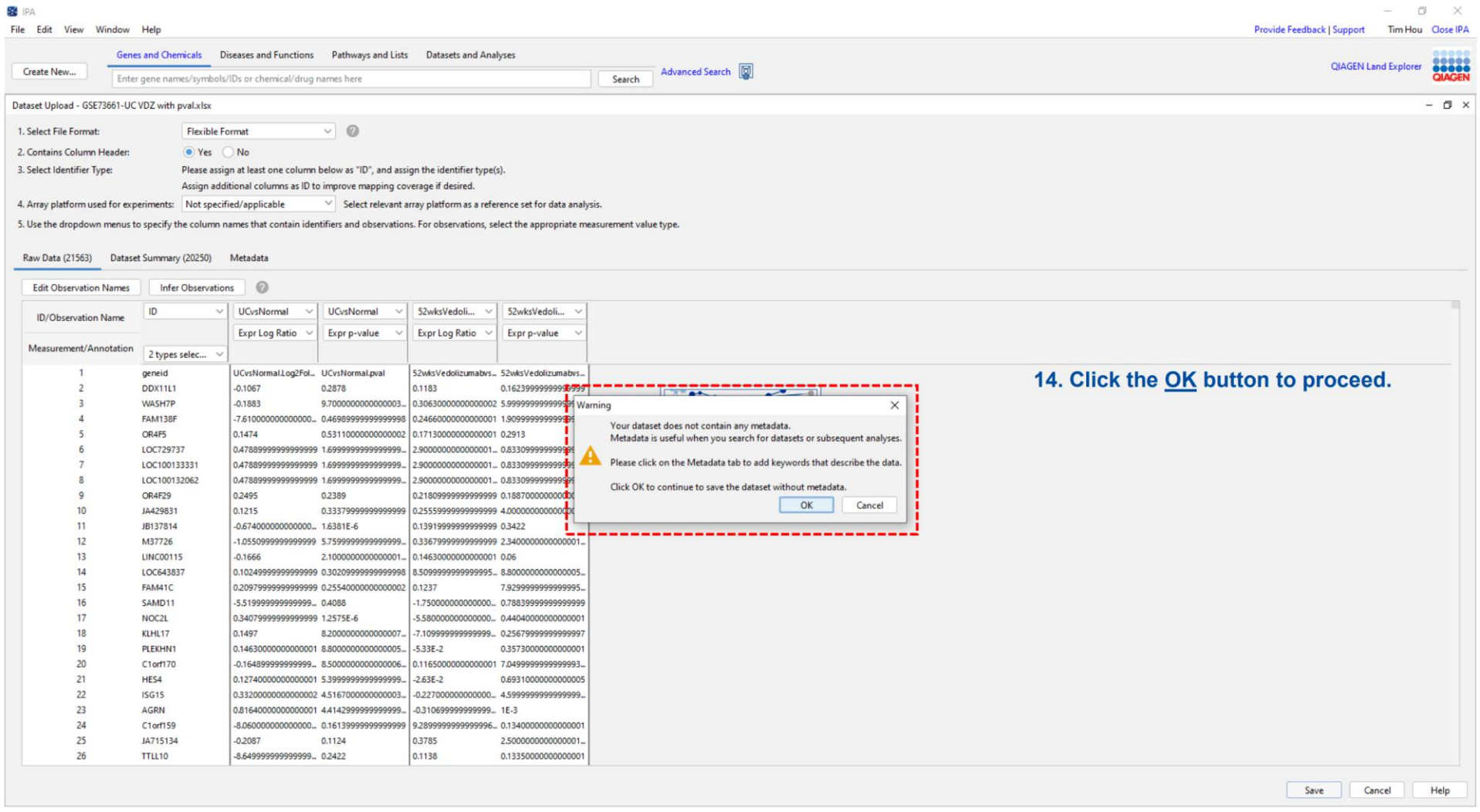


12. Click the Edit Observation Names button to rename the observations.

Copyright©2023 GGA Corp. All rights reserved.



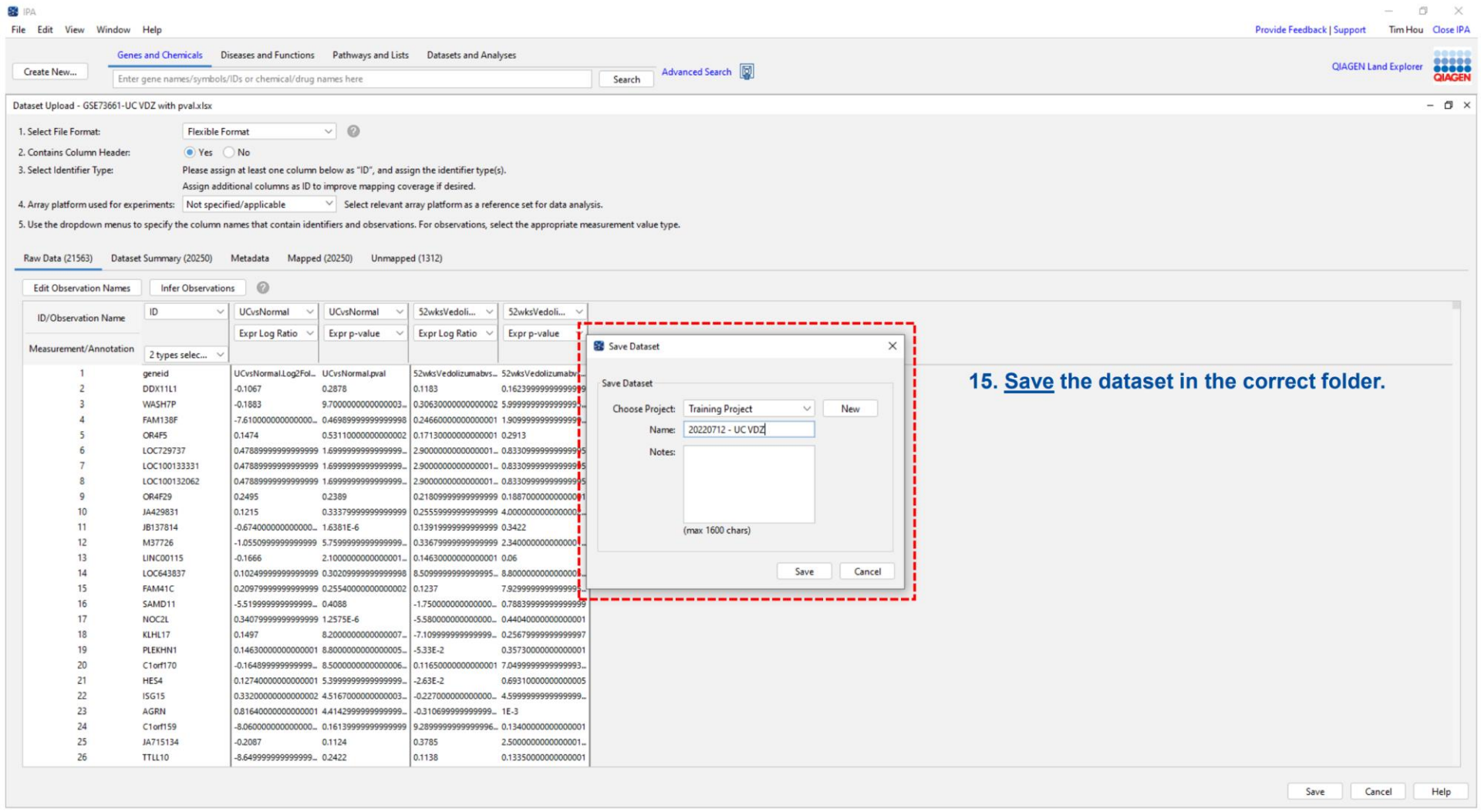
Copyright©2023 GGA Corp. All rights reserved.



14. Click the OK button to proceed.

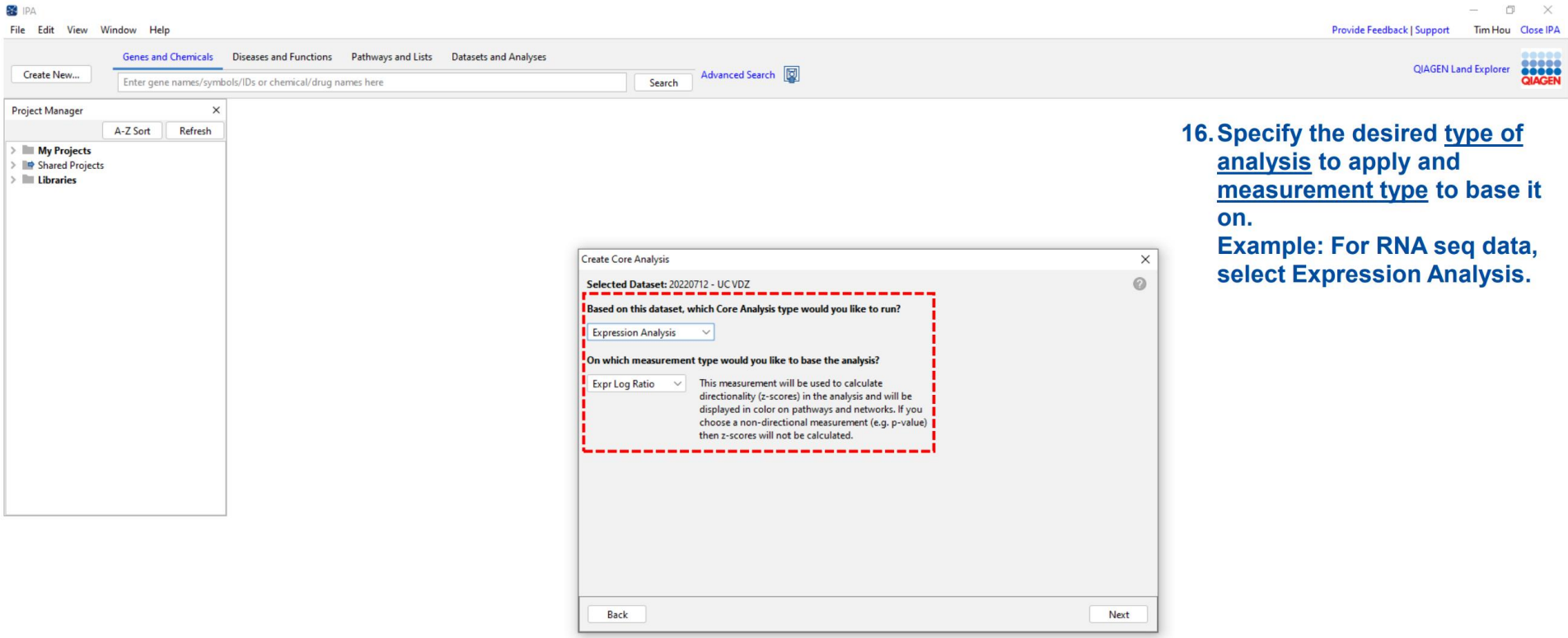
Sample to Insight

Copyright©2023 GGA Corp. All rights reserved.



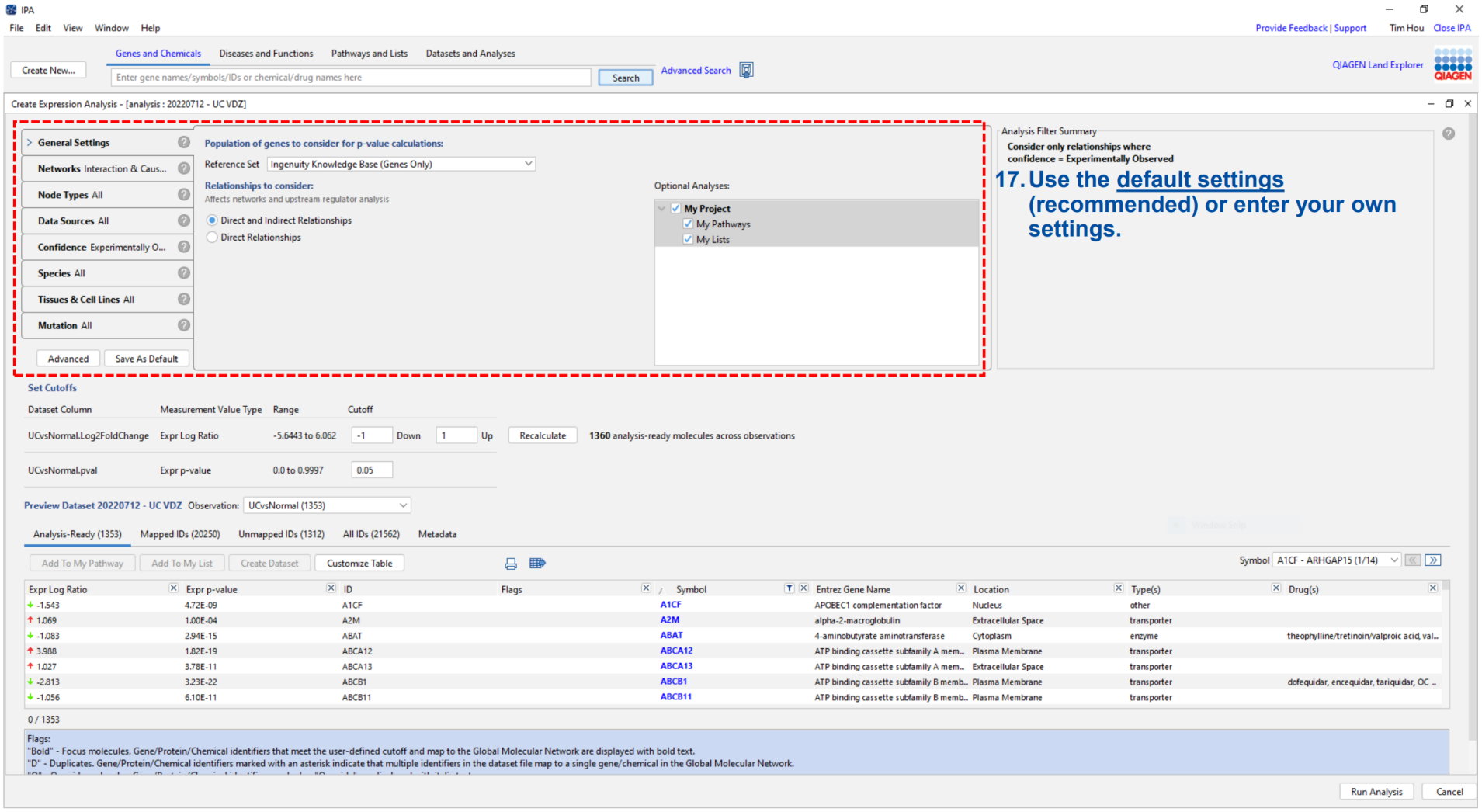
	geneid	UCvsNormal.Log2Fol...	UCvsNormal.pval	52wksVedolizumabvs...	52wksVedolizumaby...
1					
2	DDX11L1	-0.1067	0.2878	0.1183	
3	WASH7P	-0.1883	9.7000000000000003...	0.30630000000000002	
4	FAM138F	-7.6100000000000000...	0.46989999999999998	0.24660000000000001	
5	OR4F5	0.1474	0.53110000000000002	0.17130000000000001	0.2913
6	LOC729737	0.47889999999999999	1.6999999999999999...	2.9000000000000001...	0.83309999999999995
7	LOC100133331	0.47889999999999999	1.6999999999999999...	2.9000000000000001...	0.83309999999999995
8	LOC100132062	0.47889999999999999	1.6999999999999999...	2.9000000000000001...	0.83309999999999995
9	OR4F29	0.2495	0.2389	0.21809999999999999	0.18870000000000001
10	JA429831	0.1215	0.33379999999999999	0.25559999999999999	4.0000000000000002...
11	JB137814	-0.67400000000000000...	1.6381E-6	0.13919999999999999	0.3422
12	M37726	-1.0550999999999999	5.7599999999999999...	0.33679999999999999	2.3400000000000001...
13	LINC00115	-0.1666	2.1000000000000001...	0.14630000000000001	0.06
14	LOC643837	0.10249999999999999	0.30209999999999998	8.5099999999999995...	8.8000000000000001...
15	FAM41C	0.20979999999999999	0.25540000000000002	0.1237	7.9299999999999995...
16	SAMD11	-5.5199999999999999...	0.4088	-1.7500000000000000...	0.78839999999999999
17	NOC2L	0.34079999999999999	1.2575E-6	-5.5800000000000000...	0.44040000000000001
18	KLHL17	0.1497	8.2000000000000007...	-7.1099999999999999...	0.25679999999999997
19	PLEKHN1	0.14630000000000001	8.8000000000000005...	-5.33E-2	0.35730000000000001
20	C1orf170	-0.16489999999999999...	8.5000000000000006...	0.11650000000000001	7.0499999999999993...
21	HES4	0.12740000000000001	5.3999999999999999...	-2.63E-2	0.69310000000000005
22	ISG15	0.33200000000000002	4.5167000000000003...	-0.22700000000000000...	4.5999999999999999...
23	AGRN	0.81640000000000001	4.4142999999999999...	-0.31069999999999999...	1E-3
24	C1orf159	-8.0600000000000000...	0.16139999999999999	9.2899999999999996...	0.13400000000000001
25	JA715134	-0.2087	0.1124	0.3785	2.5000000000000001...
26	TTLL10	-8.6499999999999999...	0.2422	0.1138	0.13350000000000001

Copyright©2023 GGA Corp. All rights reserved.

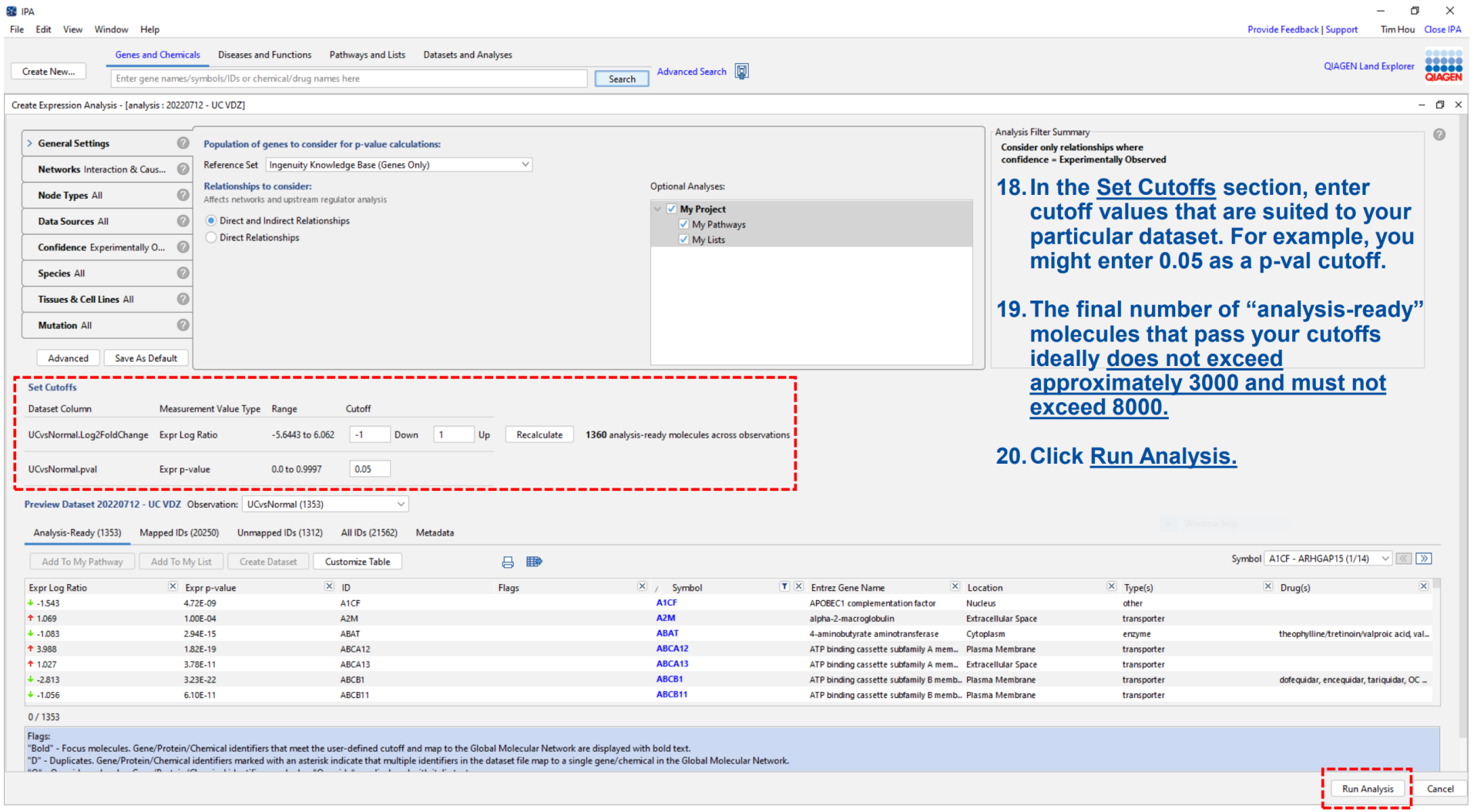


16. Specify the desired type of analysis to apply and measurement type to base it on.
    Example: For RNA seq data, select Expression Analysis.

Copyright©2023 GGA Corp. All rights reserved.



Copyright©2023 GGA Corp. All rights reserved.

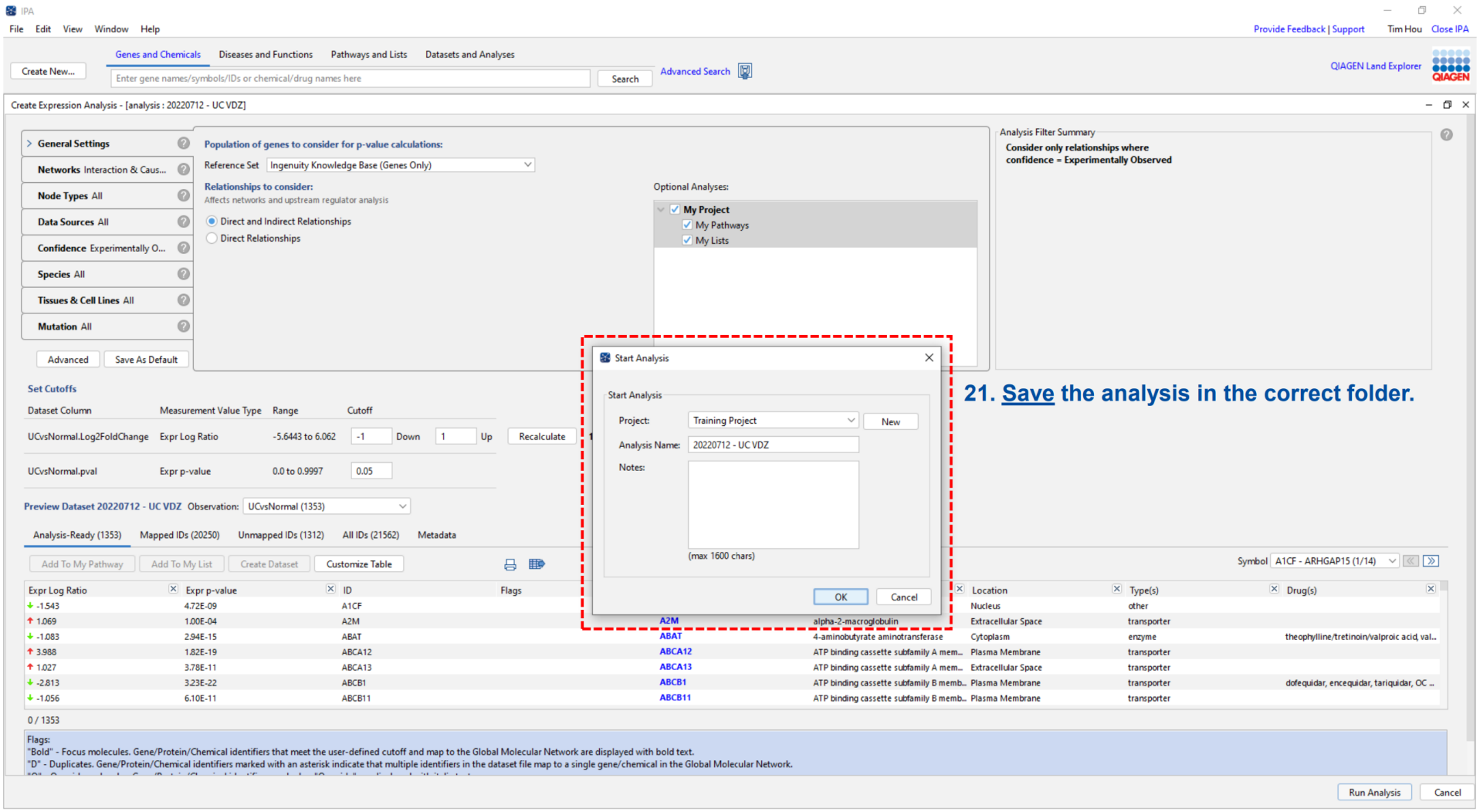


18. In the Set Cutoffs section, enter cutoff values that are suited to your particular dataset. For example, you might enter 0.05 as a p-val cutoff.

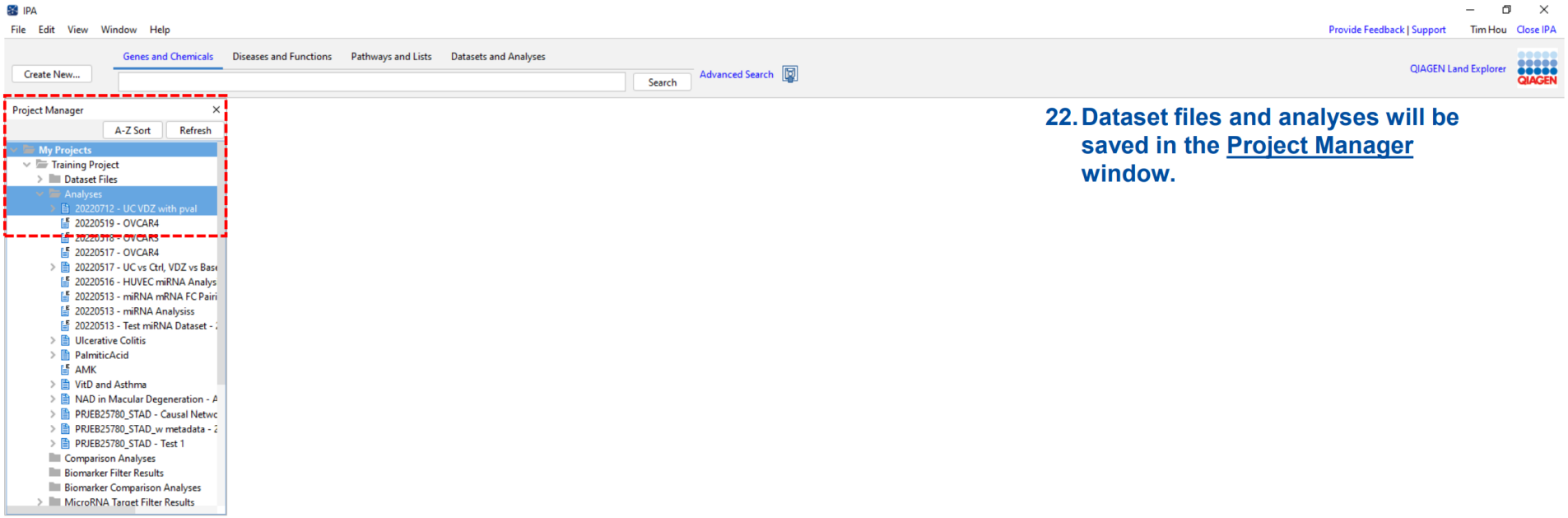
19. The final number of "analysis-ready" molecules that pass your cutoffs ideally does not exceed approximately 3000 and must not exceed 8000.

20. Click Run Analysis.

Copyright©2023 GGA Corp. All rights reserved.

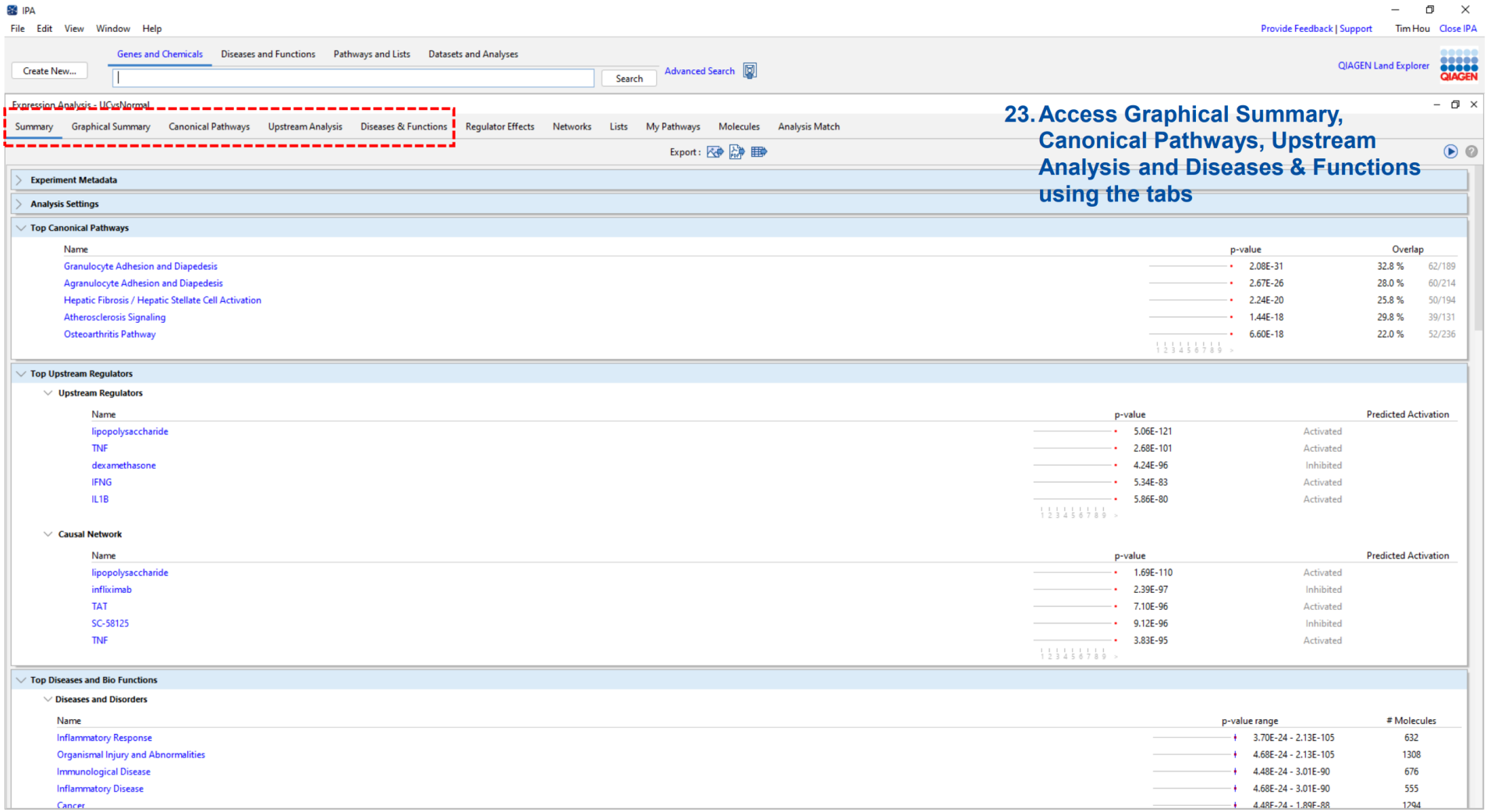


Copyright©2023 GGA Corp. All rights reserved.



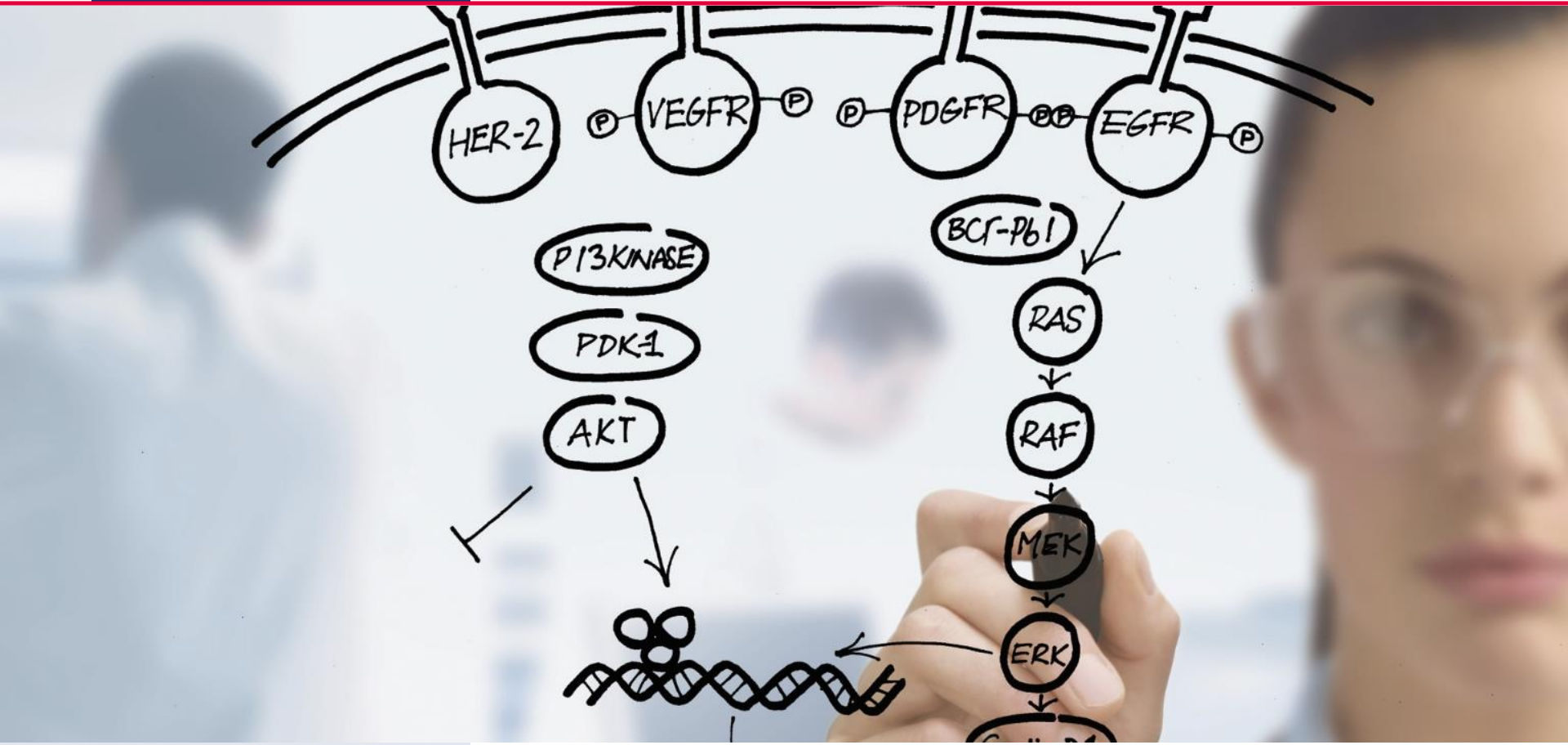
22. **Dataset files and analyses will be saved in the Project Manager window.**

Copyright©2023 GGA Corp. All rights reserved.



23. Access Graphical Summary, Canonical Pathways, Upstream Analysis and Diseases & Functions using the tabs

Copyright©2023 GGA Corp. All rights reserved.



歡迎與我們聯絡

創源生技 GGA

Office: +886-2-2795-1777#3024

Fax: +886-2-2793-8009 EXT 1022

My E-mail: ZoeHuang@gga.asia

MSC Support: **msc-support@gga.asia**