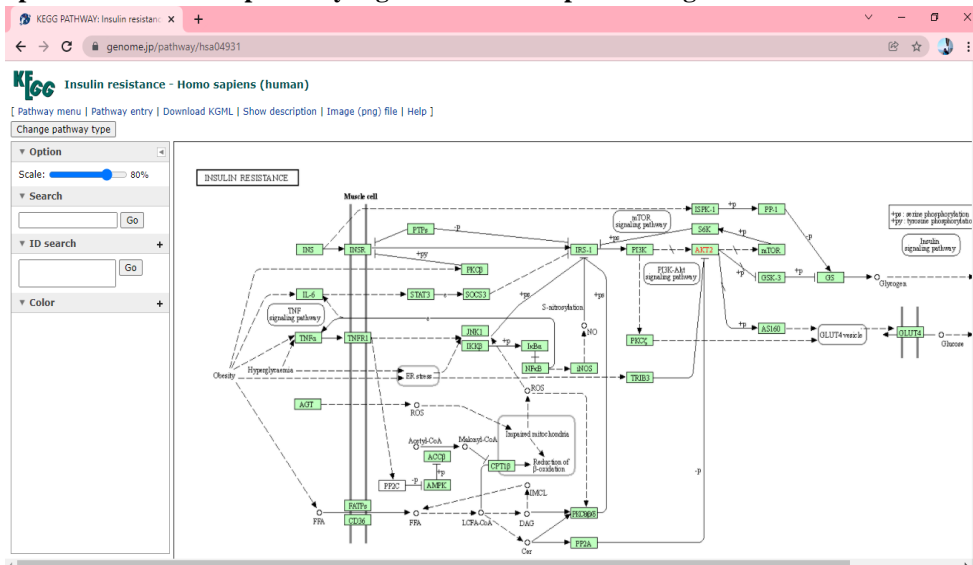


## **LAMPIRAN**

## Lampiran 1 Identifikasi protein yang terlibat dalam patofisiologi DM



## Lampiran 2 Validasi nama gen

UniProtKB 2021\_04 results

UniProtKB consists of two sections:

- Reviewed (Swiss-Prot) - Manually annotated**: Records with information extracted from literature and curator-evaluated computational analysis.
- Unreviewed (TrEMBL) - Computationally analyzed**: Records that await full manual annotation.

The UniProt knowledgebase (UniProtKB) is the central hub for the collection of functional information on proteins, with accurate, consistent and rich annotation. In addition to capturing the core data mandatory for each UniProtKB entry (mainly, the amino acid sequence, protein name or description, taxonomic data and citation information), as much annotation information as possible is added.

Filter by:

- Reviewed (1,093) Swiss-Prot
- Unreviewed (45,612) TrEMBL
- Popular organisms: Human (353), Mouse (90), C. elegans (80), Rat (79), A. thaliana (69)

Entry	Entry name	Protein names	Gene names	Organism	Length
P01326	INS2_MOUSE	<b>Insulin-2</b> [Cleaved into: <b>Insulin-2 B chain</b> ; <b>Insulin-2 A chain</b> ]	Ins2	Mus musculus (Mouse)	110
P01323	INS2_RAT	<b>Insulin-2</b> [Cleaved into: <b>Insulin-2 B chain</b> ; <b>Insulin-2 A chain</b> ]	Ins2	Rattus norvegicus (Rat)	110
A04085AC95	INS1A_CONGE	<b>Con-Ins G1a</b> (Insulin 1) [Cleaved into: <b>Con-Ins G1 B chain</b> ; <b>Con-Ins G1a A chain</b> ]		Conus geographus (Geography cone) (Nubecula geographus)	115
Q13572	ITPK1_HUMAN	<b>Inositol-tetrakisphosphate 1-kinase, EC 2.7.1.134</b> (Inositol 1,3,4-trisphosphate 5/6-kinase, Inositol-trisphosphate 5/6-kinase, Ins(1,3,4)P(3) 5/6-kinase, EC 2.7.1.159)	ITPK1	Homo sapiens (Human)	414
Q84Y01	ITPK1_MAIZE	<b>Inositol-tetrakisphosphate 1-kinase 1, EC 2.7.1.134</b> (Inositol 1,3,4-trisphosphate 5/6-kinase 1, Inositol-trisphosphate 5/6-kinase 1, Ins(1,3,4)P(3) 5/6-kinase 1, EC 2.7.1.150) (1 nu nhvhr arid nntnain 1) (2mtmk)	ITPK1 LPA2	Zea mays (Maize)	342

Insulin

Insr in UniProtKB

uniprot.org/uniprot/?query=INSR&sort=score

UniProtKB

UniProtKB 2021\_04 results

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Filter by:

Entry	Entry name	Protein names	Gene names	Organism	Length
Q9PVZ4	INSR_XENLA	Insulin receptor, IR, EC 2.7.10.1 (XTC-1b) (Xe-InsR) [Cleaved into: Insulin receptor subunit alpha; Insulin receptor subunit beta]	Insr	Xenopus laevis (African clawed frog)	1,362
P06213	INSR_HUMAN	Insulin receptor, IR, EC 2.7.10.1 (CD antigen CD220) [Cleaved into: Insulin receptor subunit alpha; Insulin receptor subunit beta]	INSR	Homo sapiens (Human)	1,382
P15208	INSR_MOUSE	Insulin receptor, IR, EC 2.7.10.1 (CD antigen CD220) [Cleaved into: Insulin receptor subunit alpha; Insulin receptor subunit beta]	Insr	Mus musculus (Mouse)	1,372
P15127	INSR_RAT	Insulin receptor, IR, EC 2.7.10.1 (CD antigen CD220) [Cleaved into: Insulin receptor subunit alpha; Insulin receptor subunit beta]	Insr	Rattus norvegicus (Rat)	1,383
TZCB11	TZCB11_RAT	Tyrosine-protein kinase receptor, EC 2.7.10.1	Insr (FG_59366)	Rattus norvegicus (Rat)	1,384

### Reseptor insulin

ptn11 in UniProtKB

uniprot.org/uniprot/?query=PTPN11&sort=score

UniProtKB

UniProtKB 2021\_04 results

UniProtKB consists of two sections:

- Reviewed (Swiss-Prot) - Manually annotated
- Unreviewed (TrEMBL) - Computationally analyzed

The UniProt Knowledgebase (UniProtKB) is the central hub for the collection of functional information on proteins, with accurate, consistent and rich annotation. In addition to capturing the core data mandatory for each UniProtKB entry (mainly, the amino acid sequence, protein name or description, taxonomic data and citation information), as much annotation information as possible is added.

Filter by:

Entry	Entry name	Protein names	Gene names	Organism	Length
Q06124	PTN11_HUMAN	Tyrosine-protein phosphatase non-receptor type 11, EC 3.1.3.48 (Protein-tyrosine phosphatase 1D, PTP-1D) (Protein-tyrosine phosphatase 2C, PTP-2C) (SH-PTP2, SHP-2, Shp2) (SH-PTP3)	PTPN11, PTP2C, SHPTP2	Homo sapiens (Human)	593
P35235	PTN11_MOUSE	Tyrosine-protein phosphatase non-receptor type 11, EC 3.1.3.48 (Protein-tyrosine phosphatase SHP) (SH-PTP2, SHP-2, Shp2)	Ptpn11	Mus musculus (Mouse)	593
P41499	PTN11_RAT	Tyrosine-protein phosphatase non-receptor type 11, EC 3.1.3.48 (Protein-tyrosine phosphatase 1D, PTP-1D) (Protein-tyrosine phosphatase SHP) (SH-PTP2, SHP-2, Shp2)	Ptpn11	Rattus norvegicus (Rat)	593
Q90687	PTN11_CHICK	Tyrosine-protein phosphatase non-receptor type 11, EC 3.1.3.48 (SH-PTP2, cSH-PTP2)	PTPN11	Gallus gallus (Chicken)	593
F1Q316	F1Q316_CANLF	Tyrosine-protein phosphatase non-receptor type, EC 3.1.3.48	PTPN11	Canis lupus familiaris (Dog) (Canis familiaris)	597

### Tyrosine-protein phosphatase non-receptor type 11

gys1 in UniProtKB

uniprot.org/uniprot/?query=GYS1&sort=score

UniProtKB

UniProtKB 2021\_04 results

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- Reviewed (Swiss-Prot) - Manually annotated
- Unreviewed (TrEMBL) - Computationally analyzed

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Filter by:

Entry	Entry name	Protein names	Gene names	Organism	Length
P13807	GYS1_HUMAN	Glycogen [starch] synthase, muscle, EC 2.4.1.11	GYS1 GYS	Homo sapiens (Human)	737
Q9Z1E4	GYS1_MOUSE	Glycogen [starch] synthase, muscle, EC 2.4.1.11	Gys1 Gys, Gys3	Mus musculus (Mouse)	738
P13834	GYS1_RABIT	Glycogen [starch] synthase, muscle, EC 2.4.1.11	GYS1 GYS	Oryctolagus cuniculus (Rabbit)	735
A2RRU1	GYS1_RAT	Glycogen [starch] synthase, muscle, EC 2.4.1.11	Gys1	Rattus norvegicus (Rat)	738
A7MB78	GYS1_BOVIN	Glycogen [starch] synthase, muscle, EC 2.4.1.11	GYS1	Bos taurus (Bovine)	736
Q8MJ26	GYS1_MACMU	Glycogen [starch] synthase, muscle, EC 2.4.1.11	GYS1 GYS	Macaca mulatta (Rhesus macaque)	737
Q5R9H0	GYS1_PONAB	Glycogen [starch] synthase, muscle, EC 2.4.1.11	GYS1	Pongo abelii (Sumatran)	737

### Glycogen [starch] synthase, muscle

gsk3b in UniProtKB

uniportal.org/uniportal/?query=GSK3B&sort=score

UniProtKB

UniProtKB consists of two sections:

- Reviewed (Swiss-Prot) - Manually annotated
- Unreviewed (TrEMBL) - Computationally analyzed

The UniProt Knowledgebase (UniProtKB) is the central hub for the collection of functional information on proteins, with accurate, consistent and rich annotation. In addition to capturing the core data mandatory for each UniProtKB entry (mainly, the amino acid sequence, protein name or description, taxonomic data and citation information), as much annotation information as possible is added.

Filter by!

Entry	Entry name	Protein names	Gene names	Organism	Length
P49841	GSK3B_HUMAN	Glycogen synthase kinase-3 beta, GSK-3 beta, EC 2.7.11.26 (Serine/threonine-protein kinase GSK3B, EC 2.7.11.1)	GSK3B	Homo sapiens (Human)	420
Q9WV60	GSK3B_MOUSE	Glycogen synthase kinase-3 beta, GSK-3 beta, EC 2.7.11.26 (Serine/threonine-protein kinase GSK3B, EC 2.7.11.1)	Gsk3b	Mus musculus (Mouse)	420
P18266	GSK3B_RAT	Glycogen synthase kinase-3 beta, GSK-3 beta, EC 2.7.11.26 (Factor A, FA) (Serine/threonine-protein kinase GSK3B, EC 2.7.11.1)	Gsk3b	Rattus norvegicus (Rat)	420
Q5YJC2	GSK3B_SPECI	Glycogen synthase kinase-3 beta, GSK-3 beta, EC 2.7.11.26 (Serine/threonine-protein kinase GSK3B, EC 2.7.11.1)	GSK3B	Spermophilus citellus (European suslik) (Citellus citellus)	420
Q91757	GSK3B_XENLA	Glycogen synthase kinase-3 beta, GSK-3 beta, EC 2.7.11.26 (Gsk3, 3 protein)	gsk3b Xgsk-3	Xenopus laevis (African clawed frog)	420

### *Glycogen synthase kinase-3 beta*

nfk1 in UniProtKB

uniportal.org/uniportal/?query=NFKB&sort=score

UniProtKB

UniProtKB consists of two sections:

- Reviewed (Swiss-Prot) - Manually annotated
- Unreviewed (TrEMBL) - Computationally analyzed

The UniProt Knowledgebase (UniProtKB) is the central hub for the collection of functional information on proteins, with accurate, consistent and rich annotation. In addition to capturing the core data mandatory for each UniProtKB entry (mainly, the amino acid sequence, protein name or description, taxonomic data and citation information), as much annotation information as possible is added.

Filter by!

Entry	Entry name	Protein names	Gene names	Organism	Length
Q9VCM5	MUL1_MOUSE	Mitochondrial ubiquitin ligase activator of NFKB1, EC 2.3.2.27 (E3 ubiquitin-protein ligase MUL1) (Growth inhibition and death E3 ligase) (Protein Hades) (RING-type E3 ubiquitin transferase NFKB1) (C1A-NFKB1)	Mul1 Gide	Mus musculus (Mouse)	352
Q8N138	IKB_HUMAN	NF-kappa-B inhibitor delta, NFKB inhibitor delta (I-kappa-B-delta, I-kappa-B-delta) (IkappaBdelta) (IkappaBNS) (T-cell activation NFKB-like protein) (C1A-NFKB1)	NFKBID IKBNS	Homo sapiens (Human)	313
Q969V5	MUL1_HUMAN	Mitochondrial ubiquitin ligase activator of NFKB1, EC 2.3.2.27 (E3 SUMO-protein ligase MUL1) (E3 ubiquitin-protein ligase MUL1) (Growth inhibition and death E3 ligase) (Mitochondrial-anchored protein ligase) (Protein Hades) (Putative NF-kappa-B-activating protein 256) (RING finger protein 218) (RING-type E3 ubiquitin transferase NFKB1)	MUL1 C1orf166, GIDE, MAPL, MULAN, RNF218	Homo sapiens (Human)	352
P19838	NFKB1_HUMAN	Nuclear factor NF-kappa-B p105 subunit (DNA-binding factor KBF1) (EBP-1) (Nuclear factor of kappa light polypeptide gene enhancer in B-cells 1) (Cleaved into: Nuclear factor NF-kappa-B p50 subunit)	NFKB1	Homo sapiens (Human)	968

### *Nuclear factor NF-kappa-B p105 subunit*

ikkb in UniProtKB

uniportal.org/uniportal/?query=IKKB&sort=score

UniProtKB

UniProtKB consists of two sections:

- Reviewed (Swiss-Prot) - Manually annotated
- Unreviewed (TrEMBL) - Computationally analyzed

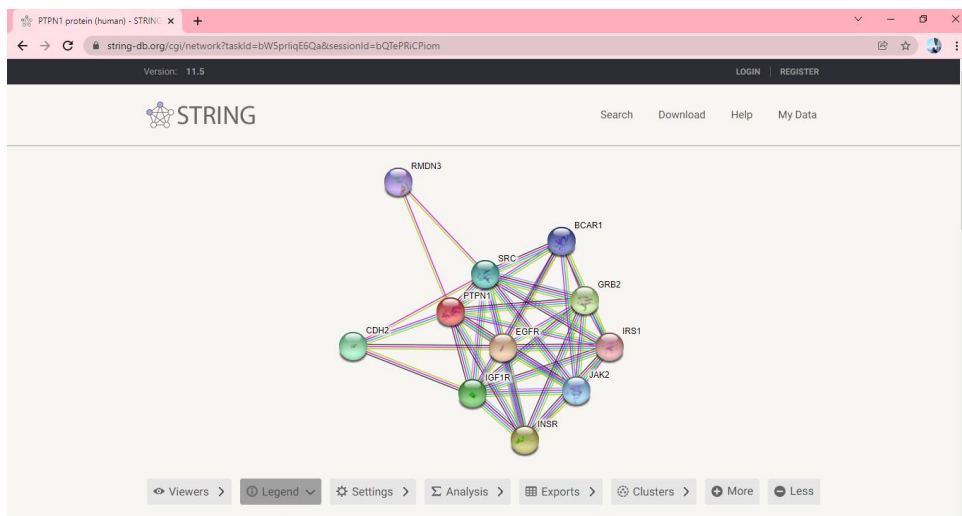
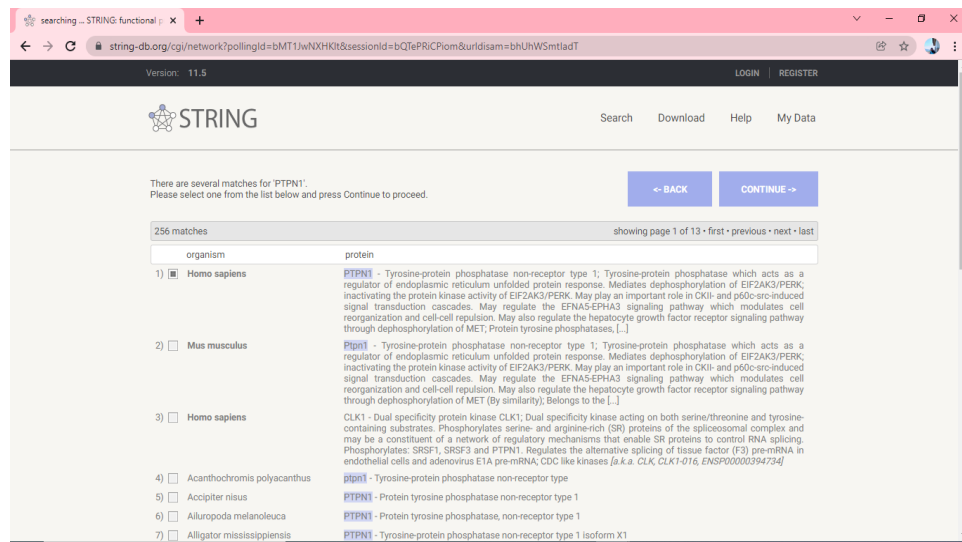
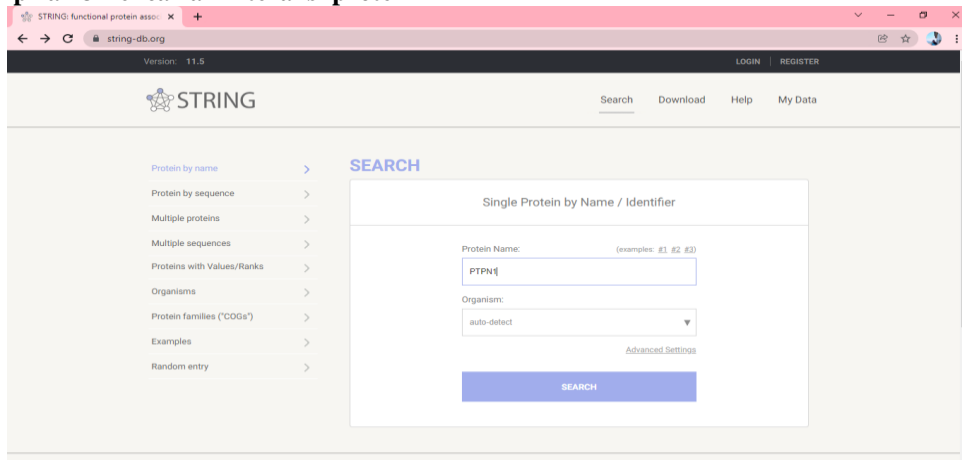
The UniProt Knowledgebase (UniProtKB) is the central hub for the collection of functional information on proteins, with accurate, consistent and rich annotation. In addition to capturing the core data mandatory for each UniProtKB entry (mainly, the amino acid sequence, protein name or description, taxonomic data and citation information), as much annotation information as possible is added.

Filter by!

Entry	Entry name	Protein names	Gene names	Organism	Length
O14920	IKKB_HUMAN	Inhibitor of nuclear factor kappa-B kinase subunit beta, I-kappa-B-kinase beta, IKK-B, IKK-beta, IKBKB, EC 2.7.11.10 (I-kappa-B kinase 2, IKK2) (Nuclear factor NF-kappa-B inhibitor kinase beta, NFKBKB) (Serine/threonine protein kinase IKKB, EC 2.7.11.1)	IKKBKB IKKB	Homo sapiens (Human)	756
O88351	IKKB_MOUSE	Inhibitor of nuclear factor kappa-B kinase subunit beta, I-kappa-B-kinase beta, IKK-B, IKK-beta, IKBKB, EC 2.7.11.10 (I-kappa-B kinase 2, IKK2) (Nuclear factor NF-kappa-B inhibitor kinase beta, NFKBKB) (Serine/threonine protein kinase IKKB, EC 2.7.11.1)	Ikbbk Ikbb	Mus musculus (Mouse)	757
Q95KV0	IKKB_BOVIN	Inhibitor of nuclear factor kappa-B kinase subunit beta, I-kappa-B-kinase beta, IKK-B, IKK-beta, IKBKB, EC 2.7.11.10 (I-kappa-B kinase 2, IKK2) (Nuclear factor NF-kappa-B inhibitor kinase beta, NFKBKB) (Serine/threonine protein kinase IKKB, EC 2.7.11.1)	IKKBKB	Bos taurus (Bovine)	756

### *Inhibitor of nuclear factor kappa-B kinase subunit beta*

### Lampiran 3 Pencarian interaksi protein



## Lampiran 4 Kandungan senyawa dari KNAPsACK

input type = all , input word = Smilanthus sonchifolius

Number of matched data : 7

C ID	CAS ID	Metabolite	Molecular formula	Mw	Organism or inChIKey etc.
<a href="#">C00003255</a>	33880-85-2	Enhydrin	C23H28O10	464.16824712	<a href="#">Smilanthus sonchifolius</a>
<a href="#">C00011880</a>	71135-27-8	Fluctuanin	C23H28O9	448.17333249	<a href="#">Smilanthus sonchifolius</a>
<a href="#">C00056390</a>	1045894-07-2	1,19-Dihydroxy-2,6,10,14-phytalaetraen-18- olic acid	C20H32O4	336.23005951	<a href="#">Smilanthus sonchifolius</a>
<a href="#">C00057749</a>	1046271-97-9	Smaditerpenic acid C	C21H34O4	350.24570957	<a href="#">Smilanthus sonchifolius</a>
<a href="#">C00057759</a>	1075135-09-9	Smaditerpenic acid B	C20H32O4	336.23005951	<a href="#">Smilanthus sonchifolius</a>
<a href="#">C00057760</a>	1075135-11-3	Smaditerpenic acid D	C21H34O4	350.24570957	<a href="#">Smilanthus sonchifolius</a>
<a href="#">C00057799</a>	1174150-17-4	Sonchifolol	C13H24O4	244.16745925	<a href="#">Smilanthus sonchifolius</a>

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## Lampiran 5 Data bioaktivitas senyawa dari PubChem

pubchem.ncbi.nlm.nih.gov

National Library of Medicine  
National Center for Biotechnology Information

PubChem About Blog Submit Contact

# Explore Chemistry

Quickly find chemical information from authoritative sources

enhydrin

Compound	Gene	Taxonomy
Enhydrin	Ephrin	English grain aphid
DIMENHYDRINATE	dendrin	
Diphenhydrinate	ephrin A1	
NINHYDRIN	ephrin A2	
Fenhydren	ephrin A3	
Psi-ephedrin	ephrin A4	

Quercetin | C15H10O7 - PubChem

pubchem.ncbi.nlm.nih.gov/compound/5280343

# Quercetin

PubChem CID: 5280343

Structure: 2D, 3D

Find Similar Structures

Chemical Safety: Acute Toxic, Irritant, Laboratory Chemical Safety Summary (LCSS) Datasheet

Molecular Formula: C<sub>15</sub>H<sub>10</sub>O<sub>7</sub>  
quercetin  
117-39-5  
Meletin  
Sophoretin  
Xanthaurine

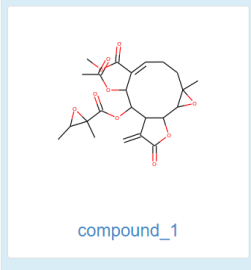
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- 10 Use and Manufacturing
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- 12 Safety and Hazards
- 13 Toxicity
- 14 Associated Disorders and Diseases
- 15 Literature
- 16 Patents
- 17 Biomolecular Interactions and Pathways
- 18 Biological Test Results
- 19 Taxonomy
- 20 Classification
- 21 Information Sources

## Lampiran 6 Data protein target dari Swiss Target Prediction

Target	Common name	Uniprot ID	ChEMBL ID	Target Class	Probability*	Known actives (3D/2D)
Cytochrome-b5	PTGS2	P35354	CHEMBL230	Oxidoreductase	40.0%	57 / 13
Telomerase reverse transcriptase	TERT	O14748	CHEMBL2616	Enzyme	6.7%	3 / 2
Sarcoplasmic/endoplasmic reticulum calcium ATPase 1	ATP2A1	O14963	CHEMBL3135	Hydrolase	6.7%	0 / 4
Protein kinase C alpha	PRKCA	P17252	CHEMBL299	Kinase	20.0%	17 / 274
Proto-oncogene c-JUN	JUN	P05412	CHEMBL4977	Transcription factor	6.7%	2 / 6
Protein kinase C epsilon	PRKCE	Q02190	CHEMBL3582	Kinase	6.7%	7 / 35
Bromohydrin phosphatase 1B	PTPN1	P10031	CHEMBL335	Phosphatase	6.7%	29 / 38

## Lampiran 7 Data protein target dari SEA

Query	Target Key	Target Name	Description	P-Value	MaxTC
 compound_1	MYB_CHICK	MYB	Transcriptional activator Myb	3.247e-105	1.00
	TF65_HUMAN	RELA	Transcription factor p65	2.016e-45	1.00
	PGH2_HUMAN	PTGS2	Prostaglandin G/H synthase 2	0.08499	1.00
	UB2D3_HUMAN	UBE2D3	Ubiquitin-conjugating enzyme E2 D3	2.244e-39	0.31
	ACHB_TETCF	CHRNB1	Acetylcholine receptor subunit beta	1.201e-08	0.29
	ACHG_TETCF	CHRNA3	Acetylcholine receptor subunit gamma	1.201e-08	0.29
	ACHD_TETCF	CHRNA2	Acetylcholine receptor subunit delta	9.468e-08	0.29
	TAT_HV112	tat	Protein Tat	1.815e-06	0.28

## Lampiran 8 Visualisasi menggunakan *Cytoscape*

