

# HUPO Proteomics Standards Initiative

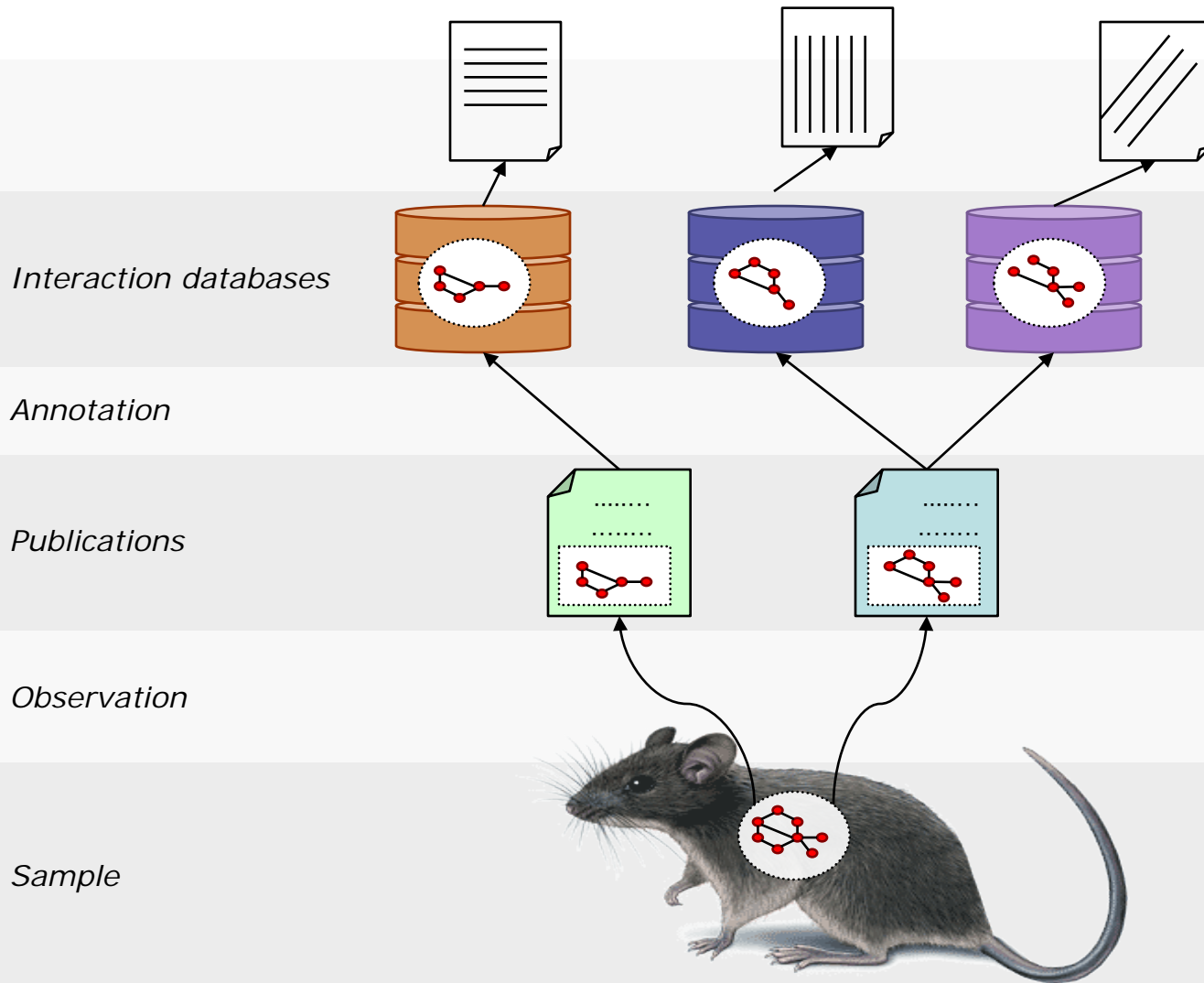
PSICQUIC, the  
PSI Common Query Interface

Henning Hermjakob  
Edinburgh, October 2010

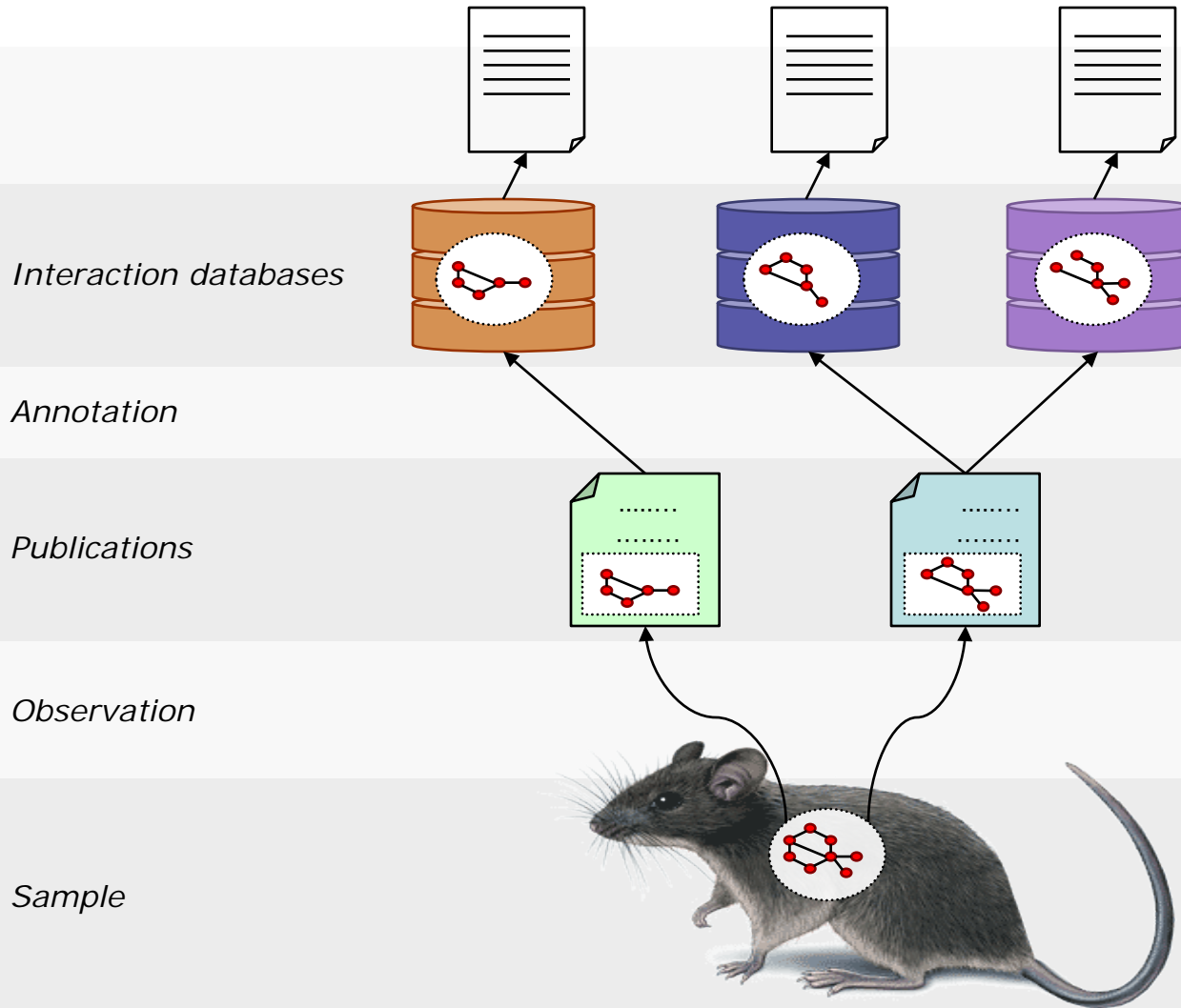
EMBL-EBI

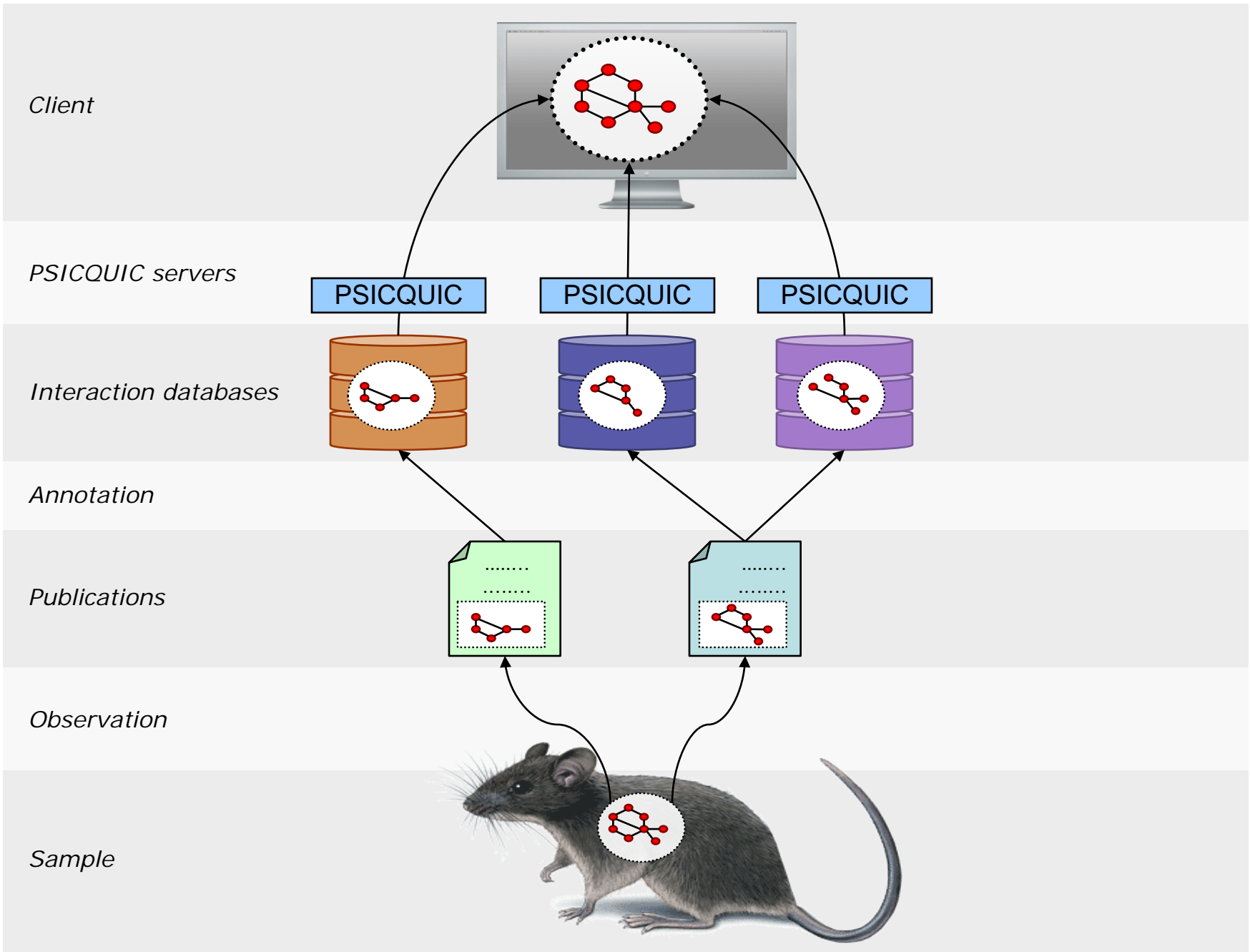


# PSI MI XML: Consistent format



# PSI MI XML: Consistent format





- Common computational interface for querying molecular interaction databases
  - Simple interface, open source server implementation exists, can be “fed” from a tab-delimited file => easy to provide data
  - Not limited to protein-protein interactions, also e.g.
    - Drug-target interactions
    - Simplified pathway data

Total: **14,665,530** binary interactions

Click on the links below to display the results for each service ([refresh](#))

● <a href="#">APID</a> - 416,124	● <a href="#">InnateDB</a> - 9,909	● <a href="#">MINT</a> - 124,473	● <a href="#">STRING</a> - 12,231,763
● <a href="#">BioGrid</a> - 337,957	● <a href="#">IntAct</a> - 228,262	● <a href="#">MPIDB</a> - 24,268	
● <a href="#">ChEMBL</a> - 581,858	● <a href="#">iRefIndex</a> - 404,453	● <a href="#">Reactome</a> - 74,861	
● <a href="#">DIP</a> - 20,769	● <a href="#">MatrixDB</a> - 845	● <a href="#">Reactome-Fls</a> - 209,988	



# PSICQUIC: Simple PSICQUIC viewer



## PSICQUIC View

Search:

[Fields »](#)

[MIQL syntax](#)

Total: 1,648 bins

Click on the links below to display the results for each service ([refresh](#))

- [APID](#) - 0
- [BioGrid](#) - 438
- [ChEMBL](#) - 0
- [DIP](#) - 0
- [InnateDB](#) - 5
- [IntAct](#) - 205
- [iRefIndex](#) - 230
- [MatrixDB](#) - 0
- [MINT](#) - 80
- [MPIDB](#) - 0
- [Reactome](#) - 0
- [Reactome-Fls](#) - 126
- [STRING](#) - 564

EBI > Databases > Pathways & Networks > IntAct > View



Search:    [Show Advanced Fields »](#)

[Home](#) | 
 [Search](#) | 
 [Interactions \(89\)](#) | 
 [Browse](#) | 
 [Lists](#) | 
 [Interaction Details](#) | 
 [Molecule View](#) | 
 [Graph](#)

Browse by [taxonomy](#), [gene ontology](#), [ChEBI ontology](#)

> **89** binary interactions were found in IntAct. 23 of them are originated from [spoke expanded co-complexes](#) and you may want to [filter](#) them.  
 > [Counting results in other databases...]

Previous | 1-30 of 89 | [Next 30](#) | 
 Export to:  | 
 Export | 
  | 
 Previous

	Name molecule A	Links molecule A	Name molecule B	Links molecule B	Aliases molecule A	Aliases molecule B	Species molecule A	Species molecule B	Publication Identifier	Interaction Detection Method	In
1	FANCD1 <small>PR NE IN</small>		atp <small>SM NE EN</small>		FANCD1; FACD; Fanconi anemia group D1 protein; <a href="#">+</a>	atp	<a href="#">9606</a>		<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>
2	<small>PR NE IN</small>		<small>SM NE EN</small>						<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>
3	<small>PR NE IN</small>		<small>SM NE EN</small>						<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>
4	<small>PR NE IN</small>		<small>SM NE EN</small>						<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>
5	<small>PR NE IN</small>		<small>SM NE EN</small>						<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>

<http://www.ebi.ac.uk/intact>

EBI > Databases > Pathways & Networks > IntAct > View



Search:    [Show Advanced Fields »](#)

[Home](#) | 
 [Search](#) | 
 [Interactions \(89\)](#) | 
 [Browse](#) | 
 [Lists](#) | 
 [Interaction Details](#) | 
 [Molecule View](#) | 
 [Graph](#)

Browse by [taxonomy](#), [gene ontology](#), [ChEBI ontology](#)

> 89 binary interactions were found in IntAct. 23 of them are originated from [spoke expanded co-complexes](#) and you may want to [filter](#) them.  
 > Your query also matches [82](#) interaction evidences from [3](#) other databases.

Previous 1-30 of 89  | Export to:    Previous

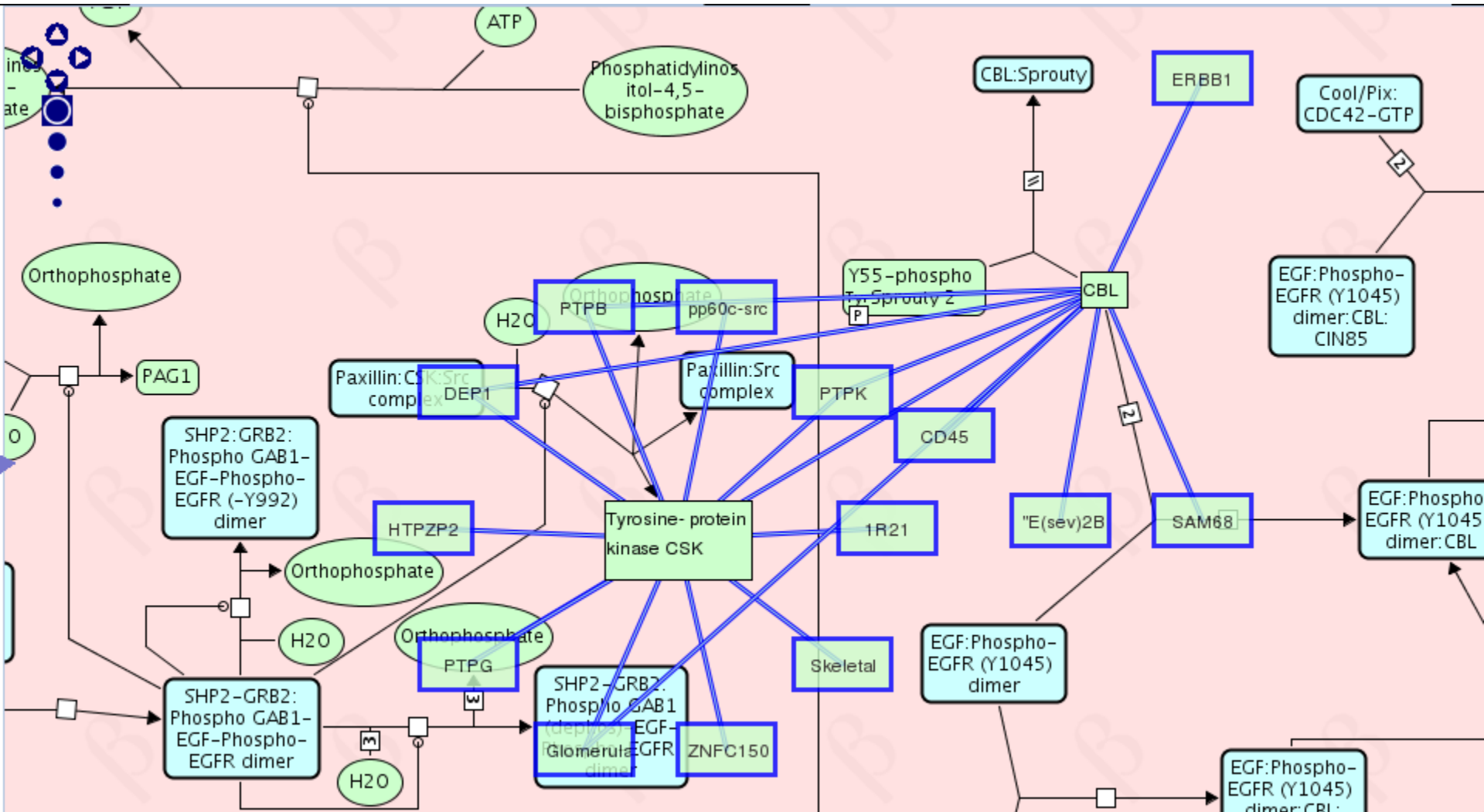
	Name molecule A	Links molecule A	Name molecule B	Links molecule B	Aliases molecule A	Aliases molecule B	Species molecule A	Species molecule B	Publication Identifier	Interaction Detection Method	In
1	FANCD1 <small>PR: NE: IN:</small>		atp <small>SM: NE: EN:</small>		FANCD1; FACD; Fanconi anemia group D1 protein; <a href="#">+</a>	atp	<a href="#">9606</a>		<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>
2	<small>PR: NE: IN:</small>		<small>SM: NE: EN:</small>						<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>
3	<small>PR: NE: IN:</small>		<small>SM: NE: EN:</small>						<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>
4	<small>PR: NE: IN:</small>		<small>SM: NE: EN:</small>						<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>
5	<small>PR: NE: IN:</small>		<small>SM: NE: EN:</small>						<a href="#">19303847</a>	<a href="#">atpase assay</a>	<a href="#">EE</a>

<http://www.ebi.ac.uk/intact>





# PSICQUIC: Overlay of molecular interactions on Reactome pathways (beta)



- Based on Lucene, with specific field names
- Example: ppx AND species:"Escherichia coli"

Field Name	Searches on	Implicit*	Example
idA	IdentifierA	No	<a href="#">idA:P74565</a>
id	Identifiers (A or B)	No	<a href="#">id:P74565</a>
alias	Aliases (A or B)	No	<a href="#">alias:(KHDRBS1 HCK)</a>
identifiers	Identifiers and Aliases undistinctively	Yes	<a href="#">identifier:P74565</a>
pubauth	Publication 1st author(s)	Yes	<a href="#">pubauth:scott</a>
pubid	Publication Identifier(s) OR	Yes	<a href="#">pubid:(10837477 12029088)</a>
taxidA	Tax ID interactor A: be it the tax ID or the species name	No	<a href="#">taxidA:mouse</a>
taxidB	Tax ID interactor B: be it the tax ID or species name	No	<a href="#">taxidB:9606</a>
species	Species. Tax ID A and Tax ID B	Yes	<a href="#">species:human</a>
type	Interaction type(s)	Yes	<a href="#">type:"physical interaction"</a>
detmethod	Interaction Detection method(s)	Yes	<a href="#">detmethod:"two hybrid"</a>
interaction_id	Interaction identifier(s)	Yes	<a href="#">interaction_id:EBI- 761050</a>
annotation	Annotations Interactor A or B	No	<a href="#">annotation:experimental</a>
properties	Properties of Interactor A or B (note that this field also contains parent terms of ontology terms of GO, InterPro and PSI-MI)	Yes	<a href="#">properties:"1GQ5"</a>
expansion	Expansion method(s)	Yes	<a href="#">expansion:spoke</a>
dataset	Dataset name(s)	Yes	<a href="#">dataset:Apoptosis</a>
experimentalRole	Experimental role(s) interactor A or interactor B	No	<a href="#">experimentalRole:prev</a>
biologicalRole	Biological role(s) interactor A or interactor B	No	<a href="#">biologicalRole:enzyme</a>
hostOrganism	Host organism in which the interaction was detected	Yes	<a href="#">hostOrganism:human</a>




# PSICQUIC: The challenge

FROM:










Search:    [Fields »](#)

- [BioGrid \(0\)](#)
[ChEMBL \(0\)](#)
[DIP \(0\)](#)
[InnateDB \(2\)](#)
[IntAct \(89\)](#)
[MINT \(22\)](#)
[MPIDB \(0\)](#)
[MatrixDB \(0\)](#)
[Reactome \(0\)](#)
[Reactome-Functional-Interactions \(29\)](#)
[iRefIndex \(31\)](#)

Export: [MITAB 2.5](#) [PSI-XML 2.5.4](#)

	Name molecule A	Links molecule A	Name molecule B	Links molecule B	Alt. identifiers molecule A	Alt. identifiers molecule B	Aliases molecule A	Aliases molecule B	Species molecule A	Species molecule B	First Author	PubMed Identifier	Interaction Type	Interaction Detected
1	<a href="#">P51587</a> ; <a href="#">EBI-79792</a>		<a href="#">EBI-539895</a>		<a href="#">FANCD1</a> ; <a href="#">FACD</a> ; <a href="#">Fanconi anemia group D1 protein</a> ; <a href="#">brca2_human</a>		BRCA2		Human ( <a href="#">9606</a> )	-1	Pellegrini et al. (2002)	<a href="#">12442171</a>	<a href="#">physical association</a>	<a href="#">x-ray</a>
2	<a href="#">P51587</a> ; <a href="#">EBI-79792</a>		<a href="#">Q9BXW9-2</a> ; <a href="#">EBI-596878</a>		<a href="#">FANCD1</a> ; <a href="#">FACD</a> ; <a href="#">Fanconi</a>	<a href="#">Q9BXW9-2</a>	BRCA2		Human ( <a href="#">9606</a> )	Human ( <a href="#">9606</a> )	Wilson et al. (2008)	<a href="#">18212739</a>	<a href="#">physical association</a>	<a href="#">anti body coimmunoprecipitation</a>

TO:

<a href="#">PR</a> <a href="#">PY</a> <a href="#">UN</a>		<a href="#">PR</a> <a href="#">BA</a> <a href="#">UN</a>					Marston et al. (1999)	<a href="#">10373512</a>	<a href="#">coimmunoprecipitation</a>		<a href="#">EBI-79852</a>
At4g00020 <a href="#">PR</a> <a href="#">BA</a> <a href="#">UN</a>	 	DMC1 <a href="#">PR</a> <a href="#">PY</a> <a href="#">UN</a>	 	<a href="#">3702</a>	<a href="#">3702</a>		Siaud et al. (2004)	<a href="#">15014444</a>	<a href="#">two hybrid</a>		<a href="#">EBI-307726</a>
<a href="#">PR</a> <a href="#">BA</a> <a href="#">UN</a>		<a href="#">PR</a> <a href="#">PY</a> <a href="#">UN</a>					Dray et al. (2006)	<a href="#">16415210</a>	<a href="#">two hybrid</a>		<a href="#">EBI-930902</a>
<a href="#">PR</a> <a href="#">BA</a> <a href="#">UN</a>		<a href="#">PR</a> <a href="#">PY</a> <a href="#">UN</a>					Siaud et al. (2004)	<a href="#">15014444</a>	<a href="#">two hybrid</a>		<a href="#">EBI-930747</a>
<a href="#">PR</a> <a href="#">BA</a> <a href="#">UN</a>		<a href="#">PR</a> <a href="#">PY</a> <a href="#">UN</a>					Dray et al. (2006)	<a href="#">16415210</a>	<a href="#">anti tag coimmunoprecipitation</a>		<a href="#">EBI-930779</a>



## PSICQUIC View

Search: BRCA1 AND species:9606 AND NOT cofactor

Search

Clear

[Fields »](#)

[MIQL syntax reference](#)

Total: **1,600** binary interactions

Click on the links below to display the results for each service ([refresh](#))

- [APID](#) - 0
- [BioGrid](#) - 438
- [ChEMBL](#) - 0
- [DIP](#) - 0
- [InnateDB](#) - 5
- [IntAct](#) - 173
- [iRefIndex](#) - 230
- [MatrixDB](#) - 0
- [MINT](#) - 64
- [MPIDB](#) - 0
- [Reactome](#) - 0
- [Reactome-FIs](#) - 126
- [STRING](#) - 564

### • Status of your cluster queries

BRCA1 AND species:9606	COMPLETED	<a href="#">view</a>   <a href="#">remove</a>
BRCA1 AND species:9606 AND NOT cofactor	QUEUED	<a href="#">view</a>   <a href="#">remove</a>

Cluster this query





Search:

[Fields »](#)

[← Back to all services](#)

Clustered query: 'BRCA1 AND species:9606 AND NOT cofactor' from BioGrid, InnateDB, IntAct, MINT, Reactome-FIs, STRING, iRefIndex

	Name molecule A	Links molecule A	Name molecule B	Links molecule B	First Author	PubMed Identifier	Interaction Detection Method
151	<a href="#">P46736</a>		<a href="#">P38398</a>		Dong et al. (2003) Wu et al.(2010)	<a href="#">14636569</a> <a href="#">20482850</a> <a href="#">PMID019615732</a> omim:00113705 omim:00300617 omim:00609433	<a href="#">experimental interaction detection</a> <a href="#">arti tag coimmunoprecipitation</a> <a href="#">predictive text mining</a> <a href="#">experimental knowledge based</a>
152	<a href="#">entrez gene/locuslink:672</a>		<a href="#">entrez gene/locuslink:4800</a>		Fan W (2002)	<a href="#">11777930</a>	<a href="#">affinity chromatography technology</a>
153	<a href="#">entrez gene/locuslink:15951</a>		<a href="#">entrez gene/locuslink:672</a>		Aglipay JA (2003)	<a href="#">14654789</a>	<a href="#">imaging technique</a> <a href="#">affinity chromatography technology</a>
154	<a href="#">entrez gene/locuslink:672</a>		<a href="#">entrez gene/locuslink:851212</a>		Bennett CB (2008)	<a href="#">18197258</a>	<a href="#">genetic interference</a>
155	<a href="#">entrez gene/locuslink:672</a>		<a href="#">entrez gene/locuslink:851212</a>		Bennett CB (2008)	<a href="#">18197258</a>	<a href="#">genetic interference</a>

## Molecular Interactions - Dataset: set3

It provides molecular interaction data from different molecular interactions databases. It makes use of PSICQUIC.

[Table view](#) [Network view](#)

**Pubmed ID selection**

**Database selection**

chembl  intact  mint

**Experiment selection**

**Filter by number**

**Associated databases**

- none
- 1 or more
- 2 or more
- 3 or more
- 4 or more

**Associated pubmeds**

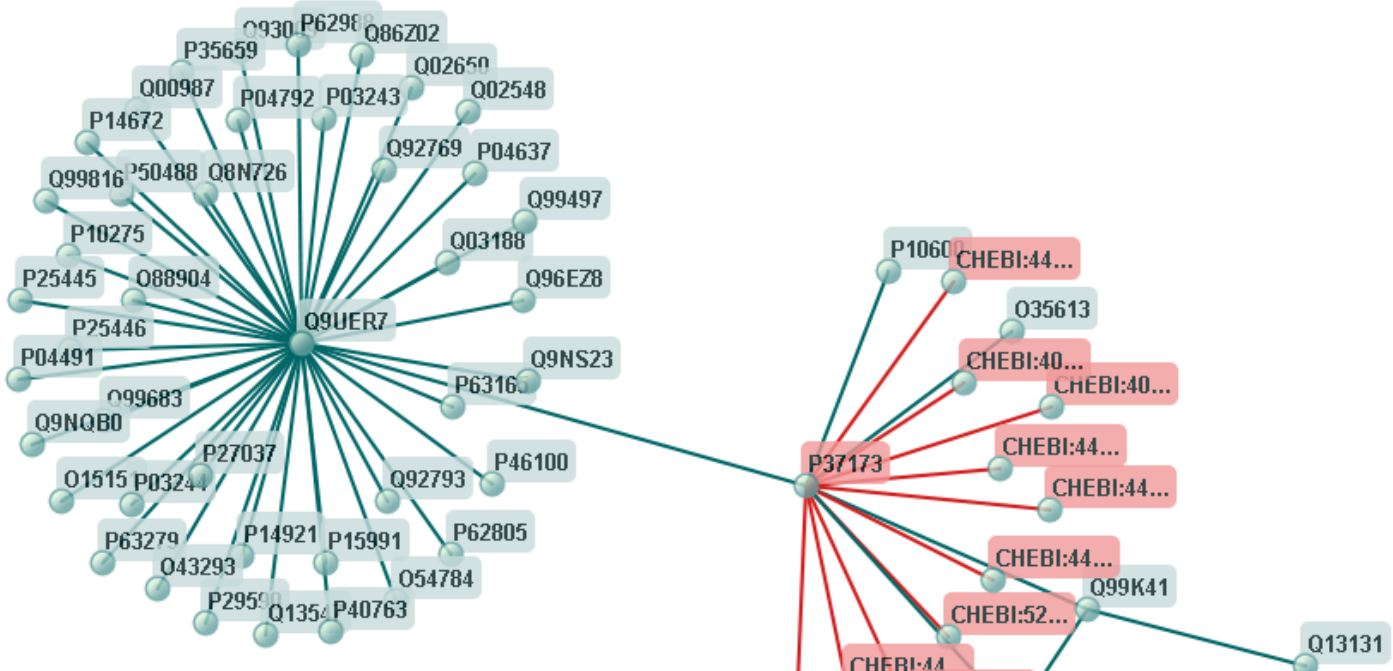
- none
- 1 or more
- 2 or more
- 3 or more
- 4 or more

**Associated experiments**

- none
- 1 or more
- 2 or more
- 3 or more
- 4 or more

10 interactions with 20 interactors for the "chembl" database

[Download ALL the interactions](#)  
[Download SELECTED interactions](#)



**Supported by**



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 ENFIN

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- Documentation
- Datasets
  - set1
  - set2
  - set3
- Overview
- Protein information
- Protein identifications
- Biological pathways
- Molecular interactions
- Protein localization
- Biological models
- Protein length
- Dataset history
- Download results
- Dataset Manager
- Contact

## DASMIweb - dynamic online integration and annotation of molecular interaction data

**Query**

e.g. [Entrez Gene](#), [GI](#), [Pfam](#), [RefSeq](#) [UniProtKB](#)

**Batch retrieval**

**Interactor Information**

**Identifier:** [961 \(Entrez Gene\)](#) (Leukocyte surface antigen CD47 precursor (Integrin-associated protein)(IAP) (Antigenic surface determinant protein OA3) (Protein MER6).) (CD47 molecule)

**UniProtKB** [CD47\\_HUMAN, A8K198\\_HUMAN, Q71A41\\_HUMAN,](#)

**UniGene** [Hs.446414,](#)

**Entrez Gene** [961,](#)

30 interactions (showing 11 to 20) ← previous next →

**Scoring algorithms offered by PSISCORE servers**

- Select confidence measure ...
- Bioverse (originalConfidenceScore)
- Domain support (crystal-structure)
- Domain support (predicted)
- FunSimMat2.1 (BPscore)
- FunSimMat2.1 (CCscore)
- FunSimMat2.1 (MFscore)
- HiMAP (originalConfidenceScore)

	0	6	17	0	0	0
HiMAP-CORE						
POINT						
OPHD						
MPIDB						
MDC						
DIP						

Name	ID	Description																
ITGB3 UBQLN1 ITGAV	<a href="#">3690</a> <a href="#">29979</a> <a href="#">3685</a>	Integrin beta-3 precursor (Platelet membrane glycoprotein IIIa)(GPIIIa) (CD61 antigen). Ubiquilin-1 (Protein linking IAP with cytoskeleton 1) (PLIC-1) (hPLIC-1). Ubiquilin 1 isoform 1 variant (Fragment). Integrin alpha-V precursor (Vitronectin receptor subunit alpha) (CD51antigen) [Contains: Integrin alpha-V heavy chain; Integrin alpha-Vlight chain].																
EPB42	<a href="#">2038</a>	Erythrocyte membrane protein band 4.2 (Erythrocyte protein 4.2)(P4.2).																
THBS1	<a href="#">7057</a>	Thrombospondin-1p180 (Fragment).																
SIRPA	<a href="#">140885</a> , <a href="#">23755</a>	signal-regulatory protein alpha																
UBQLN1	<a href="#">29979</a>	Ubiquilin 1 isoform 1 variant (Fragment).																
P2RY2	<a href="#">5029</a>	P2Y purinoceptor 2 (P2Y2) (P2U purinoceptor 1) (P2U1) (ATP receptor)(Purinergic receptor).																
RHAG	<a href="#">6005</a>	Rhesus blood group-associated glycoprotein (Rhesus blood group-associated ammonia channel) (Erythrocyte plasma membrane 50 kDaglycoprotein) (Rh50A) (CD241 antigen).																
ITGA6	<a href="#">3655</a>	Integrin alpha-6 precursor (VLA-6) (CD49f antigen) [Contains: Integrinalpha-6 heavy chain; Integrin alpha-6 light chain].																
sirpg_human	<a href="#">55423</a>	Signal-regulatory protein gamma precursor (Signal-regulatory proteinbeta-2) (SIRP-beta-2) (SIRP-b2) (CD172g antigen).																
PAK1	<a href="#">5058</a>	p21/Cdc42/Rac1-activated kinase 1 (STE20 homolog, yeast)																
COMP	<a href="#">1311</a>	Cartilage oligomeric matrix protein variant (Fragment).																

## DASMIweb - dynamic online integration and annotation of molecular interaction data

**Query**

e.g. [Entrez Gene](#), [GI](#), [Pfam](#), [RefSeq](#) [UniProtKB](#)

[Batch retrieval](#)

**Interactor Information**

**Identifier:** [961 \(Entrez Gene\)](#) (Leukocyte surface antigen CD47 precursor (Integrin-associated protein)(IAP) (Antigenic surface determinant protein OA3) (Protein MER6).) (CD47 molecule)

**UniProtKB** [CD47\\_HUMAN](#), [A8K198\\_HUMAN](#), [Q71A41\\_HUMAN](#),

**UniGene** [Hs.446414](#),

**Entrez Gene** [961](#),

30 interactions (showing 11 to 20) Export as ... FunSimMat2.1 (BPscore) Query Confidence Sources

Name	ID	Description	SANGER-CORE	CCSB-HII	HPRD	BIOVERSE	SANGER	MINT	INTACT	HOMOMINT	HIMAP	HIMAP-CORE	POINT	OPHID	MPIDB	MDC	DIP
ITGB3 UBQLN1 ITGAV	<a href="#">3690</a> <a href="#">29979</a> <a href="#">3685</a>	Integrin beta-3 precursor (Platelet membrane glycoprotein IIIa)(GPIIIa) (CD61 antigen). Ubiquilin-1 (Protein linking IAP with cytoskeleton 1) (PLIC-1) (hPLIC-1). Ubiquilin 1 isoform 1 variant (Fragment). Integrin alpha-V precursor (Vitronectin receptor subunit alpha) (CD51antigen) [Contains: Integrin alpha-V heavy chain; Integrin alpha-Vlight chain].															
EPB42	<a href="#">2038</a>	Erythrocyte memb 4.2)(P4.2).			0.31												0.31
THBS1	<a href="#">7057</a>	Thrombospondin-1			0.47	0.47											0.47
SIRPA	<a href="#">140885</a> , <a href="#">23755</a>	signal-regulatory p			0.55								0.55	0.55			
UBQLN1	<a href="#">29979</a>	Ubiquilin 1 isoform 1 variant (Fragment).			0.26												0.26
P2RY2	<a href="#">5029</a>	P2Y purinoceptor 2 (P2Y2) (P2U purinoceptor 1) (P2U1) (ATP receptor)(Purinergic receptor).			0.66												0.66
RHAG	<a href="#">6005</a>	Rhesus blood group-associated glycoprotein (Rhesus blood group-associated ammonia channel) (Erythrocyte plasma membrane 50 kDaglycoprotein) (Rh50A) (CD241 antigen).			0.16												0.16
ITGA6	<a href="#">3655</a>	Integrin alpha-6 precursor (VLA-6) (CD49f antigen) [Contains: Integrinalpha-6 heavy chain; In									0.91						
sirpg_human	<a href="#">55423</a>	Signal-regulatory protein gamma proteinbeta-2) (SIRP-beta-2) (S															
PAK1	<a href="#">5058</a>	p21/Cdc42/Rac1-activated kina															0.52
COMP	<a href="#">1311</a>	Cartilage oligomeric matrix pro															

Scoring algorithms offered by PSISCORE servers

Exemplary visualization of a scoring algorithm with a 0-1 range

Scoring algorithm description, provided by scoring server / registry

**Details for FunSimMat2.1 (BPscore)**

The BPscore is based on biological process annotation of the Gene Ontology.  
Range: 0-1  
<http://funsimmat.bioinf.mpi-inf.mpg.de/help.php>



- **PSICQUIC**

- Samuel Kerrien
- Bruno Aranda
- Sandra Orchard

- **PSISCORE**

- Hagen Blankenburg
- Mario Albrecht

- **Editors**

- Mike Dunn, Proteomics
- Kathy Aschheim, NBT

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- EU FW6 Enfin
- EU FW7 PSIMEx

- **All participants** of the HUPO Proteomics Standards Initiative, IMEx, and ProteomeXchange

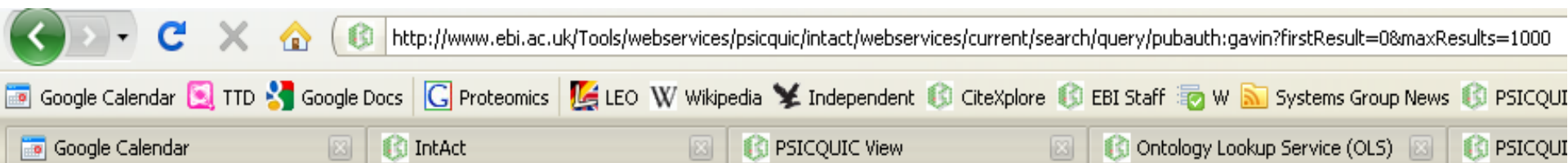
- **All authors** who make their interaction data publicly accessible, preferably through deposition to <http://www.imexconsortium.org>







# PSICQUIC: SOAP and REST interfaces



```
uniprotkb:P53859|intact:EBI-1731      uniprotkb:Q02821|intact:EBI-1797      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:P40579|intact:EBI-1804      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:P53859|intact:EBI-1731      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:Q08162|intact:EBI-1740      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:P48240|intact:EBI-1749      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:P38792|intact:EBI-1757      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:Q12277|intact:EBI-1765      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:P25359|intact:EBI-1773      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:Q12149|intact:EBI-1782      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:P46948|intact:EBI-1788      uniprotkb:YNL232W(locus name)|uni
uniprotkb:P53859|intact:EBI-1731      uniprotkb:Q08491|intact:EBI-1389      uniprotkb:YNL232W(locus name)|uni
uniprotkb:Q05636|intact:EBI-1810      uniprotkb:Q05636|intact:EBI-1810      uniprotkb:YDR280W(locus name)|uni
uniprotkb:Q05636|intact:EBI-1810      uniprotkb:P53859|intact:EBI-1731      uniprotkb:YDR280W(locus name)|uni
uniprotkb:Q05636|intact:EBI-1810      uniprotkb:Q08162|intact:EBI-1740      uniprotkb:YDR280W(locus name)|uni
uniprotkb:Q05636|intact:EBI-1810      uniprotkb:Q04217|intact:EBI-1820      uniprotkb:YDR280W(locus name)|uni
uniprotkb:Q05636|intact:EBI-1810      uniprotkb:P48240|intact:EBI-1749      uniprotkb:YDR280W(locus name)|uni
uniprotkb:Q05636|intact:EBI-1810      uniprotkb:P38792|intact:EBI-1757      uniprotkb:YDR280W(locus name)|uni
uniprotkb:Q05636|intact:EBI-1810      uniprotkb:Q08285|intact:EBI-1831      uniprotkb:YDR280W(locus name)|uni
uniprotkb:Q05636|intact:EBI-1810      uniprotkb:P25359|intact:EBI-1773      uniprotkb:YDR280W(locus name)|uni
```

<http://code.google.com/p/psicquic/>