

HOME: -

CancerPPD is a manually curated database of experimentally validated anticancer peptides. In this database, peptides have been collected from both published articles as well as from other repositories. This is home page of CancerPPD mobile versions.

CancerPPD :Database of Anticancer peptides and Proteins

Home Basic Search Browse Tools Miscellaneous

Menu options of CancerPPD

Welcome to CancerPPD

CancerPPD is a manually curated database of experimentally validated anticancer peptides. In this database, peptides have been collected from both published articles as well as from other repositories. In addition, tertiary structure of peptides have been predicted using PEPstr and secondary structure states are assigned using DSSP. Structure of modified peptides (containing Non-natural, D-amino acids, Modified-amino acid like Ornithine, Terminal modifications like Acetylation/Amidation) have also been predicted. In order to provide comprehensive information, peptides were searched and linked with important peptide and protein databases such as IEDB, PDB, Swiss-Prot and TrEMBL.

Read more

Click for Read more

In this home page there are five menu options like Home, Basic Search, Browse, Tools and Miscellaneous. We have also given Read more option in this page if you want to read more of CancerPPD.

Major Features

Major Features

1. Resource: It provides comprehensive information about anticancer peptides that include their Sequence, Name, Origin, Type (Linear/Cyclic), Chirality, End modification, Chemical modification, Source, cytotoxic activity and Function. Data is collected from wide sources like literature and various other databases. Basic and Conditional Search facility enables the users to search a specific peptide/query in CancerPPD database.
2. These peptides were searched in other databases to extract more information like their immunogenicity, source protein, functional annotation.
3. Web-tools Integrated: Various tools like BLAST, Mapping, Alignment have been integrated to facilitate users.
4. Data Retrieval: A number of data retrieval routines have been integrated to allow users to extract data from CancerPPD database that include search, browse, download routines.

Major features of CancerPPD

Basic Search: -

Basic Search Page of CancerPPD

Please type your query to be searched:

Select Option:

ID
ID
PMID
Sequence
Name

Search database query

Search options of Basic Search

This is the help page of Basic Search. In tis options we have given ID, PMID, Sequence and Name. We also gave search option in which we can search the query of the database. We have given Basic result page of Basic Search.

CancerPPD :Database of Anticancer peptides and Proteins

Home Basic Search Browse Tools Miscellaneous

Result Page of Basic Search

ID	PMID	SEQUENCE	NAME
1001	14499271	FLPLLAGLAANFLPTIICKISYKC	GGN6
1002	14499271	LLAGLAANFLPTIICKISYKC	PTP1
1003	14499271	FAGLAANFLPTIICKISYKC	PTP2
1004	14499271	FXLLKKLAAKFLPTIICKISYKC	PTP4
1005	14499271	FXLLKKLAAKLF	PTP5
1006	14499271	FXLLKKLAAKLF	PTP6
1007	14499271	FLGALFKALSKLL	PTP7
1008	14499271	FXLLAGLLKNFA	PTP8
1009	14499271	FLPLLAGLAANFLPTIICKISYKC	GGN6
1010	14499271	LLAGLAANFLPTIICKISYKC	PTP1
1011	14499271	FAGLAANFLPTIICKISYKC	PTP2
1012	14499271	FXLLKKLAAKFLPTIICKISYKC	PTP4
1013	14499271	FXLLKKLAAKLF	PTP5
1014	14499271	FXLLKKLAAKLF	PTP6

Result page of Basic Search

Browsing options: -

CancerPPD :Database of Anticancer peptides and Proteins

Home Basic Search **Browse** Tools Miscellaneous

Basic Search Page of CancerPPD

Cell line

Tissue

Assay

Length

Browsing options

In CancerPPD we have given Browsing page. In this database there are four submenu options like Cell line, Tissue, Assay and Length.

Browse by Cell Line

This page helps user to browse Cell line in CancerPPD. This page summarizes the Primary site, different cell lines. For more information, please click [Help](#)

Browsing option No. of cell line types and No. of entries

Cell line type	Number of entries
22RV1	7
293	11
486P	6
486P(G4)	3
4T1	13
647V	6
647V(G2)	3
786-0	1
8402	6
A-172	2
A-2058	1
A-2780	1
A-2780R	1
A-375	15
A-498	17
A-549	55
AZ-97	4
SK-OV-3	8
ZR75-1	2

Click for more cell lines information

More

Cell line wise: -

In this database we have given browse options Cell line type No. of entries, No. of peptide entries. We have also given Read more option in this page if you want to read more about cell line wise information.

Browsing option No. of cell lines and , No. of peptide entries

Browse by Cell Line

Cell line type	Number of entries
22RV1	7
293	11
486P	6
486P(G4)	3
4T1	13
547V	6
647V(G2)	3
786-0	1
8402	6
A-172	2
A-2058	1
A-2780	1
A-2780R	1
A-375	15
A-498	17
A-549	55
A375	1
ACHN	1
Ags	1
AML-2	6
AZ-97	4
B-16	10
B16-F10	8
B16F1	2
B16F10-Nex 2	1
BAE	9
Bcap-37	6
BEL-7402	19
BGC-823	5
BIU-87	4
BMKC	304
Breast Cancer cell line	7
BT-20	4
BT-474	2
BT-549	1
BTS-30	3
BXPC-3	2
BxPC-3	12
CB166	4
CaCo-2	26
CAKI-1	1
CaFu-6	4
CaSki	18
CCRF-CEM	72
CEF	2
CEM-VLB	3
CEM-VM1	3
CEM-WT	4
CFPAC-1	2
CHO-K1	1

Browse by Tissue

This page helps user to browse Tissue Type in CancerPPD. This page summarizes the Primary site, different cell lines. For more information, please click [Help](#)

Browsing option No. of entries, unique peptides and No. of celllines

Tissue type	Number of entries	Number of Unique Peptides	Number of Cell lines
Bladder	99	6	12
Blood	349	179	37
Breast	409	20	20
Cervix	266	7	7
Colon	284	19	19
Kidney	65	39	14
Lung	164	223	28
Prostate	223	186	15
Skin	575	241	41
Stomach	61	36	8

Browsing option of Tissue type

More

Tissue wise: -

In this database we have given browse options No. of entries, No. of unique peptides, and No. of cell lines. We have also given Read more option in this page if you want to read more about tissue wise information.

Browse by Tissue

Browsing option No. of entries, No. of unique peptides and No. of Cell lines

Tissue type	Number of entries	Number of Unique Peptides	Number of Cell lines
Pancreatic	52	19	12
Ovary	49	31	12
Liver	47	19	6
CNS	38	27	8
Larynx	30	8	1
Colorectal	30	22	6
Brain	20	11	10
Rhabdomyoma	10	9	1
Polyploid	10	8	4
Solid tumor	8	4	1
Oral	6	1	1
Embryonic fibroblast	6	6	1
Sarcoma	8	3	2
Mouse tissue	12	9	4
Intestinal	4	4	1
Head and Neck tumor	3	3	2
Epidermal	3	3	1
Fibroblast	2	1	2
Bile-duct	2	2	1
Endometrial	1	1	1

Assay wise: -

In this database we have given browse options No. of entries, No. of peptides, and No. of cell lines. We have also given Read more option in this page if you want to read more about Assay wise information.

Browse by Assay used

This page helps user to browse Assay used in CancerPPD. This page summarizes the Primary site, different cell lines. For more information, please click [Help](#)

Browsing option No. of entries, peptides and No. of cellines

Assay Type	Number of entries	Number of Peptides	Number of Cell lines
		3	9
		3	13
		11	7
Immunoprecipitation	14	13	1
LDH	32	13	19
MTS	75	14	14
MTT	2831	444	191
Peptide dose curve	10	2	1
Trypan blue	98	13	12
WST	81	15	34

Browsing option of Assay types

[More](#)

Browse by Assay used

Browsing option No. of entries, No. of peptides and No. of Cell lines

Assay Type	Number of entries	Number of Peptides	Number of Cell lines
MTT/MTS Assay	2802	444	191
Trypan blue Assay	92	13	12
WST-1 Assay	77	15	34
LDH leakage Assay	28	13	19
Cell viability Assay	100	2	3
Chemosensitivity Assay	21	3	13
Immunoprecipitation Assay	14	13	1
Thymidine Incorporation Assay	3	9	5
Peptide dose curve Assay	10	2	1
Matrigel Assay	8	5	1
Sulforhodamine B Assay	150	1	4
DAPI staining	6	4	3
PI-uptake Assay	4	1	4
ELISPOT Assay	2	2	1
ELISA	2	2	1
TUNEL Assay	1	1	1
Cytotoxic T lymphocyte assay	6	1	1
Depolarization assay	4	1	1

Browse by Peptide length

Browsing option No. of peptides and Peptide entries

Length of peptide	Peptide Entries
11-15	1057
16-20	671
21-25	539
5-10	438
above 25	678
below 5	189

Lengthwise: -

In this database we have given browse options Length of peptides and No. of peptide entries.

Tools: -

BLAST Search Page of CancerPPD

Blast-Search page assists the user to run a BLAST search against the CancerPPD Database. After submission of job it returns the list of peptides similar to the query peptide. The server provides options to choose different parameters like weight matrix and expectation value. For more information see [HELP](#) page.

Search a Given Peptide

Paste your peptide sequence in FASTA format. ([Example Sequence](#))

By default all the parameters of Blast are set for **peptide blast**. User can change the parameters as per the needs.

E-Value
20000

Matrix
PAM30

Word Size
2

SEG Filtering
OFF

Compositional Biasness
OFF

Click for example query

Select parameter for blast and click on Run analysis

Blast: -

Blast-Search page assists the user to run a BLAST search against the CancerPPD Database. After submission of job it returns the list of peptides similar to the query peptide. The server provides options to choose different parameters like weight matrix and expectation value.

Smith Waterman search page of CancerPPD

Smith-Waterman Search page assists the user to run a Local alignment search against the CancerPPD Database using Smith-Waterman algorithm. After submission of job, it returns the list of peptides similar to the query peptide. For more information see [HELP](#) page.

Search a Given Peptide

Enter your peptide sequence in FASTA format. [Example Sequence](#)

```
>seq  
KKKFPWWPFKKK
```

Paste your query Or
click on example
sequence option

Click for Run
analysis

[Clear All](#) [Run Analysis!](#)

Smith –Waterman Search: -

Smith-Waterman Search page assists the user to run a Local alignment search against the CancerPPD Database using Smith-Waterman algorithm. After submission of job, it returns the list of peptides similar to the query peptide. Click on the **Run Analysis!** box to get the result as displayed below.

Smith Waterman Search Result Page of CancerPPD

```
Query 1: seq - 13 aa
Library: /usr1/webserver/cgidocs/raghava/cancerppd/cancerppd_db/cance 68439 residues in 3711 sequences

< 20    opt      E()
22     0         0:
24     0         0:          one = represents 9 library sequences
26     9         0:==
28    15        1:*==
30    22        5:*===
32    38        20:===*===
34    32        53:===== *
36    85       110:===== *
38   152       181:===== *
40   228       253:===== *
42   367       309:===== *
44   457       341:===== *
46   485       347:===== *
48   186       333:===== *
50   188       304:===== *
52   411       267:===== *
54   222       228:===== *
56    91       190:===== *
58    95       156:===== *
60    63       127:===== *
62    32       102:===== *
64   175       81:===== *
66    72       64:===== *
68    15       50:==== *
70    27       39:==== *
72    33       31:==== *
74     7       24:== *
76    48       19:==== *
78    61       14:==== *
80    10       11:== *
82    12       9:*==
84     0        7:*
86    30       5:*===
88     5        4:*          inset = represents 1 library sequences
90     4        3:*
92     3        2:*          :===
94     0        2:*          : *
96     0        1:*          :*
98     0        1:*          :*
100    0        1:*          :*
102    0        1:*          :*
104    3        1:*          :*===
106    0         0:          *
108    3         0:==       *===
110   13         0:==       *=====
112    0         0:          *
114    0         0:          *
116    0         0:          *
118    0         0:          *
>120  12         0:==       *=====
68439 residues in 3711 sequences
Statistics: MLE_cen statistics: Lambda= 0.1876; K=0.06679 (cen=185)
Kolmogorov-Smirnov statistic: 0.0725 (N=28) at 46
Algorithm: Smith-Waterman (SSE2, Michael Farrar 2006) (6.0 Mar 2007)
Parameters: BL50 matrix (15:-5), open/ext: -10/-2
Scan time: 0.000
```

Miscellaneous: -

Developers: -

This database was developed at [Raghava's Group](#), Bioinformatics Centre, Institute of Microbial Technology, Chandigarh, India.

Developers of CancerPPD

This database was developed at [Raghava's Group](#), Bioinformatics Centre, Institute of Microbial Technology, Chandigarh, India.



Sudhir Gupta
Senior Research Fellow



Atul Tyagi
Senior Research Fellow



Deepika Mathur
Graduate Student



Abhishek Tuknait
Project Fellow



Anshika Joshi
Project Fellow



Minakshi Sharma
Project Fellow



Priya Anand
Project Fellow



Sandeep Singh
Research Fellow



Ankur Gautam
Scientist

This database was developed at [Raghava's Group](#), Bioinformatics Centre, Institute of Microbial Technology, Chandigarh, India.



Dr. Gajendra P. S. Raghava
Scientist & Head Bioinformatics Center
Institute of Microbial Technology
Sector-39, Chandigarh, India
Email: raghava@imtech.res.in or raghavaps@gmail.com

Web Site: <http://www.imtech.res.in/raghava/>
Phone: +91-01722690557 or +91-01726665450

Contact: -

This database was developed at [Raghava's Group](#), Bioinformatics Centre, Institute of Microbial Technology, Chandigarh, India.

Address for Correspondence

This database was developed at [Raghava's Group](#), Bioinformatics Centre, Institute of Microbial Technology, Chandigarh, India.



[Dr. Gajendra P. S. Raghava](#)
Scientist & Head Bioinformatics Center
Institute of Microbial Technology
Sector-39, Chandigarh, India
Email: raghava@imtech.res.in, raghavagps@gmail.com

Web Site: <http://www.imtech.res.in/raghava/>
Phone: +91-01722690557 or +91-01726665450

