

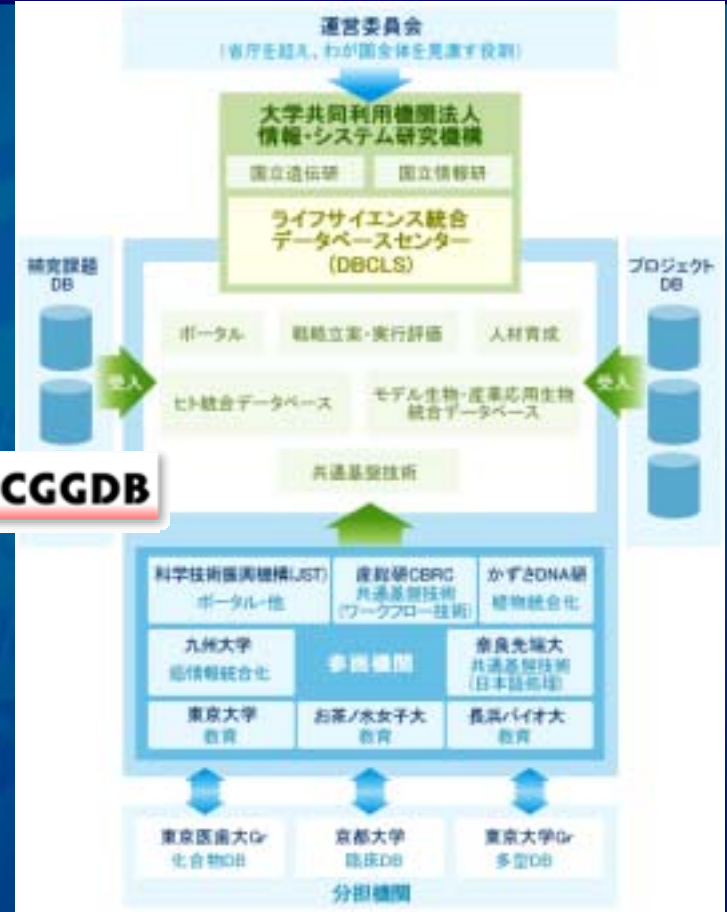
糖鎖統合データベースの活用法 ~ JCGGDB :JCGG's Database ~

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This work is supported by Integrated Database Project by MEXT
(Ministry of Education, Culture, Sports, Science and Technology)

文科省ライフサイエンス統合DB

- MEXT 統合DB プロジェクト
 - 約300のライフ系DBが存在する
 - 運営できないDBを引き継ぎ統合する
- 産総研は糖鎖関連のDBを統合する使命 (2007年10月～2011年3月まで)
- 可能な限り多くの糖鎖関連DBを統合する



国内の糖鎖関連データベース

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糖鎖関連遺伝子に関連するDB

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AIST GlycoGene DataBase

About GlycoGene DataBase

Significance of GGDB

GlycoGene includes genes associated with glycan synthesis such as glycosyltransferases, sugar nucleotide synthetases, sugar nucleotide transporters, sulfotransferases, etc. At present, over 300 human glycosome genes identified/observed and characterized by "Construction of GlycoGene Library Project" (April 2001 - March, 2004), are collected and compiled the data on such glycosomes as GlycoGene Database (GGDB), which is the first database to store information on substrate specificities. GGDB provides necessary information for the analysis of glycosomes.

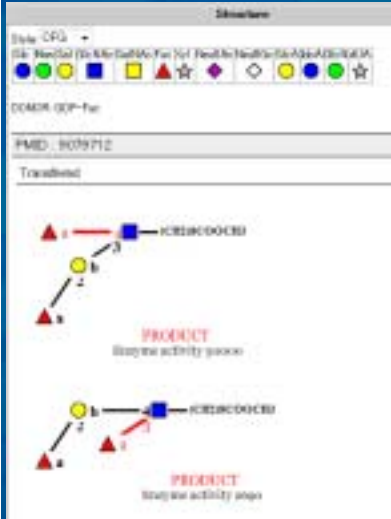
Present Status of GGDB

The purpose of GlycoGene Database (GGDB, <http://www.ggdb.aist.go.jp/>) is to provide users with easy access to the information on a glycosome (no restriction to GGDB). The following property information of each glycosome are stored in GGDB: (1) gene name (symbolic), enzyme names, (2) DNA sequences, (3) gene distribution (expression), (4) substrate specificities, (5) homology genes, (6) functions, and (7) external links to various databases. It significantly shows the glycosomes such as substrate specificities, etc.

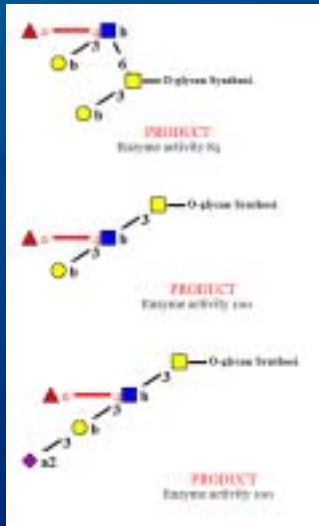
Gene Name	Accession No.	Enzyme Name	Substrate Specificity
GLY3L1	AF040881	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L2	AF040882	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L3	AF040883	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L4	AF040884	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L5	AF040885	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L6	AF040886	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L7	AF040887	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L8	AF040888	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L9	AF040889	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L10	AF040890	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L11	AF040891	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L12	AF040892	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L13	AF040893	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L14	AF040894	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L15	AF040895	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L16	AF040896	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L17	AF040897	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L18	AF040898	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L19	AF040899	alpha-D-glucosyltransferase	beta-D-glucopyranosyl
GLY3L20	AF040900	alpha-D-glucosyltransferase	beta-D-glucopyranosyl

Information on acceptor substrates and products

From references:



From experimental data by AIST researchers:



Gene information (sequence, motifs, gene expression, orthologous gene, etc.)

(Outcome of NEDO project)

AIST Lectin frontier DataBase



The screenshot shows the LFDDB website with a search bar, a navigation menu, and a main content area. The navigation menu includes links for GlycoGene, Lectin, GlycoMass, and GlycoProtein databases. The main content area is titled 'About Lectin Frontier DataBase (LFDDB)' and contains sections for 'Significance of LFDDB', 'Present status of LFDDB', 'Future perspectives', and 'Acknowledgement'. A photograph of the automated FAC-FD system is included in the 'Significance of LFDDB' section.

- For beginners: select category by mouse-click.
 - Selection from
 - Lectin Family
 - Monosaccharide specificity
 - 3D-fold
- For experts: search by keyword, like a lectin name.
 - WGA, AOL ..

(Outcome of NEDO project)

Lectin (ex. AAL)

LfDB Lectin frontier DataBase

[Glycoscience Database](#) | [Lectin frontier Database](#) | [Glycoflow Database](#) | [GlycoPhospho Database](#)

Top > LfDB > Search Result > Detail

Advanced Search

Keyword

Family Classification

Keyword

Search

Select Item

Lectin Family

Monosaccharide Specificity

Organism (Scientific Name)

Japanese Name (Family)

Source

Source Organ

Specific Source Organ

Number of LfDB

Structure (External Link)

Sequence ID

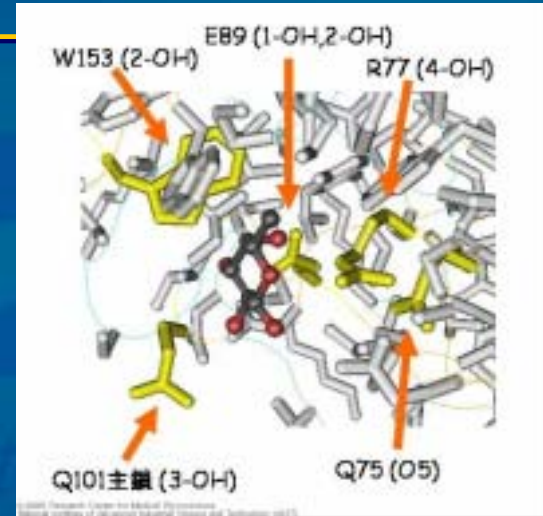
Sequence

AAL (LFF-00003f) [Print]

Lectin ID	LFF-00003f
Lectin Name	AAL
Lectin Family	Mutanolysin-Lectin
Monosaccharide Specificity	Gal.
Organism (Scientific Name)	Wang's pea lectin from (Phaseolus vulgaris)
Japanese Name (Family)	トウモロコシトウモロコシ
Source	Fungus
Source Organ	
Specific Source Organ	
Number of LfDB	31 (6)
Structure (External Link)	GenBank (D0776, D0871, E0852) PDB (1.6, 1.6C, 1.6T, 1.6U)
Sequence ID	
Sequence	1. MSYSLDLSR DALLDNDG DQDQDQ 41. TQPLAARDK MDDQDQDQ MDDQDQ 211. MDDQDQDQ MDDQDQDQ MDDQDQ 211. DDDQDQDQ DDDQDQDQ DDDQDQ 241. MDDQDQDQ DDDQDQDQ DDDQDQ 301. MDDQDQDQ MDDQDQDQ MDDQDQ

Molecular Structure

SiteScan Best Match (Protein) (Detailed View)



- Information on glycan-lectin interaction from references
- Experimental information on glycan-lectin binding affinity (Outcome of NEDO project)

The results of the lectin-glycan binding assay : > 100 glycans per lectin

LfDB was released with experimental data of > 80 lectins

糖タンパク質と糖脂質のDBと その構造を解析したデータ

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AIST GlycoProtDB

GlycoProtDB GlycoProtein DataBase

Navigation: Home | Login/Logout | Register | Query/Map | Download | Database

Version: 2013.01.01 | Search Result

Advanced Search

Protein Data

Protein ID	Protein Name	Length	MW	PI	Species	Source	Accession
GLP_000001	Glucosyltransferase	298	32.8	5.5	C.elegans	Glucosyltransferase	AF040347
GLP_000002	Glucosyltransferase	298	32.8	5.5	C.elegans	Glucosyltransferase	AF040347

Resulting (GLP_000001)

Protein Information

Accession ID	Protein Name	Organism	Length	MW	PI
GLP_000001	Glucosyltransferase	C.elegans	298	32.8	5.5

Sequence (aa)

1: M...
 2: ...
 3: ...

Signal

- *N*-glycosylation sites, confirmed by experimental evidence (IGOT).
- Lectin binding structure on *N*-linked glycan
- 公開済み:
 - C.elegans: ConA, WGA
- 近日公開予定:
 - C.elegans: Gal-6
 - Mouse tissues

GlycoProtDB Site

Search

Location: ALL

Search

Diagram showing glycosylation sites on a protein sequence.

Context Link

Definition	RefSeq	Gene	Transcript	Protein	Database Link	GenBank	PubMed	DB
glucosyltransferase	GLP_000001	GLP_000001	GLP_000001	GLP_000001	GLP_000001	GLP_000001	GLP_000001	GLP_000001

Related Protein/Chemical

Organism(Tax ID)	Protein Name
Caenorhabditis elegans (6292)	Glucosyltransferase protein ZP_9527_01
Caenorhabditis elegans (6292)	similar to glucosyltransferase protein ZP_9527_01
Mus musculus (10090)	Glucosyltransferase protein ZP_9527_01
Rattus norvegicus (10116)	lectin-specific membrane protein ZP_9527_01
Salix glauca (3031)	similar to glucosyltransferase protein ZP_9527_01
Caenorhabditis elegans (6292)	Glucosyltransferase protein ZP_9527_01
Caenorhabditis elegans (6292)	similar to glucosyltransferase protein ZP_9527_01
Mus musculus (10090)	Glucosyltransferase protein ZP_9527_01
Rattus norvegicus (10116)	lectin-specific membrane protein ZP_9527_01
Salix glauca (3031)	similar to glucosyltransferase protein ZP_9527_01

LipidBank

LipidBank

The official database of Japanese Conference on the Biochemistry of Lipids (JCSL)

LIPID CLASS (entries)

- ▶ [All data](#) (7009)
- ▶ [Acylglycerol](#) (574)
- ▶ [Bile acid](#) (574)
- ▶ [Derived lipid](#) (1065)
 - ▶ [Fatty acid](#) (756)
 - ▶ [Long chain alcohol](#) (57)
 - ▶ [Long chain aldehyde](#) (106)
 - ▶ [Long chain base and Ceramide](#) (148)
- ▶ [Eicosanoid](#) (329)
- ▶ [Ether type lipid](#) (547)
- ▶ [Fat soluble vitamin](#) (1219)
 - ▶ [Carotenoid](#) (261)
 - ▶ [Coenzyme Q](#) (32)
 - ▶ [Vitamin A](#) (100)
- ▶ [Glycolipid](#) (696)
 - ▶ [Glycosphingolipid](#) (581)
 - ▶ [Glycosylglycerolipid and others](#) (115)
- ▶ [Isoprenoid](#) (112)
- ▶ [Lipid peroxide](#) (5)
- ▶ [Lipoamino acid](#) (5)
- ▶ [Lipopolysaccharide](#) (734)
- ▶ [Lipoprotein](#) (12)
- ▶ [Mycotic acid](#) (203)
- ▶ [Phospholipid](#) (341)
 - ▶ [Glycerophospholipid](#) (310)
 - ▶ [Sphingophospholipid](#) (31)
- ▶ [Steroid](#) (479)

- 脂質の構造に関するDB
- 糖脂質の生理活性
- NMR・MS・クロマトグラムの情報

581 / 581 matched		1-20 displayed (out of 581 matched) Next Page <input type="button" value="Change"/>
1		Galactosyl sulfate /Galactosylceramide 3-sulfate (No = GSG0069)
2		Lactosyl sulfate /HSO ₃ -3Galβ1-4GlcCer (No = GSG0070)
3		Gangliosyl sulfate /Gangliosylceramide sulfate (No = GSG0071)
4		bis-sulfo-gangliosyl sulfate /bis-sulfo-gangliosylceramide (No = GSG0072)
5		Sulfogangliosyl sulfate /Sulfogangliosylceramide (No = GSG0073)

GlycoEpitope

GlycoEpitope

Home | List all epitopes | List all antibodies

About this database

Carbohydrate chains occupy truly significant positions in various fields of life sciences and biotechnology. Recently, the wide-ranging involvement of carbohydrate chains in life sciences has been extended to such diverse functions as cell-to-cell recognition and communication in neuronal tissues and immune systems, pathogen recognition, sperm-egg recognition and fertilization, regulating hormonal balance in the blood, directing embryonic development and differentiation, and directing distribution of various cells and proteins throughout the body. A large number of polyclonal or monoclonal antibodies have been used as very important tools for analyzing expression of various carbohydrate chains and their functions. In this database, useful information on these carbohydrate antigens, i.e. glyco-epitopes, and antibodies has been assembled as a compact encyclopedia.

Epitope Search

Antibody Search

- If you have any questions or comments, please contact us by E-mail: epitope@reimg.aist.go.jp
- GlycoEpitope Database is provided by Kawasaki Institute. The database server is located at Research Center for Glyco-Technology, Fukuoka University.
- User Guide (Japanese, English)
- reimg@reimg.aist.go.jp

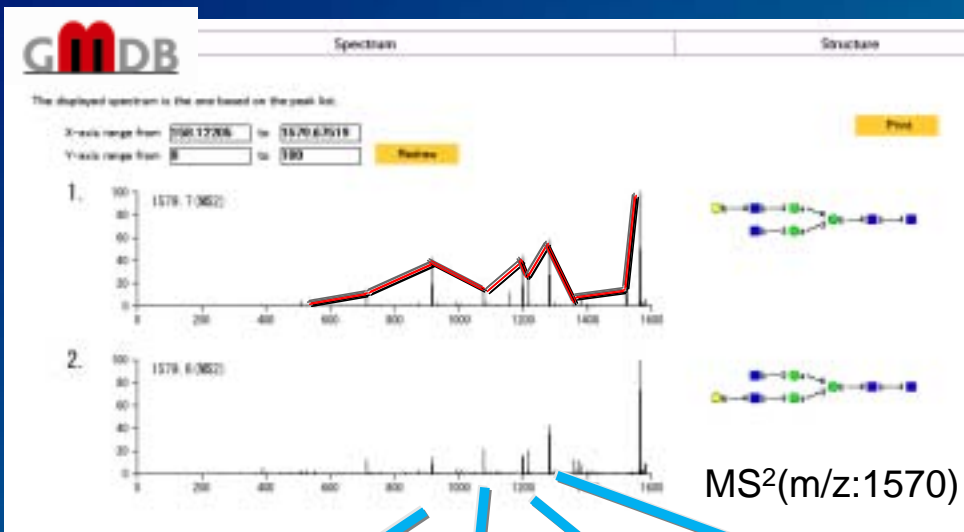
Last update: 2009-01-28

- 立命館大学・川寄先生
- 抗糖鎖抗体、エピトープ構造のデータベース
- エピトープ構造がある生物種・組織など

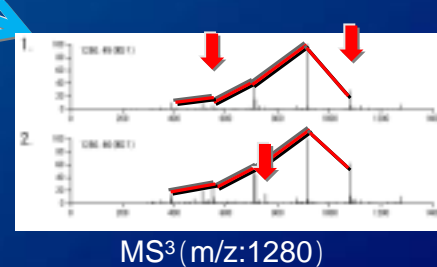
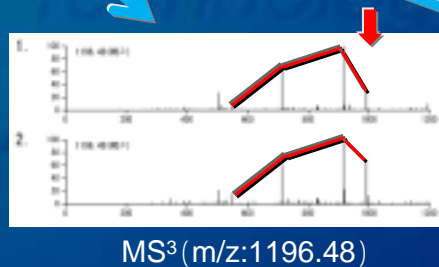
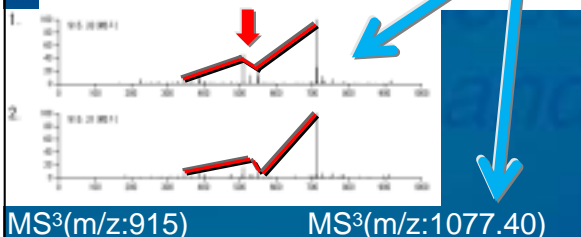
3'-Sulfo Lewis a					
General	Antibody	Glycoprotein	Glycolipid	Enzyme	Reference
General information of EP0009					
Epitope ID	EP0009				
Epitope	3'-Sulfo Lewis a				
Structure					
Sequence	H903:(3)Gal(beta)3[Fuc(alpha)4][GlcNAc(beta)1]-R				
Aliases	3'-Sulfo Le ^a				
History	In the early 1990s, it was reported that the 3'-sulfated Le ^a /Le ^x type tetrasaccharides were bound to selectins [1][2].				
3D structure					
Molecular weight	606.6				
Composition	(Fuc)1(Gal)3(GlcNAc)1(H903)1				
Species	Homo sapiens, Rattus norvegicus				
Thiss and Cellular	colon esophagus G. palustrales G. sublinguales G. submandibulares				

Glycan Mass Spectral DataBase

4Hex 4HexNAc



- 一般的には、質量数から糖組成を解釈し、単糖組成と既知の構造とを照合して推定しているに過ぎない。
- MS³やMS⁴のスペクトルを比較すると構造を見分けることができる。



(Outcome of NEDO project)

現在公開しているもの

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JCGGDBの横断検索



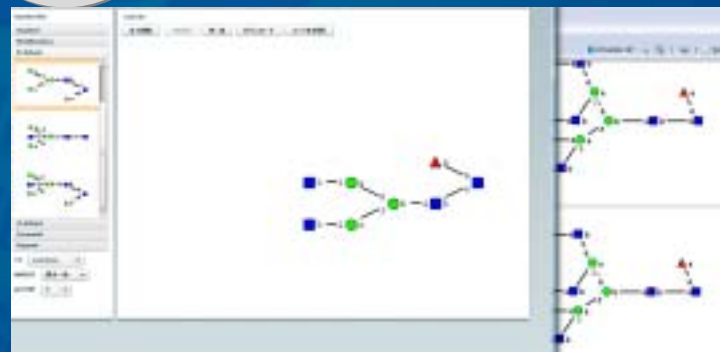
横断検索

Keywords search
across Glyco-DBs



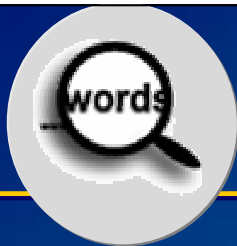
構造検索

Structural search
(構造エディター)



今年度中に公開予定
構造による横断検索

キーワードによる横断検索機能
運用開始



横断検索

ライフサイエンス辞書を利用し日本語と英語の両方で全文検索



Portal site

Search Results

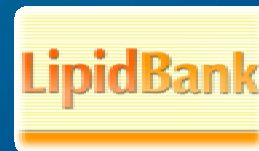
Full Text Search



Gene Information

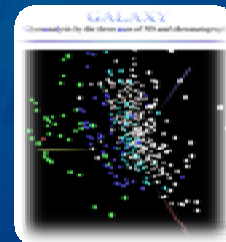


Structural Information



Structural Search

Composition Search



それでは実際に検索してみましょう

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