

Description

Lectins are proteins or glycoproteins which possess the ability to bind specifically sugars. They have no enzyme activity and are not antibodies. Lectins are ubiquitous in nature, being found in all kinds of organisms (virus, microorganisms, plants, invertebrates and vertebrates). Lectins are usually oligomeric proteins and have many binding sites. The binding constant of the specific free sugar is generally many orders of magnitude lower than the binding constant of a glycoconjugate (glycolipid, glycoprotein...) containing this sugar. Lectins agglutinate cells, some lectins are even blood type specific, but they are also able to recognise cells surface glycans allowing to distinguish between different cells species and states. Furthermore some lectins stimulate lymphocyte and induce mitosis. The lectins have been used for :

- **Studies of glycobiological interactions with glycans or glycans mimics**
- **Detection, isolation, and structural studies of glycoproteins**
- **Study the dynamics of the cell surface glycoconjugates**
- **Cell identification and to separate subpopulation of cells and subcellular organelles**
- **Study endocytosis, neoplastic transformation**
- **Mitogenic stimulation of lymphocytes**
- **Glyco-biomarkers discovery and new diagnostics assays design**

List of Natural Lectins

Reference	Short Name	Common name	Glycans structures specificity
L1222	ABA	<i>Agaricus Bisporus</i>	Gal(β-1,3) GalNAc
L1221	AIA / Jacalin	<i>Artocarpus intergrifolia</i>	Gala1-6 or Galb1-3GalNAc (T-antigen)>> lactose, more specific for T-antigen than PNA
L1367	AML	<i>Astragalus membranaceus</i>	Galb
L1205	ASA	<i>Allium Sativum agglutinin</i>	α(1,3)-linked mannosyl units
L1889	BanLec	<i>Musa Acuminata</i>	αMan
L1254	CJA	<i>Crotalaria juncea</i>	Gal (Lac>GalNAc)
L1366	cMOL	<i>Moringa oleifera</i>	Complex glycans, inhibited by asialofetuin
L1201	Con A	<i>Canavalia ensiformis</i>	Man > Glc ; branched mannoses a
L2349	CorM	<i>Coregonus lavaretus marenae</i>	Rha
L1206	GNL / GNA	<i>Galanthus nivalis</i>	Terminal mannoses. Mana1-3Man ; α2-macroglobulin ; bind mannopentaose
L1202	LcH	<i>Lens culinaris</i>	Mana/Glca > GlcNAca, enhanced by Fuca1-6 on the core GlcNAc-Asn N-glycopeptides
L1252	NPA	<i>Narcissus pseudonarcissus Daffodil</i>	External or internal a or b mannose
L1240	PHA E	<i>Phaseolus vulgaris</i>	Galb1-4GlcNAcb1-2Man, the bisecting GlcNAcb1-4Man is essential.
L1239	PHA L	<i>Phaseolus vulgaris</i>	Galb1-4GlcNAcb1-6Man of branched structures of N-glycans, Galb1-4GlcNAcb1-2Man.
L1223	PNA	<i>Arachis hypogaea</i>	Lactose, T- antigen
L1203	PSA, PEA	<i>Pisum sativum</i>	Man > Glc ; enhanced by Fuca1-6 on the core GlcNAc-Asn N-glycopeptides, IgM1A mouse
L1216	SBA	<i>Glycine max</i>	Preference for a over b-glycosidic linkage.
L1237	SNA	<i>Sambucus nigra</i>	Neu5Aca2-6Gal/GalNAc
L1261	TXLC-I	<i>Tulipa gesneriana agglutinin</i>	GalNAc, Gal
L1253	VEA	<i>Vicia ervilia</i>	Man>trehalose>Glc
L1204	VFA	<i>Vicia faba</i>	Man >Glc>GlcNAc
L1230	WGA	<i>Triticum vulgare</i>	GlcNAc; GlcNAcb1-4 oligomers , core of Asn linked oligasacchide; Neu5Ac

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List of recombinant Lectins

Reference	Short Name	Common name	Glycans structures specificity
L1255	BC2L-A	Burkholderia cenocepacia lectin A	Man α 1-2, Man α 1-3, Man α 1-6, dimanoside,
L1256	BC2L-C	Burkholderia cenocepacia lectin C (N terminal domain)	Fuc, oligo H type I, Lewis B, Lewis Y
L1688	FimH	<i>Escherichia coli</i> adhesin FimH	Mannosylated structure
L2094	HPyL	Human Polyomavirus 9 VP1	Neu5Gc
L1257	PA-IL	Pseudomonas aeruginosa lectin A	Gal α , Globoside
L1259	PAII-L	Pseudomonas aeruginosa lectin B (Lec B)	Fuc >> Man, Lewis A
L2099	RPL-Fuc1	Recombinant Prokaryotic Lectin Fuc1	α -linked Fucose
L2095	RPL- α Gal	Recombinant Prokaryotic Lectin α Gal	Terminal α -linked Gal & GalNAc
L1579	RPL-Gal1	Recombinant Prokaryotic Lectin Gal1	Terminal β -linked Gal & LacNAc
L1580	RPL-Gal2	Recombinant Prokaryotic Lectin Gal2	Terminal α -linked Gal > GalNAc
L1581	RPL-Gal3	Recombinant Prokaryotic Lectin Gal3	Terminal α -linked Gal
L1582	RPL-Gal4	Recombinant Prokaryotic Lectin Gal4	Terminal β -linked Gal, LacNAc & Lewis x (Lex)
L1583	RPL- α Man	Recombinant Prokaryotic Lectin α Mannose	Fucose/Mannose: Lewis a (Lea), Lewis x (Lex) & terminal α -mannose
L1584	RPL-Man2	Recombinant Prokaryotic Lectin Man2	Terminal α -mannose
L2096	RPL-Sia1	Recombinant Prokaryotic Lectin Sia1	Terminal α 2-3-linked Sialic Acid (Neu5Ac) – on both N-linked and O-Linked
L2097	RPL-Sia2	Recombinant Prokaryotic Lectin Sia2	Terminal α 2-3-linked Sialic Acid (Neu5Ac) on O-Linked Glycans
L2098	RPL-Sia3	Recombinant Prokaryotic Lectin Sia3	Terminal α -linked Neu5Ac
L1258	RSL	Ralstonia solanacearum	Fuc

Distributed by:

CliniSciences Group

CliniSciences Group

Austria

Company: CliniSciences GmbH
Address: Sternwartestrasse 76, A-1180
Wien - Austria
Telephone: +43 720 115 580
Fax: +43 720 115 577
Email: oesterreich@clinisciences.com
Web: <https://www.clinisciences.com>



Belgium

Company: CliniSciences S.R.L
Address: Avenue Stalingrad 52, 1000
Brussels - Belgium
Telephone: +32 2 31 50 800
Fax: +32 2 31 50 801
Email: belgium@clinisciences.com
Web: <https://www.clinisciences.com>



Denmark

Company: CliniSciences ApS
Address: Oesterbrogade 226, st. 1,
Copenhagen, 2100 - Denmark
Telephone: +45 89 888 349
Fax: +45 89 884 064
Email: danmark@clinisciences.com
Web: <https://www.clinisciences.com>



Finland

Company: CliniSciences ApS
Address: Oesterbrogade 226, st. 1,
Copenhagen, 2100 - Denmark
Telephone: +45 89 888 349
Fax: +45 89 884 064
Email: suomi@clinisciences.com
Web: <https://www.clinisciences.com>



France

Company: CliniSciences S.A.S
Address: 74 Rue des Suisses, 92000
Nanterre- France
Telephone: +33 9 77 40 09 09
Fax: +33 9 77 40 10 11
Email: info@clinisciences.com
Web: <https://www.clinisciences.com>



Germany

Company: Biotrend Chemikalien GmbH
Address: Wilhelm-Mauser-Str. 41-43,
50827 Köln - Germany
Telephone: +49 221 9498 320
Fax: +49 221 9498 325
Email: info@biotrend.com
Web: <https://www.biotrend.com>



Iceland

Company: CliniSciences ApS
Address: Oesterbrogade 226, st. 1,
Copenhagen, 2100 - Denmark
Telephone: +45 89 888 349
Fax: +45 89 884 064
Email: island@clinisciences.com
Web: <https://www.clinisciences.com>



Ireland

Company: CliniSciences Limited
Address: Ground Floor, 71 lower Baggot street
Dublin D02 P593 - Ireland
Telephone: +353 1 6971 146
Fax: +353 1 6971 147
Email: ireland@clinisciences.com
Web: <https://www.clinisciences.com>



Italy

Company: CliniSciences S.r.l
Address: Via Maremmana inferiore 378
Roma 00012 Guidonia Montecelio - Italy
Telephone: +39 06 94 80 56 71
Fax: +39 06 94 80 00 21
Email: italia@clinisciences.com
Web: <https://www.clinisciences.com>



Netherlands

Company: CliniSciences B.V.
Address: Kraaijenhoffstraat 137A,
1018RG Amsterdam, - Netherlands
Telephone: +31 85 2082 351
Fax: +31 85 2082 353
Email: nederland@clinisciences.com
Web: <https://www.clinisciences.com>



Norway

Company: CliniSciences AS
Address: c/o MerVerdi Munkeudtunet 10
1164 Oslo - Norway
Telephone: +47 21 988 882
Email: norge@clinisciences.com
Web: <https://www.clinisciences.com>



Poland

Company: CliniSciences sp.Z.o.o.
Address: ul. Rotmistrza Witolda Pileckiego 67
lok. 200 - 02-781 Warszawa -Poland
Telephone: +48 22 307 0535
Fax: +48 22 307 0532
Email: polska@clinisciences.com
Web: <https://www.clinisciences.com>



Portugal

Company: Quimigen Unipessoal LDA
Address: Rua Almada Negreiros, Lote 5, Loja 14,
2615-275 Alverca Do Ribatejo - Portugal
Telephone: +351 30 8808 050
Fax: +351 30 8808 052
Email: info@quimigen.com
Web: <https://www.quimigen.pt>



Spain

Company: CliniSciences Lab Solutions
Address: C/ Hermanos del Moral 13
(Bajo E), 28019, Madrid - Spain
Telephone: +34 916 750 700
Fax: +34 91 269 40 74
Email: espana@clinisciences.com
Web: <https://www.clinisciences.com>



Sweden

Company: CliniSciences ApS
Address: Oesterbrogade 226, st. 1,
Copenhagen, 2100 - Denmark
Telephone: +45 89 888 349
Fax: +45 89 884 064
Email: sverige@clinisciences.com
Web: <https://www.clinisciences.com>



Switzerland

Company: CliniSciences AG
Address: Fracht Ost Flughafen Kloten
CH-8058 Zürich - Switzerland
Telephone: +41 (044) 805 76 81
Fax: +41 (044) 805 76 75
Email: switzerland@clinisciences.com
Web: <https://www.clinisciences.com>



UK

Company: CliniSciences Limited
Address: 11 Progress Business center, Whittle
Parkway, SL1 6DQ Slough- United Kingdom
Telephone: +44 (0)1753 866 511
or +44 (0) 330 684 0982
Fax: +44 (0)1753 208 899
Email: uk@clinisciences.com
Web: <https://www.clinisciences.com>



USA

Company: Biotrend Chemicals LLC
Address: c/o Carr Riggs Ingram,
500 Grand Boulevard, Suite 210 Miramar
Beach, FL 32550- USA
Telephone: +1 850 650 7790
Fax: +1 850 650 4383
Email: info@biotrend-usa.com
Web: <https://www.biotrend-usa.com>

