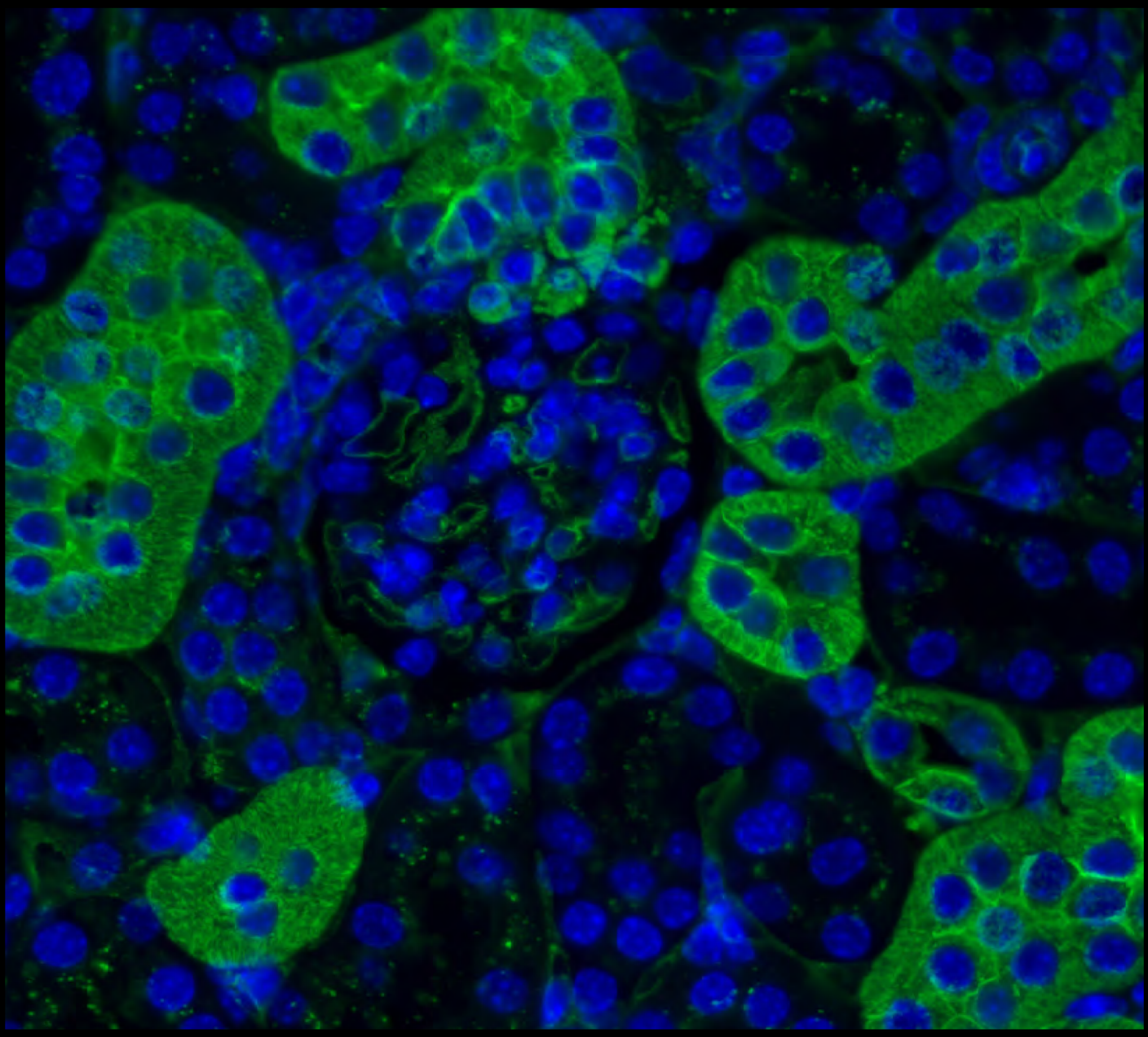

Lectins and Glycobiology

VECTOR LABORATORIES
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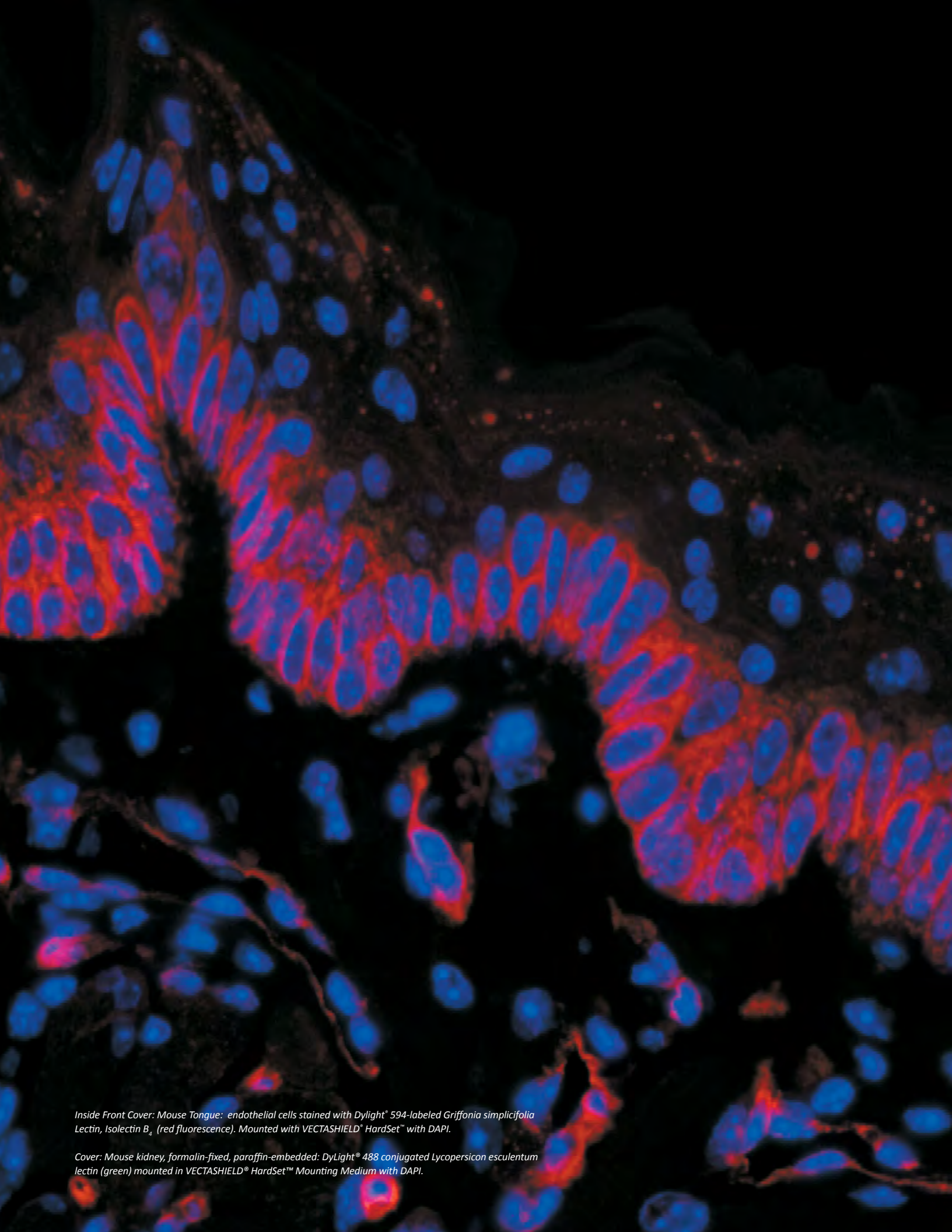


Inside Front Cover: Mouse Tongue: endothelial cells stained with Dylight® 594-labeled Griffonia simplicifolia Lectin, Isolectin B_4 (red fluorescence). Mounted with VECTASHIELD® HardSet™ with DAPI.

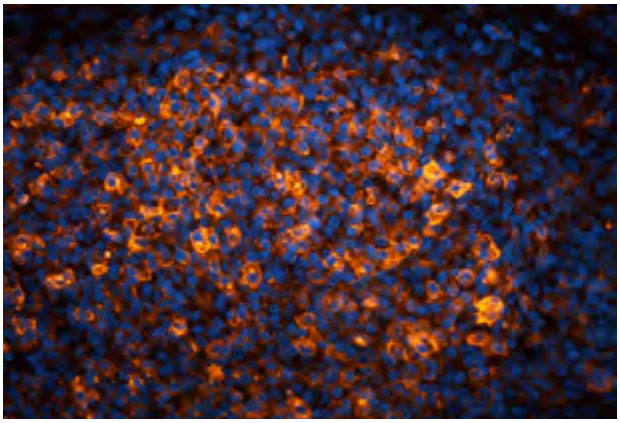
Cover: Mouse kidney, formalin-fixed, paraffin-embedded: DyLight® 488 conjugated Lycopersicon esculentum lectin (green) mounted in VECTASHIELD® HardSet™ Mounting Medium with DAPI.

Introduction

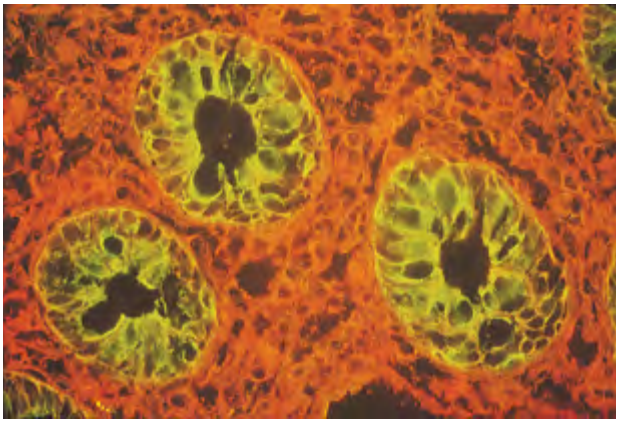
Since the 1880's, it has been known that extracts from certain plants could agglutinate red blood cells. In the 1940's, agglutinins were discovered which could "select" types of cells based on their blood group activities. Although "lectin" was originally coined to define agglutinins that could discriminate among types of red blood cells, today the term is used more generally and includes sugar-binding proteins from many sources regardless of their ability to agglutinate cells. Lectins have been found in plants, viruses, microorganisms, and animals but despite their ubiquity, in many cases their biological function is unclear.

Most lectins are multimeric, consisting of non-covalently associated subunits. It is this multimeric structure that gives lectins their ability to agglutinate cells or form precipitates with glycoconjugates in a manner similar to antigen-antibody interactions. This unique group of proteins has provided researchers with powerful tools to explore a myriad of biological structures and processes. Because of the specificity that each lectin has toward a particular carbohydrate structure, even oligosaccharides with identical sugar compositions can be distinguished or separated. The affinity between a lectin and its receptor may vary a great deal due to small changes in the carbohydrate structure of the receptor. These properties enable the researcher to discriminate between structures, isolate a specific glycoconjugate, cell, or virus from a mixture, or study one process among several. Another property of some lectins is an ability to induce mitosis in cells that are normally not dividing. This property has been exploited extensively in an attempt to understand the process of lymphocyte blastogenesis and the biochemical and structural alterations associated with mitogenesis. These important applications include lymphokine production and viral coat protein (eg gp120) isolation. In fact, thousands of articles on lectins have been published examining hundreds of different aspects and uses of lectins.

Lectins have been purified by "conventional" procedures including salt-induced crystallization, ethanol precipitation, ion exchange chromatography and gel filtration, or by affinity chromatography. The former methods rely on the physicochemical properties of the proteins for separation while affinity chromatography depends on the specific interaction between the lectin and a carbohydrate structure attached to an inert matrix. We employ both "conventional" procedures and affinity chromatography for each of our lectins. Purification is monitored and final product is assessed by immunoprecipitation with antisera, agglutination titer, polyacrylamide gel electrophoresis, and binding activity to specific affinity columns, providing the assurance that our customers have the best lectins available.



Tonsil (FFPE): Antigen Retrieved with Antigen Unmasking Solution and stained with CY®3 PNA (red-orange). Mounted in VECTASHIELD® HardSet™ with DAPI.



Frozen section of colon viewed under fluorescein filter: Lycopersicon esculentum lectin (orange staining with Vector® Red) and glandular epithelium (green fluorescein label).

Table of Lectin Properties

Lectin	Common Abbreviation	Source	Glycoprotein	Metal Ions Present	Mitogenic Activity	Blood Group Specificity	Preferred Sugar Specificity	Inhibitor or Eluting Sugar
Agaricus bisporus	ABL	*Agaricus bisporus* white button mushrooms	–	No	No	Non-specific	Gal(β-1,3) GalNAc	Fetuin
Aleuria aurantia	AAL	*Aleuria aurantia* mushrooms	No	--	No	Non-specific	Fucα6GlcNAc	L-Fuc
Bauhinia purpurea	BPL, BPA	*Bauhinia purpurea alba* (Camel's Foot Tree) seeds	Yes	No	Yes	A,B,O (-SA)	Galβ3GalNAc	Lactose
Concanavalin A	Con A	*Canavalia ensiformis* (Jack Bean) seeds	No	Ca^{++}, Mn^{++}	Yes	Non-specific	αMan, αGlc	MeαMan+ MeαGlc
Succinylated Concanavalin A	Succinylated Con A (sCon A)	*Canavalia ensiformis* (Jack Bean) seeds	No	Ca^{++}, Mn^{++}	Yes	None	αMan, αGlc	MeαMan+ MeαGlc
Datura stramonium	DSL	*Datura stramonium* (Thorn Apple, Jimson Weed) seeds	Yes	No	Yes	A, B, O	$(GlcNAc)_{2-4}$	Chitin hydrolysate
Dolichos biflorus	DBA	*Dolicos biflorus* (Horse Gram) seeds	Yes	Ca^{++}, Mn^{++}, Mg^{++} Zn^{++}	No	A_1>>A_2	αGalNAc	GalNAc
Erythrina cristagalli	ECL, ECA	*Erythrina cristagalli* (Coral Tree) seeds	Yes	Ca^{++}, Mn^{++}, Zn^{++}	Yes	A (–SA)	Galβ4GlcNAc	Lactose
Galanthus nivalis	GNL	*Galanthus nivalis* (Snowdrop) bulbs	No	No	No	Rabbit	αMan	MeαMan
Griffonia (Bandeiraea) simplicifolia I	GSL I, BSL I	*Griffonia (Bandeiraea) simplicifolia* seeds	Yes	Ca^{++}, Mn^{++}	No	B>>A1	αGal, αGalNAc	Gal/GalNAc
Griffonia (Bandeiraea) simplicifolia I Isolectin B_4	GSL I - B_4	*Griffonia (Bandeiraea) simplicifolia* seeds	Yes	Ca^{++}, Mn^{++}	No	B	αGal	Gal or Raffinose
Griffonia (Bandeiraea) simplicifolia II	GSL II, BSL II	*Griffonia (Bandeiraea) simplicifolia* seeds	Yes	Ca^{++}, Mn^{++}	No	A (-SA)>>B (-SA)	α or βGlcNAc	Chitin hydrolysate or GlcNAc
Hippeastrum hybrid	HHL, AL	*Hippeastrum* hybrid (Amaryllis) bulbs	No	No	No	Rabbit	αMan	MeαMan
Jacalin	Jacalin	*Artocarpus integrifolia* (Jackfruit) seeds	Yes	No	Yes	O (+SA), T antigen	Galβ3GalNAc	Gal or Melibiose
Lens culinaris	LCA, LcH	*Lens culinaris* (lentil) seeds	No	Ca^{++}, Mn^{++}	Yes	Non-specific	αMan, αGlc	MeαMan+ MeαGlc
Lotus tetragonolobus	LTL	*Lotus tetragonolobus, Tetragonolobus purpurea* (Winged Pea, Asparagus Pea) seeds	Yes	Ca^{++}, Mn^{++}	No	O<A2	αFuc	L-Fuc
Lycopersicon esculentum	LEL, TL	*Lycopersicon esculentum* (tomato) fruit	Yes	--	No	Non-specific	$(GlcNAc)_{2-4}$	Chitin hydrolysate
Maackia amurensis I	MAL I, MAL	*Maackia amurensis* seeds	Yes	No	Yes	Non-specific	Galβ4GlcNAc	Lactose
Maackia amurensis II	MAL II, MAH	*Maackia amurensis* seeds	Yes	No	Yes	Non-specific	Neu5Acα3Galβ3GalNAc	Human Glycophorin
Maclura pomifera	MPL	*Maclura pomifera* (Osage Orange) seeds	No	No	Yes	A, B, O (-SA)	Galβ3GalNAc	Gal
Musa paradisiaca	BanLec	*Musa paradisiaca* (banana fruit)	–	–	Yes	Rabbit	αMan, αGlc	MeαMan

Lectin	Common Abbreviation	Source	Glycoprotein	Metal Ions Present	Mitogenic Activity	Blood Group Specificity	Preferred Sugar Specificity	Inhibitor or Eluting Sugar
Narcissus pseudonarcissus	NPL, NPA, DL	*Narcissus pseudonarcissus* (Daffodil) bulbs	No	No	No	Rabbit	αMan	MeαMan
Peanut	PNA	*Arachis hypogaea* peanuts	No	Ca^{++}, Mg^{++}	No	T antigen (M, N)	Galβ3GalNAc	Gal
Phaseolus vulgaris Erythroagglutinin (PHA-E)	PHA-E	*Phaseolus vulgaris* (Red Kidney Bean) seeds	Yes	Ca^{++}, Mn^{++}	Yes	A(-SA)	Galβ4GlcNAcβ2Manα6 (GlcNAcβ4) (GlcNAcβ4Manα3) Manβ4	bovine thyroglobulin, acetic acid
Phaseolus vulgaris Leucoagglutinin (PHA-L)	PHA-L	*Phaseolus vulgaris* (Red Kidney Bean) seeds	Yes	Ca^{++}, Mn^{++}	Yes	–	Galβ4GlcNAcβ6 (GlcNAcβ2Manα3) Manα3	bovine thyroglobulin, acetic acid
Pisum sativum	PSA	*Pisum sativum* (Pea) seeds	Trace	Ca^{++}, Mn^{++}	Yes	Non-specific	αMan, αGlc	MeαMan+ MeαGlc
Ricinus communis I	RCA I, RCA_{120}	*Ricinus communis* (Castor Bean) seeds	Yes	No	No	Non-specific	Gal	Gal or Lactose
Ricinus communis II, ricin	RCA II, RCA_{60}, ricin	*Ricinus communis* (Castor Bean) seeds	Yes	No	No	Non-specific	Gal, GalNAc	Gal or Lactose
Ricin A Chain	Ricin A Chain	*RCA_{60}*	Yes	No	No	–	–	–
Ricin B Chain	Ricin B Chain	*RCA_{60}*	Yes	No	Yes	–	Gal	Gal or Lactose
Sambucus nigra	SNA, EBL	*Sambucus nigra* (Elderberry) bark	Yes	No	No	Non-specific	Neu5Acα6Gal/GalNAc	Lactose in buffered saline & acetic acid
Solanum tuberosum	STL, PL	*Solanum tuberosum,* (potato) tubers	Yes	No	No	Non-specific	$(GlcNAc)_{2-4}$	Chitin hydrolysate
Soybean	SBA	*Glycine max* (soybean) seeds	Yes	Ca^{++}, Mn^{++}	Yes	A>O>B	α>βGalNAc	GalNAc
Ulex europaeus I	UEA I	*Ulex europaeus* (Furze Gorse) seeds	Yes	Ca^{++}, Mn^{++}, Zn^{++}	No	O>A2	αFuc	L-Fuc
Vicia villosa	VVL, VVA	*Vicia villosa* (Hairy Vetch) seeds	Yes	Ca^{++}, Mn^{++}	No	Tn antigen	GalNAc	GalNAc
Wheat Germ	WGA	*Triticum vulgaris* (wheat germ)	No	Ca^{++}	Yes	A,B,O	GlcNAc	Chitin hydrolysate or GlcNAc with acid or salt
Succinylated Wheat Germ	Succinylated WGA (sWGA)	*Triticum vulgaris* (wheat germ)	No	Ca^{++}	No	A,B,O	GlcNAc	Chitin hydrolysate or GlcNAc with acid or salt
Wistera floribunda	WFA, WFL	*Wisteria floribunda* (Japanese Wisteria) seeds	Yes	--	Yes	Non-specific	GalNAc	GalNAc , acetic acid

Sugar Abbreviations:

Fuc	*L-Fucose*	*GlcNAc*	*N-Acetylglucosamine*	*MeαMan*	*α-Methylmannoside*
Gal	*D-Galactose*	*Man*	*Mannose*	*Neu5Ac*	*N-Acetylneuraminic acid (sialic acid)*
GalNAc	*N-Acetylgalactosamine*	*MeαGlc*	*α-Methylglucoside*	*SA*	*Sialic Acid*
Glc	*D-Glucose*				

Lectin Products/SKU Table

Agaricus Bisporus Lectin (ABL)		
Unconjugated	L-1420	2 mg
Fluorescein	FL-1421	1 mg
Agarose (2 mg lectin/ml gel)	AL-1423	2 ml
Biotin	B-1425	1 mg
Aleuria Aurantia Lectin (AAL)		
Unconjugated	L-1390	2 mg
Fluorescein	FL-1391	1 mg
Agarose (2 mg lectin/ml gel)	AL-1393	2 ml
Biotin	B-1395	1 mg
Bauhinia Purpurea Lectin (BPL)		
Unconjugated	L-1280	5 mg
Concanavalin A (Con A)		
Unconjugated	L-1000	500 mg
Fluorescein	FL-1001	25 mg
Rhodamine	RL-1002	25 mg
Agarose (6 mg lectin/ml gel)	AL-1003	10 ml, 100 ml
Biotin	B-1005	5 mg
CY® 3	CL-1003	1 mg
Succinylated Concanavalin A (sCon A)		
Biotin	B-1005S	5 mg
Datura Stramonium Lectin		
Unconjugated	L-1180	5 mg
Fluorescein	FL-1181	2 mg
Agarose (3 mg lectin/ml gel)	AL-1183	2 ml
Biotin	B-1185	2 mg
Dolichos Biflorus Agglutinin (DBA)		
Unconjugated	L-1030	5 mg, 10 mg
Fluorescein	FL-1031	2 mg, 5 mg
Rhodamine	RL-1032	2 mg
Biotin	B-1035	5 mg
Erythrina Cristagalli Lectin (ECL, ECA)		
Unconjugated	L-1140	10 mg
Fluorescein	FL-1141	5 mg
Agarose (3 mg lectin/ml gel)	AL-1143	2 ml
Biotin	B-1145	5 mg

Galanthus Nivalis Lectin (GNL)		
Unconjugated	L-1240	5 mg
Fluorescein	FL-1241	2 mg
Agarose (3 mg lectin/ml gel)	AL-1243	2 ml, 5 ml
Biotin	B-1245	2 mg
Griffonia (Bandeiraea) Simplicifolia Lectin I (GSL I, BSL I)		
Unconjugated	L-1100	5 mg
Fluorescein	FL-1101	2 mg, 5 mg
Rhodamine	RL-1102	2 mg
Biotin	B-1105	2 mg
GSL I – isolectin B_4		
Unconjugated	L-1104	1 mg
Fluorescein	FL-1201	0.5 mg
DyLight® 594	DL-1207	0.5 mg
DyLight® 649	DL-1208	0.5 mg
Biotin	B-1205	0.5 mg
Griffonia (Bandeiraea) Simplicifolia Lectin II (GSL II, BSL II)		
Unconjugated	L-1210	5 mg
Fluorescein	FL-1211	2 mg
Agarose (3 mg lectin/ml gel)	AL-1213	2 ml
Biotin	B-1215	2 mg
Hippeastrum Hybrid (Amaryllis) Lectin (HHL, AL)		
Unconjugated	L-1380	5 mg
Biotin	B-1385	2 mg
Jacalin		
Unconjugated	L-1150	25 mg
Fluorescein	FL-1151	5 mg
Agarose (4 mg lectin/ml gel)	AL-1153	2 ml, 5 ml, 10 ml
Biotin	B-1155	5 mg
Lens Culinaris Agglutinin (LCA, LcH)		
Unconjugated	L-1040	10 mg, 25 mg
Fluorescein	FL-1041	5 mg
DyLight® 649	DL-1048	1 mg
Rhodamine	RL-1042	5 mg
Agarose (3 mg lectin/ml gel)	AL-1043	2 ml, 5 ml, 10 ml
Biotin	B-1045	5 mg

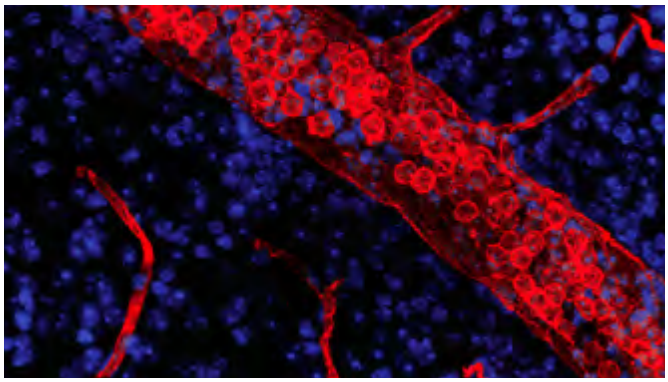
Lotus Tetragonolobus Lectin (LTL)		
Unconjugated	L-1320	5 mg
Fluorescein	FL-1321	2 mg
Agarose (3 mg lectin/ml gel)	AL-1323	2 ml
Biotin	B-1325	2 mg
Lycopersicon Esculentum (Tomato) Lectin (LEL, TL)		
Unconjugated	L-1170	2 mg
Fluorescein	FL-1171	1 mg
Texas Red®	TL-1176	1 mg
DyLight® 488	DL-1174	1 mg
DyLight® 594	DL-1177	1 mg
DyLight® 649	DL-1178	1 mg
Agarose (2 mg lectin/ml gel)	AL-1173	2 ml
Biotin	B-1175	1 mg
Maackia Amurensis Lectin I (MAL I, MAL)		
Unconjugated	L-1310	5 mg
Fluorescein	FL-1311	2 mg
Biotin	B-1315	2 mg
Maackia Amurensis Lectin II (MAL II, MAH)		
Unconjugated	L-1260	2 mg
Biotin	B-1265	1 mg
Maclura Pomifera Lectin (MPL)		
Unconjugated	L-1340	5 mg
Fluorescein	FL-1341	2 mg
Biotin	B-1345	2 mg
Musa Paradisiaca Lectin (BanLec)		
Unconjugated	L-1410	5 mg
Fluorescein	FL-1411	2 mg
Agarose (5 mg lectin/ml gel)	AL-1413	2 ml
Biotin	B-1415	2 mg
Narcissus Pseudonarcissus (Daffodil) Lectin (NPL, NPA, DL)		
Unconjugated	L-1370	5 mg
Biotin	B-1375	2 mg

Peanut Agglutinin (PNA)		
Unconjugated	L-1070	5 mg, 10 mg, 25 mg
Fluorescein	FL-1071	5 mg, 10 mg
Rhodamine	RL-1072	5 mg
Agarose (5 mg lectin/ml gel)	AL-1073	2 ml, 5 ml
Biotin	B-1075	5 mg
CY® 3	CL-1073	1 mg
CY® 5	CL-1075	1 mg
Phaseolus Vulgaris Agglutinin (PHA)		
Phaseolus vulgaris Erythroagglutinin (PHA-E)		
Unconjugated	L-1120	5 mg
Fluorescein	FL-1121	2 mg
Biotin	B-1125	2 mg
Phaseolus vulgaris Leucoagglutinin (PHA-L)		
Unconjugated	L-1110	5 mg
Fluorescein	FL-1111	2 mg
Rhodamine	RL-1112	2 mg
Agarose (3 mg lectin/ml gel)	AL-1113	2 ml
Biotin	B-1115	2 mg
Pisum Sativum Agglutinin (PSA)		
Unconjugated	L-1050	10 mg
Agarose (3 mg lectin/ml gel)	AL-1053	2 ml
Biotin	B-1055	5 mg
Ricinus Communis Agglutinin I (RCA I, RCA_{120})		
Unconjugated	L-1080	10 mg
Fluorescein	FL-1081	5 mg
Rhodamine	RL-1082	5 mg
Agarose (4 mg lectin/ml gel)	AL-1083	2 ml, 5 ml, 10 ml
Biotin	B-1085	5 mg
Ricinus Communis Agglutinin II (RCA II, RCA_{60}, ricin)		
Unconjugated	L-1090	10 mg
Ricin A Chain		
Unconjugated	L-1190	1 mg
Ricin B Chain		
Unconjugated	L-1290	1 mg

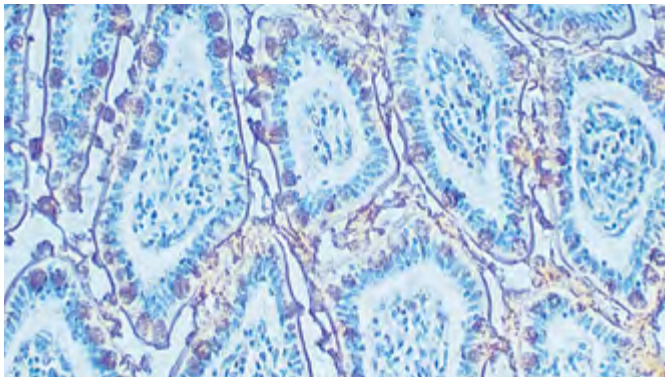
Lectin Products/SKU Table (continued)

Sambucus Nigra Lectin (SNL, EBL)		
Unconjugated	L-1300	5 mg
Fluorescein	FL-1301	2 mg
Agarose (3 mg lectin/ml gel)	AL-1303	2 ml
Biotin	B-1305	2 mg
CY® 3	CL-1303	1 mg
CY® 5	CL-1305	1 mg
Solanum Tuberosum (Potato) Lectin (STL, PL)		
Unconjugated	L-1160	5 mg
Fluorescein	FL-1161	2 mg
Biotin	B-1165	2 mg
Soybean Agglutinin (SBA)		
Unconjugated	L-1010	10 mg, 25 mg
Fluorescein	FL-1011	2 mg
Agarose (4 mg lectin/ml gel)	AL-1013	2 ml
Biotin	B-1015	5 mg
Ulex Europaeus Agglutinin I (UEA I)		
Unconjugated	L-1060	2 mg, 5 mg
Fluorescein	FL-1061	2 mg, 5 mg
DyLight® 594	DL-1067	1 mg
DyLight® 649	DL-1068	1 mg
Rhodamine	RL-1062	2 mg
Agarose (2 mg lectin/ml gel)	AL-1063	2 ml
Biotin	B-1065	2 mg
Vicia Villosa Lectin (VVL, VVA)		
Unconjugated	L-1230	5 mg
Fluorescein	FL-1231	2 mg
Agarose (3 mg lectin/ml gel)	AL-1233	2 ml
Biotin	B-1235	2 mg
Wheat Germ Agglutinin (WGA)		
Unconjugated	L-1020	10 mg, 25 mg
Fluorescein	FL-1021	5 mg, 10 mg
Rhodamine	RL-1022	5 mg, 10 mg
Peroxidase	PL-1026	2 mg
Agarose (7 mg lectin/ml gel)	AL-1023	2 ml, 5 ml, 10 ml
Biotin	B-1025	5 mg

Succinylated Wheat Germ Agglutinin (sWGA)		
Unconjugated	L-1020S	10 mg
Fluorescein	FL-1021S	5 mg
Agarose (3 mg lectin/ml gel)	AL-1023S	2 ml, 5 ml
Biotin	B-1025S	5 mg
Wisteria Floribunda Lectin (WFA, WFL)		
Unconjugated	L-1350	5 mg
Fluorescein	FL-1351	2 mg
Agarose (3 mg lectin/ml gel)	AL-1353	2 ml
Biotin	B-1355	2 mg



Retina flat mount from mice, perfused with DyLight® 594-LEL. The retina were mounted in VECTASHIELD® HardSet™ with DAPI. Image courtesy of George W. Smith, Florida Atlantic University.



Small Intestine: Jacalin (brown, Vector® DAB) Vector® Hematoxylin counterstain.

Lectin Kits

Lectin Screening Kits I		
Biotinylated Lectin Kit I	BK-1000	1 kit
Fluorescein Lectin Kit I	FLK-2100	1 kit
Rhodamine Lectin Kit I	RLK-2200	1 kit
Lectin Screening Kits II		
Biotinylated Lectin Kit II	BK-2100	1 kit
Fluorescein Lectin Kit II	FLK-3200	1 kit
Lectin Screening Kits III		
Biotinylated Lectin Kit III	BK-3000	1 kit
Fluorescein Lectin Kit III	FLK-4100	1 kit

- **Kit I (BK-1000, FLK-2100, RLK-2200)** consists of 1 mg of the following lectins or lectin conjugates: Con A, DBA, PNA, RCA I, SBA, UEA I, WGA.
- **Kit II (BK-2100)** consists of 1 mg of the following lectins or lectin conjugates: GSL I, LCA, PHA-E, PHA-L, PSA, Succinylated WGA. **(FLK-3200)** consists of 1 mg of the following lectins or lectin conjugates: GSL I, LCA, PHA-E, PHA-L, Succinylated WGA.
- **Kit III (BK-3000, FLK-4100)** consists of 0.5 mg of the following lectin conjugates: DSL, ECL, GSL II, Jacalin, LEL, STL, VVL.

Inhibiting Simple Sugars and Carbohydrate Solution

Product	Catalog Number	Unit Size	Stock Concentration*
Chitin Hydrolysate	SP-0090	10 ml	N.A.
Sugars			
N-acetylgalactosamine	S-9001	111 mg	100 mM
N-acetylglucosamine	S-9002	442 mg	400 mM
galactose	S-9003	360 mg	400 mM
lactose	S-9004	721 mg	400 mM
α-methylmannoside	S-9005	388 mg	400 mM
α-methylglucoside	S-9006	388 mg	400 mM

Antibodies to Lectins

Product	Conjugate	Catalog Number	Unit Size
Anti-*Griffonia (Bandeiraea) simplicifolia* lectin I	Unconjugated	AS-2104	1 mg
Anti-Peanut agglutinin	Unconjugated	AS-2074	1 mg
	Biotinylated	BA-0074	0.5 mg
Anti-*Phaseolus vulgaris* agglutinin (E+L)	Unconjugated	AS-2224	1 mg
Anti-*Phaseolus vulgaris* agglutinin (E+L)*	Unconjugated	AS-2300	1 mg
Anti-*Ricinus communis* agglutinin I & II	Unconjugated	AS-2084	1 mg
	Biotinylated	BA-0084	0.5 mg
Anti-Soybean agglutinin	Unconjugated	AS-2014	1 mg
Anti-Wheat Germ agglutinin	Unconjugated	AS-2024	1 mg

** Stock concentration if reconstituted in 5 ml.*

Glycobiology Reagents

Glycoprotein Eluting Solution for Agarose Bound:		
Mannose- or Glucose-binding Lectins	ES-1100	100 ml
Galactose- or GalNAc-binding Lectins	ES-2100	100 ml
Fucose- or Arabinose-binding Lectins	ES-3100	100 ml
GlcNAc- or Chitin-binding Lectins	ES-5100	100 ml
Sialic Acid-binding Lectins	ES-7100	100 ml

Glycoproteins are frequently isolated and purified from protein mixtures using columns of agarose-bound lectins. After applying a protein mixture, the agarose-lectin column is washed free of unwanted proteins and the glycoprotein bound to the lectin is eluted with a sugar that inhibits binding. Unfortunately, achieving complete elution with a simple sugar solution can be difficult. Vector Laboratories has developed five Glycoprotein Elution Solutions in the neutral pH range that maximize the yield of eluted glycoproteins and preserve the activity of the agarose-bound lectins for repeated use. All components of these ready-to-use Glycoprotein Eluting Solutions can subsequently be removed by dialysis.

Agarose-Bound Lectins	Glycoprotein Eluting Solutions				
	ES-1100	ES-2100	ES-3100	ES-5100	ES-7100
ABL (AL-1423) *					
AAL (AL-1393)			+		
BanLec (AL-1413)	+				
Con A (AL-1003)	+				
sCon A (AL-1003S)	+				
DSL (AL-1183)				+	
ECA (AL-1143)		+			
GNA (AL-1243)	+				
GSL II (AL-1213)				+	
Jacalin (AL-1153)		+			
LCA (AL-1043)	+				
LTL (AL-1323)			+		
LEL (AL-1173)				+	
PNA (AL-1073)		+			
PHA-E (AL-1123)		+			
PHA-L (AL-1113)		+			
PSA (AL-1053)	+				
RCA$_{120}$ (AL-1083)		+			
SNA (AL-1303)					+
SBA (AL-1013)		+			
UEA I (AL-1063)			+		
VVA (AL-1233)		+			
WGA (AL-1023)				+	
sWGA (AL-1023S)				+	
WFL (AL-1353)		+			

+ Indicates recommendation for eluting glycoproteins from agarose-bound lectins.

** Requires more stringent conditions for elution.*

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