

Product Information

Succinyl-Concanavalin A

Catalog Number **L3885**

Storage Temperature -20°C

Product Description

Succinyl Con A is the active dimeric (divalent) form which does not reaggregate to form tetramers above pH 5.6. Agglutination activity is greatly reduced by the succinylation procedure, but reactivity with mannose or glucose residues is retained.¹

Concanavalin A (Con A) is reported to have several isoelectric points possibly corresponding to different isoforms and a monomeric molecular mass of 25.5 kDa. The pI values are reported as 4.5, 4.7, 5.05, and 5.5.²

Lectins are proteins or glycoproteins of non-immune origin that agglutinate cells and/or precipitate complex carbohydrates. Lectins are capable of binding glycoproteins even in presence of various detergents.³ The agglutination activity of these highly specific carbohydrate-binding molecules is usually inhibited by a simple monosaccharide, but for some lectins, di, tri, and even polysaccharides are required.

Lectins are isolated from a wide variety of natural sources, including seeds, plant roots and bark, fungi, bacteria, seaweed and sponges, mollusks, fish eggs, body fluids of invertebrates and lower vertebrates, and from mammalian cell membranes. The precise physiological role of lectins in nature is still unknown, but they have proved to be very valuable in a wide variety of applications *in vitro*, including:

1. blood grouping and erythrocyte polyagglutination studies.
2. mitogenic stimulation of lymphocytes.
3. lymphocyte subpopulation studies.
4. fractionation of cells and other particles.
5. histochemical studies of normal and pathological conditions.

Sigma offers a range of lectins suitable for the above applications. Most Sigma lectins are highly purified by affinity chromatography, but some are offered as purified or partially purified lectins, suitable for specific applications.

Many of the lectins are available conjugated to (conjugation does not alter the specificity of the lectin):

1. fluorochromes (for detection by fluorimetry).
2. enzymes (for enzyme-linked assays).
3. insoluble matrices (for use as affinity media).

Please refer to the table for general information on the most common lectins.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

The product is soluble in 0.9% sodium chloride solution (1 mg/ml), yielding a clear, yellow solution.

Storage/Stability

Store the product at -20°C .

Aggregation is thought to occur in the presence of high concentrations of 2-mercaptoethanol.

Solutions of Concanavalin A are thought to be completely denatured after heating at 80°C for five minutes.⁴

Lectin	MW (kDa)	Subunits	Specificity		Mitogenic Activity
			Blood Group	Sugar	
<i>Abrus precatorius</i>			—		+
Agglutinin	134	4		gal	
Abrin A (toxin)	60	2		gal	
Abrin B (toxin)	63.8	2($\alpha\beta$)		gal	
<i>Agarius bisporus</i>	58.5	—	—	β -gal(1 $\rightarrow$ 3)galNAc	
<i>Anguilla anguilla</i>	40	2	H	α -L-Fuc	
<i>Arachis hypogaea</i>	120	4	T	β -gal(1 $\rightarrow$ 3)galNAc	
<i>Artocarpus integrifolia</i>	42	4	T	α -gal $\rightarrow$ OMe	+
<i>Bandeiraea simplicifolia</i>					
BS-I	114	4	A, B	α -gal, α -galNAc	
BS-I-A ₄	114	4	A	α -galNAc	
BS-I-B ₄	114	4	B	α -gal	
BS-II	113	4	acq, B, Tk, T	glcNAc	
<i>Bauhinia purpurea</i>	195	4	—	β -gal(1 $\rightarrow$ 3)galNAc	+
<i>Caragana arborescens</i>	60; 120 ^a	2/4	—	galNAc	
<i>Cicer arietinum</i>	44	2	—	fetuin	
<i>Codium fragile</i>	60	4	—	galNAc	
Concanavalin A	102	4	—	α -man, α -glc	+
Succinyl-Concanavalin A	51	2	—	α -man, α -glc	+ ^b
<i>Cytisus scoparius</i>	—	—	—	galNAc, gal	
<i>Datura stramonium</i>	86	2($\alpha\beta$)	—	(glcNAc) ₂	
<i>Dolichos biflorus</i>	140	4	A ₁	α -galNAc	
<i>Erythrina corallodendron</i>	60	2	—	β -gal(1 $\rightarrow$ 4)glcNAc	+
<i>Erythrina cristagalli</i>	56.8	2($\alpha\beta$)	—	β -gal(1 $\rightarrow$ 4)glcNAc	
<i>Euonymus europaeus</i>	166	4($\alpha\beta$)	B, H	α -gal(1 $\rightarrow$ 3)gal	+
<i>Galanthus nivalis</i>	52	4	(h)	non-reduc. α -man	
<i>Glycine max</i>	110	4	—	galNAc	+ ^c
<i>Helix aspersa</i>	79	—	A	galNAc	
<i>Helix pomatia</i>	79	6	A	galNAc	
<i>Lathyrus odoratus</i>	40-43	4($\alpha\beta$)	—	α -man	+
<i>Lens culinaris</i>	49	2	—	α -man	+
<i>Limulus polyphemus</i>	400	18	—	NeuNAc	
Bacterial agglutinin	—	—	—	galNAc, glcNAc	
<i>Lycopersicon esculentum</i>	71	—	—	(glcNAc) ₃	
<i>Maackia amurensis</i>	130	2($\alpha\beta$)	O	sialic acid	+
<i>Maclura pomifera</i>	40-43	2($\alpha\beta$)	—	α -gal, α -galNAc	
<i>Momordica charantia</i>	115-129	4($\alpha\beta$)	—	gal, galNAc	
<i>Naja mocambique mocambique</i>	—	—	—	—	
<i>Naja naja kaouthia</i>	—	—	—	—	
<i>Narcissus pseudonarcissus</i>	26	2	(h)	α -D-man	
<i>Persea americana</i>	—	—	—	—	
<i>Phaseolus coccineus</i>	112	4	—	—	
<i>Phaseolus limensis</i>	247(II)	8	A	galNAc	+
	124(III)	4			
<i>Phaseolus vulgaris</i>					
PHA-E	128	4	—	oligosaccharide	+
PHA-L	128	4	—	oligosaccharide	+
PHA-P					
PHA-M					

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Lectin	MW (kDa)	Subunits	Specificity		Mitogenic Activity
			Blood Group	Sugar	
<i>Phytolacca americana</i>	32	—	—	(glcNAc) ₃	+
<i>Pisum sativum</i>	49	4(αβ)	—	α-man	+
<i>Pseudomonas aeruginosa PA-I</i>	13-13.7	—	—	gal	+ ^c
<i>Psophocarpus tetragonolobus</i>	35	1	—	galNAc, gal	
<i>Ptilota plumosa</i>	65; 170	—	B	α-gal	
<i>Ricinus communis</i>					
Toxin, RCA ₆₀	60	2	—	galNAc, β-gal	
Toxin, RCA ₁₂₀	120	4	—	β-gal	
<i>Sambucus nigra</i>	140	4(αβ)	—	αNeuNAC(2→6)gal	+ ^c
				galNAc	
<i>Solanum tuberosum</i>	50; 100 ^a	1, 2	—	(glcNAc) ₃	
<i>Sophora japonica</i>	133	4	A, B	β-galNAc	
<i>Tetragonolobus purpureas</i>	120(A)	4	H	α-L-fuc	
	58(BA)	2	H	α-L-fuc	
	117(C)	4	H	α-L-fuc	
<i>Triticum vulgaris</i>	36	2	—	(glcNAc) ₂ , NeuNAc	+
<i>Ulex europaeus</i>					
UEA I	68	—	H	α-L-fuc	
UEA II	68	—	—	(glcNAc) ₂	
<i>Vicia faba</i>	50	4(αβ)	—	man, glc	+
<i>Vicia sativa</i>	40	4(αβ)	—	glc, man	+
<i>Vicia villosa</i>	139	4	A ₁ +T _n	galNAc	
A ₄	134	4	A ₁	galNAc	
B ₄	143	4	T _n	galNAc	
<i>Vigna radiata</i>	160	4	—	α-gal	
<i>Viscum album</i>	115	4(αβ)	—	β-gal	
<i>Wisteria floribunda</i>	68	2	—	galNAc	

^a Concentration-dependent molecular weight

^b Non-agglutinating and mitogenic

^c Mitogenic for neuraminidase-treated lymphocytes

References

1. Gunther, G.R. et al., Proc. Natl. Acad. Sci. USA, **70**, 1012, (1973).
2. Entlicher, G. et al., Biochim. Biophys. Acta, **236**, 795 (1971).
3. Protein Purification Methods: A Practical Approach., Harris, E.L.V., and Angal, S., eds., IRL Press at Oxford University Press (New York, NY: 1989), p. 270.
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KEK,IRB,MWM,JRC,NSB,SAG,MAM 10/09-1

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