



Product Data Sheet

Concanavalin A Lectin (CONA) and conjugates

Cat # CONA15-UL	Concanavalin A Lectin, purified, unlabeled	1 mg
Cat # CONA15-BTN	Concanavalin A Lectin-biotin conjugate	0.5 ml
Cat # CONA15-HRP	Concanavalin A Lectin-HRP conjugate	0.5 ml
Cat # CONA15-FITC	Concanavalin A Lectin-FITC conjugate	0.5 ml

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. 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 agglutination 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.

Concanavalin A (ConA) is a lectin (carbohydrate-binding protein) originally extracted from the jack-bean, *Canavalia ensiformis*. It binds specifically to certain structures found in various sugars, glycoproteins, and glycolipids, mainly internal and nonreducing terminal -D-mannosyl and -D-glucosyl groups. ConA is a plant mitogen, and is known for its ability to stimulate mouse T cell subsets giving rise to four functionally distinct T cell populations, including precursors to suppressor T-cell; [4] one subset of human suppressor T-cells as well is sensitive to ConA. ConA was the first lectin to be available on a commercial basis, and is widely used in biology and biochemistry to characterize glycoproteins and other sugar-containing entities on the surface of various cells. It is also used to purify glycosylated macromolecules in lectin affinity chromatography, as well as to study immune regulation by various immune cells. As most lectins, the ConA is a homotetramer: each subunit (26.5KDa, 235 amino-acids, heavily glycosylated) binds a metallic atom (usually Mn²⁺ and a Ca²⁺). Its tertiary structure has been elucidated and molecular basis of its interactions with metals, its affinity for the mannose and glucose are well known. ConA binds specifically -D-mannosyl and -D-glucosyl residues (two hexoses differing only by the alcohol on carbon 2) in terminal position of ramified structures from B-Glycans (reach in -mannose, or hybrid and bi-antennary glycanes complexes). It has 4 binding sites, corresponding to the 4 sub-units. The molecular weight is 104-112KDa and the isoelectric point (pI) is in the range of 4.5-5.5.

Form and Storage

Cat # CONA15-UL

Concanavalin A lectin is produced from the jack-bean, *Canavalia ensiformis*. It is supplied as lyophilized powder in 10 mM HEPES buffered saline, pH 8.5, 0.1 mM CaCl₂. Reconstitute powder in water or other desirable buffers. Store powder at 4°C and CONA solutions at -20°C. Stability of the powder is 5 years and frozen liquid 6-12 months.

Cat # CONA15-BTN, Biotin-conjugate

Purified CONA was coupled to Biotin using Biotinamidocaproate N-Hydroxysuccinimide Ester (BAC) at F/P ratio ~10-20:1. The antibody is supplied in 10 mM HEPES, pH 7.5, 0.15 M NaCl, 0.08% azide. Store at -20°C in suitable aliquots. Stability is ~6-12 months. Avoid repeated freezing and thawing.

Suggested conjugate dilutions are 1:1,000-1:10,000 ELISA, 1:2K-1:10K for western.

Inhibiting/Eluting Sugar: mixture of 200 mM α-methylmannoside/200 mM α-methylglucoside

Cat # CONA15-HRP, HRP-conjugate

Purified CONA was coupled to HRP (RZ>3.0) using periodate method. The molar enzyme to protein (E/P) ratio = 4.0. The antibody is supplied in stabilzyme in **liquid** form. Store at 4°C in suitable aliquots. Stability is ~6-12 months. Do not freeze and thaw.

Suggested conjugate dilutions are 1:1,000-1:10,000 ELISA, 1:1K-1:5K for western, and 1:200-1:1000 (IHC).

Inhibiting/Eluting Sugar: mixture of 200 mM α-methylmannoside/200 mM α-methylglucoside

Cat # CONA15-FITC, FITC-conjugate

Purified CONA was coupled to FITC at F/P ratio ~3:7. The antibody is supplied in PBS, pH 7.4, 0.2% BSA and 0.05% azide in **liquid** form. Store at -20°C in suitable aliquots. Stability is ~6-12 months. Avoid repeated freezing and thawing.

Suggested conjugate dilutions are 1:200-1:2000 for immunofluorescence.

Absorption Wavelength: 495 nm

Emission Wavelength: 528 nm

Inhibiting/Eluting Sugar: mixture of 200 mM α-methylmannoside/200 mM α-methylglucoside

References: (1). Sumner JB (1983) JBC 125, 454-48; Dwer JM (1981) Clin Exp. Immunol. 46, 237-249; Krauss S (1999) BBA 1412, 129-138; Noona KD (1973) JCB 59, 134-142.

For in vitro Research use only (RUO)