



Product Data Sheet

Ricinus communis (castor bean) Agglutinin (RCA120) and conjugates

<input type="checkbox"/> cat # RCA15-UL	Ricinus communis (castor bean) Agglutinin (RCA120), purified, unlabeled, ,	1 mg
<input type="checkbox"/> cat # RCA15-BTN	Ricinus communis (castor bean) Agglutinin (RCA120-biotin conjugate	0.5 ml
<input type="checkbox"/> cat # RCA15-HRP	Ricinus communis (castor bean) Agglutinin (RCA120-HRP conjugate	0.5 ml
<input type="checkbox"/> cat # RCA15-FITC	Ricinus communis (castor bean) Agglutinin (RCA120-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.

Ricinus communis, the castor oil plant, is a species of flowering plant in the spurge family, Euphorbiaceae. It is the sole species in the monotypic genus, Ricinus, and subtribe, Riciniinae. Ricinus communis seeds contain two closely related lectins, the cytotoxic ricin and the relatively nontoxic R. communis agglutinin (RCA1). Ricin is a heterodimer composed of an A chain (Mr 32,000) which catalytically inactivates 60 S ribosomal subunits, linked via a single disulfide bond to a cell-binding B chain (Mr 34,000) which is a galactose and N-acetylgalactosamine-specific lectin. RCA is a tetramer consisting of two ricin-like heterodimers held together by noncovalent forces. The RCA heterodimers again contain an A chain (Mr 32,000) disulfide linked to a galactose-binding B chain (M, 37,000). Ricin and RCA subunit chains are all N-glycosylated (4). The corresponding subunits of the two lectins are closely related structurally. Ricinus communis agglutinin should have good binding affinity for lactose containing proteins, such as Lactosyl-BSA.

Form and Storage

Cat # RCA15-UL

Recombinant *Aleuria aurantia* lectin is produced in E.coli and has an amino acid sequence identical to native *Aleuria aurantia* lectin. 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 AAL solutions at -20°C. Stability of the powder is 5 years and frozen liquid 6-12 months.

Caution: RCA has moderate toxicity in some animal models, but its toxicity to humans has not been fully determined, and a related protein, RCA60, is highly toxic to humans. Never pipet solutions of this lectin by mouth. DO NOT LYOPHILIZE!

Cat# RCA15-BTN, Biotin-conjugate

Purified AAL 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. Do not freeze and thaw.

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

Binding inhibitors: 200 mM galactose or lactose

Cat# RCA15-HRP, HRP-conjugate

Purified AAL 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 stabilizing buffer, 0.1% proclin-300 as preservative in either **lyophilized** (0.5 ml) or **liquid** form (0.5-0.5 mg/ml). Reconstitute powder in water. 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).

Binding inhibitors: 200 mM galactose or lactose

Cat# RCA15-FITC, FITC-conjugate

Purified AAL 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 either **lyophilized** (0.5 ml) or **liquid** form (0.5 mg/0.5 ml). Reconstitute powder in water in 0.5 ml to prepare stock solution. Store at -20°C in suitable aliquots. Stability is ~6-12 months. Do not freeze and thaw.

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

Absorption Wavelength: 495 nm

Emission Wavelength: 528 nm

Binding inhibitors: 200 mM galactose or lactose

References: Cawley DB (1978) Arch Biochi. Biophys. 190, 744-775; Olsnes S (1974) Nature 249, 627-631; Lin TS (1980) Eur. J. Biophys. 105, 453-459; Roberts L (1985) JBC 260, 15682-15686

For in vitro Research use only (RUO)

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