Rat Clusterin (Apolipoprotein J), His-Tagged Fusion Protein

Product Data Sheet

Cat. No.: RD372034010

Introduction:

Clusterin is a 75-80 kD disulfide-linked heterodimeric protein containing about 30% of N-linked carbohydrate rich in sialic acid but truncated forms targeted to the nucleus have also been identified.

The precursor polypeptide chain (top) is cleaved proteolytically to remove the 22-mer secretory signal peptide (magenta) and subsequently between residues 227/228 to generate the α(orange)- and β(light blue)-chains. These are assembled in anti-parallel to give a heterodimeric molecule (bottom) in which the cysteine-rich centers (red) are linked by five disulfide bridges (red ellipses) and are flanked by two predicted coiled-coil α-helices (green) and three predicted amphipathic α-helices (dark blue). The six sites of N-linked glycosylation are indicated as yellow spots.

Across a broad range of species clusterin shows a high degree of sequence homology ranging from 70% to 80%. It is nearly ubiquitously expressed in most mammalian tissues and can be found in plasma, milk, urine, cerebrospinal fluid and semen.

It is able to bind and form complexes with numerous partners such as immunoglobulins, lipids, heparin, bacteria, complement components, paraoxonase, beta amyloid, leptin and others. Clusterin has been ascribed a plethora of functions such as phagocyte recruitment, aggregation induction, complement
attack prevention, apoptosis inhibition, membrane remodelling, lipid transport, hormone transport and/or scavenging, matrix metalloproteinase inhibition.

A genuine function of clusterin has not been defined. One tempting hypothesis says that clusterin is an extracellular chaperone protecting cells from stress induced insults caused by degraded and misfolded protein precipitates. Clusterin is up- or downregulated on the mRNA or protein level in many pathological and clinically relevant situations including cancer, organ regeneration, infection, Alzheimer disease, retinitis pigmentosa, myocardial infarction, renal tubular damage, autoimmunity and others.

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<tr>
<th>Name</th>
<th>Species</th>
<th>Association</th>
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<tr>
<td>Clusterin</td>
<td>Sheep</td>
<td>Seminal fluid protein causing cell aggregation</td>
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<tr>
<td>SGP-2</td>
<td>Rat</td>
<td>Sulfated glycoprotein secreted by Sertoli cells of the testis</td>
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<tr>
<td>SP-40,40</td>
<td>Human</td>
<td>Plasma component, present in SC5b-9 complement complex</td>
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<td>pADHC-9</td>
<td>Human</td>
<td>Upregulated in Alzheimer disease brain</td>
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<td>TRPM-2</td>
<td>Rat</td>
<td>Upregulated mRNA in prostate following castration</td>
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<tr>
<td>CL1</td>
<td>Human</td>
<td>Inhibitor of complement-mediated cell lysis</td>
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<td>T64</td>
<td>Quail</td>
<td>Induced in neurotina</td>
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<td>GP III</td>
<td>Bovine</td>
<td>Present in chromaffin granules</td>
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<td>ApoJ</td>
<td>Human</td>
<td>Serum protein with apolipoprotein properties</td>
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<tr>
<td>XIP8</td>
<td>Human</td>
<td>Truncated nuclear form in radiation induced cell death</td>
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Description:

The Rat Clusterin was constructed as a recombinant protein with N-terminal fusion of T7-Tag (16AA) and C-terminal fusion of His-Tag (9AA). The Rat Clusterin His-Tagged Fusion Protein, produced in *E. coli*, is 26.5 kDa protein containing 215 amino acid residues of the Rat Clusterin and 25 additional amino acid residues – His-Tag, T7-Tag (underlined).

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MASMTGGQOM GRDPNSSSPF YFWMNGDRID SLLESDRQQS QVLDAMQDSF TRASGIIDTL FQDRFFTHEP QDIHHFSPMG FPHKRPPLLTY PKSRLVRSLM PLSHYGPLSF HNMFQPFFDML IHQAQQAMDV QLHSPALQFP DVLDFLKEGED DRTVCKEIRH NSTGCLKMKG QCEKQIEILS VDCSTNNPAQ ANLRQELNDS LQVAERLTQQ YNELLHSLSQ KMLNTSSLLE QALEHAAAAA
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**Specificity:** The amino acid sequence of the recombinant Rat Clusterin is 100% homologous to the amino acid sequence 146-360 of the Rat Clusterin precursor.

**Purification Method:** Ni-NTA chromatography

**Source:** *E. coli*

**Protein Content:** 0.01 mg (determined by BCA method)

**Purity:** >95% (SDS PAGE analyzed).

![SDS-PAGE 14% separation of Rat Clusterin, 5µg / line.](image)
Formulation: Sterile filtered and lyophilized from 0.5 mg/ml in 0.01M Tris pH 7.2

Reconstitution: Add 0.02 ml of deionized H$_2$O and let the lyophilized pellet dissolve completely.

Storage: Store lyophilized protein at -20°C. Aliquot the product after reconstitution to avoid repeated freezing/thawing cycles. Reconstituted protein can be stored at 4°C for a limited period of time; it does not show any change after two weeks at 4°C.

Stability/Shelf Life: The lyophilized protein remains stable until the expiry date when stored at -20°C.

Quality Control Test: BCA - to determine content of the protein
SDS PAGE - to determine purity of the protein

Applications: Western blotting

Note: The recombinant protein is for research use only.

References:


