



**LD Biopharma, Inc.**  
9924 Mesa Rim Road Suite B  
San Diego, CA 92121  
Tel: 858-876-8266  
<http://www.ldbiopharma.com>

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human C4a Protein  
**Catalog Number:** hRP-1648  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Human C4 (Total 1744aa) gene encodes the acidic form of complement factor 4, part of the classical activation pathway. The protein is expressed as a single chain precursor, which is proteolytically cleaved into a trimer of alpha, beta, and gamma chains prior to secretion. The trimer provides a surface for interaction between the antigen-antibody complex and other complement components. The alpha chain may be cleaved to release C4 anaphylatoxin, a mediator of local inflammation. Deficiency of this protein is associated with systemic lupus erythematosus and type I diabetes mellitus. This gene localizes to the major histocompatibility complex (MHC) class III region on chromosome 6. Varying haplotypes of this gene cluster exist, such that individuals may have 1, 2, or 3 copies of this gene. Recent data indicated that one of the C4 proteolytical fragment C4a (756 - 757aa fragment) was linked to higher mortality rates in lung cancer patients, which may be developed as biomarker in monitoring cancer treatment.

77aa fragment of human C4a domain cDNA (756 – 757 aa) was constructed with codon optimization and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. This protein is expressed in E Coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

**Gene Symbol:** C4a  
**Accession Number:** NP\_009224.2  
**Species:** Human  
**Size:** 50 µg / Vial  
**Composition:** 1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.  
**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.



**LD Biopharma, Inc.**  
9924 Mesa Rim Road Suite B  
San Diego, CA 92121  
Tel: 858-876-8266  
<http://www.ldbiopharma.com>

## Key References

Martin J, et al., *Cancer & the complement Cascade*. Mol Cancer Res; 8, 1453-1465 (2010).

Perry AJ, et al., *A molecular switch governs the interaction between the human complement protease C1s and its substrate, complement C4*. J. Biol. Chem. 288 (22), 15821-15829 (2013)

## Applications

1. May be used for in vitro human C4a mediated cancer cell resistant to complement-mediated damage pathway regulatory with this protein as either as soluble factor or as coating matrix.
2. May be used for protein-protein interaction assay
3. Potential diagnostic biomarker for tumors, such as lung cancer.
4. May be used for specific antibody production.

## Quality Control

Purity: > 90% by SDS-PAGE.

## Recombinant Protein Sequence

MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEATYKEVSKMVKDALTAIEKPTGDEQ  
SSGCLLENQLPAFLLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT  
SCEAYEEDRETFMNKFIYEIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT  
KELRESSGGSHHHHHGSENLYFQGfNVNFQKAINKLGQYASPTAKRCCQDGVTRLPMMSCE  
QRAARVQQPDCWEPFLSCCQFAESLRKKSRDKGQAGLQ