



LD Biopharma, Inc.  
7384 Trade Street, Suite B  
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Tel: 858-876-8266  
<http://www.ldbiopharma.com>

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human BIRC5 Protein  
**Catalog Number:** hRP-2467  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Human Baculoviral IAP repeat-containing protein 5 (BIRC5) gene encodes a multitasking protein that has dual roles in promoting cell proliferation and preventing apoptosis. It is a component of a chromosome passage protein complex (CPC) which is essential for chromosome alignment and segregation during mitosis and cytokinesis. It acts as an important regulator of the localization of this complex; directs CPC movement to different locations from the inner centromere during prometaphase to midbody during cytokinesis and participates in the organization of the center spindle by associating with polymerized microtubules. It is involved in the recruitment of CPC to centromeres during early mitosis via association with histone H3 phosphorylated at 'Thr-3' (H3pT3) during mitosis. The complex with RAN plays a role in mitotic spindle formation by serving as a physical scaffold to help deliver the RAN effector molecule TPX2 to microtubules. BIRC5 may counteract a default induction of apoptosis in G2/M phase. The acetylated form of BIRC5 represses STAT3 transactivation of target gene promoters. IT may play a role in neoplasia and also inhibitor of CASP3 and CASP7. Isoform 2 and isoform 3 do not appear to play vital roles in mitosis. Isoform 3 shows a marked reduction in its anti-apoptotic effects when compared with the displayed wild-type isoform. Recent data indicated that anti-BIRC5 auto-antibodies can be detected in some cancer patients.

Full-length human BIRC5 cDNA ( 141aa, Isoform-I ) was constructed with codon optimization gene synthesis and expressed with a human alpha Fetal Protein N-terminal (AFPn) - His-TEV cleavage site Tag (217aa) fusion at its N-terminal. It was 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:** BIRC5 (API4; EPR-1 ; Survivin)  
**Accession Number:** NP\_001159  
**Species:** Human  
**Size:** 25 µg / Vial  
**Composition:** 0.25 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.



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**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 7 days.

## Key References

Ambrosini G, et al., *A novel anti-apoptosis gene, survivin, expressed in cancer and lymphoma*. Nat. Med. 3 (8), 917-921 (1997)

Tamm I, et al., *IAP-family protein survivin inhibits caspase activity and apoptosis induced by Fas (CD95), Bax, caspases, and anticancer drugs*. Cancer Res. 58 (23), 5315-5320 (1998)

Jovic,M., et al., *Correlation of local and systemic expression of survivin with histopathological parameters of cutaneous melanoma*. Vojnosanit Pregl 73 (11), 1022-1029 (2016)

Winther TL . et al., *The anti-apoptotic protein survivin can improve the prognostication of meningioma patients*. PLoS ONE 12 (9), e0185217 (2017)

Khan S, et al., *Racial differences in the expression of inhibitors of apoptosis (IAP) proteins in extracellular vesicles (EV) from prostate cancer patients*. PLoS ONE 12 (10), e0183122 (2017)

## Applications

1. May be used for in vitro BIRC5 mediated apoptosis pathway regulation study for various cancer cells by intracellular delivery of this protein with protein delivery reagent such as ProFectin reagent kit.
2. May be used for mapping protein-protein interaction.
3. May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. May serve as auto-antibodies detection reagent, which will react with sera of some auto-immuno-diseases's or cancer patients.
5. As Immunogen for specific antibody production.

## Quality Control

Purity: > 90% by SDS-PAGE.



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## Recombinant Protein Sequence

MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEATYKEVSKMVKDALTAIEKPTGDEQ  
SSGCLLENQLPAFLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT  
SCEAYEEDRETFMKNFIYEIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT  
KELRESSGGSHHHHHHGSENLYFQGGEGAPTLPPAWQPF~~LKDHR~~ISTFKNWPFLEGCCTPERM  
AEAGFIHCPTENEPDLAQCF~~FC~~KELEGWEPDDDPIEEHKKHSSGCAFLSVKKQFEELTLGEFL  
KLDREKAKNKIAKETNNKKKEFEETAEKVRRRAIEQLAAMD