Technical Data Sheet

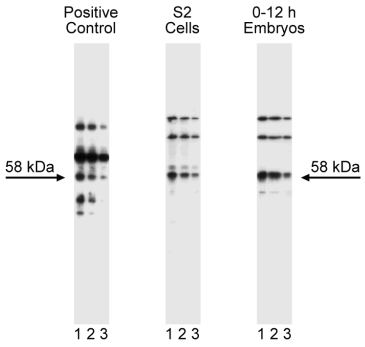
Purified Mouse Anti-Karyopherin α

Product Information

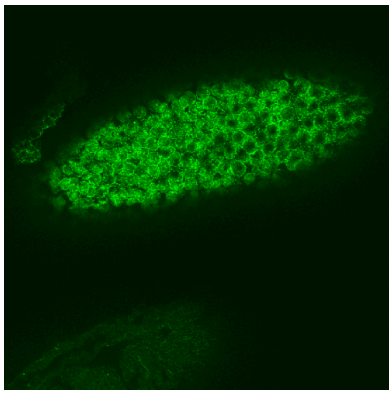
Material Number:	**612654**
Alternate Name:	Rch-1
Size:	50 µg
Concentration:	250 µg/ml
Clone:	2/Karyopherin α
Immunogen:	Human Rch-1 aa. 254-497
Isotype:	Mouse IgG1
Reactivity:	Drosophila
Target MW:	58 kDa
Storage Buffer:	Aqueous buffered solution containing BSA, glycerol, and ≤0.09% sodium azide.

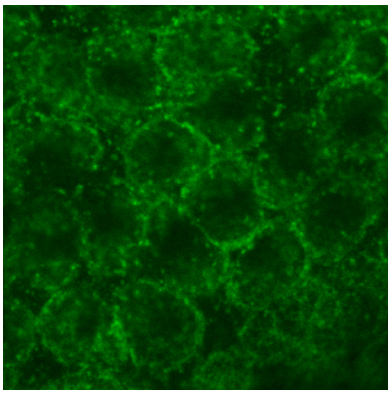
Description

The two step process of importing proteins into the nucleus involves the binding and interaction of several cytosolic and nuclear pore proteins. Proteins to be translocated into the nucleus contain a nuclear localization sequence (NLS) which is recognized and bound by carrier proteins in the cytosol. Heterodimers belonging to a highly conserved family of proteins called karyopherins are required for successful nuclear localization of cytosolic proteins. The α-subunits appear to function in the binding of NLS (both simple and bitartite NLS motifs), but both α- and β-subunits are required for successful docking to the nuclear envelope. ATP is required for complete translocation of proteins into the nucleus. Karyopherin α2 was first identified as Rch-1, an NLS receptor which interacts with the RAG-1 recombination-activating protein in developing B and T cells. Rch-1 has been reported to be 44% identical to karyopherin α1 (hSRP-1 /NPI-1).



Western blot analysis of Karyopherin α. *Lysates from HeLa cells (5 µg/lane), S2 cells (7.5 µg/lane), and 0-12 hours Drosophila embryos (7.5 µg/lane) were probed with the mouse anti-karyopherin antibody at concentrations of 1 µg/ml (lane 1), 0.5 µg/ml (lane 2), and 0.25 µg/ml (lane 3). The mouse anti-karyopherin α antibody detects a band of 58 kDa in all lysates.*





Immunofluorescence staining of 0-12 hour embryos. *Formalin-fixed embryos kept in ethanol at -20°C, were re-hydrated and incubated with the mouse anti-karyopherin antibody at 1 µg/ml in TBST. After extensive washes to remove unbound antibody, signal was visualized by confocal microscopy with an Alexa Fluor® 488 anti-mouse secondary antibody (1:300 dilution). (A) Ventral view of a cellularizing embryo. Staining is perinuclear. (B) High magnification view of figure A; staining is in the nuclear envelope and dots in the nucleus.*

Preparation and Storage

Store undiluted at -20°C.

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.

Application Notes

Application

Western blot	Routinely Tested
Immunoprecipitation	Tested During Development

BD Biosciences

bdbiosciences.com

United States	Canada	Europe	Japan	Asia Pacific	Latin America/Caribbean
877.232.8995	888.259.0187	32.53.720.550	0120.8555.90	65.6861.0633	55.11.5185.9995

For country-specific contact information, visit **bdbiosciences.com/how_to_order/**

Immunofluorescence	Tested During Development
Immunohistochemistry	Tested During Development

Recommended Assay Procedure:

Western blot: Please refer to http://www.bdbiosciences.com/pharmingen/protocols/Western_Blotting.shtml

The *Drosophila melanogaster* gene karyopherin α3 (abbreviated as Kap-α3) encodes a protein carrier involved in protein-nucleus import which is a component of the importin complex. Its amino acid sequence contains an importin b binding domain. Similar sequences have been identified in *C. elegans, Homo sapiens, Mus musculus, Rattus norvegicus, and Saccharomyces cerevisiae.* It has been mapped cytologically to 85D24. [FBgn0027338] (The FlyBase Consortium (http://flybase.org/))

```
>gb|AAF54408.1|(AE003683) karyopherin-alpha3  gene product [Drosophila melanogaster] Length = 514
   Score =     262  bits   (669),  Expect  =  1e-70
   Identities = 127/244 (52%),  Positives =  179/244 (73%),  Gaps  =  2/244              (0%)

Query:   1     PTLVRLLHHDDPEVLADTCWAISYLTDGPNERIGMVVKTGVVPQLVKLLGASELPIVTPA   60
               P L  L+HH D  +L DT WAISYLTDG N++I MV+++GVVP+L+ LLG SE+ + T A
Sbjct:   240   PALNVLIHHTDTNILVDTVWAISYLTDGGNDQIQMVIESGVVPKLIPLLGNSEVKVQTAA   299

Query:   61    LRAIGNIVTGTDEQTQVVIDAGALAVFPSLLTNPKTNIQKEATWTMSNITAGRQDQIQQV                120
                 LRA+GNIVTG+DEQTQVV++  AL+ FP LL++PK  I+KEA W +SNITAG Q Q+Q V
Sbjct:   300   LRAVGNIVTGSDEQTQVVLNYDALSYFPGLLSHPKEKIRKEAVWFLSNITAGNQSQVQAV                359

Query:   121   VNHGLVPFLVSVLSKADFKTQKEAVWAVTNYTSGGTVEQIVYLVHCGIIEPLMNLLTAKD                180
               +N GL+P ++  LSK +F+TQKEA WA++N T  G  EQ+  L+  G+I P  +LL+ +D
Sbjct    360   INVGLLPKIIENLSKGEFQTQKEAAWAISNLTISGNREQVFTLIKEGVIPPFCDLLSCQD                419

Query:   181   TKIILVILDAISNIFQAAEKLGETEKLSIMIEECGGLDKIEALQNHENESVYKASLSLIE                240
               T++I V+LD ++N+ + A+     E   ++IEEC GL KIE LQ+HEN  +YK + +I+
Sbjct:   420   TQVINVVLDGLNNMLKVAD--SHVEAVANCIEECEGLAKIERLQSHENVEIYKLAYEIID                477
```

Suggested Companion Products

Catalog Number	Name	Size	Clone
611449	HeLa Cell Lysate	500 µg	(none)
554002	HRP Goat Anti-Mouse Ig	1.0 ml	(none)

Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Source of all serum proteins is from USDA inspected abattoirs located in the United States.
3. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.
4. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.

References

Cuomo CA, Kirch SA, Gyuris J, Brent R, Oettinger MA. Rch1, a protein that specifically interacts with the RAG-1 recombination-activating protein. *Proc Natl Acad Sci U S A.* 1994; 91(13):6156-6160. (Biology)

Moroianu J, Blobel G, Radu A. Previously identified protein of uncertain function is karyopherin alpha and together with karyopherin beta docks import substrate at nuclear pore complexes. *Proc Natl Acad Sci U S A.* 1995; 92(6):2008-2011. (Biology)

Moroianu J, Hijikata M, Blobel G, Radu A. Mammalian karyopherin alpha 1 beta and alpha 2 beta heterodimers: alpha 1 or alpha 2 subunit binds nuclear localization signal and beta subunit interacts with peptide repeat-containing nucleoporins. *Proc Natl Acad Sci U S A.* 1995; 92(14):6532-6536. (Biology)

Weis K, Mattaj IW, Lamond AI. Identification of hSRP1 alpha as a functional receptor for nuclear localization sequences. *Science.* 1995; 268(5213):1049-1053. (Biology)