

# Cypher (E-8): sc-374359

## BACKGROUND

Cypher, also known as LDB3 (LIM domain binding 3), ZASP (Z-band alternatively spliced PDZ-motif protein), ORACLE, PDLIM6 (PDZ and LIM domain 6), ldb3z1 or ldb3z4, is a 727 amino acid protein that localizes to the perinuclear region of the cytoplasm and contains 3 LIM zinc-binding domains. Expressed primarily in skeletal muscle and at lower levels in brain, placenta and heart, Cypher is thought to function as an adaptor protein that, via its LIM domains, couples PKC-mediated signaling in striated muscle to the cytoskeleton. Defects in the gene encoding Cypher are associated with dilated cardiomyopathy 1C (CMD1C), dilated cardiomyopathy with left ventricular non-compaction and ZASP-related myofibrillar myopathy (MFM), all three of which are characterized by defects in cardiac muscle form and/or function. Six isoforms of Cypher exist due to alternative splicing events.

## REFERENCES

1. Zhou, Q., et al. 1999. Cypher, a striated muscle-restricted PDZ and LIM domain-containing protein, binds to  $\alpha$ -actinin-2 and protein kinase C. *J. Biol. Chem.* 274: 19807-19813.
2. Passier, R., et al. 2000. Oracle, a novel PDZ-LIM domain protein expressed in heart and skeletal muscle. *Mech. Dev.* 92: 277-284.
3. Arimura, T., et al. 2004. A Cypher/ZASP mutation associated with dilated cardiomyopathy alters the binding affinity to protein kinase C. *J. Biol. Chem.* 279: 6746-6752.
4. van der Meer, D.L., et al. 2006. Zebrafish Cypher is important for somite formation and heart development. *Dev. Biol.* 299: 356-372.
5. Klaavuniemi, T., et al. 2006. Zasp/Cypher internal ZM-motif containing fragments are sufficient to co-localize with  $\alpha$ -actinin—analysis of patient mutations. *Exp. Cell Res.* 312: 1299-1311.

## CHROMOSOMAL LOCATION

Genetic locus: LDB3 (human) mapping to 10q23.2; Ldb3 (mouse) mapping to 14 B.

## SOURCE

Cypher (E-8) is a mouse monoclonal antibody raised against amino acids 572-654 mapping within an internal region of Cypher of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Cypher (E-8) is available conjugated to agarose (sc-374359 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374359 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374359 PE), fluorescein (sc-374359 FITC), Alexa Fluor<sup>®</sup> 488 (sc-374359 AF488), Alexa Fluor<sup>®</sup> 546 (sc-374359 AF546), Alexa Fluor<sup>®</sup> 594 (sc-374359 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-374359 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-374359 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-374359 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA

## APPLICATIONS

Cypher (E-8) is recommended for detection of Cypher of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Cypher siRNA (h): sc-77078, Cypher siRNA (m): sc-77079, Cypher shRNA Plasmid (h): sc-77078-SH, Cypher shRNA Plasmid (m): sc-77079-SH, Cypher shRNA (h) Lentiviral Particles: sc-77078-V and Cypher shRNA (m) Lentiviral Particles: sc-77079-V.

Molecular Weight of prominent Cypher isoforms: 32/78 kDa.

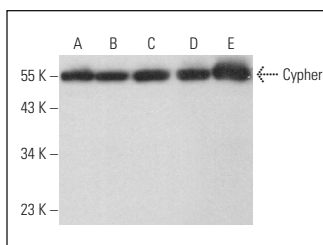
Molecular Weight of additional Cypher isoforms: 22-43/50-83 kDa.

Positive Controls: Neuro-2A whole cell lysate: sc-364185, Sol8 cell lysate: sc-2249 or A-10 cell lysate: sc-3806.

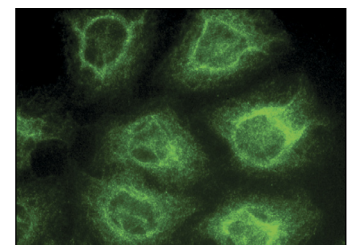
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## DATA



Cypher (E-8): sc-374359. Western blot analysis of Cypher expression in Sol8 (A), C2C12 (B), Neuro-2A (C), A-10 (D) and C6 (E) whole cell lysates.



Cypher (E-8): sc-374359. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoskeletal localization.

## STORAGE

Store at 4° C, \*\*DO NOT FREEZE\*\*. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.