

# Cypher (22): sc-136380

## 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 three 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. and Yläne, J. 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.
6. Xing, Y., et al. 2006. Genetic analysis in patients with left ventricular noncompaction and evidence for genetic heterogeneity. *Mol. Genet. Metab.* 88: 71-77.
7. Marziliano, N., et al. 2007. Barth syndrome associated with compound hemizygoty and heterozygoty of the TAZ and LDB3 genes. *Am. J. Med. Genet. A.* 143: 907-915.

## CHROMOSOMAL LOCATION

Genetic locus: Ldb3 (mouse) mapping to 14 B.

## SOURCE

Cypher (22) is a mouse monoclonal antibody raised against amino acids 294-384 of Cypher of mouse origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## APPLICATIONS

Cypher (22) is recommended for detection of Cypher of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

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

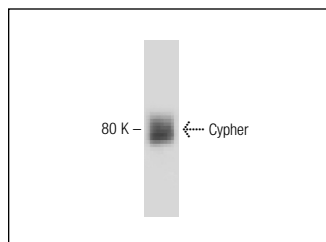
Molecular Weight of Cypher prominent isoforms: 32/78 kDa.

Positive Controls: mouse neonate tissue extract or rat skeletal muscle extract.

## 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™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048.

## DATA



Cypher (22): sc-136380. Western blot analysis of Cypher expression in mouse neonate tissue extract.

## 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.