# DPH5 (m): 293T Lysate: sc-119830



The Power to Question

## **BACKGROUND**

The translation elongation factor 2 in eukaryotes (eEF-2) contains a unique post-translationally modified histidine residue, termed diphthamide, which serves as the only target for diphtheria toxin and *Pseudomonas aeruginosa* exotoxin A. Diphthamide biosynthesis is carried out by five highly conserved proteins, DPH1 to DPH5. The DPH protein family is evolutionarily conserved throughout eukaryotes. The DPH5 gene maps to chromosome 1 and encodes five isoforms as a result of alternative splicing events. Chromosome 1 is the largest human chromosome spanning about 260 million base pairs. Notable genes located on chromosome 1 include MUTYH, Hutchinson-Gilford progeria, Stickler syndrome, Parkinsons, Gaucher disease and Usher syndrome.

#### **REFERENCES**

- Chen, J.Y. and Bodley, J.W. 1988. Biosynthesis of diphthamide in Saccharomyces cerevisiae. Partial purification and characterization of a specific S-adenosylmethionine:elongation factor 2 methyltransferase. J. Biol. Chem. 263: 11692-11696.
- Mattheakis, L.C., Shen, W.H. and Collier, R.J. 1992. DPH5, a methyltransferase gene required for diphthamide biosynthesis in *Saccharomyces* cerevisiae. Mol. Cell. Biol. 12: 4026-4037.
- Liu, S., Milne, G.T., Kuremsky, J.G., Fink, G.R. and Leppla, S.H. 2004. Identification of the proteins required for biosynthesis of diphthamide, the target of bacterial ADP-ribosylating toxins on translation elongation factor 2. Mol. Cell. Biol. 24: 9487-9497.
- Weise, A., Starke, H., Mrasek, K., Claussen, U. and Liehr, T. 2005. New insights into the evolution of chromosome 1. Cytogenet. Genome Res. 108: 217-222.
- Gregory, S.G., Barlow, K.F., McLay, K.E., Kaul, R., Swarbreck, D., Dunham, A., Scott, C.E., Howe, K.L., Woodfine, K.C., Spencer, C.A., Jones, M.C., Gillson, C., Searle, S., Zhou, Y., Kokocinski, F., McDonald, L., et al. 2006. The DNA sequence and biological annotation of human chromosome 1. Nature 441: 315-321.
- Liu, S., Wiggins, J.F., Sreenath, T., Kulkarni, A.B., Ward, J.M. and Leppla, S.H. 2006. Dph3, a small protein required for diphthamide biosynthesis, is essential in mouse development. Mol. Cell. Biol. 26: 3835-3841.
- Gupta, P.K., Liu, S., Batavia, M.P. and Leppla, S.H. 2008. The diphthamide modification on elongation factor-2 renders mammalian cells resistant to ricin. Cell. Microbiol. 10: 1687-1694.
- Webb, T.R., Cross, S.H., McKie, L., Edgar, R., Vizor, L., Harrison, J., Peters, J. and Jackson, I.J. 2008. Diphthamide modification of eEF2 requires a J-domain protein and is essential for normal development. J. Cell Sci. 121: 3140-3145.

# **CHROMOSOMAL LOCATION**

Genetic locus: Dph5 (mouse) mapping to 3 G1.

## **PRODUCT**

DPH5 (m): 293T Lysate represents a lysate of mouse DPH5 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

## **APPLICATIONS**

DPH5 (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive DPH5 antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

## **STORAGE**

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. 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 for detailed protocols and support products.