

BACKGROUND

Dosage compensation is an essential regulatory process in organisms whose primary sex-determining mechanisms cause males and females to differ in their relative dose of sex chromosomes. By equalizing sex-linked gene expression, dosage compensation mechanisms prevent the sex-specific lethality that arises as a consequence of a twofold difference in sex chromosome dosage.¹

DPY-30 is a novel nuclear protein of 123 amino acids. It is an essential component of dosage compensation machinery that reduces X chromosome transcript levels in hermaphrodites (XX). Loss of DPY-30 activity results in XX-specific lethality.²

DPY-30 is required for the sex-specific association of DPY-27 (a chromosome condensation protein homolog) with the hermaphrodite X chromosomes. DPY-30 itself is not associated with the X chromosomes, nor is its pattern of expression perturbed by mutations in the gene hierarchy that controls dosage compensation. Therefore, DPY-30 is a ubiquitous factor that is likely to promote the hermaphrodite-specific association of DPY-27 with the X chromosome by affecting the activity of a sex-specific dosage compensation gene.³ In XO animals, DPY-30 is required for developmental processes other than dosage compensation, including: coordinated movement, normal body size, correct tail morphology and mating behavior.

In yeast, the homolog of DPY-30, Saf19p, functions as a member of histone 3 lysine 4 methylation complex, which is the key part of epigenetic developmental control.⁴ The human DPY-30 is a conserved member of in specific histone methyltransferase (HMT) complexes. In the human MLL1 (mixed-lineage leukemia-1) HMT complex, DPY-30 binds to the BRE2 homolog ASH2L in order to regulate histone 3-lysine 4 trimethylation.

References:

1. Meyer BJ: WormBook, 25:1-14, 2005.
2. Hsu DR & Meyer BJ: Genetics, 137:999-1018, 1994.
3. Hsu DR et al.: Development, 121:3323-34,1995.
4. Nagy PL et al.: Proc Natl Acad Sci U S A, 99:90-4, 2002.

TECHNICAL INFORMATION

Source:

DPY-30 Antibody is a mouse monoclonal antibody raised against human DPY-30 protein carboxyl-terminal sequence.

Specificity and Sensitivity:

This monoclonal antibody detects endogenous levels of DPY-30 proteins in normal primary cell lysates.

Storage Buffer: PBS and 30% glycerol

Storage:

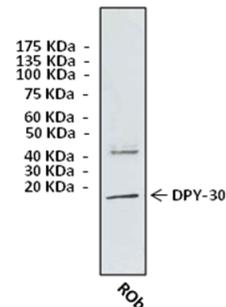
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	1:50
IHC	1:100

**Optimal dilutions must be determined by end user.*

QUALITY CONTROL DATA



Western Blot detection of endogenous DPY-30 protein in normal primary cell lysates using DPY-30 antibody. ROB: Rat Osteoblasts.

