ALPHA DIAGNOSTIC INTERNATIONAL

Product Specification Sheet

Proteolipid protein 139-151 aa Peptide (PLP139-151), S140 depalmitoylated

☐ **Cat #** PLP139-1-1 Human/Rat/Mouse PLP139-151 (S140) peptide, depalmitoylated **SIZE**: 1 mg

☐ **Cat #** PLP139-1-5 Human/Rat/Mouse PLP139-151 (S140) peptide, depalmitoylated **SIZE**: 5 mg

Proteolipid protein 1 (PLP1, Mylein, PLP, lipophilin, DM20) is the primary constituent of myelin in the central nervous system (CNS). PLP gene (chromosome Xq22; 276-aa) encodes a 276-amino acid polypeptide with 5 strongly hydrophobic domains that interact with the lipid bilayer as trans- and cis-membrane segments. It plays an important role in the formation or maintenance of the multilamellar structure of myelin. PLP is a multi-pass membrane protein with two isoforms: PLP (protein accession #P60201-1; 276 aa, 4 TM domains) and DMP20 (accession #P60201-2, 242-aa; missing 117-151 aa). The 2 isoforms of the myelin proteolipid protein, PLP and DM20, are very hydrophobic integral membrane proteins that account for about half of the protein content of adult CNS myelin. The mRNAs encoding them are synthesized through alternative splicing of the primary transcript of a single gene. The nucleotide sequence of the protein-encoding regions of the PLP gene is highly conserved among all species studied.

Experimental autoimmune encephalomyelitis (EAE) serves as an experimental model for human multiple sclerosis (MS), reproducing clinical aspects such as inflammation of central nervous system (CNS) tissue. It is depicted as a prototypic $CD4^+$ Th1-mediated autoimmune disease that depends on autoreactive Th1 cells that traffic from the periphery into the CNS. It is believed that demyelination plaques that are randomly scattered throughout white matter in the central nervous system (CNS) are responsible for disease symptoms. Myelin basic protein (MBP) and Myelin Proteolipid Protein (PLP) have been used to induce EAE. MBP is highly immunogenic upon its administration with induction being noted by the signature secretion of both IFN-g and TNF-a. Fragments of MBP (MBP**1-11)** and *PLP (104-117, 139-151* are reported to be the minimally active fragments and useful for EAE induction.

PLP is posttranslationally acylated by covalent attachment of long chain fatty acids to cysteine residues in the polypeptide backbone via thioester linkages. PLP acylation is highly conserved throughout evolution and during brain development, and is thought to play an important role in the normal functioning of PLP and in myelin stability. acylation sites Cys108 and Cys140 are within the encephalitogenic PLP epitopes PLP104–117 and PLP139–151, respectively. It has been shown that lipopeptides formed by the attachment of acyl side chains to peptides either via stable amide bonds or via the more labile thioester linkage, as is found in PLP, can act as natural adjuvants for the induction of Ab and CTL responses.

Specificity

cat # **Cat #** PLP139-P-1 is depalmitoylated at S140. This sequence is conserved in human, chimp, mouse, rat, pig, rabbit, canine, bovine PLP1. This sequence is missing in PLP isoform 2 or DM20. It is predicted to be in the cytoplasmic domain 2.

This product is for In vitro research use only.

Sources of Peptides

Cat # PLP139-P1-1 & PLP139-P1-1

Sequence: 139-151 aa

HSLGKWLGHPDKF

Mol Wt: 1521.76

Purity >95%

Form: Powder

Solubility: DMSO or dilute acid at 1 mg/ml

Storage: Store powder at -20oC for up to 6 months.

After reconstitution in water, store solution in small aliquots at -20oC for 3-6 months. Do not freeze and thaw or store diluted solutions.

General References: Diel H-J (1986) PNAS 83, 9807-9811; Simon R (1987) BBRC 146, 666-667; Gencic S (1989) Am. J. Hum. Genet. 45, 435-442;

Related items

PLP139-151 (S140) peptide, depalmitoylated
PLP139-151 (C140) peptide, depalmitoylated
PLP139-151 (C140) peptide, palmitoylated (thioester)
PLP139-151 (C140) peptide, palmitoylated (N-terminal)

Antibodies to PLP139-151

ELISA kit to detect antibodies to PLP139-151

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