

## Product Data Sheet

### MPL W515L/K Standards

Cat. #: MPL-S1, MPL-S2, MPL-S3

#### **MPL W515L/K Clinical Relevance:**

Myeloproliferative disorders (MPD) are a group of haematological malignant diseases characterized by proliferation of one or more hematologic cell lines in the bone marrow. This group includes; Chronic myelogenous leukemia (CML), Polycythaemia Vera (PV), Essential Thrombocythaemia (ET), and Primary Myelofibrosis (PMF), and others. The JAK2 V617F mutation is found in virtually all PV cases and 50-70% of ET and PMF cases. Detection of the JAK2 V617F mutation is an aid in the classification of MPD. A less frequent mutation found in MPD disorders is the MPL W515K or L mutation. The JAK2 V617 and MPL W515K mutations induce constitutive, cytokine-independent activation of the JAK-STAT pathway contributing to uncontrolled cell growth. Researchers have discovered that *MPLW515L* or *MPLW515K* mutations are present in patients with PMF or ET at a frequency of approximately 5% and 1%, respectively, but are not observed in patients with polycythemia vera (PV) or other myeloid disorders. Consequently, detecting MPL515 mutations in JAK2 V617F-negative samples can assist in MPD classification. Studies have also shown that *MPL* mutations may occur concurrently with the *JAK2V617F* mutation, and therefore may provide additional information regarding the characteristics of these MPD cases.

CytoGenes offers primer mixes, standards, and controls allowing laboratories to detect the MPL W515L and W515K mutations by quantitative PCR.

#### **Product Description:**

DNA standards can be utilized to generate a standard curve in Q-PCR reactions to calculate concentrations for indicated targets in test samples. Each standard contains an equal mixture of a DNA fragments specific for each of the indicated targets (See Product Specifications). All DNA targets are represented at the same concentration as indicated.

Standards are designed to yield positive results in PCR reactions for the MPL-WT, MPL W515K, and MPL W515L primer sets.

## Product Specifications:

The table below indicates the assay targets and concentrations for each of the DNA Standards.

Cat #	Item	Assay Targets Included	Concentration
MPL-S1	MPL Standard-1	MPL (WT, W515K, W515L)	5e <sup>5</sup> copies/ul
MPL-S2	MPL Standard-2	MPL (WT, W515K, W515L)	5e <sup>4</sup> copies/ul
MPL-S3	MPL Standard-3	MPL (WT, W515K, W515L)	5e <sup>3</sup> copies/ul

Volume: 45µl  
Reactions: 20 (2µl/ reaction)

## Procedure:

Researchers are advised to optimize the use of these standards in any application. DNA standards should be tested utilizing the same conditions as utilized for test samples. The volume of DNA standard used in a PCR reaction should be the same as all other test samples.

## Storage:

Store at -20°C. Once open store at 4°C. Repeated freezing/thaw cycles should be avoided.

## References:

1. Pardanani AD, Levine RL, Lasho T, Pikman Y, Mesa RA, Wadleigh M, Steensma DP, Elliott MA, Wolanskyj AP, Hogan WJ, McClure RF, Litzow MR, Gilliland DG, Tefferi A. MPL515 mutations in myeloproliferative and other myeloid disorders: a study of 1182 patients. *Blood*. 2006 Nov 15;108(10):3472-6. Epub 2006 Jul 25. PubMed PMID: 16868251.
2. Pikman Y, Lee BH, Mercher T, McDowell E, Ebert BL, Gozo M, Cuker A, Wernig G, Moore S, Galinsky I, DeAngelo DJ, Clark JJ, Lee SJ, Golub TR, Wadleigh M, Gilliland DG, Levine RL. MPLW515L is a novel somatic activating mutation in myelofibrosis with myeloid metaplasia. *PLoS Med*. 2006 Jul;3(7):e270. PubMed PMID: 16834459; PubMed Central PMCID: PMC1502153.

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For Investigational Use Only. The performance characteristics of this product have not been established.