ZytoLight® SPEC MDM4/1p12 Dual Color Probe

CE IVD

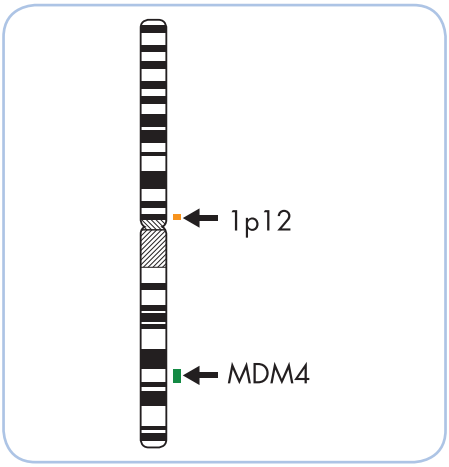
Background

The ZytoLight® SPEC MDM4/1p12 Dual Color Probe is designed for the detection of MDM4 gene amplifications found in 10-20% of various tumors such as lung, colon, stomach, and breast cancers, as well as in 65% of retinoblastomas.
The MDM4 (mouse double minute 4 homolog) gene (a.k.a. HDMX or MDMX) is located in the chromosomal region 1q32.1 and encodes a 490-amino acid protein which shows significant structural similarity to the p53-binding protein MDM2.
Like MDM2, the oncogene MDM4 can bind to p53 thereby inactivating the function of p53 as a transcriptional activator. In addition, MDM4 has been shown to bind to MDM2 resulting in inhibition of MDM2 degradation.
Antitumor strategies employing combined inhibitors of the two oncogenic proteins MDM2 and MDM4 may lead to an effective activation of the tumor suppressor p53.

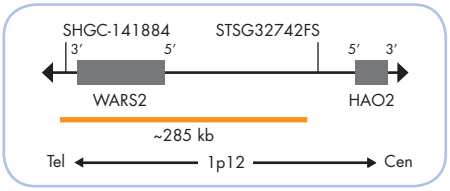
References
Duhamel LA, et al. (2012) Histopathology 60: 357-9.
Laurie NA, et al. (2006) Nature 444: 61-6.
Shvarts A, et al. (1996) EMBO J 15: 5349-57.
Shvarts A, et al. (1997) Genomics 43: 34-42.
Tanimura S et al. (1999) FEBS Lett 447: 5-9.
Toledo F & Wahl GM (2006) Nat Rev Cancer 6: 909-23.
Toledo F & Wahl GM (2007) Int J Biochem Cell Biol 39:1476-82.

Probe Description

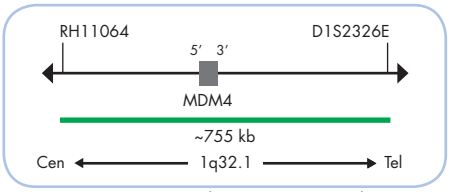
The SPEC MDM4/1p12 Dual Color Probe is a mixture of a green fluorochrome direct labeled SPEC MDM4 probe hybridizing distal and proximal to the human MDM4 gene in the chromosomal region 1q32.1 and an orange fluorochrome direct labeled SPEC 1p12 probe hybridizing in close proximity to the centromere of chromosome 1 at the chromosomal region 1p12.
Due to cross-hybridizations of chromosome 1 alpha satellites to other centromeric regions, probes specific for 1p12 are frequently used for chromosome 1 copy number detection.



Ideogram of chromosome 1 indicating the hybridization locations.



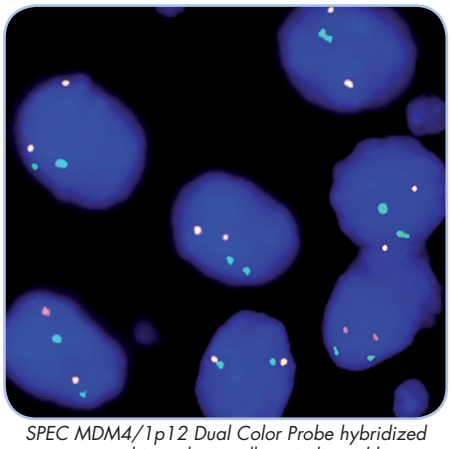
SPEC 1p12 Probe map (not to scale).



SPEC MDM4 Probe map (not to scale).

Results

In a normal interphase nucleus two orange and two green signals are expected. Nuclei with amplification of the MDM4 gene locus or aneuploidy of chromosome 1 will show multiple copies of the green signal or large green signal clusters.



SPEC MDM4/1p12 Dual Color Probe hybridized to normal interphase cells as indicated by two orange and two green signals in each nucleus.

Prod. No.	Product	Label	Tests* (Volume)
Z-2080-200	ZytoLight SPEC MDM4/1p12 Dual Color Probe CE IVD	●/●	20 (200 µl)
Related Products			
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 500 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraTect-Solution, 0.8 ml		20

** Using 10 µl probe solution per test. CE IVD only available in certain countries. All other countries research use only! Please contact your local dealer for more information.*

ZytoLight® FISH probes are direct labeled using the unique ZytoLight® *Direct Label System II* providing improved signal intensity. Advanced specificity of the single copy SPEC probes is obtained by the unique ZytoVision® *Repeat Subtraction Technique.*

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