

# ZytoLight® SPEC MCL1/1p12 Dual Color Probe



## Background

The ZytoLight® SPEC MCL1/1p12 Dual Color Probe is designed for the detection of MCL1 gene amplifications.

The MCL1 (myeloid cell leukemia 1, a.k.a. BCL2L3) gene is located in the chromosomal region 1q21.3 and encodes for an anti-apoptotic protein that belongs to the BCL2 family. These genes are involved in a wide variety of cellular activities including lymphocyte development and hematopoiesis.

MCL1 amplifications have been reported in several human cancers including bladder, gastric, ovarian, lung, breast, melanoma, and hematologic malignancies. Overexpression of MCL1 reduces MYC-induced apoptosis in immortalized bronchial epithelial cells.

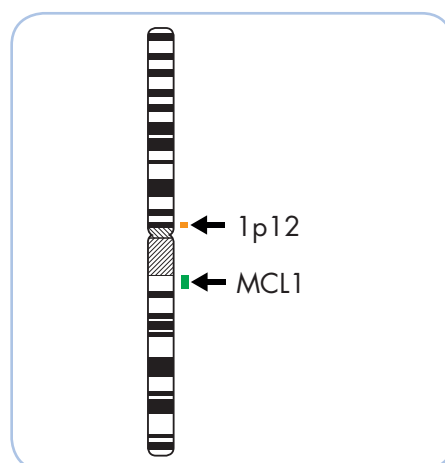
Furthermore, MCL1 amplifications are found in many tumor cell lines with resistance to chemotherapeutic agents. However, many MCL1 amplified cell lines are sensitive to treatment with the cyclin-dependent kinase (CDK) inhibitor dinaciclib. Targeting the BCL2 family proteins with small non-peptidic compounds, so called BH3-mimetics, is currently investigated in clinical trials.

Hence, the identification of MCL1 amplifications by Fluorescence *in situ* Hybridization and the inhibition of MCL1 signaling may be of therapeutic significance in various types of tumors.

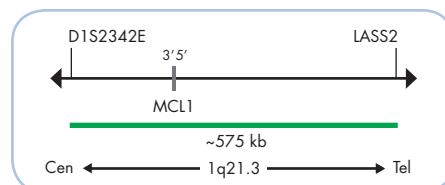
**References**  
Beroukhi R, et al. (2010) Nature 463: 899-905.  
Booher RN, et al. (2014) PLoS One 9: e108371.  
Sochalska M, et al. (2015) FEBS J 282: 834-49.  
Yasui K, et al. (2004) Cancer Res 64: 1403-10.

## Probe Description

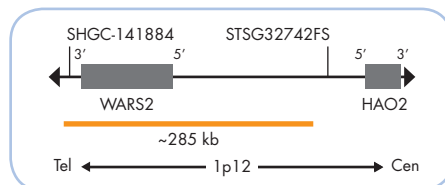
The SPEC MCL1/1p12 Dual Color Probe is a mixture of a green fluorochrome direct labeled SPEC MCL1 probe hybridizing to the MCL1 gene in the chromosomal region 1q21.3 and an orange fluorochrome direct labeled SPEC 1p12 probe specific for the chromosomal region 1p12. Due to cross-hybridizations of chromosome 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.



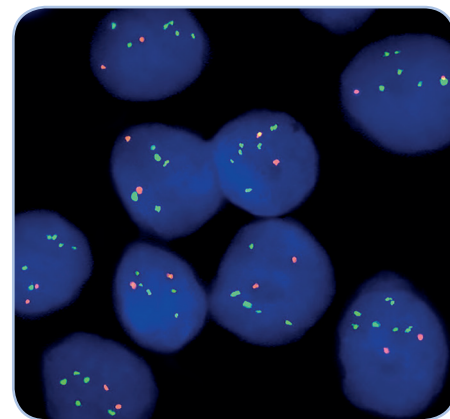
SPEC MCL1 Probe map (not to scale).



SPEC 1p12 Probe map (not to scale).

## Results

In a normal interphase nucleus, two orange and two green signals are expected. In a cell with amplification of the MCL1 gene locus, multiple copies of the green signal or green signal clusters will be observed.



H2110 cell line with interphase cells showing amplification of the MCL1 gene locus as indicated by multiple green signals in each nucleus.

Prod. No.	Product	Label	Tests* (Volume)
Z-2173-200	ZytoLight SPEC MCL1/1p12 Dual Color Probe CE IVD	●/●	20 (200 µl)
<b>Related Products</b>			
Z-2028-20	ZytoLight FISH-Tissue Implementation Kit CE IVD		20
Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; Wash Buffer SSC, 500 ml; 25x Wash Buffer A, 100 ml; DAPI/DuraTest-Solution, 0.8 ml			

\* 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.