Simply Adapt the Hybridization Time to your Needs!

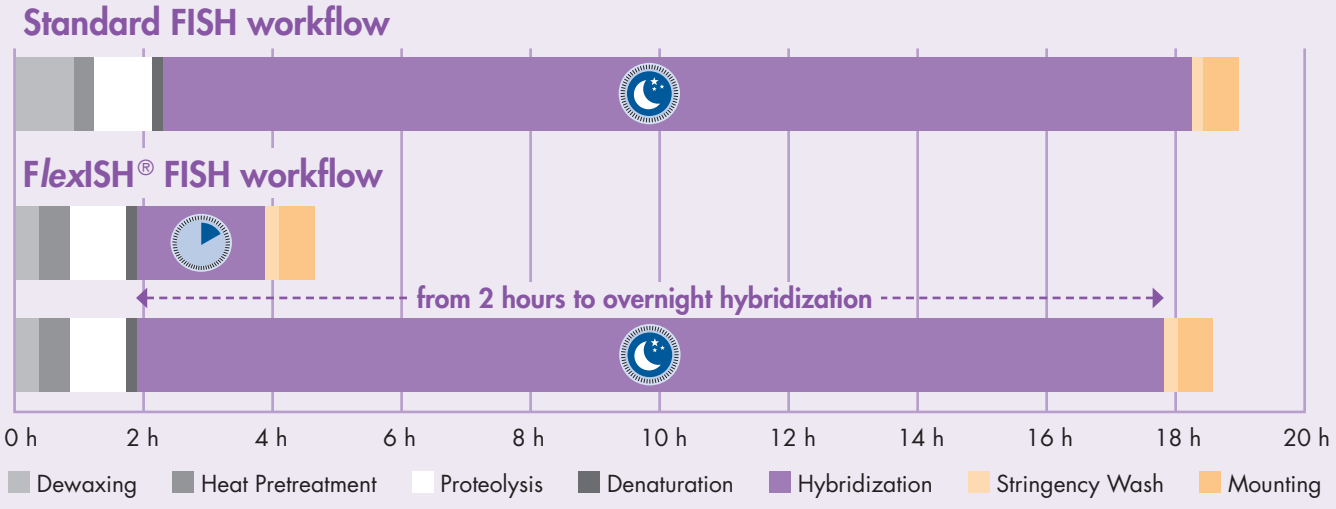
Introduction
F*lex*ISH® products are designed for identification of chromosomal aberrations on various specimens by FISH. Using the F*lex*ISH® products gives you the flexibility to choose between a 1-day (2 h hybridization) or a 2-day (overnight hybridization) protocol by adapting the hybridization time just according to your individual needs!

Advantages of F*lex*ISH®
- Hybridization time can be varied between 2 hours and overnight.
- With a hybridization temperature of 37°C the F*lex*ISH® protocol is fully compatible with routine workflows in pathology laboratories.
- Short hybridization time does not negatively affect the performance, specimen quality or diagnostic result[1].

F*lex*ISH® Kit - Convenient Solution
All F*lex*ISH® probes can be combined with the F*lex*ISH®-Tissue Implementation Kit to obtain reliable results already within 4.5 hours.
The F*lex*ISH® protocol can also be incorporated into the routine workflow with overnight hybridization providing the highest flexibility.

High-Quality FISH Results with flexible Hybridization Time

There is an excellent correlation between the FISH results obtained after overnight and short hybridization periods with regard to signal brightness, signal-to-noise ratio, and the diagnostic result[1].



References
[1] Brockhoff G, et al. (2016) Histopathology 69: 635-46.

MFLE001-1-17

The unique composition of the F*lex*ISH® probes enables a flexible FISH protocol application giving the choice between a fast 2 hour hybridization or a standard overnight hybridization.

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Chromosome Index, human

		Chr. Band	Product Name	Product No.	Quantity	Page
1			no probes available yet			
2		2p23	FlexISH ALK/ROS1 DistinguISH™ Probe CE IVD NEW	Z-2203-50/-200	50 µl/200 µl	159
3-5			no probes available yet			
6		6q22.1	FlexISH ALK/ROS1 DistinguISH™ Probe CE IVD NEW	Z-2203-50/-200	50 µl/200 µl	159
7-16			no probes available yet			
17		17q12	FlexISH ERBB2/CEN 17 Dual Color Probe CE IVD NEW	Z-2166-50/-200	50 µl/200 µl	160
18-22			no probes available yet			
X, Y			no probes available yet			

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Gene Index

HUGO Name	Synonym	Product Name	Product No.	Quantity	Page
ALK	CD246	FlexISH ALK/ROS1 DistinguISH™ Probe CE IVD NEW	Z-2203-50/-200	50 µl/200 µl	159
ERBB2	HER2, NEU	FlexISH ERBB2/CEN 17 Dual Color Probe CE IVD NEW	Z-2166-50/-200	50 µl/200 µl	160
ROS1	MCF3, ROS	FlexISH ALK/ROS1 DistinguISH™ Probe CE IVD NEW	Z-2203-50/-200	50 µl/200 µl	159

Probes Sorted by Indication

Indication	Product Name	Product No.	Quantity	Page
Solid Tumors				
Breast Cancer	FlexISH ERBB2/CEN 17 Dual Color Probe CE IVD NEW	Z-2166-50/-200	50 µl/200 µl	160
Lung Cancer	FlexISH ALK/ROS1 DistinguISH™ Probe CE IVD NEW	Z-2203-50/-200	50 µl/200 µl	159
	FlexISH ERBB2/CEN 17 Dual Color Probe CE IVD NEW	Z-2166-50/-200	50 µl/200 µl	160
Other Solid Tumors	FlexISH ERBB2/CEN 17 Dual Color Probe CE IVD NEW	Z-2166-50/-200	50 µl/200 µl	160

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FlexISH® ALK/ROS1 DistinguISH™ Probe

CE IVD

Background

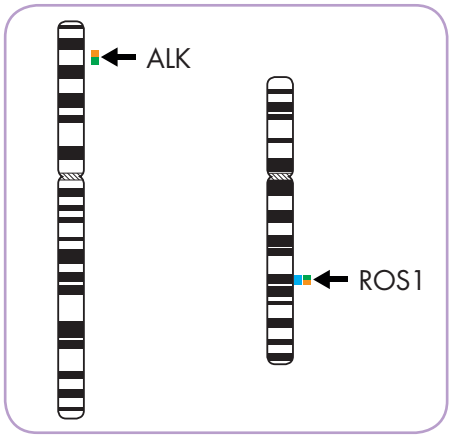
The FlexISH® ALK/ROS1 DistinguISH™ Probe is designed to detect rearrangements involving the chromosomal region 2p23.1-p23.2 and 6q22.1 harboring the ALK (anaplastic lymphoma receptor tyrosine kinase, a.k.a. CD246) and ROS1 (c-ros oncogene 1) gene, respectively. Using this probe, it is possible to simultaneously detect ALK and ROS1 rearrangements and, additionally, to discriminate between possible aberrations affecting these chromosomal regions.

Both, the ALK as well as the ROS1 gene, encode for transmembrane receptor tyrosine kinases. Rearrangements affecting the ALK or the ROS1 gene locus are frequently found in non-small cell lung cancer (NSCLC). The most frequent ALK rearrangement in NSCLC is the inversion [inv(2)(p21p23)] affecting the genes ALK and EML4, both located on chromosome 2. The ROS1 gene is evolutionary closely related to the ALK family which forms part of the scientific basis of using inhibitors of ALK as inhibitors of ROS1. ALK and ROS1 positive NSCLC patients benefit from a tyrosine kinase targeted therapy, like, e.g., crizotinib.

References
Birchmaier C, et al. (1987) Proc Natl Acad Sci 84: 9270-4.
Bos M, et al. (2013) Lung Cancer 81: 142-3.
Sasaki T, et al. (2010) Eur J Cancer 46: 1773-80.
Shaw AT, et al. (2014) N Engl J Med 371: 1963-71.

Probe Description

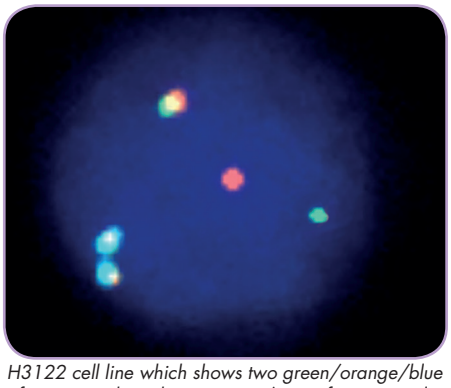
The FlexISH® ALK/ROS1 DistinguISH™ Probe is a mixture of five direct labeled probes hybridizing to the 2p23.1-p23.2 and 6q22.1-q22.2 bands. The orange fluorochrome direct labeled probe fractions hybridize distal to the ALK and ROS1 breakpoint regions, the green direct labeled probe fractions hybridize proximal to the ALK and ROS1 breakpoint regions. The blue fluorochrome direct labeled probe hybridizes distal and proximal to the ROS1 breakpoint region.



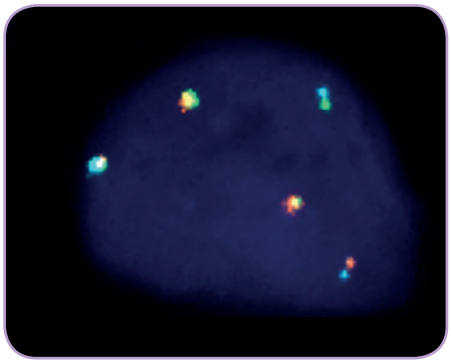
Ideograms of chromosomes 2 (left) and 6 (right) indicating the hybridization locations.

Results

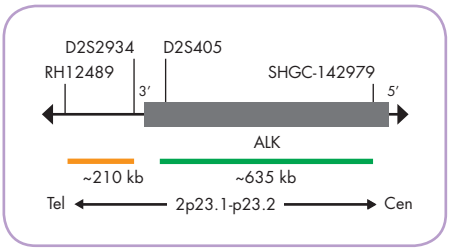
In an interphase nucleus without ALK or ROS1 rearrangements, two ALK specific green/orange fusion signals and two ROS1 specific green/orange/blue fusion signals are expected. An ALK rearrangement is indicated by one separate orange signal and/or one separate green signal, both not co-localizing with blue signals. A ROS1 rearrangement is indicated by one separate green signal, and/or one separate orange signal both co-localizing with blue signals.



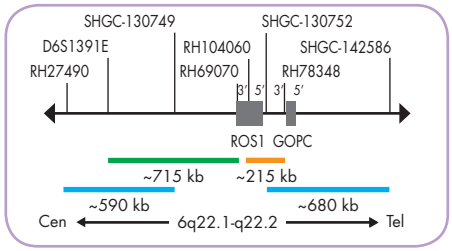
H3122 cell line which shows two green/orange/blue fusion signals and one orange/green fusion signal. An ALK rearrangement is indicated by one separate orange and one separate green signal, both not co-localizing with blue signals.



HCC78 cell line which shows two green/orange fusion signals and one green/orange/blue fusion signal. ROS1 rearrangement is indicated by one separate orange and one separate green signal, both co-localizing with blue signals.



ALK Probe map (not to scale).



ROS1 Probe map (not to scale).

Prod. No.	Product	Label	Tests* (Volume)
Z-2203-50	FlexISH ALK/ROS1 DistinguISH Probe CE IVD	●/●/●	5 (50 µl)
Z-2203-200	FlexISH ALK/ROS1 DistinguISH Probe CE IVD	●/●/●	20 (200 µl)
Related Products			
Z-2182-5	FlexISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 150 ml; Pepsin Solution, 1 ml; 5x FlexISH Wash Buffer, 150 ml; DAPI/DuraTect-Solution, 0.2 ml		5
Z-2182-20	FlexISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; 5x FlexISH Wash Buffer, 500 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.*

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FlexISH® ERBB2/CEN 17 Dual Color Probe

CE IVD

Background

The FlexISH® ERBB2/CEN 17 Dual Color Probe is designed for the detection of ERBB2 gene amplification frequently observed in solid malignant neoplasms, e.g., breast cancer samples.

The ERBB2 gene (a.k.a. HER2 and NEU) is located in the chromosomal region 17q12 and encodes a 185-190 kDa transmembrane glycoprotein, p185, acting as a cellular growth factor receptor. The p185 protein belongs to the EGFR (epidermal growth factor receptor) subgroup of the RTK (receptor tyrosine kinase) superfamily also including EGFR (ERBB1), ERBB3 (HER3), and ERBB4 (HER4).

Amplification of the proto-oncogene ERBB2, observed in approximately 20% of all breast cancer samples, has been correlated with a poor prognosis of the disease. Similar results have been obtained for a variety of other malignant neoplasms, e.g., ovarian cancer, stomach cancer, and carcinomas of the salivary gland.

References

Baselga J, et al. (1999) Semin Oncol 26: 78-83.
Brockhoff G, et al. (2016) Histopathology 69: 635-46.
Brunello E, et al. (2012) Histopathology 60: 482-8.
Brunner K, et al. (2010) Anal Quant Cytol Histol 32: 78-89.
Coussens L, et al. (1985) Science 230: 1132-9.
Ettl T, et al. (2012) Br J Cancer 106: 719-26.
Hwang CC, et al. (2011) Histopathology 59: 984-92.
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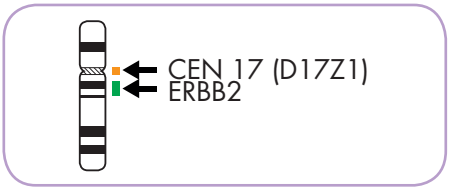
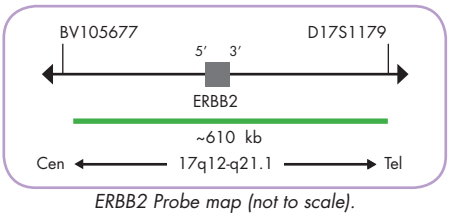
Park JB, et al. (1989) Cancer Res 49: 6605-9.
Popescu NC, et al. (1989) Genomics 4: 362-6.
Sassen A, et al. (2008) Breast Cancer Res 10: R2.
Slamon DJ, et al. (1987) Science 235: 177-82.
Voutsas IF, et al. (2013) Int J Radiat Biol 89: 319-25.
Wolff AC, et al. (2013) J Clin Oncol 31: 3997-4013.

Probe Description

The ERBB2/CEN 17 Dual Color Probe is a mixture of a green fluorochrome direct labeled ERBB2 probe specific for the chromosomal region 17q12-q21.1 harboring the ERBB2 gene and an orange fluorochrome direct labeled CEN 17 probe specific for the alpha satellite centromeric region of chromosome 17 (D17Z1).



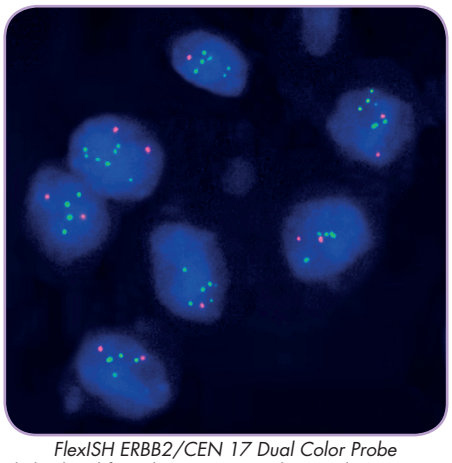
Ideogram of chromosome 17 indicating the hybridization locations.



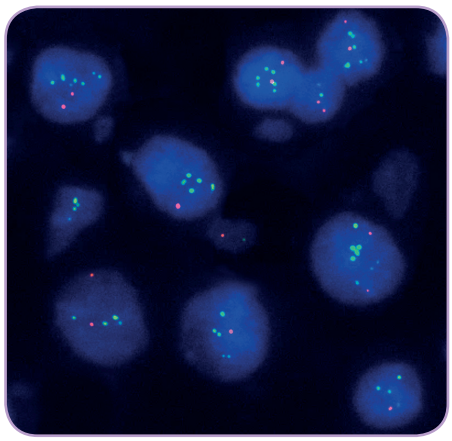
ERBB2 Probe map (not to scale).

Results

In a normal interphase nucleus, two green and two orange signals are expected. In a cell with amplification of the ERBB2 gene locus, multiple copies of the green signal or green signal clusters will be observed.



FlexISH ERBB2/CEN 17 Dual Color Probe hybridized for 2 hours on an endometrial carcinoma tissue section with ERBB2 (green) amplification.



FlexISH ERBB2/CEN 17 Dual Color Probe hybridized overnight on an endometrial carcinoma tissue section with ERBB2 (green) amplification.

Prod. No.	Product	Label	Tests* (Volume)
Z-2166-50	FlexISH ERBB2/CEN 17 Dual Color Probe CE IVD	●/●	5 (50 µl)
Z-2166-200	FlexISH ERBB2/CEN 17 Dual Color Probe CE IVD	●/●	20 (200 µl)
Related Products			
Z-2182-5	FlexISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 150 ml; Pepsin Solution, 1 ml; 5x FlexISH Wash Buffer, 150 ml; DAPI/DuraTect-Solution, 0.2 ml		5
Z-2182-20	FlexISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; 5x FlexISH Wash Buffer, 500 ml; DAPI/DuraTect-Solution, 0.8 ml		20

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Accessories

Implementation Kits

For the detection of F*lex*ISH® Probes

Prod. No.	Product	Tests
Z-2182-5	F*lex*ISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 150 ml; Pepsin Solution, 1 ml; 5x F*lex*ISH Wash Buffer, 150 ml; DAPI/DuraTect-Solution, 0.2 ml	5
Z-2182-20	F*lex*ISH-Tissue Implementation Kit CE IVD Incl. Heat Pretreatment Solution Citric, 500 ml; Pepsin Solution, 4 ml; 5x F*lex*ISH Wash Buffer, 500 ml; DAPI/DuraTect-Solution, 0.8 ml	20
Z-2099-20	Zyto*Light* FISH-Cytology Implementation Kit CE IVD Incl. Cytology Pepsin Solution, 4 ml; 20x Wash Buffer TBS, 50 ml; 10x $MgCl_2$, 50 ml; 10x PBS, 50 ml; Cytology Stringency Wash Buffer SSC, 500 ml; Cytology Wash Buffer SSC, 500 ml; DAPI/DuraTect-Solution, 0.8 ml	20

The F*lex*ISH®-Tissue Implementation Kit can be used for FFPE samples and the Zyto*Light*® FISH-Cytology Implementation Kit for cytology specimens in combination with any F*lex*ISH® FISH probe.

F*lex*ISH® Pretreatment Reagents

Prod. No.	Product
ES-0001-4	Pepsin Solution, 4 ml CE IVD
ES-0001-8	Pepsin Solution Set, 2x 4 ml CE IVD
ES-0001-50	Pepsin Solution, 50 ml CE IVD
ES-0001-1000	Pepsin Solution, 1000 ml CE IVD
ES-0002-4	Cytology Pepsin Solution, 4 ml CE IVD
ES-0002-50	Cytology Pepsin Solution, 50 ml CE IVD
PT-0001-1000	Heat Pretreatment Solution Citric, 1000 ml CE IVD
PT-0006-100	Formaldehyde Dilution Buffer Set CE IVD Incl. 10x $MgCl_2$, 50 ml; 10x PBS, 50 ml

F*lex*ISH® Wash Buffers & Ancillary Reagents

Prod. No.	Product
E-4005-50	Fixogum, Rubber Cement, 50 g
E-4005-125	Fixogum, Rubber Cement, 125 g
MT-0007-0.8	DAPI/DuraTect-Solution, 150 ng DAPI/ml, 0.8 ml CE IVD
MT-0008-0.8	DAPI/DuraTect-Solution (ultra), 1360 ng DAPI/ml, 0.8 ml CE IVD
WB-0007-500	Cytology Stringency Wash Buffer SSC, 500 ml CE IVD
WB-0008-500	Cytology Wash Buffer SSC, 500 ml CE IVD
WB-0010-500	5x F*lex*ISH Wash Buffer, 500 ml CE IVD

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