CytoCell

ogt

A Sysmex Group Company

Pathology Probes for Breast Cancer

Features

- Improve confidence in result interpretation with high intensity signals and minimal background
- Maximise signal quality when probes are used in conjunction with our Tissue Pretreatment Kit
- Enhance detection and scoring accuracy with robust, easy-to-analyse probes
- Save time and minimise mixing errors with easy-to-use, pre-mixed probes
- Optimise stock levels and minimise wastage with flexible pack sizes to meet your needs

Breast Cancer

Breast cancer is the most commonly diagnosed cancer in women and comprises 25% of all reported cancer cases. Worldwide, there were 2.09 million new cases, with an estimated 627,000 deaths in 2018[1].

FISH testing on breast cancer samples can give important information about the patient's disease, and in some cases may help direct patient management decisions[2].

The OGT Partnership

Behind every sample is a life that can be improved through the right care decisions. The OGT partnership approach is key to providing the highest level of service, working closely with you to understand your unique challenges, customising our approach to meet your exact needs. Choose CytoCell® probes for your FISH analysis; our effective, accurate and simple to use products help clinical decision makers to reach the right decisions for each patient.

References

1. Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, *et al.* GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC CancerBase No. 11 Lyon, France: International Agency for Research on Cancer; 2013.
2. Rakha EA, *et al.* Journal of Clinical Pathology 2015,68:93–99.

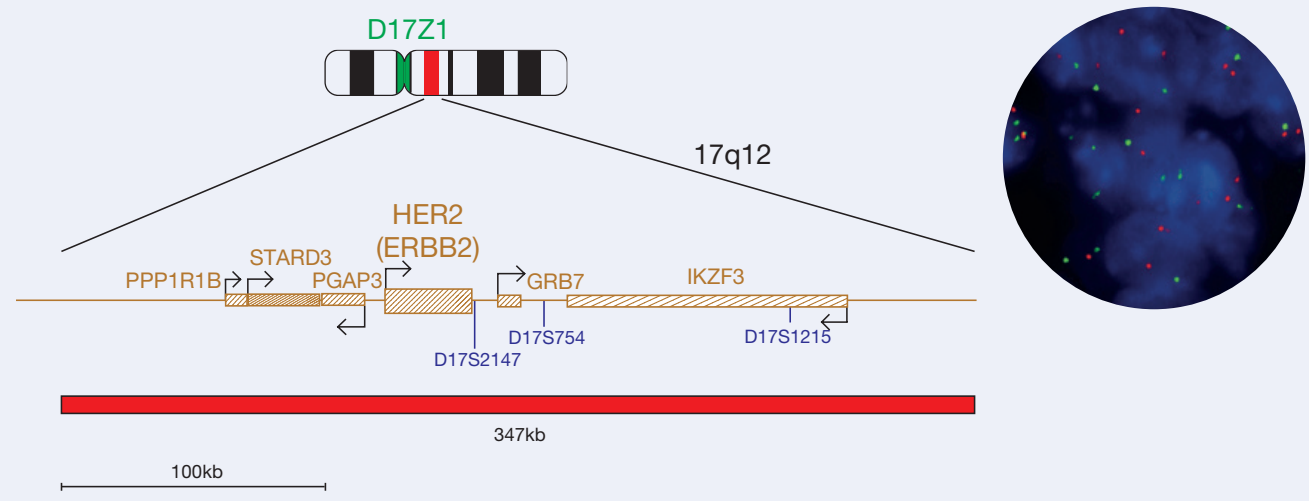
HER2 (ERBB2) Amplification

Cat. No. **LPS 001-S** (5 tests) | Cat. No. **LPS 001** (10 tests)

The ERBB2 *(erb-b2 receptor tyrosine kinase 2)* gene, located at 17q12, is a member of the epidermal growth factor (EGF) receptor family[1].

ERBB2 amplification is seen in approximately 15% of breast cancers[2] and, in the absence of therapy, is associated with a poor prognosis for the patient[3]. Treatment of patients with ERBB2 amplification using the monoclonal antibody trastuzumab has been shown to be effective in the treatment of breast cancer, increasing overall survival time by suppressing ERBB2 activity and leading to cell death[4,5].

Similar results have been obtained for a variety of other malignant neoplasms overexpressing ERBB2, including some ovarian[6], stomach[7,8], salivary gland[9] and lung cancers[10].



CMP-S010 v002

References

1. Coussens L, Yang-Feng TL, *et al.* Science 1985;230(4730):1132-9.
2. Slamon DJ, *et al.* Science 1987;235(4785):177-82.
3. López-Guerrero JA, *et al.* Int J Cancer. 2006;118(7):1743-9.
4. Kauraniemi P, *et al.* Oncogene 2004;23(4):1010-3.
5. Thuy Vu, *et al.* Front Oncol. 2012;2:62.
6. Slamon DJ, *et al.* Science 1989;244(4905):707-12.
7. Gravalos C, Jimeno A, Ann Oncol 2008;19(9):1523-9.
8. Boku N. Gastric Cancer. 2014;17(1):1-12.
9. Vidal L, *et al.* Head Neck 2009;31(8):1006-12.
10. Ugocsai, *et al.* Anticancer Res. 2005;25(4):3061-6.

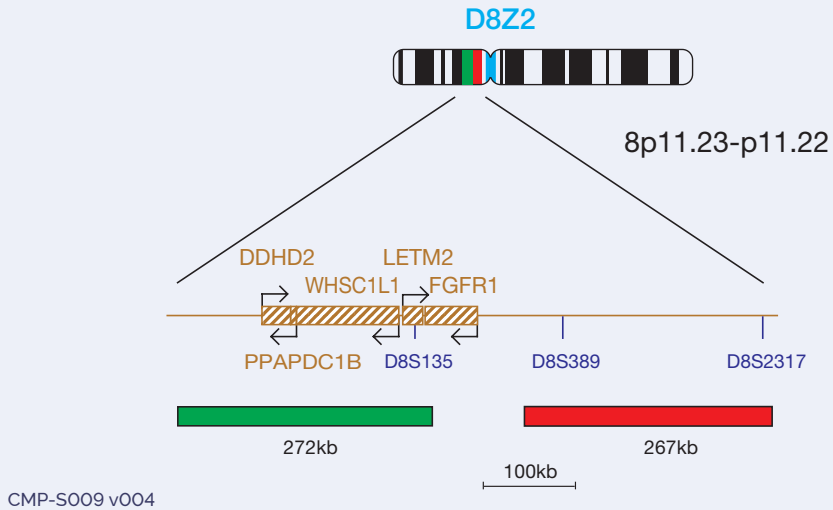
FGFR1 Breakapart/Amplification

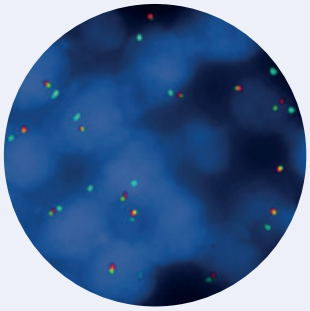
Cat. No. **LPS 018-S** (5 tests) | Cat. No. **LPS 018** (10 tests)

The FGFR1 *(fibroblast growth factor receptor 1)* gene, at 8p11.2, has been shown to be amplified in approximately 10% of breast cancers[1,2], in approximately 20% of squamous cell carcinomas of the lung (SCCL)[3] and in approximately 9% of non-small-cell lung cancers (NSCLC)[4]. The FGFR1 gene is also involved in translocations in patients with 8p11 myeloproliferative syndrome[5].

Amplification of FGFR1 has been shown to be associated with a poor outcome in breast cancer, as over-expression of the gene product has been implicated in early relapse[6]. Amplification of FGFR1 has also been associated with a poor prognosis in both squamous cell carcinoma of the lung (SCCL) and non-small-cell lung cancer (NSCLC)[7,8].

FGFR1 is a receptor tyrosine kinase for fibroblast growth factors[9]. FGFR1 rearrangements are associated with 8p11 myeloproliferative syndrome (EMS)/stem cell leukaemia-lymphoma syndrome. A number of gene fusions that have constitutive tyrosine kinase activity have been described in EMS, including: FGFR1-ZNF198 (ZMYM2), the most common, via a t(8;13)(p11;q12) translocation; FGFR1-CEP110 (CNTRL) via a t(8;9)(p11;q33) translocation, FGFR1-FOP (FGFR10P) via a t(6;8)(q27;p11) translocation and FGFR1-BCR via a t(8;22)(p11;q11.2) translocation[10,11].





References

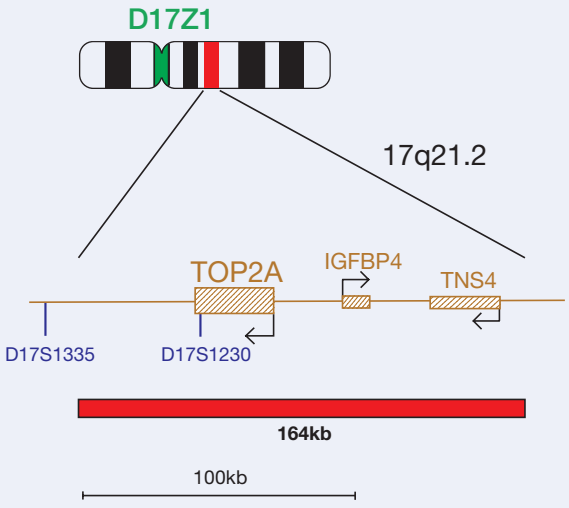
1. Letessier A, *et al.* BMC Cancer 2006, 6:245.
2. Theillet, *et al.* Genes Chromosomes Cancer 1993;7:219-26.
3. Wiess, *et al.* Sci Transl Med. 2010 2(62): 62ra93.
4. Macdonald D, *et al.* Acta Haematol 2002;107:101-107.
5. Macdonald, *et al.* Leukemia 1995;9:1628-30.
6. Turner N, *et al.* Cancer Res 2010;70(5):2085-94.
7. Kim HR, *et al.* J Clin Oncol. 2013;31(6):731-7.
8. Seo AN, *et al.* Virchows Arch. 2014;465(5):547-58.
9. Groth & Lardelli, Int. J. Dev. Biol. 2002 46: 393-400.
10. Xiao, *et al.* Nature Genet 1998;18:84-7.
11. Keersmaecker & Cools. Leukemia 2006;20(2):200-205.

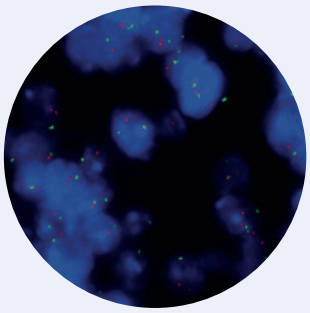
TOP2A Amplification/Deletion

Cat. No. **LPS 002-S** (5 tests) | Cat. No. **LPS 002** (10 tests)

The TOP2A *(DNA topoisomerase II alpha)* gene at 17q21.2, is located near the ERBB2 oncogene. The TOP2A encoded protein has a function in DNA replication and the transcription of mRNA[1,2]. Amplification of TOP2A gene is seen in breast cancer, frequently with co-amplification of ERBB2[3,4].

In breast cancer, TOP2A gene aberrations are a marker of response to anthracycline-based chemotherapy[5], whilst in epithelial ovarian cancers, TOP2A gain is reported to predict response to pegylated liposomal doxorubicin[6].





CMP-S019 v003

References

1. Chen AY, Liu LF, Ann Rev Pharmacol Toxicol 1994;34:191-218.
2. Tsai-Pflugfelder M, *et al.* Proc Nat Acad Sci 1988;85:7177-81.
3. Bofin AM, *et al.* Cytopath 2003;14(6):314-9.
4. Fountzilas G, *et al.* BMC Cancer 2013;13:163.
5. O'Malley, *et al.* J Natl Cancer Inst 2009;101(9):644-650.
6. Erriquez, *et al.* Gynecol Oncol. 2015;138:627-33.

Tissue Pretreatment Kit

Cat. No. **LPS 100***

Our tissue pretreatment kit is designed to prepare slides for FISH analysis on formalin-fixed paraffin-embedded (FFPE) tissue.

Our extensive Pathology FISH range has been optimised to produce excellent visual results with our ready-to-use Tissue Pretreatment Kit.

With ease-of-use and convenience in mind, our simple two stage FFPE slide preparation protocol employs ready-to-use reagents, which have been optimised to increase the permeabilisation of cell membranes and facilitate penetration of the desired FISH DNA probe.

* This product is provided under an agreement between Life Technologies Corporation and Cytocell Ltd and is available for human diagnostics or life science research use only.

Also of interest

Probe Name	Chromosome Region	Probe Type	Cat. No.†
CCND1	11q13.3	Breakapart	LPS 030
C-MET (MET)	7q31.2	Amplification	LPS 004
EGFR	7p11.2	Amplification	LPS 003
RB1	13q14.2	Deletion	LPS 011
SRD (CHD5)	1p36.31	Deletion	LPS 010
ZNF217	20q13.2	Amplification	LPS 005

Have you seen our other Pathology Probes?

Probe Name	Chromosome Region	Probe Type	Cat. No.†
BCL2 Breakapart	18q21.33-q22.1	Breakapart	LPS 028
BCL6 Breakapart	3q27.3-q28	Breakapart	LPS 029
FGFR1	8p11.23-p11.22	Breakapart/Amplification	LPS 018
N-MYC (MYCN)	2p24.3	Amplification	LPS 009
P53 (TP53) Deletion	17p13.1	Deletion	LPS 037
TOP2A	17q21.2	Amplification/Deletion	LPS 002

†For 5 test kit add -S to catalogue number, e.g: LPS ###-S.

Ordering information

UK +44 (0) 1223 294048

contact@ogt.com

ogt.com

A Sysmex Group Company

What binds us, makes us.

Cytocell Ltd., Oxford Gene Technology, 418 Cambridge Science Park, Milton Road, Cambridge, CB4 0PZ, UK

990227 01/21 v001