

The ZytoLight Aneuploidy FISH Probes

Detection of Chromosomal Aneuploidies

>>Introduction

Cytogenetic analysis plays a crucial role in the diagnosis of chromosomal abnormalities, particularly in the context of prenatal testing. Rapid detection of fetal aneuploidies can be achieved using molecular cytogenetic techniques such as Fluorescence in situ Hybridization (FISH).

FISH is widely used in prenatal diagnostics to detect the most common aneuploidies involving chromosomes 13, 18, 21, X, and Y.

Beyond pregnancy, FISH also plays a critical role in preimplantation genetic testing (PGT) during assisted reproduction (IVF) and in postnatal or neonatal screening, helping to identify chromosomal disorders that may impact newborn health and development.

>>Most common chromosomal aneuploidies in live births

| Aneuploidy | Frequency per live births* |
|----------------------------------|--------------------------------|
| Trisomy 21 (Down syndrome) | 1/700 to 1/800 |
| Trisomy 18 (Edwards syndrome) | 1/3000 to 1/5000 |
| Trisomy 13 (Patau syndrome) | 1/5000 to 1/16000 |
| Klinefelter syndrome (47,XXY) | 1/500 to 1/1000 male births |
| Monosomy X (Turner syndrome) | 1/2000 to 1/2500 female births |
| XYY syndrome (Jacob's syndrome) | 1/1000 male births |
| XXX syndrome (Triple X syndrome) | 1/1000 female births |

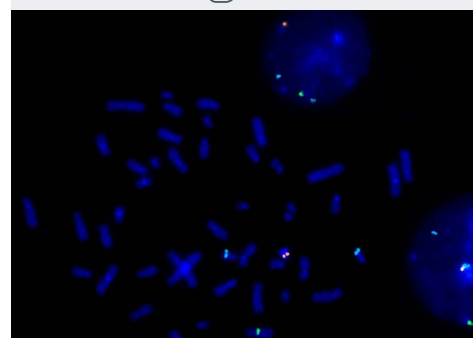
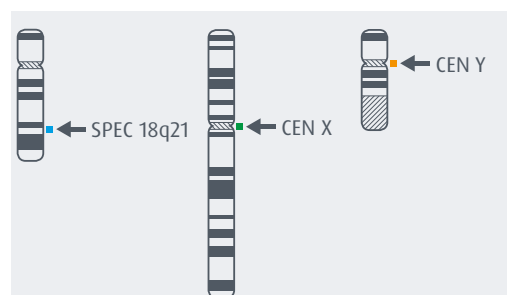
*Queremel Milani DA & Tadi P. Genetics, Chromosome Abnormalities. StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan.

Advantages of FISH

- No metaphase cells needed
- Can detect all chromosomal aneuploidies
- Direct detection of specific DNA sequences in cells or metaphase chromosomes
- Fast results – within 24 hours or on the same day using a fast FISH protocol
- Broad applicability to various biological samples (prenatal amniotic fluid, chorionic villi, peripheral blood, bone marrow, frozen or FFPE tissue)
- Easy to learn and requires minimal equipment in the lab

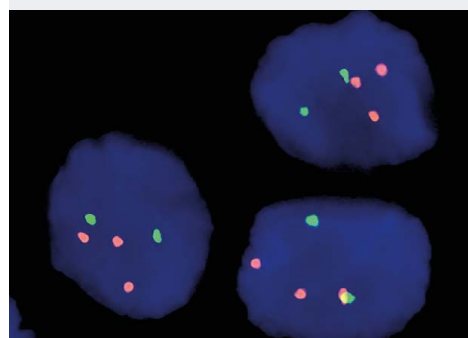
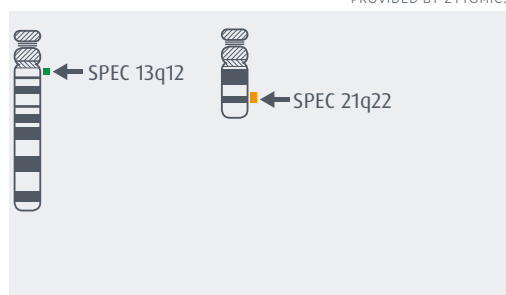
>>ZytoLight® Probes for the Detection of Chromosomal Aneuploidies

>ZytoLight® Aneuploidy Panel 18/X/Y and 13/21



SPEC 18/CEN X/Y Triple Color Probe hybridized to interphase nuclei of normal male cells and to chromosomes of a metaphase spread.

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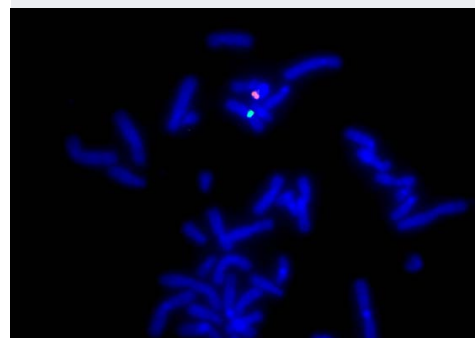
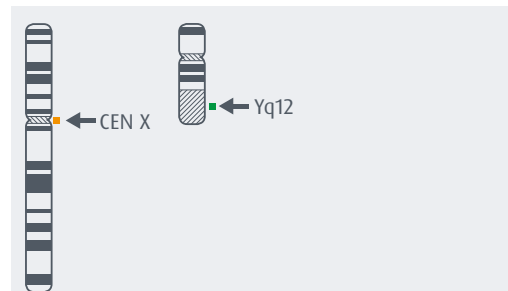


SPEC 13/21 Dual Color Probe hybridized to interphase cells with trisomy of chromosome 21.

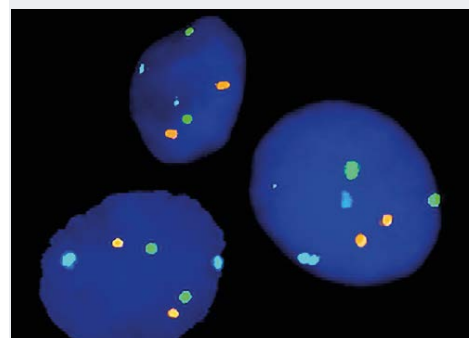
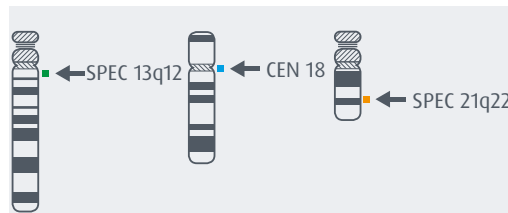
2 Hours Hybridization
approved

>ZytoLight® Aneuploidy Panel X/Y and 13/18/21

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CEN X/Yq12 Dual Color Probe hybridized to metaphase chromosomes of a normal male cell.



SPEC 13/CEN 18/SPEC 21 Triple Color Probe hybridized to normal interphase cells.

2 Hours Hybridization approved

| Product Name | Tests | Reg. Status | Order No. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|------------------|
| ZytoLight Aneuploidy Panel 18/X/Y and 13/21 Incl. ZytoLight SPEC 18/CEN X/Y Triple Color Probe, 0.2 ml (Z-2163-200); ZytoLight SPEC 13/21 Dual Color Probe, 0.2 ml (Z-2164-200) | 20 | CE/IVD | Z-2279-20 |
| ZytoLight Aneuploidy Panel X/Y and 13/18/21 Incl. ZytoLight CEN X/Yq12 Dual Color Probe, 0.05 ml (Z-2016-50); ZytoLight SPEC 13/CEN 18/SPEC 21 Triple Color Probe, 0.05 ml (Z-2095-50) | 5 | CE/IVD | Z-2104-5 |
| ZytoLight Aneuploidy Panel X/Y and 13/18/21 Incl. ZytoLight CEN X/Yq12 Dual Color Probe, 0.2 ml (Z-2016-200); ZytoLight SPEC 13/CEN 18/SPEC 21 Triple Color Probe, 0.2 ml (Z-2095-200) | 20 | CE/IVD | Z-2104-20 |

Further ZytoLight FISH Probes available for the detection of chromosomal aneuploidies:

| Product Name | Alpha/Class. Sat. | Chr. Band | Label | Tests | Reg. Status | Order No. |
|-----------------------------------------------------|-------------------|-------------------------------------------|-------|-------|-------------|-----------------------|
| ZytoLight SPEC 13/CEN 18/SPEC 21 Triple Color Probe | D18Z1 | 13q12.11/18p11.1/21q22.13-q22.2 | | 5/20 | CE/IVD | Z-2095-50/-200 |
| ZytoLight SPEC 13/21 Dual Color Probe | - | 13q12.11/21q22.13-q22.2 | | 20 | CE/IVD | Z-2164-200 |
| ZytoLight SPEC 18/CEN X/Y Triple Color Probe | DXZ1/DYZ3 | 18q21.31-q21.32/Xp11.1-q11.1/Yp11.1-q11.1 | | 20 | CE/IVD | Z-2163-200 |
| ZytoLight SPEC 21/CEN X/Yq12 Triple Color Probe | DXZ1/ III DYZ1 | 21q22.13-q22.2/Xp11.1-q11.1/Yq12 | | 20 | CE/IVD | Z-2180-200 |
| ZytoLight CEN X/Yq12 Dual Color Probe | DXZ1/III DYZ1 | Xp11.1-q11.1/Yq12 | | 5/20 | CE/IVD | Z-2016-50/-200 |
| ZytoLight CEN X/Y Dual Color Probe | DXZ1/ DYZ3 | Xp11.1-q11.1/Yp11.1-q11.1 | | 20 | CE/IVD | Z-2120-200 |

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Please note that the regulatory status of the products is subject to change. The most recent information can be found on our website.

Do you have questions?

Please contact us at helptech@zytomics.com or your local sales representative.

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