

FISH - Fluorescent *in situ* Hybridization

For the detection of gene sequences

Fluorescent in situ hybridization (FISH) is a powerful diagnostic and discovery tool for identifying the genomic status of samples, particularly oncology tissues. FISH involves the use of fluorescence probes to detect specific gene sequences within chromosomes and can be used to detect different kinds of mutations such as gene amplifications, deletions and translocations (fusions and breaks). Viral (RNA) sequences can also be detected. FISH can be applied to Formalin Fixed Paraffin Embedded (FFPE) and Flash Frozen (FF) samples, although FFPE is preferred due to superior morphology.

FISH Probes

There are many commercially available FISH probes against an increasing number of genes. However, if probes to the target gene are not available a custom-made probe can be designed and validated for the required target gene.

Commercially available probe

Fig. 1

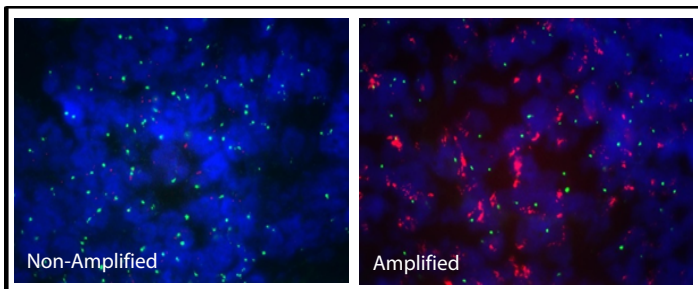


Figure 1. *HER2* gene amplification in breast tumor samples using a commercially available FISH probe

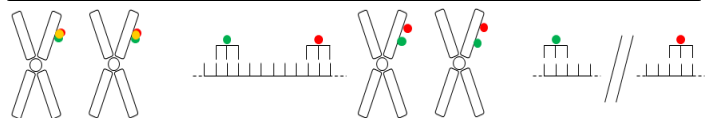
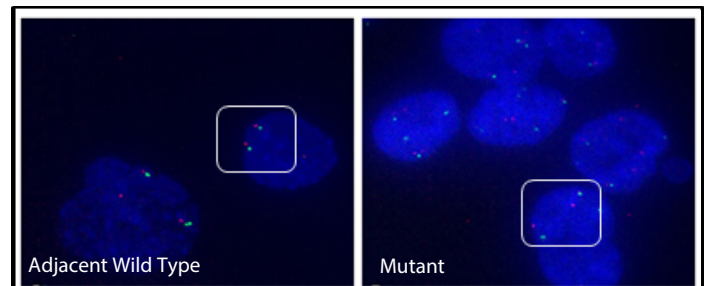
The non-amplified sample shows two green signals (chromosome 17 centromeric marker) and two red (*HER2* DNA sequences present on chromosome 17) signals per cell. The amplified sample shows an increase in red signal compared to the green.

Figure 2. Translocation (break-apart) mutation of a cancer gene in frozen lung cancer sections, using a custom made FISH probe

Probes were designed to bind to two regions in close proximity that spanned the break-apart mutation. Thus, adjacent signals indicated a wild-type gene and separate signals indicated the presence of a translocation mutation.

Fig. 2

Custom made probe



FISH Services at Asterand Bioscience

- FISH profiling performed on FFPE or frozen sections
- Standard commercial probes
- Custom probe set design, validation, and application
- Frequency analysis
- Correlation with mRNA or protein expression
- Tailored analysis and reporting

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ABOUT ASTERAND BIOSCIENCE®

Asterand Bio is the leading global provider of high-quality, well-characterized human tissue and human tissue-based research solutions to drug discovery scientists. Our mission is to provide human-based solutions to accelerate the identification and validation of drug targets and enhance the selection of drug candidates with an increased likelihood of clinical success.

ETHICAL AND REGULATORY CONTROL

All human tissue samples are obtained with informed donor consent and are de-identified prior to banking and distribution. Asterand Bio acts in strict compliance with the US Health Insurance Portability and Accountability Act (HIPAA) and the United Kingdom Human Tissue Authority (HTA) and is accredited by the College of American Pathologists (CAP) and ISO 9001. Asterand Bio has GLP accreditation according to the requirements of Good Laboratory Practice (GLP)– Directive of the European Commission 2004/9/EEC, and a Good Clinical Laboratory Practice (GCLP) laboratory for clinical assay services.

RESEARCH SERVICES

- Immunohistochemistry
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- ISH & FISH
- Western Blotting
- TMA, FDA & Custom
- Primary Cell Isolation
- Digital Pathology
- 2D and 3D Culture
- Histopathology
- Cell Based Assays
- qRT-PCR
- Assay Development
- LCM
- OrganDOT™
- siRNA Knockdown
- Mutation Analysis

BIOMATERIALS AVAILABLE

- Fresh, Frozen & FFPE
- Normal & Diseased Tissue
- OCT Embedded
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- Synovial Fluid
- RNA, DNA & Protein
- TMA, FFPE & Frozen
- Primary Cells
- Proprietary Cell Lines

THERAPEUTIC AREAS

- Oncology
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- Metabolic
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- Respiratory
- Inflammation
- Genitourinary
- Fibrosis

XpressBANK™ BIOREPOSITORY

The Asterand Bio XpressBANK™ Biorepository is an invaluable source of high-quality, well-characterized and validated tissue, biofluids, cell lines and molecular derivatives, all intended for research use in the drug and diagnostic development process. Our extensive repository contains over 200,000 human tissues and biofluids. This bank includes material that is prospectively obtained in a variety of formats including fresh frozen and FFPE, supported by comprehensive clinical data.

BioSPOKE™ CUSTOM BIOSPECIMEN PROCUREMENT

Through our BioSPOKE™ service, human tissues and clinical data are custom collected to meet unique research requirements within a wide range of disease categories or as normal controls. Samples are provided fresh or in multiple preserved formats. Specialized processing may be tailored to each research request. This service allows Asterand Bio to deliver human tissues, biofluids and accompanying clinical information to our clients that are collected in a manner which is most compatible with their experimental design.

PhaseZERO® RESEARCH SERVICES

For over 20 years, Asterand Bio's trusted scientists have worked collaboratively with clients to facilitate the efficient selection of drug targets and candidate therapeutics with the highest likelihood for clinical success by providing a variety of pre-clinical drug discovery services. From target and biomarker validation, characterization of therapeutic candidates for potency, effect and safety to supporting clinical diagnostic assay development and testing, Asterand Bio provides clients with high-quality experimental design, execution, data interpretation and reporting. Each project is managed by a dedicated scientific project manager and customized to meet each client's specific needs.



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Please contact our Business Development Directors in the following regions to discuss your requirements:

United States

Tech One, Suite 501 | 440 Burroughs | Detroit, MI 48202 USA

T: 313-263-0960 | F: 313-263-0961

advantage@asterandbio.com

www.asterandbio.com

International

2A Orchard Rd. | Royston | Hertfordshire, SG8 5HD UK

T: +44 (0) 1763 211600 | F: +44 (0) 1763 211555



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