PINPOINT FISH™ ASSAY SERVICES

KromaTiD
Direct, Definitive Genomics

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Who We Are

A team of expert scientists providing unparalleled genomics tools, services and support.

Your partner for

- Biomarker discovery
- Target validation: gene editing outcome analysis
- Genomic integrity assessments
- Plasmid manufacturing

Our Products

- Patented directional Genomic Hybridization™ (dGH™) technology
- An extensive collection (>900) of chromosome probes and paints
- Improve the sensitivity and specificity of your FISH assays

Our Services

- FISH assays utilizing our patented Pinpoint FISH™ and dGH™ technology
- Plasmid manufacturing (RUO, pre-GMP & cGMP)
- G-Band karyotyping
- Cell culture

Why Consider Pinpoint FISH™ Assay Services?

Novel targets and assay configurations not possible with conventional BAC-derived FISH probes

- Design and manufacture of custom Pinpoint FISH probes is a straightforward and cost-effective way to assess unique regions or targets, especially if relatively precise breakpoints are necessary for break apart or fusion assay designs.
- Any published genome: human, mouse, rat, CHO, canine, non-human primates, viral vectors, transgenes

Visualization of small targets

- Pinpoint FISH probes are engineered to bind only unique sequences within targets therefore the lower limit of detection is target sequence-dependent. Targets <5 kilobases are possible.
- Sample type can also affect LOD. Generally, the highest resolution is possible with metaphase samples, followed by dissociated cells and then tissues.

Development of robust, high-resolution clinical FISH-based assays

- Although Pinpoint FISH probes are currently available for Research Use Only, probes produced as Analyte Specific Reagents can be developed and supplied for use in CLIA compliant testing labs.

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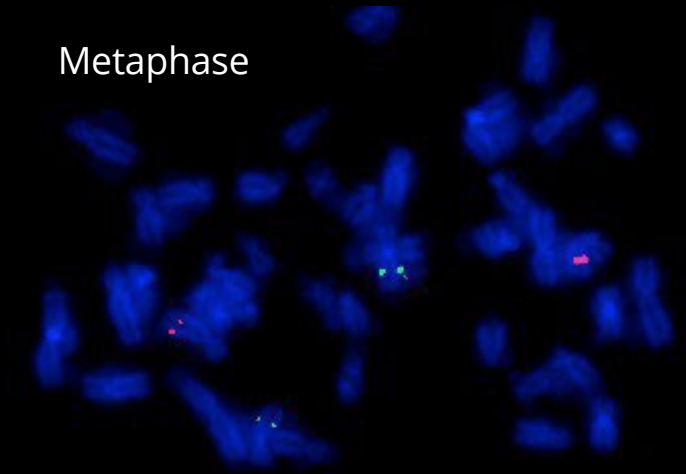
Pinpoint FISH™ Overview

High-resolution FISH assays based on labeled oligonucleotides

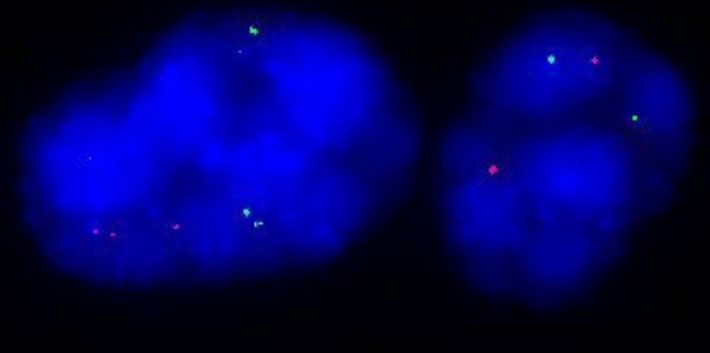
- Custom probes designed using bioinformatics to maximize signal-to-noise ratio
- Industry-leading limit of detection – smallest target visualization possible
- Applicable in interphase and metaphase sample analyses

Metaphase



7q22 CUX1 FISH Probe GREEN
5q31 KIF20A FISH Probe RED

Interphase



7q22 CUX1 FISH Probe GREEN
5q31 KIF20A FISH Probe RED

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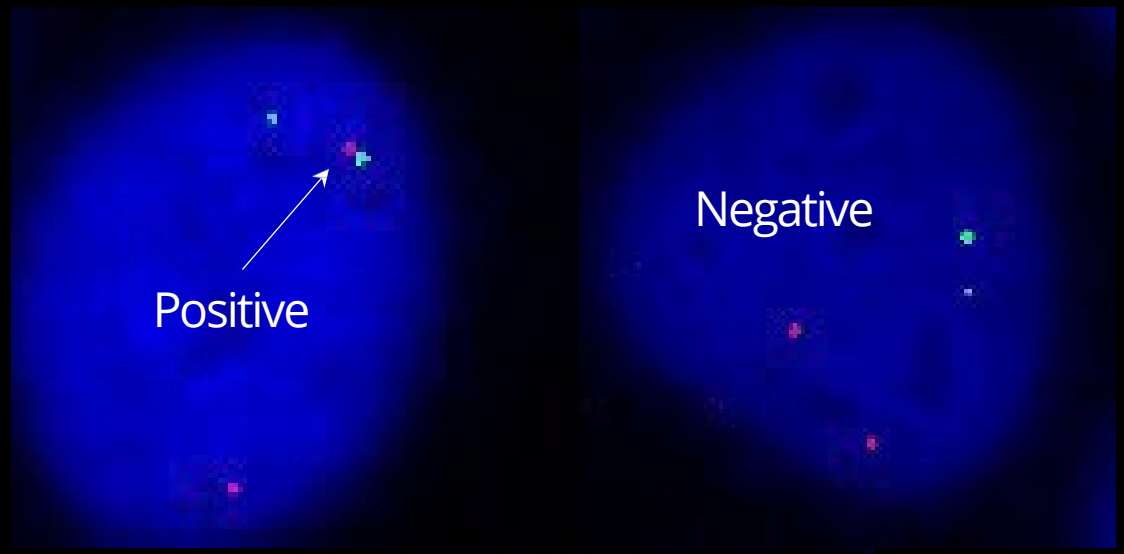
Pinpoint FISH™ Advantages

Better Performance

- Very small targets (<5 Kb)
- Free of repetitive sequences by design
  - Lower background interference
  - Higher signal-to-noise ratio
- Consistent hybridization quality

Flexible Design

- Synthetic probes vs. cloned DNA (BAC FISH)
- Design against any published genome
- Detect smaller mutations and mutations with variable breakpoints
- Multiplex to generate custom data sets
- Suitable for use in GLP and CLIA testing (with appropriate development and QMS)



Probe designed for 2 targets
on Chromosome 3 (10 kb)

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Pinpoint FISH™ vs. BAC FISH

Pinpoint FISH	BAC FISH
Fully synthetic	Cloned
Single-stranded	Double-stranded
End-labeled	Side-labeled
Controlled, narrow T_m range	Wide T_m range
No repetitive sequences (No Cot-1)	Requires repetitive blocking (Cot-1)
Customizable designs to target any genomic locus	Design defined by BAC library
Pinpoint resolution (<10 kB)	Resolution > 100kB
Time from design to qualified PPF probe: 3-4 weeks	Time from design to qualified BAC probe: ???
No cross-hybridization to competing loci	Probe specific cross-hybridization
Inter-operable with BAC FISH Probes	Inter-operable with PPF Probes

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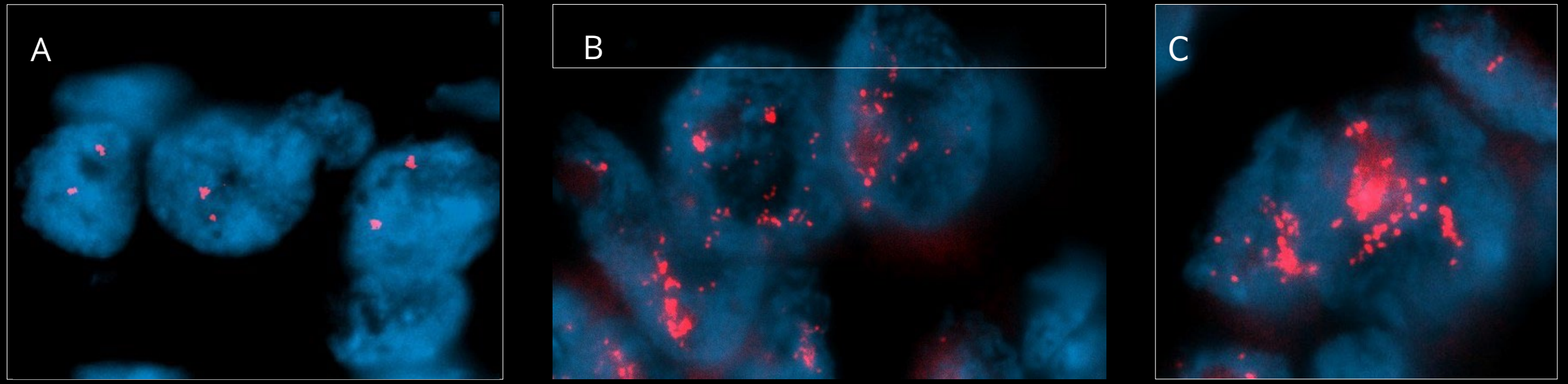
Interphase HER2 Assay



Evaluation of HER2 amplification by Pinpoint FISH™
Breast cancer tissue was probed with KromaTiD HER2 probe (red) and analyzed for amplification. **(A)** Normal (non-amplified) HER2 signals **(B-C)** Examples of cells with HER2 amplification.

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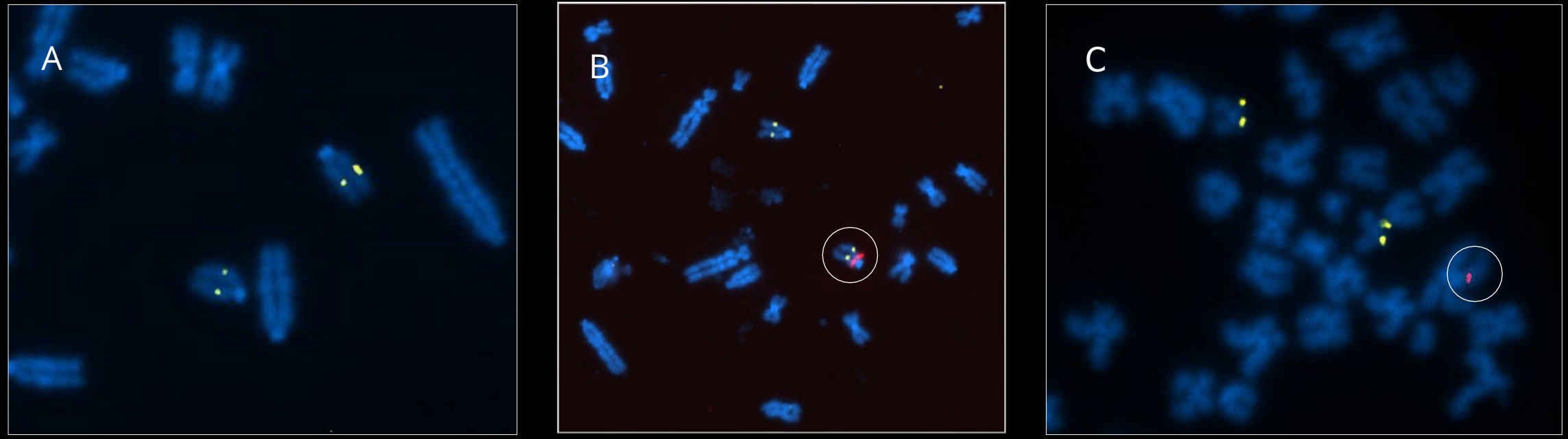
Metaphase HIV Assay



Evaluation of HIV integration by Pinpoint FISH™

P53 (yellow) was used as a control, while probes against the HIV genome (red) confirmed presence or absence of the virus in non-human mammalian cells. **(A)** Normal cell with no HIV present **(B)** Cell with single copy of HIV genome integrated in both sister chromatids **(C)** Example of single HIV integrant in one sister chromatid.

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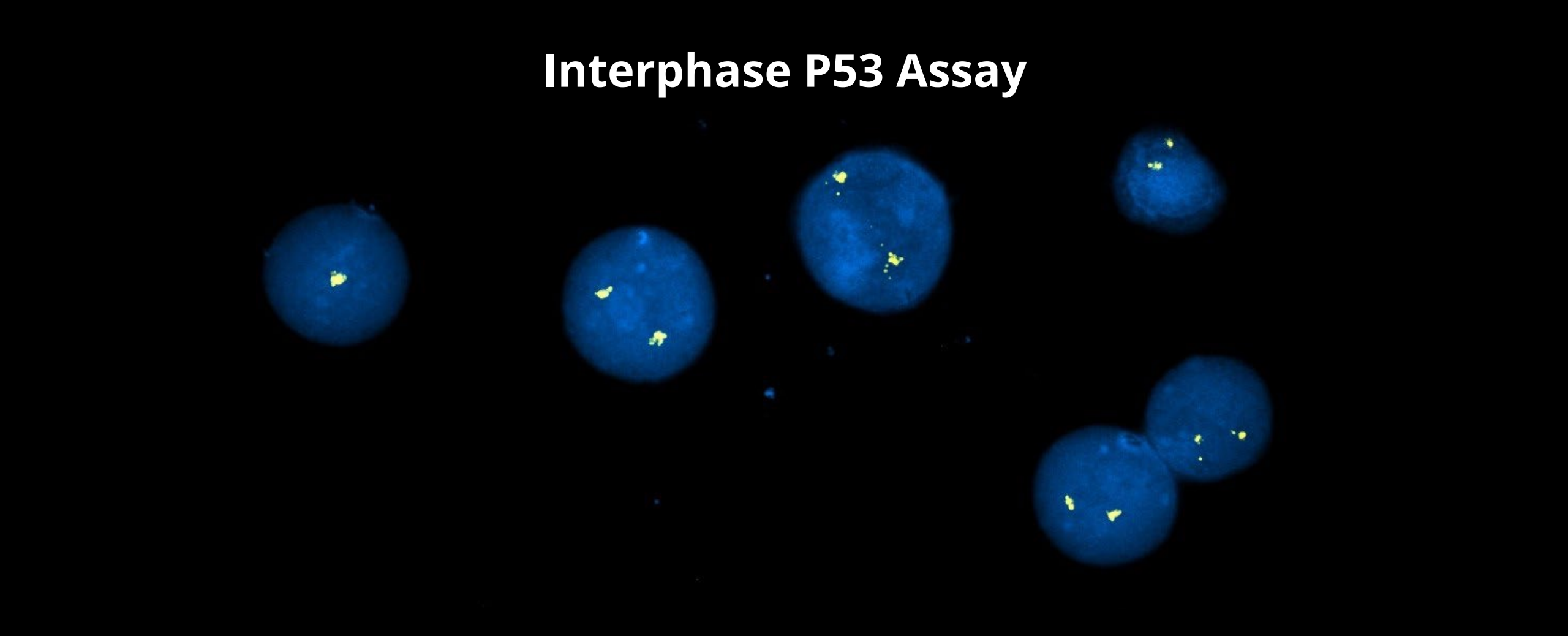
Interphase P53 Assay



A lymphoblast cell line (GM15510) probed with Pinpoint FISH™ probe for p53 (yellow).

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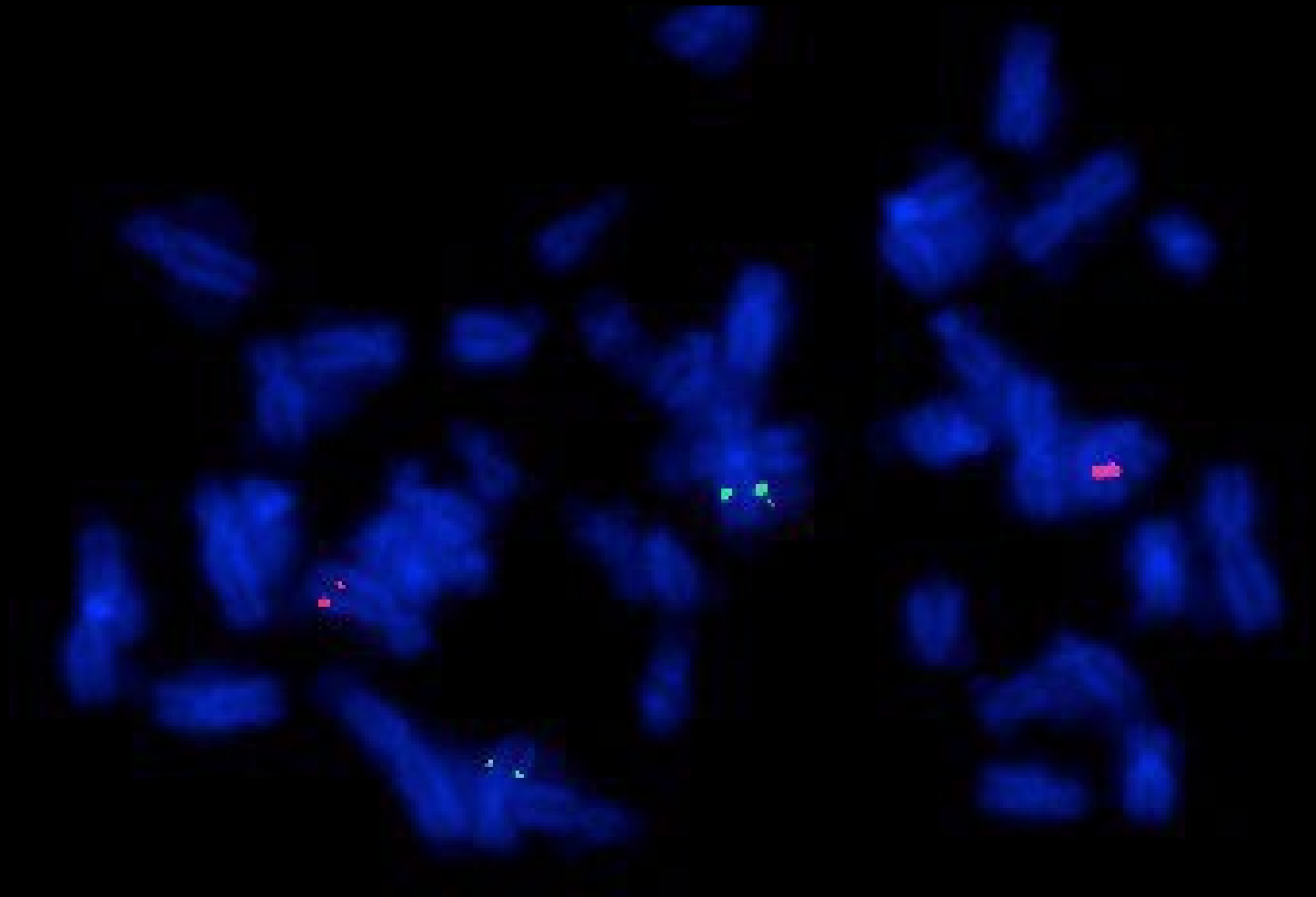
Multiplex Pinpoint FISH™ Deletion Assay



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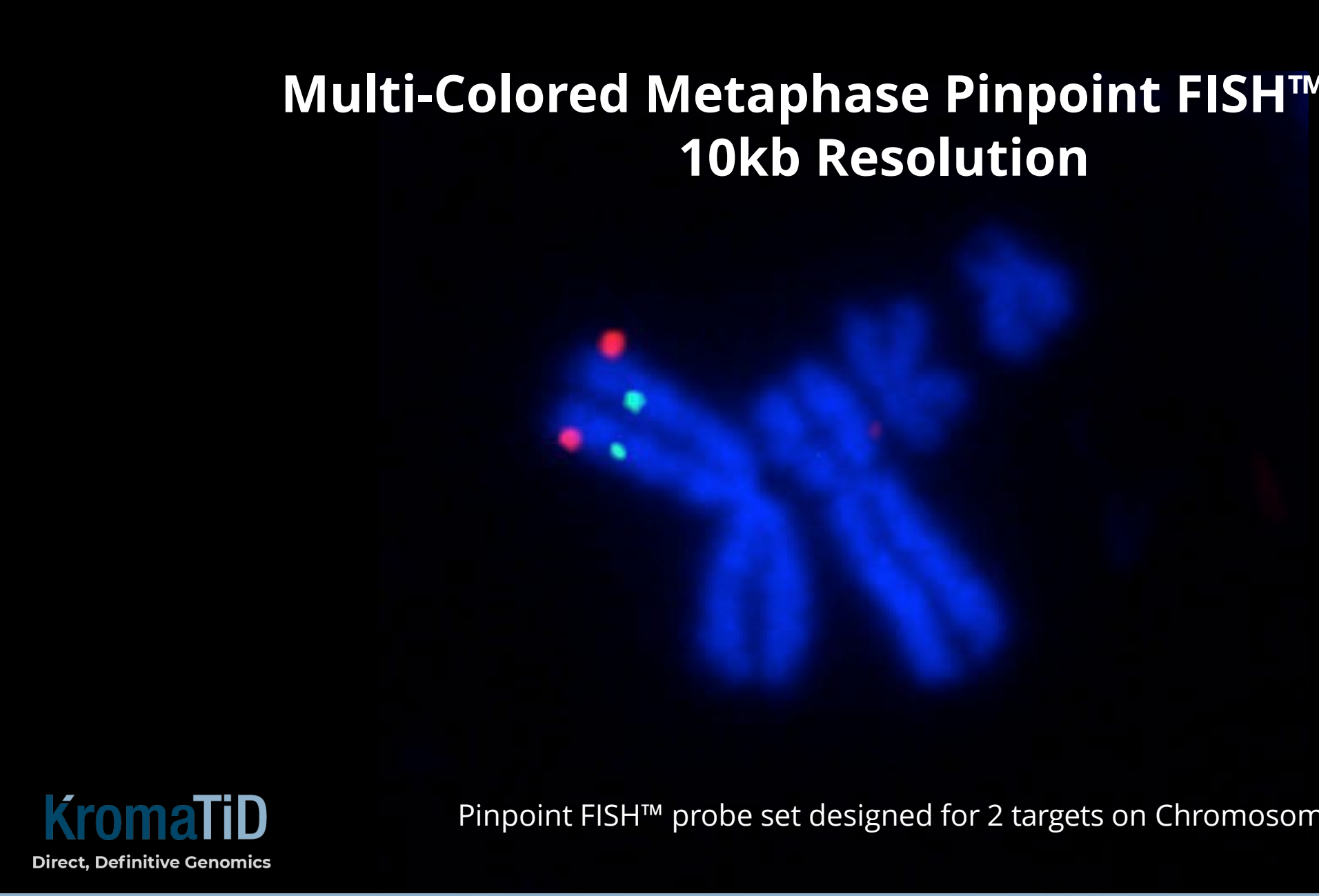
Pinpoint FISH™ deletion probes labeled in A550 and 6-FAM showing normal diploid signal pattern.

Multi-Colored Metaphase Pinpoint FISH™ Assay
10kb Resolution



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Pinpoint FISH™ probe set designed for 2 targets on Chromosome 3

Mutation Detection: Strengths and Weaknesses

	Pinpoint FISH™	G-Banding	Clone Based FISH	aCGH	Sequencing
Balanced Trans-location Detection	High	Medium	High	None	Low*
Unbalanced Translocation Detection	High	Medium	High	Medium	Medium
Deletion Detection	Medium	Low	Low	High	Medium
Duplication Detection	Low	Low	Low	High	Medium
Specific Target Detection	High	None	High	High	High

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*Data Analysis is problematic

Pinpoint FISH™ Services Pricing

Catalog Number	Services	Cost
PPF-010	Standard Probe Production: Design and verification of standard probes	$1,444
PPF-011	Custom Probe Production: Design and verification of custom probes	Inquire
PPF-002	T-Cell Culture Development: Thaw, recovery, and harvest optimization	$1,209
PPF-014	T Cell Metaphase Prep and Harvest	$1,209
PPF-007	IPSC Cell Culture Development: Thaw, recovery, and harvest optimization	$1,344
PPF-012	IPSC Metaphase Prep and Harvest	$1,344
PPF-009	Whole Blood Culture Development: Thaw, recovery, and harvest optimization	$739
PPF-013	Whole Blood Metaphase Prep and Harvest	$739
PPF-017	NK Cell Culture Development: Thaw, recovery, and harvest optimization	$1,209
PPF-016	NK Cells Metaphase Prep and Harvest	$1,209
PPF-006	1 probe assay, 200 cells counted per sample, interphase. Execution and Analysis	$3,816
PPF-015	1 probe assay, 500 cells counted per sample, interphase. Execution and Analysis	$4,543
PPF-020	2 probe assay, 20 cells counted per sample, interphase. Assay Execution and Analysis	$1,441
PPF-005	2 probe assay, 200 cells counted per sample, interphase. Assay Execution and Analysis	$5,001
PPF-018	2 probe assay, 500 cells counted per sample, interphase. Assay Execution and Analysis	$5,952
PPF-004	3 probe assay, 200 cells counted per sample, interphase. Assay Execution and Analysis	$6,187
PPF-019	3 probe assay, 500 cells counted per sample, interphase. Assay Execution and Analysis	$7,380
PPF-003	4 probe assay, 200 cells counted per sample, interphase. Assay Execution and Analysis	$8,425
PPF-AUT	Assay Development and Automation	Inquire
PPF-DEV	Assay Development and Qualification	$5,375
PPF-BUF-001	FISH Buffers – 10 tests	$6

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Frequently Asked Questions

What's the limit of detection?
The lowest limit of detection is sequence dependent, but possible targets can be as small as 2 kilobases.

What is the turn-around-time from custom probe design to assay execution?
Probe design and qualification for use can be completed in as little as three weeks.

Does KromaTiD offer assistance during the initial assay design process?
The planning, execution and results reporting process is collaborative from beginning to end.

How many different fluorophores is it possible to use?
Possible wavelengths range from the low 300s nm to the high 600s nm.

What types of samples can be used?
Cryosections, blood samples, bone marrow aspirate smears, dissociated cells, metaphase spreads, FFPE...

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Working with KromaTiD is Simple

Example workflow with KromaTiD running in-Site™ or alternative assays on engineered lines in-house.

- Customer
- KromaTiD
- KromaTiD & Customer

KromaTiD is committed to **collaborative excellence** through dedicated project management and **expert technical analysis**.

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Why You Win With Us

Collaboration: The trusted structural genomics partner for leading gene therapy innovators

Performance: Gold standard products for the measurement of genomic structure and structural variation

Scalability: End to end process automation, high-throughput analysis, AI meta-analysis

Excellence: Experienced team of 20 operating today in a world class, 11,000 square foot genomics facility

Proprietary: Issued patents, broadened applications, trade secret methods, proprietary bioinformatics

Thank you!

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For Research Use Only. Not for use in diagnostic procedures.

to inquire and for orders
visit: kromatid.com
or contact: sales@kromatid.com