



**DIGITAL
CYTOGENETICS**

**EVERY
DIAGNOSIS
COUNTS**

Company Overview

Applied Spectral Imaging (ASI) is a Global Leader in Digital Cytogenetics and Pathology

Founded in 1993, ASI has established a global presence across more than 80 countries. With over **5000 systems installed worldwide**, the Company provides a comprehensive product portfolio in the field of biomedical imaging.

ASI's technology, powered by GenASIs, offers a broad range of solutions for brightfield, fluorescence and spectral imaging. Its multiple applications address diagnostic needs across several domains, including **karyotyping, FISH, digital pathology** and a combined "All-in-One" solution.

The Company's extensive portfolio of **FDA-cleared products** include BandView, FISHView, SpotScan for CEP XY, UroVysion, ALK, and HER2/neu FISH, as well as the HiPath immunohistochemistry (IHC) Family for HER2, ER, PR, and Ki67 in manual configuration. The ASI product family is **IVDR compliant**.

With offices in the USA and Asia, as well as a vast network of global distribution partners, ASI is dedicated to advancing diagnostic capabilities worldwide, because **every diagnosis counts**.



Product Portfolio



HiPath Pro	PathFusion



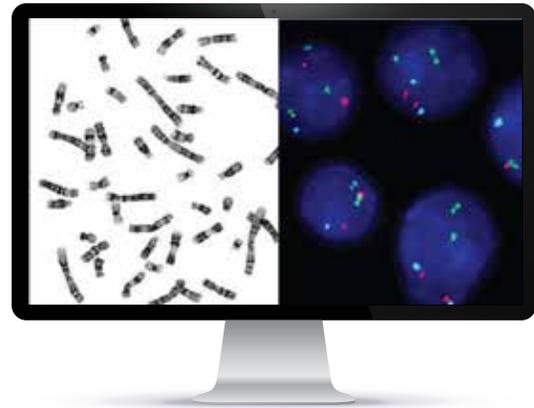
HiBand	HiFISH	CytoPower

Comprehensive Digital Karyotyping & FISH Solution

Automated Workflows with ASI's Digital Cytogenetics Platform

ASI's cytogenetics platform is a **versatile** imaging and analysis solution offering chromosome review and AI-powered karyotyping (**HiBand**), automated FISH analysis (**HiFISH**) or a combination of both (**CytoPower**). The platform also features **HiSKY**, ASI's renowned gold standard for spectral karyotyping (multi-color FISH Analysis).

Supporting both **single and multiple readers'** workflows, the platform provides standardized and consistent results across multiple sample types, staining techniques, and vendor-agnostic probes. Adjustable to address laboratories' needs, the platform offers a range of **image acquisition solutions**, from 1-slide manual capture to 9-slide and 99+ slide tray loader.



Benefits to your lab

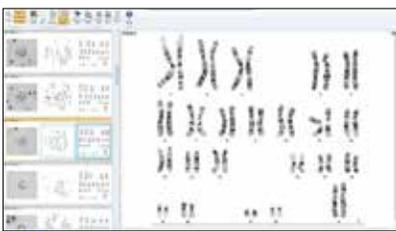
- ◆ **Versatile** platform **customizable** to your needs
- ◆ Real time statistical results and **quantitative analysis**
- ◆ Secured database and **case data management**
- ◆ Connectivity with **Lab Information Systems**
- ◆ **HIPAA-compliant** remote access solution



HiBand offers a digital solution for cytogenetic laboratories, combining **automatic high throughput scanning** with **AI-based chromosome analysis and karyotyping**. Supporting metaphase review and approval while scanning, HiBand provides advanced functional tools for image analysis across a variety of banding patterns including G-Band, Q-Band and R-Band.

Fully automated workflow powered by AI

ASI's fully automated karyotyping workflow performs chromosome detection, segmentation and classification with **minimal human interaction**. Integrated into HiBand, the **AI-powered karyotyping** is applicable to all sample types, and can be used both with manual and scanning platforms. Karyotyped metaphases, presorted automatically according to their quality, are available for review and approval **while scanning**.

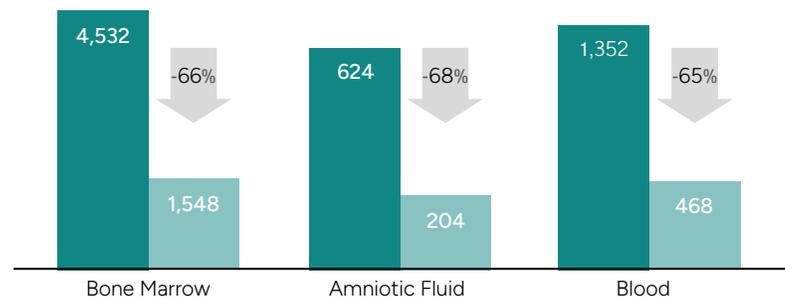


Benefits to your lab

- Automatic **Metaphase Finder** to identify best cells for analysis
- Magic Tool** for easy chromosome separation and boundary editing
- Image Gallery** displaying all metaphases and karyotypes
- Chromosome Compare** to review cells and chromosomes side by side
- Aberrant Ideogram** for detailed chromosome analysis

Digital Karyotyping: Boosting Lab Productivity

More than 65% Technologist Time Saving (Hours / Month)



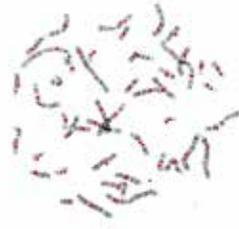
Free technologist time to where their expertise is needed most

- Traditional Karyotyping
- Automated Karyotyping



Karyotype

High accuracy of automated karyotyping, with auto ISCN, auto band estimation and auto overlap score



Count

Accurate automatic chromosome counting



Analyze

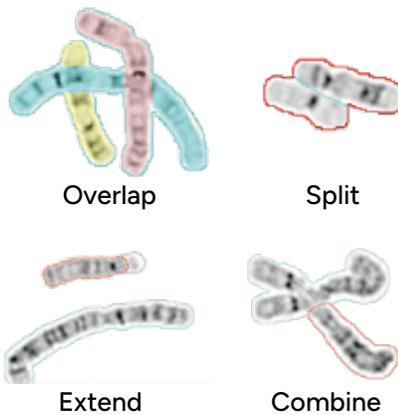
Fast and easy AI-powered chromosome indexing and classification

Easy Separation & Boundary Editing

ASI's **"Magic Tool"** combines 12 operations in a simple mouse click



Saves hundreds of mouse-clicks per karyotype!



"The ASI Slide Loader and Metaphase Finder runs overnight and provides a gallery of digital metaphase images ready for analysis, eliminating the time to ascertain analyzable metaphases and reducing the analysis time, ultimately increasing technologist productivity, compared to traditional methods based on microscopy."

Persaud T, Bambach R, Schmidt R, Brenholz P, Journal of the Association of Genetic Technologists

Reference Atlas for higher assurance

Internet toolbar with selection of **predefined genetic websites**, provides the expert support needed to investigate, research, and confirm challenging abnormalities.

Advanced Onscreen Supervisor or Director Review

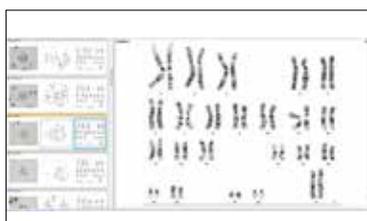
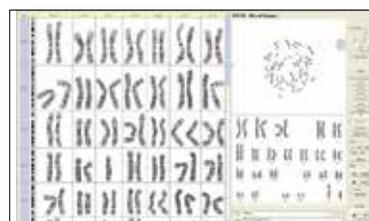


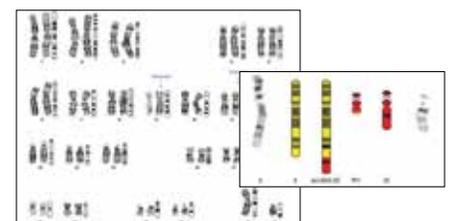
Image Gallery

Display of all case metaphases and karyotypes, sorted by quality first



Chromosome Compare

All captured cells and chromosomes side by side



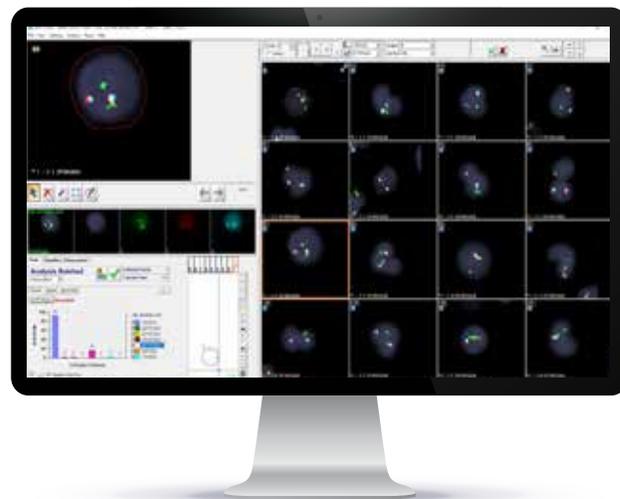
Aberrant Ideogram

Chromosomes, cells, ideograms and annotations in an image generator



HiFISH

HiFISH is a cutting-edge **AI enhanced digital FISH scanning and analysis** solution offering advanced computational tools and automated workflows. Vendor-agnostic, the system supports **unlimited number of probes** which are optimized based on users' needs. Combining 3D cell review with robust image quality through AI powered adaptive image optimization, HiFISH provides standardized results based on automatic signal detection and cell classification. Flexible analysis workflows for single or multiple readers, associated with automated **quantitative FISH analysis**, offer high versatility to address most laboratory needs.

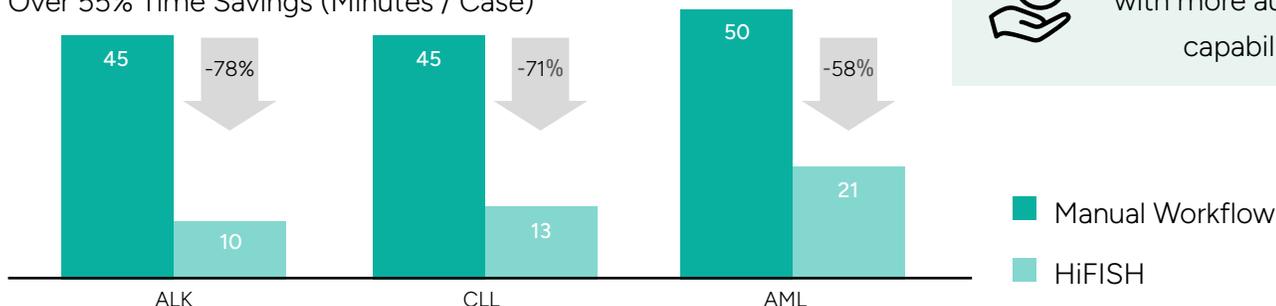


Benefits to your lab

- **AI Powered** FISH scanning uniquely optimized per hybridization
- Unlimited number of **vendor-agnostic** probes
- High quality image with **digital 3D review** of each cell
- Cell gallery for **fast classification** & review
- Real time **computer-aided analysis**
- Automatic detection of **abnormal patterns**
- Option for multi-reader **double blinded review**
- Simultaneous interphase & metaphase capture for **quality assurance**

Increased Lab Productivity with Automation

Over 55% Time Savings (Minutes / Case)



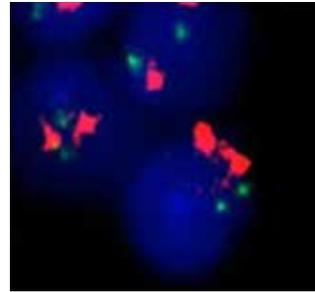
Streamline your workflow with more automated capabilities

Robust Image Quality Through AI Adaptive Statistical Algorithms

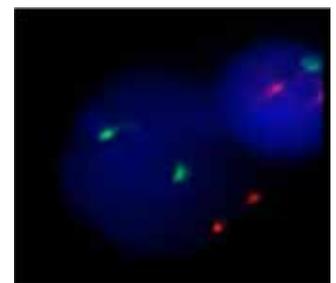
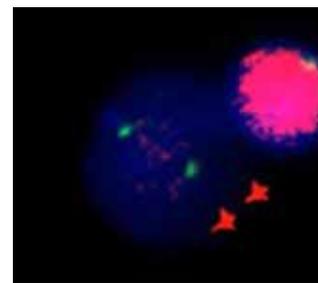
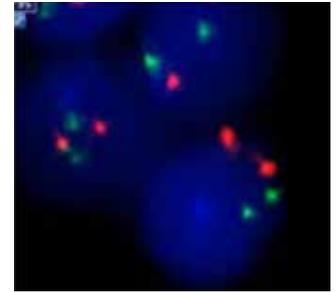
Validated to identify what the human eye may not see for standardized results

- ◆ **Acquisition parameters** optimization
- ◆ **Consistent signal** appearance across sample
- ◆ **Reduction of external debris** and nuclear noise
- ◆ **Eliminates need** for manual parameters manipulation
- ◆ Optimized **visualization and classification**

Original image



With AI tools



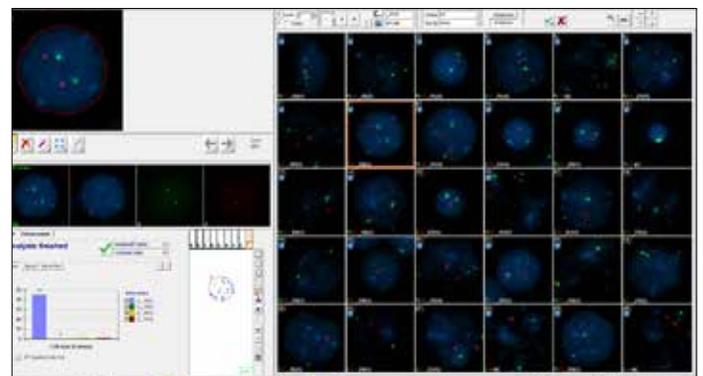
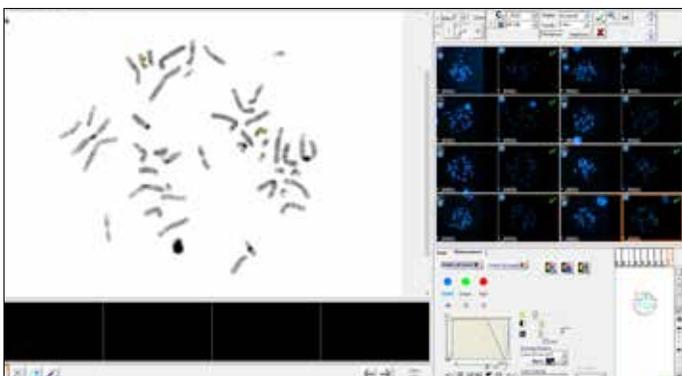
"HiFISH allows us to view many more cells than we would with a manual microscope, which leads to more accurate and reliable results. Manual FISH analysis is tedious and leads to technologist fatigue but HiFISH never gets tired."



Dr. Hadid Y, Bnai Zion Medical Center

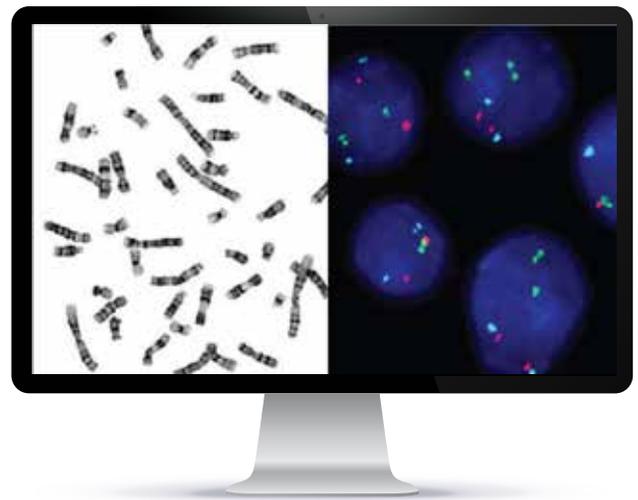
QC Application - Simultaneous Interphase & Metaphase Scanning

Identify probe signals on chromosomes to confirm FISH analysis accuracy





CytoPower is an end-to-end digital imaging and analysis solution for **both brightfield and fluorescent specimens**, combining **HiBand** for chromosome review and AI-powered karyotyping, and **HiFISH** for automated FISH analysis.



Benefits to your lab

- ◆ A **single platform** for karyotyping and FISH
- ◆ Clinical applications for **all sample types**
- ◆ **Automated workflows** and feature-rich applications
- ◆ **Customizable case reports** with images and quantitative results



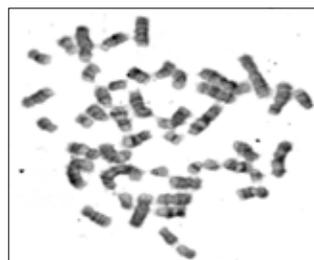
"CytoPower doubled our lab productivity in bone marrow karyotyping and tripled our productivity in blood sample karyotyping."



Nettie Rietema, University Medical Center Groningen, NL

Clinical Applications for multiple sample types

- ◆ Bone Marrow
- ◆ Peripheral Blood
- ◆ Solid Tumors
- ◆ FFPE Tissue
- ◆ Cytology

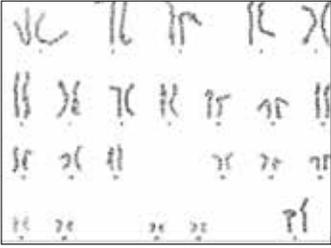


Bone Marrow

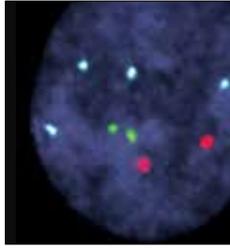


Blood

Hematology FISH Workflow



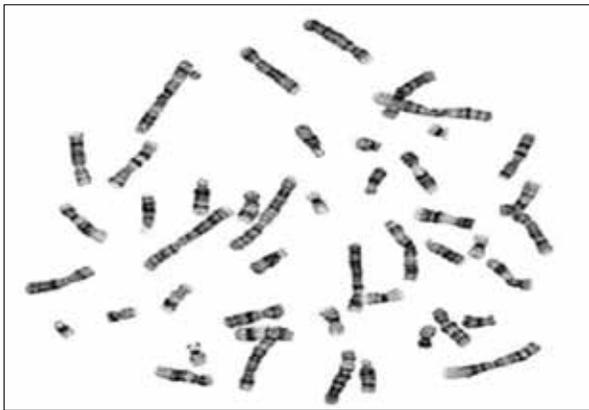
Karyotyping
Brightfield
Microscopy



FISH
Fluorescence
Microscopy

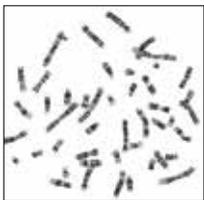
Digital Chromosome Analysis

Efficiency, Precision and Versatility



High resolution 5MP camera sensor combined with a high quality 100x immersion oil objective

Broad Staining and Sample Menu



G-Band



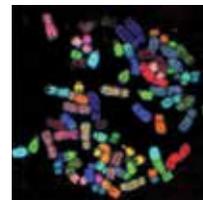
Q-Band



R-Band



FISH

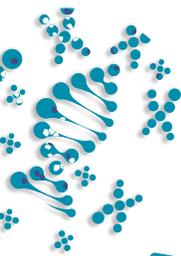


Spectral



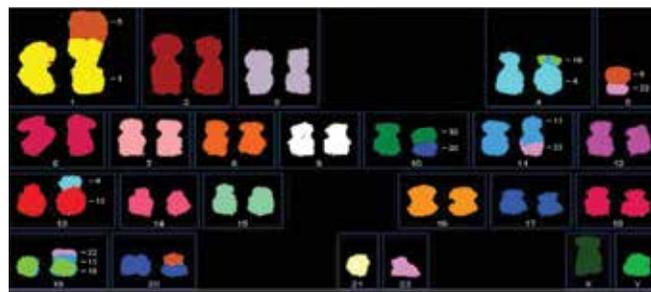
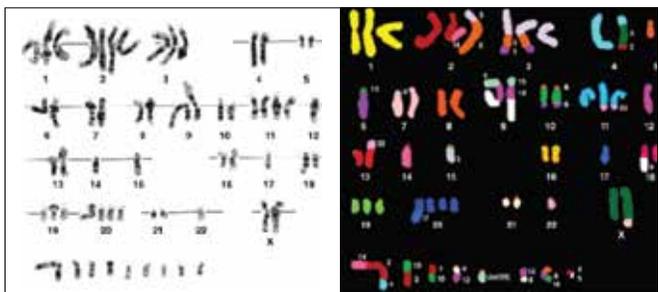
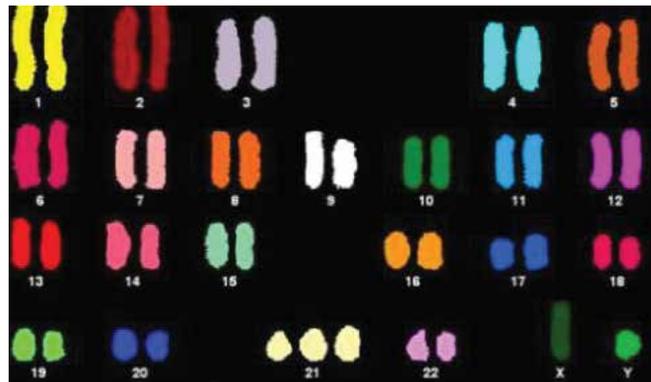
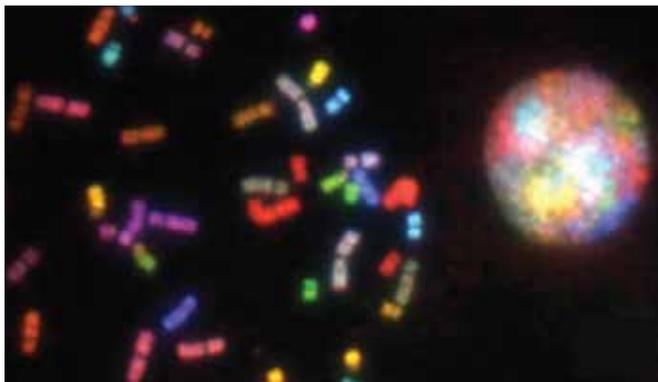
R-Band





Research Applications

HiSKY* Gold Standard Spectral Karyotyping



Brain Tumor

Ewing Sarcoma

*HiSKY is for research purposes only

Multi-Color FISH Analysis for Result Verification

- Automatic identification of **translocations** and **chromosomal origins**
- Simultaneous detection of **chromosomal aberrations** in one hybridization
- Measurement of **entire spectrum** at each point

HiSKY Probe Kit

Chromosome paints for:

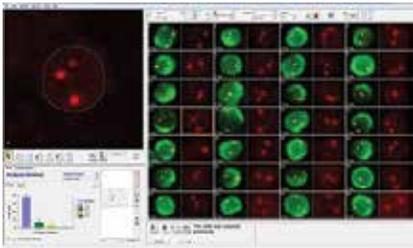
- Human
- Mouse



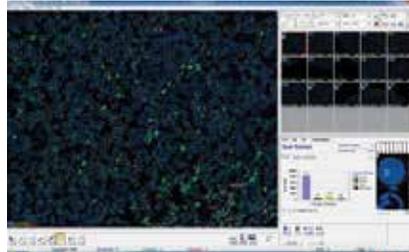
"Spectral karyotyping provides a valuable diagnostic tool for establishing the origin of supernumerary marker chromosomes or derivative chromosomal material that cannot be identified with standard cytogenetic techniques."

Anguiano A, Wang BT, Wang SR, Boyar FZ, Mahon LW, Naggar MM, Kohn PH, Haddadin MH, Sulcova V, Sbeiti AH, Ayad MS, White BJ, Strom CM, Molecular Cytogenetics

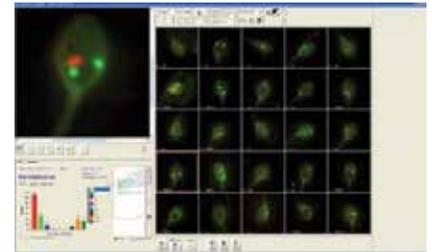
FISH for Research



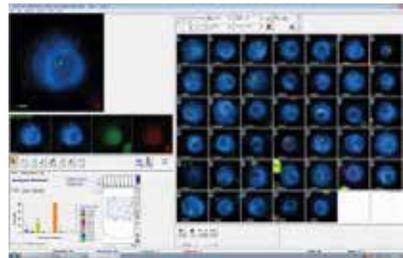
Circulating Tumor Cells



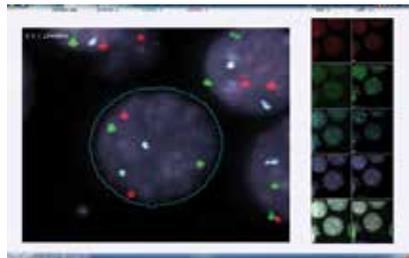
Immuno Fluorescence



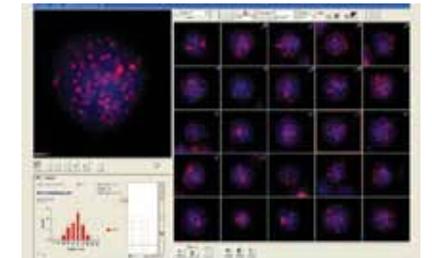
Sperm Cells



clgFISH



Successive Staining



Telomeres

Quality Control of Probe Assays

- Cell phenotyping and signal classification
- Measurement and display of multiple cellular and signal properties

Scan | Log | QC | Enhancement

Scan finished

Analyzed Frames: 15
Counted Cells: 10463

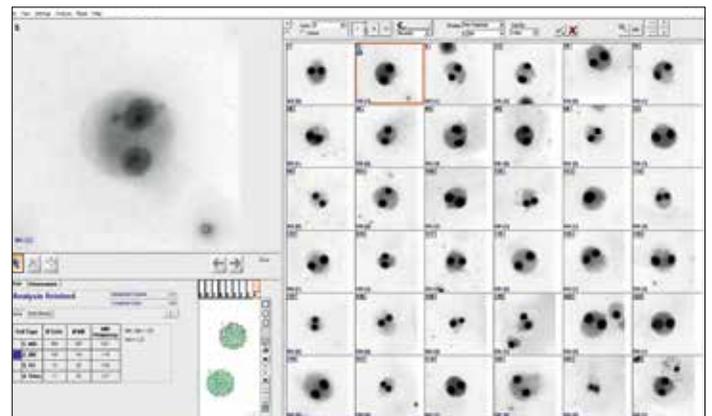
Cell#	Area	Circularity	Class	Int. DAPI	Int. Green	Int. Red	Spot #
5847	211	1.448	DAPI	24476	29483	24024	0
4309	212	1.198	DAPI	80190	48542	48216	0
4254	210	1.372	DAPI	65003	49257	50256	0
1705	208	1.433	DAPI	77660	52898	50521	0
8231	209	1.377	DAPI	67898	56047	50623	0
2791	214	1.691	DAPI	31527	58324	50882	0
290	215	1.336	DAPI	80995	55718	51414	0
1767	210	1.282	DAPI	72677	52202	51830	0
6654	192	1.198	DAPI	103387	72972	51920	0
2683	228	1.864	DAPI	50225	56689	52470	0
3201	207	1.468	DAPI	84313	56151	54413	0
3479	217	1.195	DAPI	70435	50970	55154	0

Export to CDM:
 Ploidy
 Color Intensity
 SNR

Classified: 10463 Reviewed: 10

MN Score

Micronuclei imaging, scoring and analysis for measurement of DNA damage, cytostasis and cytotoxicity.



A Comprehensive Digital Chromosome Analysis and FISH Workflow

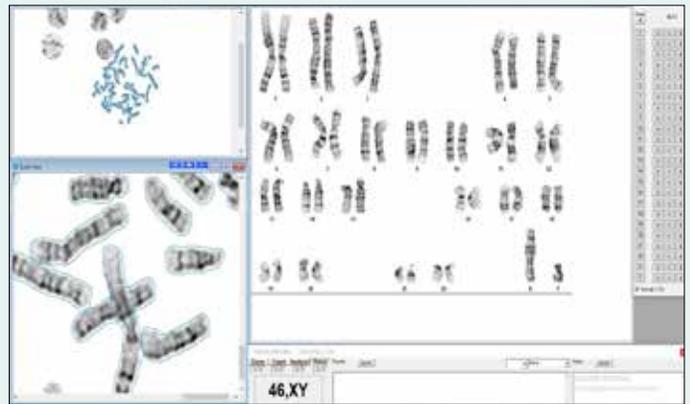
1 Scan & Capture

Digitize your slides.
Capture both metaphase and interphase cells for analysis

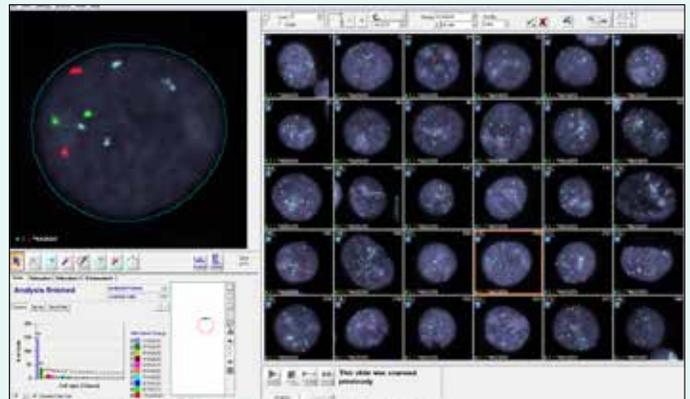
2 View & Analyze

Analyze images using AI-powered karyotyping and automated FISH classification

HiBand



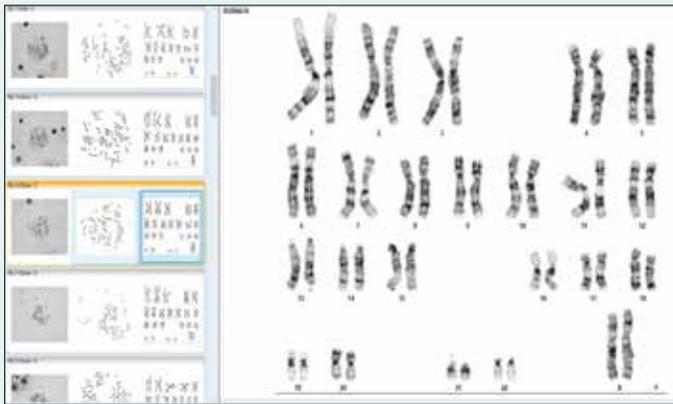
HiFISH



3

Review & Sign-Off

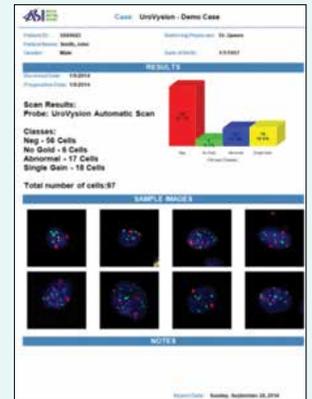
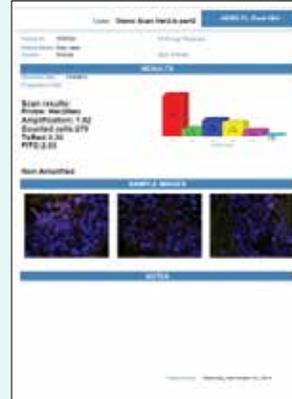
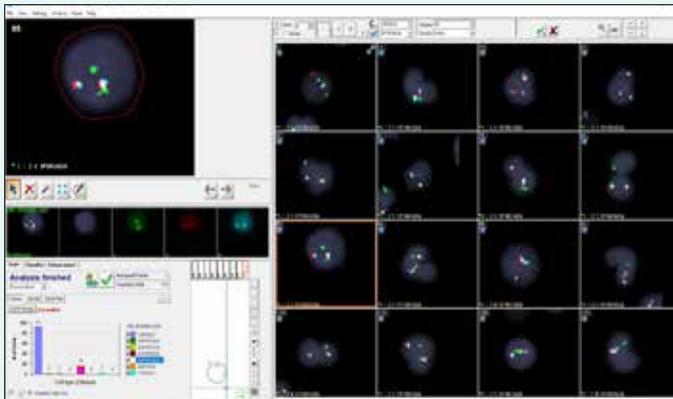
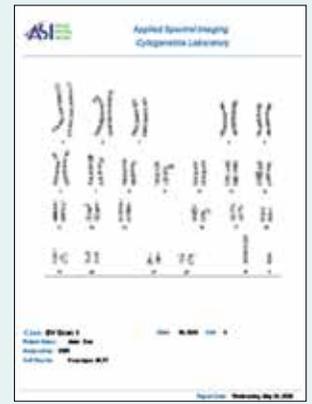
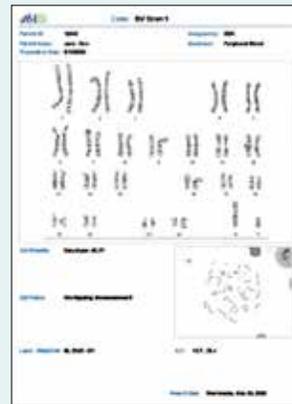
Review and approve karyogram and statistical results of FISH signals



4

Report

Submit comprehensive case details including screenshots, images and quantitative results

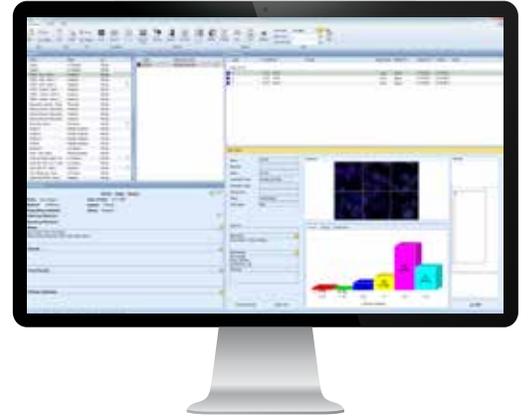


Case Data Management

With its **Case Data Management (CDM)** application, ASI offers a unique and comprehensive solution that can help streamline the data management process and provide a more **efficient and secure system** for the cytogenetic laboratory. By integrating with the **Lab Information System (LIS)**, ASI's platform can help manage data more effectively, saving time and resources.

Benefits to your lab

- ◆ **Paperless** workflow
- ◆ **Secure** data management
- ◆ Central portal and **database**
- ◆ Secure integration with **LIS**
- ◆ Data integrity & **HIPAA** compliance



GenASIs AnyWhere

ASI's **advanced virtual access** solution enables HIPAA-compliant access to your lab's GenASIs platform from any location. This secure and trouble-free solution makes remote data management easy, ensuring that you can **access your lab's data anytime, anywhere.**

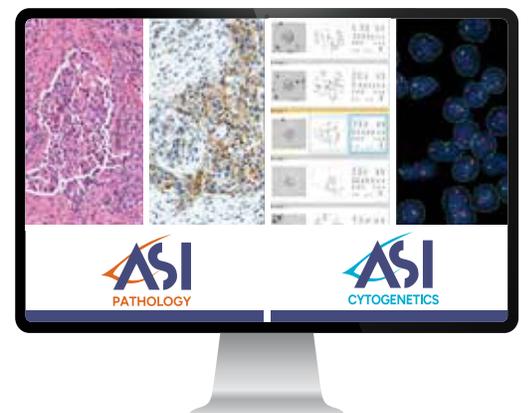
Benefits to your lab

- ◆ Optimal for **remote consultation**, educational and training needs
- ◆ Uncompromised **data security**
- ◆ Efficient management and maintenance of **multiple systems, and users**



All-in-One Solution

Combining digital pathology, karyotyping and FISH, ASI's **All-in-One** solution offers a **comprehensive workflow** from scanning to image viewing, quantitative analysis and reporting of both brightfield and fluorescent images. The All-in-One versatile solution provides a modular platform addressing the needs of both **cytogenetics** and **pathology** laboratories.

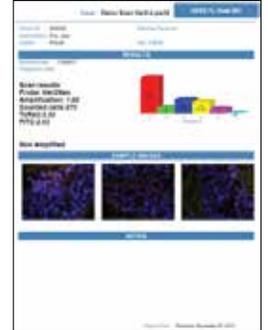
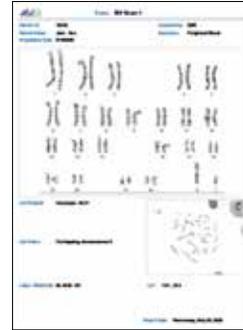


Advanced Reporting

ASI's reporting tool provides a user-friendly interface to create laboratory-branded **customizable reports** according to the user's needs.

Benefits to your lab

- ◆ **Dedicated report** for each application
- ◆ **Quantitative** and **graphical** results
- ◆ User-selected **screenshots** and **images**
- ◆ **Freehand report** using multiple annotation styles



LabLife Statistics



Benchmarks

Calculate performance and track KPIs to help meet certification and regulatory requirements



Optimization

Identify best practices to increase return of investment and focus improvement efforts



Growth

Justify investment in additional capital equipment to improve lab efficiency



Annual Review

Compare performance year on year and make decisions based on data driven analyses

Diverse Image Acquisition Platforms



1-Slide Capture System



9-Slide Scanning System



99-Slide Tray Loader



HyperSpectral System



Review & Analysis Station



AnyWhere Remote Connectivity

Adapted Service Offering

The ASI team is committed to supporting your laboratory by providing expert and superior service throughout the year. Different **Service Packages** are available to provide the highest level of service according to your specific needs.

System Specifications

Vaizdu analizės sistema tyrimams, atliekamiems naudojant FISH technologiją yra automatizuota vaizdu gavimo platforma su fluorescenciniu mikroskopu ir 9 stikleliu deklui. Reikalavimas Nr. 1



Manual 1 Slide



9 Slide Motorized Stage



99+ Slide Tray Loader



HyperSpectral 1 Slide

	HiBand	HiFISH	HiBand	HiFISH	HiBand	HiFISH	CytoPower
Microscope Support	BF upright microscopes	FL upright microscopes	OLYMPUS BX63* BF	OLYMPUS BX63* FL	OLYMPUS BX63* BF	OLYMPUS BX63* FL	BF & FL upright microscopes
Objectives	10x/0.3NA 100x/1.3NA	10x/0.3NA 60x/1.25NA	1.25x/0.04NA** 10x/0.3NA 100x/1.3NA	10x/0.3NA 60x/1.25NA	1.25x/0.04NA** 10x/0.3NA 100x/1.3NA	10x/0.3NA 60x/1.25NA	10x/0.3 60x/1.25 100x/1.3
Camera	5MP CMOS Monochrome		5MP CMOS Monochrome		5MP CMOS Monochrome		Spectral 1.3MP Monochrome
Slide Capacity	1 Slide		9 Slides		99 Slides		1 Slide
Barcode Reader	Handheld 1D/2D		Handheld 1D/2D		Integrated 1D/2D		Handheld 1D/2D
Automated Oil Dispenser	N/A		Optional		Integrated		N/A
Dimensions (WxDxH)	According to installed microscope		61cm x 69cm x 85cm (24"x27.2"x33.5")		100cm x 90cm x 90cm (39.4"x 35.5"x 35.5")		According to installed microscope
Weight	According to installed microscope		45kg 99.2lb		80kg 176.4lb		According to installed microscope

Reikalavimas 1.
FL- fluorescencinis trumpinys, taigi mikroskopas yra fluorescencinis

* Although, the Olympus BX61 is no longer available to purchase and is obsolete, ASI will still support this model.

** Optional

Reikalavimas 10.

Siloma programin ranga HiFISH su motorizuota stotele. HiFISH pragmine iranga valdo lenteleje nurodytus parametrus ir yra tinkama ir skaitmeninis 5MP CMOS kameros parametr valdymui

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