Xmatrx® Infinity – Infinite Possibilities…

Presented for: BioGenex

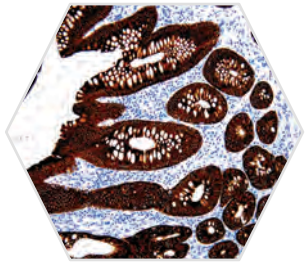
Presented by: BioGenex

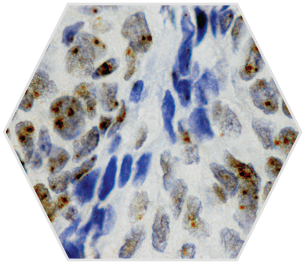
Date: 2016

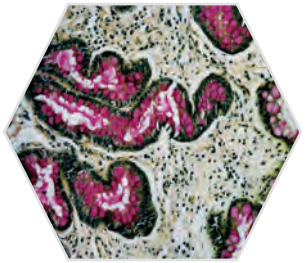
Intelligent & Flexible System

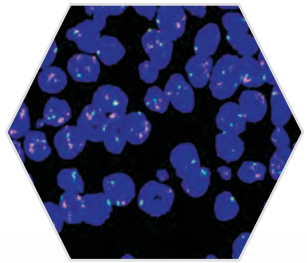
Xmatrx® Infinity

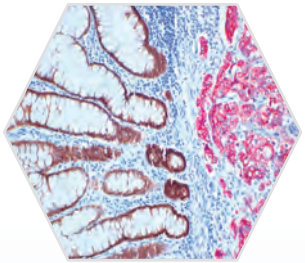
Automate Any Slide-based assay

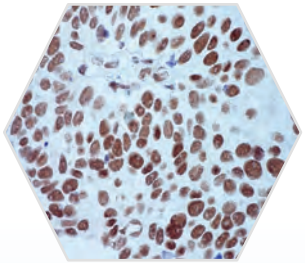

IHC

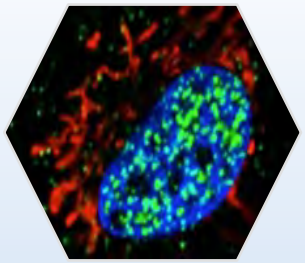

ISH/CISH

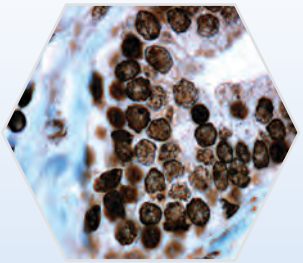

Special Stains


FISH


Multiplexing


In Situ PCR


IF


miRNA-ISH

BioGenex

Xmatrx® INFINITY – Fully Automated System

Xmatrx® Infinity

- Fully automated, total walk away system from baking through final cover slip

Load ➡ Click ➡ View

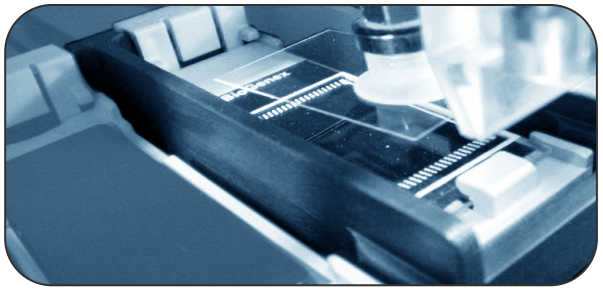
- 100 slides/day, 60 slides in 8 hour shift and 40 slides in overnight run
- Multi-format specimen processing: Frozen, FFPE, Cell Preparations, Smears & FNAs
- 40 independent protocols simultaneously

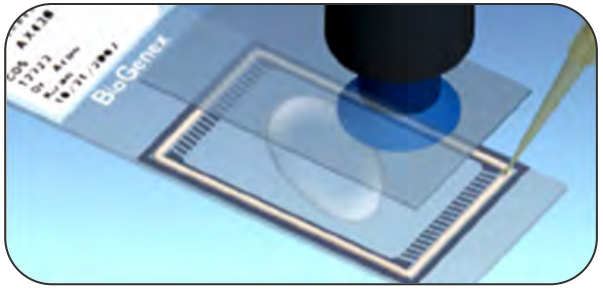
BioGenex

Stain More – Consume Less

- Reduced reagent consumption and waste generation by up to 90%
- All non-toxic Eco-friendly reagents
- Slide processing options: Random, Continuous and STAT for efficiency
- System allows use of any 3ed party reagents

Xmatrx® Enabling Technologies and Advantages





➢ Proprietary cover slip mechanism

- Proprietary cover slip mechanism All non-toxic Eco-friendly reagents

➢ Reaction micro-chamber with micro-fluidics

- Reduces reagent consumption to 5-80 µL/slide
- Allows even distribution of reagents for uniform staining without edge effect
- Oil seal mechanism prevents sample drying during prolonged incubations at high temperatures (FISH, ISH, *in situ* PCR

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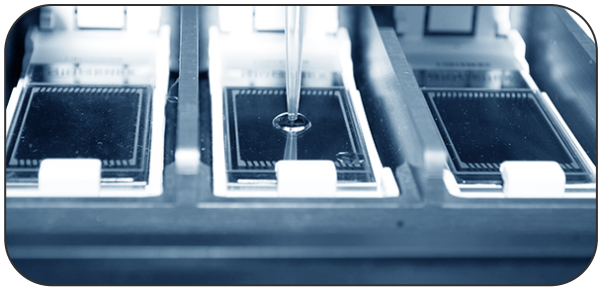
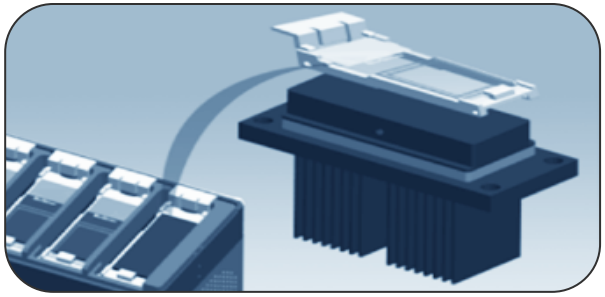
Xmatrx® Enabling Technologies and Advantages



➢ Reagent Dispensing System

- Disposable pipette tips allow multiple technologies on the same platform without cross contamination



➢ Thermocyclers with eXact™ temperature control

- Allows accurate temperature control from ambient temperature to 105°C (±0.5)
- 40 independent units allow running 40 different protocols at the same time
- Allows fast heating and cooling for *in situ* PCR

Ambient ⟷ 95°C

< 2 min

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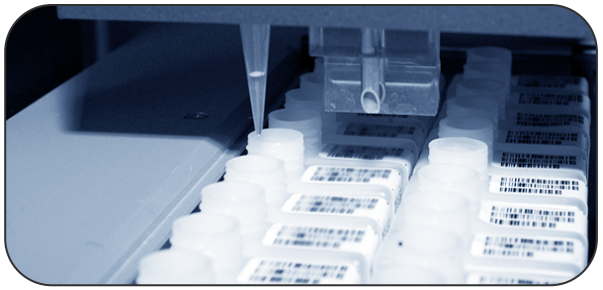
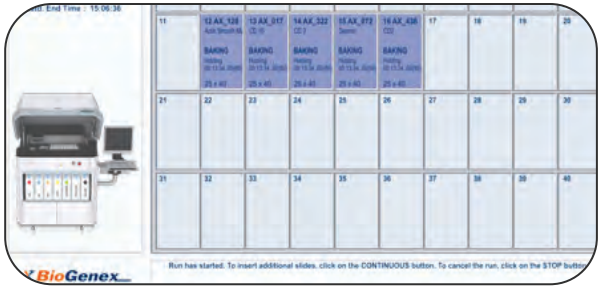
Xmatrx® Enabling Technologies and Advantages



- Liquid Level Sensor
  - Allows accurate reagent dispensing



- Intelligent Open System Software
  - Intuitive, flexible and easy to use software enables quick learning and easy setup

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Differentiation: Xmatrx® Infinity vs. other instruments




Automation	Xmatrx Infinity	Leica Bond	BenchMark Discovery	Omnis
Company	BioGenex	Leica BioSystems	Ventana (Roche)	Dako (Agilent)
Slide Capacity	40	30	30	60
Minimum probe volume required	10 µl	150 µl	100 µl	200 µl
Baking	Yes	Yes	Yes	No
DeWax	Yes	Yes	Yes	Yes
Retrieval	Yes	Yes	Yes	Yes
Staining	Yes	Yes	Yes	Yes
Counterstain	Yes	Yes	Yes	Yes
De-hydrate	Yes	No	No	No
Clearing	Yes	No	No	No
Coverslip	Yes	No	No	No
Reagent Dispensing	Disposable tips	Rinsed Probe tip	Dispos. dispensers	Rinsed Probe tip
Dimensions (W/H/D)	46/59/29 in	31/54/31 in	35/60/26	57/60/31
Weight (lbs)	400	542	650	1323

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Customer Testimonials & Selected Publications

Testimonials

Dr. Sharakhov
Virginia Tech.

In the fall of 2011 Dr. Sharakhov's laboratory installed an Xmatrx Infinity system to physically map chromosomes of various invertebrate species using automated fluorescent *in situ* hybridization

St. Petersburg
Russia.

Due to manual staining processes, the center was handling approximately 5000 slides per year. However, the necessity of IHC staining for the diagnosis of various diseases increases every day

BCRL
Philadelphia.

Being a cancer research laboratory, the BCRL is accustomed to immunohistochemistry (IHC) and multiplex IHC to analyze, confirm and learn about the myriad of interactions

Dr. David Davis
Denver.

David's laboratory has a wide menu of tests available and offers services to clients of all sizes. BioGenex is proud to be a part of such a large and prominent academic hospital

Xmatrx® Infinity

Selected Publications

- **Abbott Molecular (Blood Cancer J.)** Loss in MCL-1 function sensitizes non-Hodgkin's lymphoma cell lines to the BCL-2-selective inhibitor venetoclax (ABT-199)
- **Johns Hopkins University (J Neurovirol.)** Mechanisms of minocycline-induced suppression of simian immunodeficiency virus encephalitis: inhibition of apoptosis signal-regulating kinase1
- **Virginia Tech (J. Vis. Exp.)** High-throughput Physical Mapping of Chromosomes using Automated in situ Hybridization
- **Albany Medical College (Hum. Pathol.)** Loss of claudins-1 and -7 and expression of claudins-3 and -4 correlate with prognostic variables in prostatic adenocarcinomas
- **Georgetown University Hospital (Cancer Res.)** Prognostic significance of immunohistochemical expression of GATA 4 prostate (PC) and endometrial (EC) carcinomas

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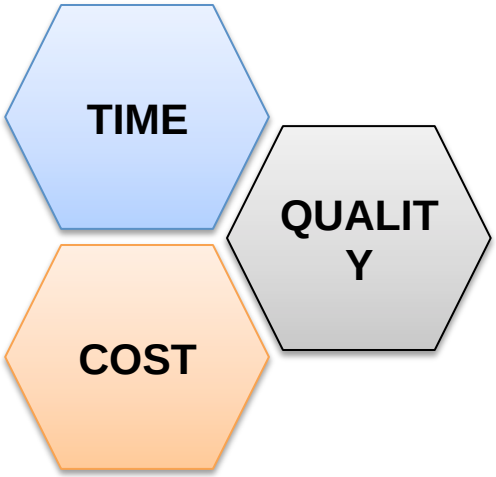
Uniqueness



Xmatrx® Infinity

- Fully automated system
  - Baking to Final Coverslip
- Multiple applications from IHC, ISH, SS to FISH
  - Eliminate requirement to purchase multiple instruments for different technologies
  - Save cost/lab space
- Micro-Chamber/Coverslip technologies
  - Eco-friendly and Cost savings – up to 90% reduced reagent consumption and waste generation
- Flexible Easy-to-Use Open System Software
  - Factory template protocols or easily customized user protocols
  - Regulatory compliant with US-FDA and IVD-CE mark and meets ISO quality standards

BioGenex

BioGenex Mission:

"To become a global molecular medicine leader providing affordable solutions for life science research and personalized medicine"

Headquarters

- Silicon Valley, California

Facilities & Offices

- Hyderabad, India
- Milan, Italy
- Shanghai, China

Distributors

- 70+ across 47 countries

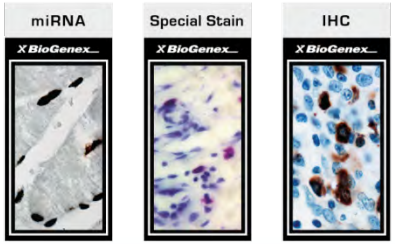
BioGenex

BioGenex IHC

>400 Antibodies

Ancillaries

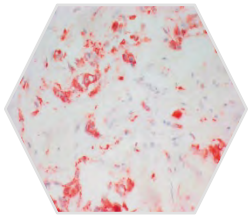
Detection Systems



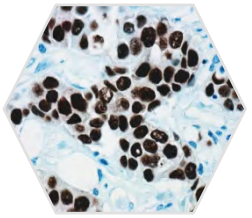
Control Slides

DeWax and Antigen Retrieval

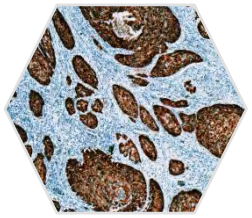
Breast Cancer Panel



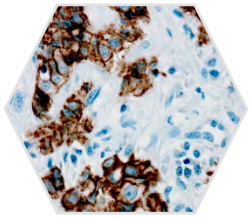
Cathepsin D



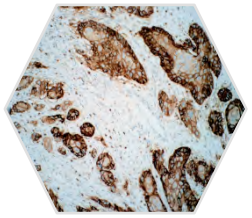
Estrogen Receptor



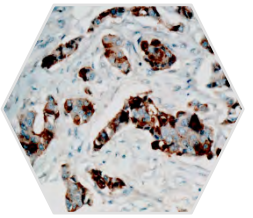
Cytokeratin 5



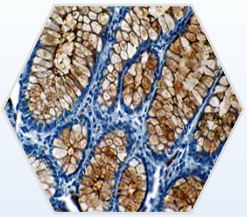
E-cadherin



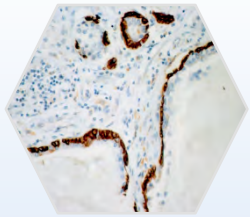
EGFR



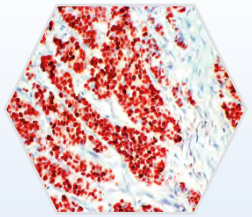
GCDFP-15



MUC4



CK14



Progesterone Receptor

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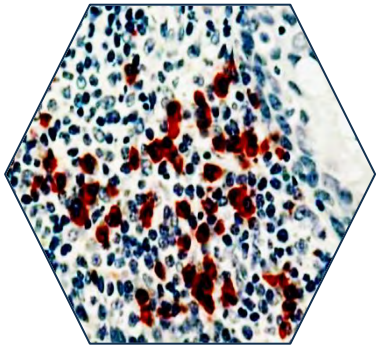
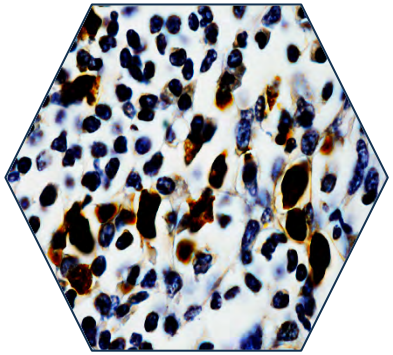
ISH Probes and kits

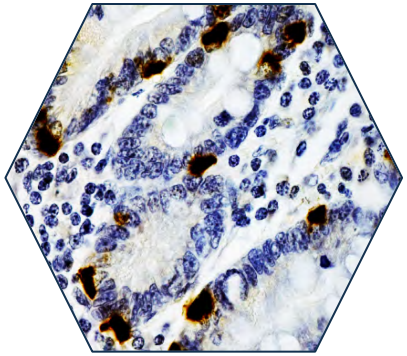
in situ Hybridization (ISH) allows detection of specific nucleic acid sequences (genes) in their cellular environment.



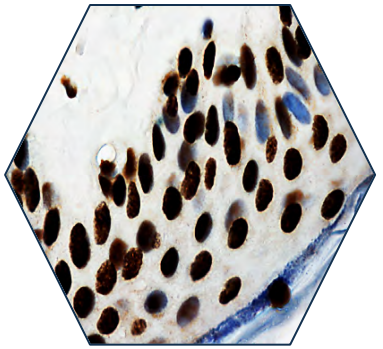
KAPPA



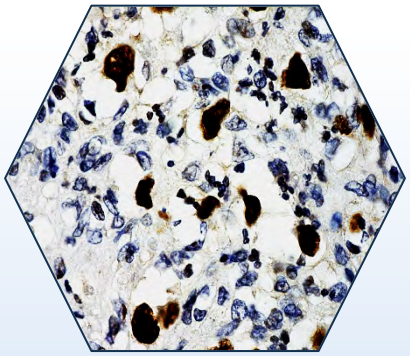
LAMBDA



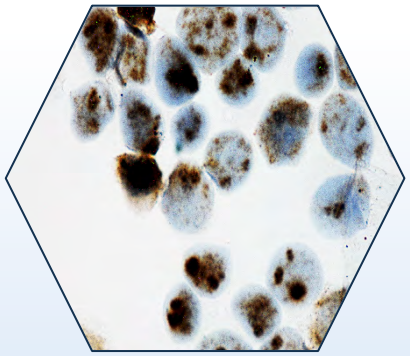
CYCLIN D1



ALU II



EBER



HPV16/18

ISH Staining Kits for manual & automation

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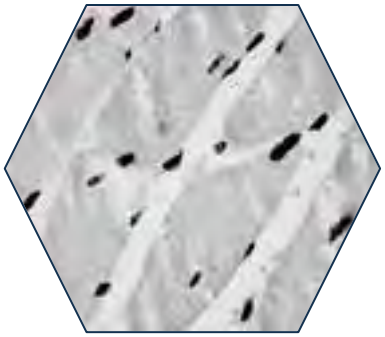
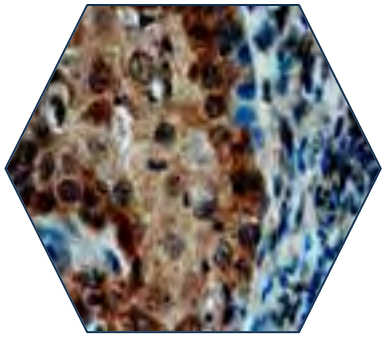
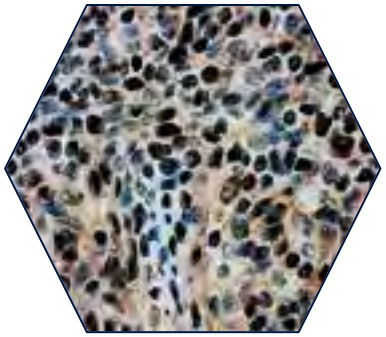
Over 150 microRNA - ISH Probes



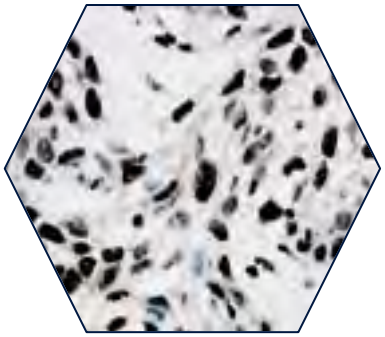
Hsa-miR1



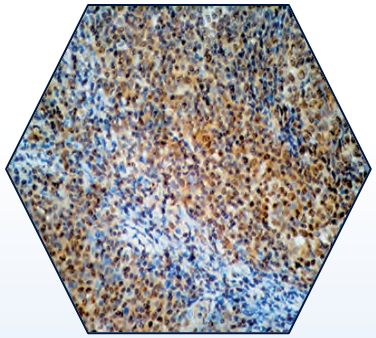
Hsa-miR146a



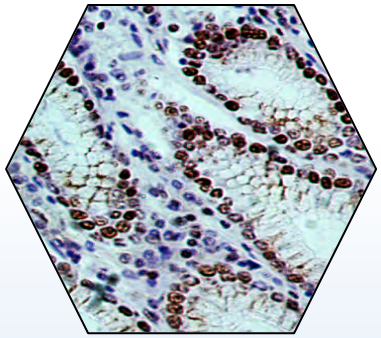
Hsa-miR155



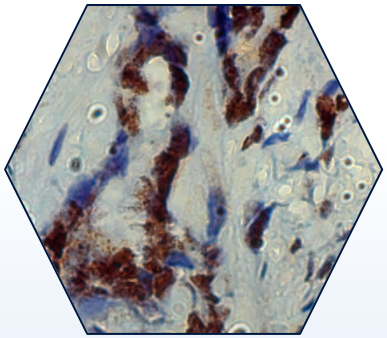
Has-miR222



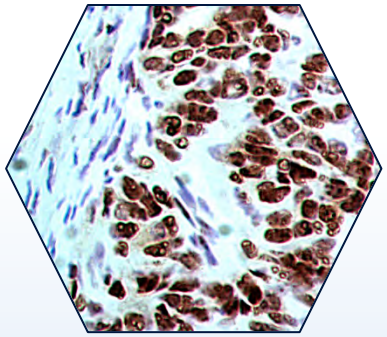
Has-miR328



Has-miR148b



Has-miR30e



Has-miR451

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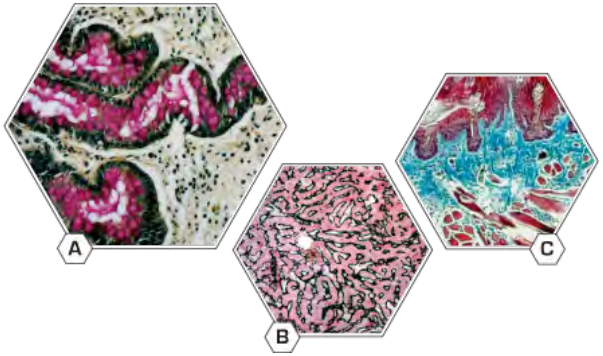
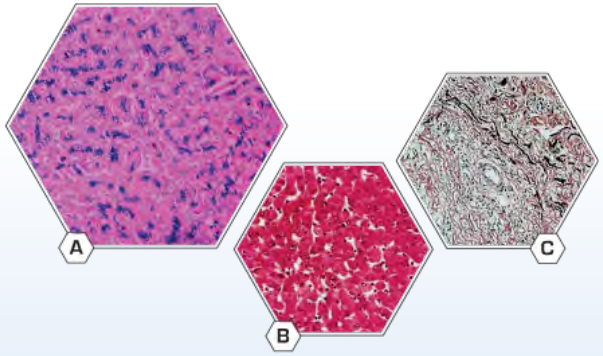
Special Stains



A. Mucicarmine in Intestine
B. Reticulin-Nuclear Fast Red
C. Masson's Trichrome in Skin



A. Iron Stain
B. PAS in Liver
C. Elastin in Skin

➢ Special Stains (SS)

- Are chemical dye stains that localize to microbes found in tissue and to specific tissue types and are used primarily to assist in the diagnosis of infectious diseases and also cancer

➢ 30 special staining kits available

- Masson's Trichome
- Safranin O Staining Protocol
- Toluidine blue staining
- von Kossa Staining
- Alizarin Red Staining Kit
- Azure A staining

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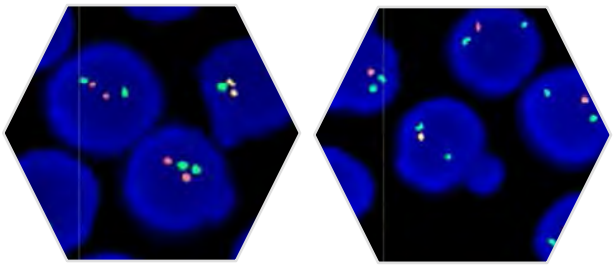
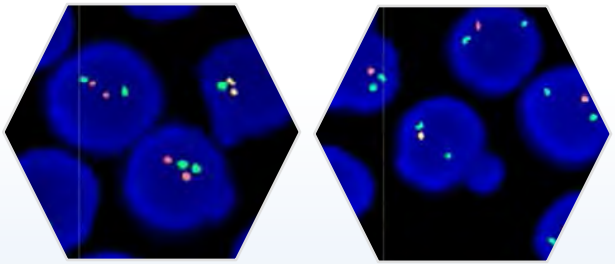
eFISH Probes and Kits

TP53/CEN 17 FP-062



Normal (left) and TP53 deletion (right) CLL

CEN7/EGFR FP-040



CEN7/EGFR amplification
Non-small cell lung cancer

➢ Probes

- 65 probes currently available
  - Solid Tumors: 26
  - Hematology: 20
  - Enumeration: 19
- Single, double, triple colors
- Plan to increase probe offering to 200 by the end of 2015

➢ Visualization kits for

- FFPE
- Cyto samples
- Automation compatible

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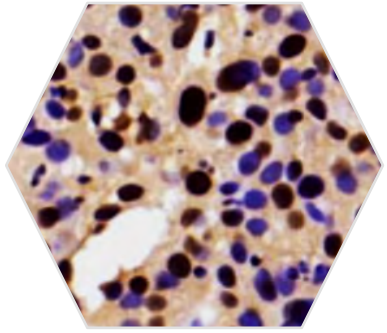
In Situ PCR Automation with Xmatrx®

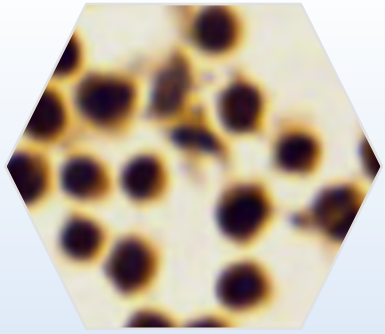
HPV18 in FFPE tissue



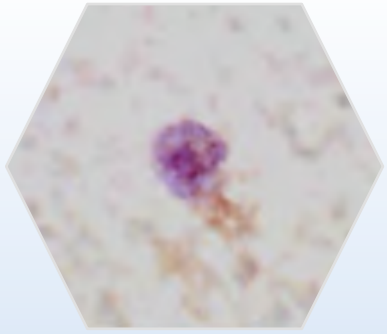
Cervical Carcinoma showing
Positive HPV18 Signal by *In Situ* PCR

- Super sensitive: ISP 1-2 copies/cell vs CISH > 10 copies/ cell
- Produce reliable and reproducible results
- Very specific: no staining in the negative control samples.
- Fully automated: can be finished by Xmatrx

HPV18 in HeLa Cell Line demonstrating High Sensitivity of *In Situ* PCR



In Situ PCR (20 Cycles)



In Situ PCR Hybridization

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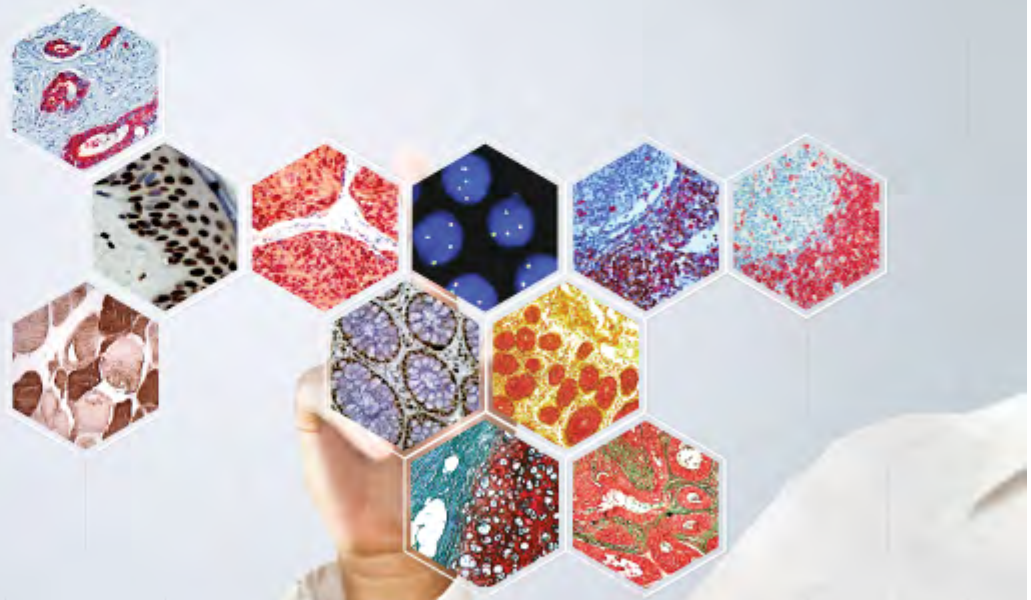
Thank You

Please visit **www.biogenex.com** for more details on our product portfolio



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