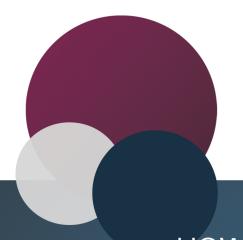


PRODUCTS FOR MOLECULAR ONCOLOGY LABS

WHO WE ARE

EntroGen offers end-to-end solutions in molecular diagnostics for oncology and hematology by providing hardware, reagents and software. Starting from automated nucleic acid extraction and culminating in genomic interpretation with our proprietary software embedded for key decision support, our solutions are designed to be accurate, economic and scalable. The company mission is to develop diagnostic solutions for therapeutics and help drive the advancement of targeted therapies in oncology.



Through ongoing research and innovation, we are gaining worldwide recognition as leaders in the area of molecular diagnostics providing accurate and reliable products that our clients can depend on. Our aim is to provide laboratory professionals with the tools and support they need to enhance their services while managing time and cost.

HOW WE CAN SUPPORT YOU



Internal Review

Review of current molecular diagnostic services & procedures.



Evaluation

Identify areas to improve time, cost & efficiency.



Implementation

Reagents are compatible with most leading qPCR/NGS instruments.



Automation

Fully automated sample prep and plate setup.



Software

Complimentary software for automated analysis and reporting.



Support

Prompt, knowledgeable and reliable technical support.



DATA ANALYSIS SOFTWARE

EVA

EntroGen Variant Analysis Software

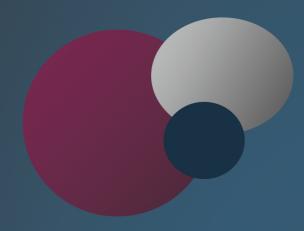
- Simplifies data interpretation and quickly determines:
 - variant calls
 - clinical relevance
 - current clinical trials
- Queries two independent databases for the most current genome annotations
- Complimentary, locally installed and available with all NGS assays





EPASEntroGen PCR Analysis Software

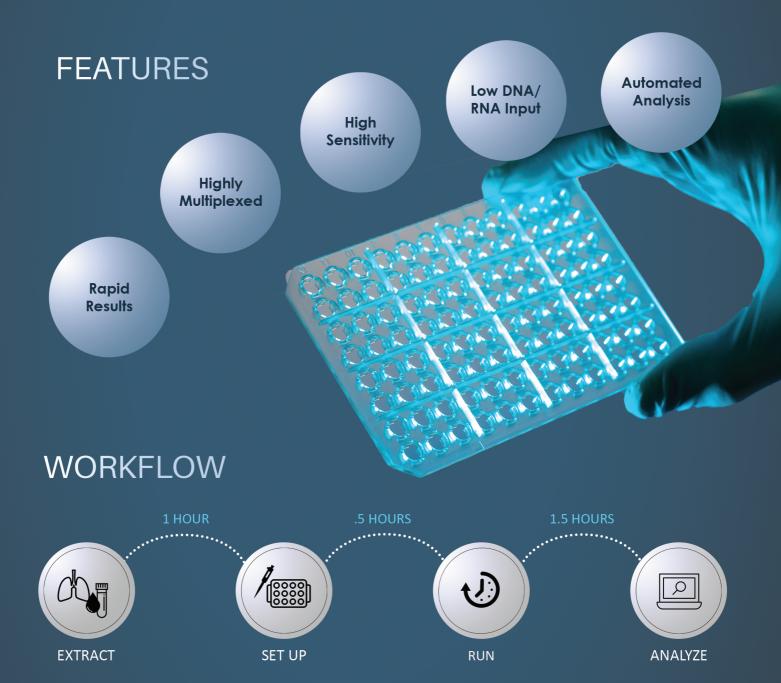
- Streamlines reporting and simplifies data interpretation
- Raw data files undergo QC check and mutation status call
- Simple point-and-click parameter setup and report generation
- Easy-to-interpret reports provide results that can be exported for integration with laboratory information management systems (LIS/LIMS)
- Complimentary, locally installed and available with select PCR assays

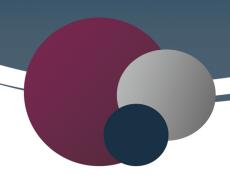


REAL-TIME PCR

Real-time polymerase chain reaction (rtPCR) is a well-established, rapid and highly sensitive molecular diagnostic technique used to detect specific gene alterations in DNA and RNA.

Using specific primers and probes, EntroGen rtPCR assays amplify specific targeted mutations present in a sample nucleic acid sequence. They can be easily implemented in any cancer diagnostics laboratory for detection of clinically relevant SNVs, small indels and/or gene fusions.





SOLID TUMOR ASSAYS

Colorectal Cancer

COLORECTAL CANCER MUTATION DETECTION PANEL			
Targets	KRAS/NRAS G12/13, Q61, A59, K117, A146 PIK3CA E542/545, H1047	Sensitivity	As low as 1.0%
	AKT1 E17K & BRAF V600		

RAS MUTATION ANALYSIS KIT*			
Targets	KRAS/NRAS G12/13, Q61, A59, K117, A146	Sensitivity	As low as 0.32%

^{*}An add-on reaction that distinguishes KRAS G12C from other codon 12 mutations is available upon request.

KRAS/BRAF MUTATION ANALYSIS KIT			
Targets	KRAS G12/13, Q61, K117, A146 BRAF V600E	Sensitivity	As low as 0.25%
RASX Mutation Analysis Extension Kit available with this assay			

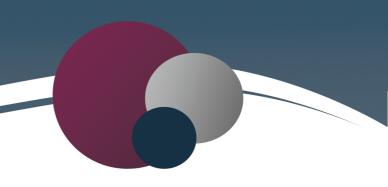
KRAS MUTATION ANALYSIS KIT			
Targets	G12/13, Q61, K117, A146	Sensitivity	As low as 0.25%
RASX Mutation Analysis Extension Kit available with this assay			

PIK3CA MUTATION ANALYSIS KIT			
Targets	E542/545, H1047	Sensitivity	As low as 1.2%

NRAS MUTATION ANALYSIS KIT			
Targets	G12/13, Q61, A146T	Sensitivity	As low as 0.25%
RASX Mutation Analysis Extension Kit available with this assay			

MLH1 METHYLATION DETECTION KIT			
Targets	Methylation detection of MLH1 promoter regions C and D	Sensitivity	6.25% Methylation

RASX MUTATION ANALYSIS EXTENSION KIT				
Add-on kit for KRAS, KRBR and NRAS Mutation Analysis Kits				
Targets KRAS A59 T/E/G , NRAS A59 T/D & K117R As low as 2.5%				





Lung Cancer

EGFR MUTATION ANALYSIS KIT

Targets

T790M, Ex19Del, L858R, L861Q, S768I, G719X, Ex20ins

Sensitivity

As low as 0.25%

EGFRX Mutation Analysis Extension Kit available with this assay

LUNG CANCER RNA PANEL

Targets

ALK, ROS1, RET fusions

MET exon 14

skipping mutation

Sensitivity

As low as 10 copies

EGFRX MUTATION ANALYSIS EXTENSION KIT

Add-on kit for EGFR Mutation Analysis Kit

Targets

L858M, L861R & E709 A/D/G

Sensitivity

As low as 0.1%

NTRK RNA FUSION GENE DETECTION KIT

Targets NTRK 1,2,3.

Sensitivity

As low as 25 copies



Glioblastoma

MGMI METHYLATION DETECTION KIT*				
Targets	MGMT promoter methylation	Sensitivity	3.125% Methylation	

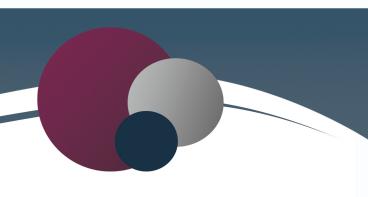
^{*}Bisulfite Conversion Kit included

IDH1/2 MUTATION DETECTION KIT

IDH1 R100, R132 IDH2 R140, R172

Sensitivity

As low as 1%





Melanoma

BRAF CODON 600 MUTATION ANALYSIS KIT II			
Targets	BRAF V600 (E, E2, K, R, D, M ,G)	Sensitivity	As low as 0.25%

c-KIT MUTATION DETECTION KIT			
Targets	Exons 9, 11, 13, 17	Sensitivity	As low as 1%



Thyroid Cancer

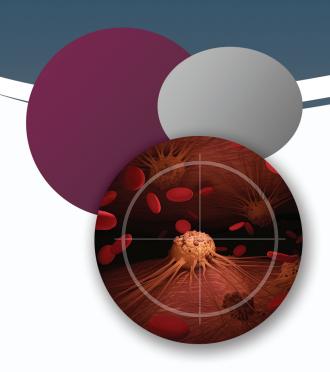
THYROID CANCER MUTATION DETECTION KIT			
Targets	BRAF V600E KRAS G12/13 NRAS Q61 HRAS G12/13, Q61R	Sensitivity	As low as 0.25%

THYROID CANCER FUSION GENE DETECTION KIT							
Targets	RET/PTC1 RET/PTC3 PAX8/PPAR _Y	Sensitivity	As low as 0.78%				



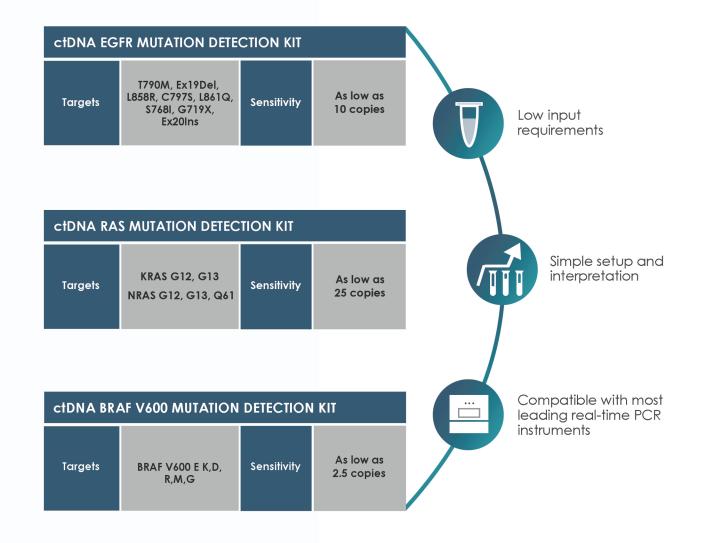
Gastrointestinal Stromal Tumors (GIST)

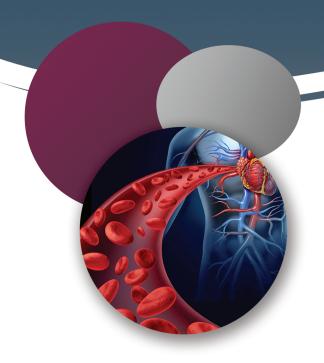
GIST MUTA	GIST MUTATION DETECTION KIT						
Targets	cKIT exons 9, 11, 13, 17 PDGFRA exon 18	Sensitivity	As low as 1%				



LIQUID BIOPSY ASSAYS

The utility of cell-free tumor DNA (ctDNA) from plasma has been demonstrated as an alternative source of genomic material for detection of specific mutations in certain types of cancers. EntroGen offers three ctDNA Mutation Detection Kits that allow non-invasive, ultra-sensitive testing to accurately detect the presence of mutations in ctDNA extracted from plasma.



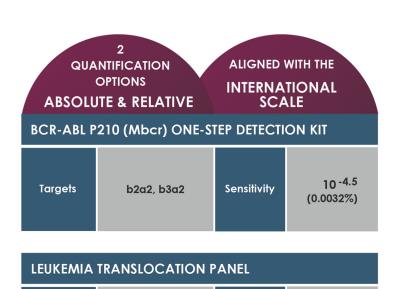


LEUKEMIA ASSAYS

Many hematologic malignancies carry characteristic chromosomal translocations believed to play an important role in leukemia pathogenesis. Detecting and identifying fusion gene transcripts in patient blood or bone marrow samples enables accurate diagnosis, prognosis, and treatment stratification for ALL, AML, CML and APL.

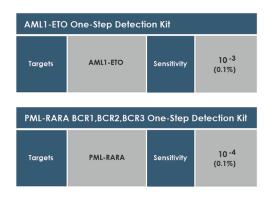
EntroGen's leukemia assays are all one-step RT-qPCR tests that offer results in under 2 hours with minimal hands-on time. Our assay portfolio includes a multiplexed translocation panel for initial diagnosis as well as separate kits targeting individual fusion gene transcripts for molecular monitoring during treatment.

Low positive controls are available for some leukemia assays.



Targets	e1a2 fusion transcript	Sensitivity	(0.01%)
IDH1/2 MUI	TATION DETECTION	N KIT	
Targets	IDH1 R100, R132 IDH2 R140, R172	Sensitivity	As low as 1%

BCR-ABL P190 (mbcr) ONE-STEP DETECTION KIT



AML1-ETO, CBFb-MYH11,

MLL-AF4, TEL-AML1,

E2A-PBX1, PML-RARA

Targets



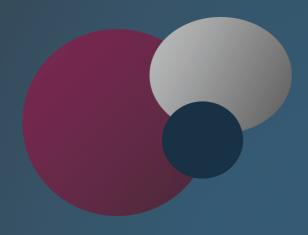
10-3

E2A-PBX1 One-Step Detection Kit

(0.1%)

Sensitivity





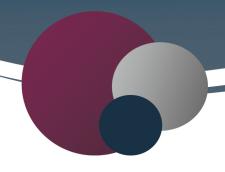
WORKFLOW

NEXT GENERATION SEQUENCING

Next Generation Sequencing (NGS) is revolutionizing molecular diagnostics by advancing the capabilities of DNA sequencing far beyond traditional technologies. The speed, ultra-high throughput and multiplexing capabilities of NGS makes it possible to batch multiple samples, and interrogate hundreds of variants, all on a single run.

FEATURES Low DNA Input High Sensitivity High Throughput





NGS ASSAYS

EntroGen NGS assays focus on identifying clinically relevant and actionable targets. A tiled amplicon PCR approach coupled with a high-fidelity polymerase for target enrichment are used to reduce allele dropouts and off target reads. Reagents for library preparation and clean-up are included, as well as user-friendly software that queries two independent databases for local data analysis.



Covers
Difficult-to-Sequence
TERT Promoter

NGS TARGETED HOTSPOT PANEL FOR ILLUMINA® PLATFORMS							
	Tar						
BRAF	EXONS 11 & 15	KRAS	EXONS 2, 3, 4				
EGFR	EXONS 3, 7, 12, 15, 18-21	MET	EXONS 2, 11, 14, 16, 8-20				
ERBB2	EXONS 8, 14, 17-21, 24, 26	NRAS	EXONS 2, 3, 4				
HRAS	EXONS 2, 3	PDGFRA	EXONS 12, 14, 15, 18	Sensitivity	5%		
c-KIT	EXONS 2, 8-11, 13-15, 17, 18	PIK3CA	EXONS 1, 4, 6, 7, 9, 13, 18, 20				
IDH1	EXON 2	RET	EXON 10, 11, 13, 15, 16				
IDH2	EXON 4	TERT	PROMOTER				
JAK2	EXON 12,14	TP53	ENTIRE EXOM				

Detects 307 fusions in 23 genes Boosted NTRK Coverage

RNA FUSION GENE PANEL FOR ILLUMINA® PLATFORMS															
Gene # of Detected Fusions					Sens	itivity									
ABL1	1	AXL	1	ERBB2	1	ETV4	1	FGFR2	10	NTRK1	34	PDGFRA	1	RET	41
ALK	61	BRAF	15	ERG	16	ETV5	3	FGFR3	26	NTRK2	18	PPARG	4	ROS1	35
AKT3	1	EGFR	2	ETV1	4	FGFR1	4	MET	10	NTRK3	16	RAF1	2		



SAMPLE QUALITY ASSESSMENT

\$

INTERNAL QUALITY CONTROL ASSAY

Predicts optimal DNA input for maximal and reliable data output when using EntroGen's qPCR assays.

DNA FRAGMENTATION QUANTIFICATION ASSAY

Assesses sample quality by measuring the fragmentation ratio and quantifies the amount of amplifiable DNA for downstream qPCR and NGS assays.

LIBRARY QUANTIFICATION KIT FOR ILLUMINA®

Qualifies and quantifies library molecules that can be sequenced in downstream Illumina® assays.

Simple set-up and interpretation

Automated analysis available

Saves samples, reagents, and time by eliminating the need for reruns



MANUAL ISOLATION

pureNA® Cell-Free DNA Isolation Kit

DNA Fragment Size

100 - 500 bp

Reactions per Kit

50

Magnetic bead-based technology

Simple, efficient workflow for DNA isolation

Compatible for downstream qPCR and NGS applications

pureNA® Genomic DNA Isolation Kit

Optimized for the removal of paraffin, partial reversal of formalin cross-linking and release of DNA from fixed tissue.

Reactions per Kit

50



BENCH bot 4800

AUTOMATED SAMPLE PREP & PLATE SET-UP

Benchbot® 4800 Liquid Handling System is a fully automated sample preparation instrument that uses non-hazardous, eco-friendly reagents for nucleic acid isolation and PCR plate setup. Benchbot is designed to improve productivity and minimize hands-on time by prepping up to 48 samples simultaneously with the push of a button. The intuitive, user-friendly interface is simple to operate and comes pre-programmed with protocols for sample prep and PCR plate setup for EntroGen assays.

Features & Benefits



Simple, rapid, efficient workflow from DNA/RNA isolation to plate setup



High throughputPrep up to 48 samples simultaneously



Reduces hands-on timeNo tedious manual reagent prep



Intuitive, user-friendly interfaceSimple to operate - no advanced training required



Reduces risk of contamination



Reduces risk of human error



Delivers consistent, reproducible, reliable results



Easily integrated into any lab



REAL-TIME PCR ASSAYS

	PRODUCT NAME	CATALOG NUMBER	REGISTRATION	RXN/ KIT	INSTRUMENTS
COLORECTAL CANCER	COLORECTAL CANCER MUTATION DETECTION PANEL	CRC-RT48	RUO, CE-IVD	48	ABI Prism®-7500/7500 Fast, LightCycler® 480, Bio-Rad CFX96, QuantStudio™ 5/7/Dx
	ctDNA RAS MUTATION DETECTION KIT	CTRAS-RT40	RUO, CE-IVD	40	ABI Prism®-7500/7500 Fast
	KRAS MUTATION ANALYSIS KIT	KRAS-RT50	RUO, CE-IVD	50	ABI Prism®-7500/7500 Fast, StepOne, StepOne Plus, LightCycler®480, Cobas® z480/4800, Bio-Rad CFX96, Rotor-Gene®Q
	KRAS/BRAF MUTATION ANALYSIS KIT	KRBR-RT50	RUO, CE-IVD	50	ABI Prism®-7500/7500 Fast, StepOne, StepOne Plus, LightCycler®480, Cobas® z480/4800, Bio-Rad CFX96, Rotor-Gene®Q
	MLH1 METHYLATION DETECTION KIT	MLH1-RT24	RUO, CE-IVD	50	ABI Prism®-7500/7500 Fast, QuantStudio [™] 5, LightCycler®480, Bio-Rad CFX96
	NRAS MUTATION ANALYSIS KIT	NRAS-RT50	RUO, CE-IVD	50	ABI Prism®-7300, 7500, 7900HT, StepOne, StepOne Plus, LightCycler® 480, Cobas® z480/ 4800, Rotor-Gene®Q, 3000, 6000, Bio-Rad CFX96
	PIK3CA MUTATION ANALYSIS KIT	PI3K-RT48	RUO, CE-IVD	48	ABI Prism® -7500/7500 Fast, StepOne, StepOne Plus, Rotor-Gene® Q, Bio-Rad CFX96 LightCycler® 480, Cobas® z480/4800
	RAS MUTATION ANALYSIS KIT	RAS-RT50	RUO, CE-IVD	50	ABI Prism®-7500/7500 Fast, StepOne, StepOne Plus, Rotor-Gene® Q, LightCycler® 480,Cobas® z480/4800, Bio-Rad CFX96, QuantStudio™ 5/Dx
	RASX MUTATION ANALYSIS EXTENSION KIT	RASX-RT50	RUO, CE-IVD	50	ABI Prism®-7300, 7500, 7900HT, StepOne, StepOne Plus, LightCycler® 480, Cobas® z480/ 4800, Rotor-Gene®Q, 3000, 6000, Bio-Rad CFX96
GIST GASTROINTESTINAL STROMAL TUMORS	GIST MUTATION DETECTION KIT	GIST-RT44	RUO, CE-IVD	44	ABI Prism®-7500/7500 Fast, LightCycler® 480, Bio-Rad CFX96
GLIOBLASTOMA	EGFR VIII DETECTION KIT	EGFRV3-RT42	RUO, CE-IVD	42	ABI Prism®-7500/7500 Fast, Bio-Rad CFX96, LightCycler® 480
GEIODEASTOWA	IDH1/2 MUTATION DETECTION KIT	IDH-RT38	RUO, CE-IVD	38	Bio-Rad CFX96, ABI Prism®-7500 Fast, QuantStudio™ 5/7500 Fast, LightCycler® 480, Rotor-Gene® Q
	MGMT METHYLATION DETECTION KIT	MGMTX-RT44	RUO, CE-IVD	60	ABI Prism®-7500/7500 Fast, Bio-Rad CFX96, LightCycler® 480, Rotor-Gene® Q
LUNG CANCER	ctDNA EGFR MUTATION DETECTION KIT	CTEGFR-48	RUO, CE-IVD	48	Bio-Rad CFX96, QuantStudio [™] 5, Rotor-Gene® Q/5plex
	EGFR MUTATION ANALYSIS KIT	EGFR-RT52	RUO, CE-IVD	52	ABI Prism®-7300, 7500/7500 Fast, 7900HT, StepOne, StepOne Plus, QuantStudio [™] 5, LightCycler® 480, Rotor-Gene® Q, 3000, 6000, Bio-Rad CFX96, Cobas® z480/4800
	EGFRX MUTATION ANALYSIS EXTENTION KIT	EGFRX-RT52	RUO, CE-IVD	52	ABI Prism®-7300, 7500/7500 Fast, 7900HT, StepOne, StepOne Plus, QuantStudio ™ 5, LightCycler® 480, Rotor-Gene® Q, 3000, 6000, Bio-Rad CFX96, Cobas® z480/4800
	LUNG CANCER RNA PANEL	LUNG-RT48	RUO, CE-IVD	48	ABI Prism® 7500/7500 Fast, LightCycler® 480, Cobas® z480/4800, Rotor-Gene® Q, QuantStudio ™ 5/6
MELANOMA	BRAF CODON 600 MUTATION ANALYSIS KIT II	BRAFX-RT64	RUO, CE-IVD	64	ABI Prism®-7300, 7500, 7900HT, StepOne, StepOne Plus, QuantStudio™ 5, Rotor-Gene® Q, 3000, 6000, LightCycler® 480, Cobas® z480/4800
	C-KIT MUTATION DETECTION KIT	CKIT-RT44	RUO, CE-IVD	44	ABI Prism®-7500/7500 Fast, LightCycler® 480, Bio-Rad CFX96
	ctDNA BRAF V600 MUTATION DETECTION KIT	CTBRAF-48	RUO, CE-IVD	48	ABI Prism®- 7500/7500 Fast, StepOne, StepOne Plus, Rotor-Gene® Q, LightCycler® 480, Bio-Rad CFX96

REAL-TIME PCR ASSAYS REGISTRATION RXN/ **PRODUCT CATALOG INSTRUMENTS** NAME NUMBER **KIT** ABI Prism®-7500/7500 Fast, StepOne, THYROID CANCER THYROID StepOne Plus, Rotor-Gene®Q, Cobas® z480/ THDNA-RT64 RUO, CE-IVD 64 MUTATION DETECTION KIT **CANCER** 4800, LightCycler®480, Bio-Rad® CFX96 ABI Prism®-7500, 7900HT, StepOne, THYROID CANCER FUSION THRNA-RT32 RUO, CE-IVD StepOne Plus, Bio-Rad® CFX96, QuantStudio™ 32 **GENE DETECTION KIT** 5/Dx, Rotor-Gene®Q ABI Prism®-7500, 7900HT, StepOne, StepOne BCR-ABL P190 (mbcr) Plus, Qiagen Rotor-Gene® 3000, 6000, Q, LightCycler® 480, Cobas® z480 / 4800 LEUKEMIA BCR190-QRT46 RUO, CE-IVD 46 **ONE-STEP DETECTION KIT** ABI Prism®-7500/7500 Fast, 7900HT, StepOne, BCR-ABL P210 (Mbcr) StepOne Plus, Qiagen Rotor-Gene® Q, 3000. BCR210-QRT46 RUO, CE-IVD 46 6000, LightCycler® 480, QuantStudio™5/6. ONE-STEP DETECTION KIT Cobas® z480/4800, Bio-Rad® CFX96 LEUKEMIA ABI Prism®-7300/7500/7500 Fast, Bio-Rad® RUO, CE-IVD LEUKMP-RT24 24 CFX96, Rotor-Gene®Q, LightCycler® 480 TRANSLOCATION PANEL ABI Prism®-7500/7900HT, StepOne, StepOne AML1-ETO ONE-STEP LEUK1-QRT24 RUO, CE-IVD Plus, Qiagen Rotor-Gene® Q, 3000, 6000, **DETECTION KIT** LightCycler® 480, Cobas® z480/4800 ABI Prism®-7500/7900HT, StepOne, StepOne Plus, Qiagen Rotor-Gene® Q, 3000, 6000, E2A-PBX1 ONE-STEP LEUK2-QRT24 RUO, CE-IVD 24 **DETECTION KIT** LightCycler® 480, Cobas® z480/4800 ABI Prism®-7500/7900HT, StepOne, StepOne Plus, Qiagen Rotor-Gene® Q, 3000, 6000, MLL-AF4 ONE-STEP LEUK3-QRT24 RUO, CE-IVD 24 **DETECTION KIT** LightCycler® 480, Cobas® z480/4800 ABI Prism®-7500/7500 Fast, StepOne Plus, PML-RARA ONE-STEP Rotor-Gene®3000, 6000, LightCycler® 480, LEUK4-QRT24 RUO, CE-IVD 24 **DETECTION KIT** Bio-Rad® CFX96, Cobas® z480/4800 ABI Prism®-7500/7900HT, StepOne, StepOne Plus, Qiagen Rotor-Gene® Q, 3000, 6000, TEL-AML1 ONE-STEP LEUK5-QRT24 RUO, CE-IVD 24 **DETECTION KIT** LightCycler® 480, Cobas® z480/4800 ABI Prism®-7500/7900HT, StepOne, StepOne CBFb-MYH11 ONE-STEP LEUK6-QRT24 RUO, CE-IVD 24 Plus, Qiagen Rotor-Gene® Q, 3000, 6000, **DETECTION KIT** LightCycler® 480, Cobas® z480/4800 NGS ASSAYS **BREAST CANCER** BRCA COMPLETE™ **BRCAX-NGS** RUO, CE-IVD 40 Illumina® MiSeq, MiniSeq, Next Seq **EXPANDED PANEL FUSION PANEL** RUO, CE-IVD RNA FUSION GENE PANEL REGP-NGS 40 Illumina® MiSeq, MiniSeq, Next Seq HOTSPOT PANEL **NGS TARGETED** THSP-ILNGS RUO, CE-IVD Illumina® MiSeq, MiniSeq, Next Seq HOTSPOT PANEL ISOLATION KITS, SAMPLE QUALITY ASSESSMENT & ADDITIONAL CONTROLS

pureNA® CELL-FREE DNA ISOLATION KIT	CFDNA-50	RUO, CE-IVD	50	Not Applicable
pureNA® GENOMIC DNA ISOLATION KIT	GDNA-50	RUO, CE-IVD	50	Not Applicable
DNA FRAGMENTATION QUANTIFICATION ASSAY	FQA-RT40	RUO, CE-IVD	40	ABI Prism®-7500, 7900HT, StepOne Plus, Rotor-Gene® 3000, 6000, Cobas® z480/4800 LightCycler®480, Bio-Rad CFX96
INTERNAL QUALITY CONTROL ASSAY	IQCA-RT50	RUO, CE-IVD	50	ABI Prism®-7300, 7500, 7900HT, StepOne, StepOne Plus, Rotor-Gene® Q, 3000, 6000, LightCycler®480
LIBRARY QUANTIFICATION KIT FOR ILLUMINA®	LIBQ-NGS	RUO, CE-IVD	75	ABI Prism®-7500Fast
5% MGMT METHYLATION REFERENCE CONTROL	MGMT-LPC	RUO	N/A	Not Applicable
LOW POSITIVE CONTROL FOR LEUKMP-RT24	LEUKMP-LPC	RUO	N/A	Not Applicable
LOW POSITIVE CONTROL FOR LEUK4-QRT24	LEUK4-LPC	RUO	N/A	Not Applicable
LOW POSITIVE CONTROL FOR BCR190-QRT46	BCR190-LPC	RUO	N/A	Not Applicable
LOW POSITIVE CONTROL FOR BCR210-QRT46	BCR210-LPC	RUO	N/A	Not Applicable





Reagents



Software

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INFORMATION@ENTROGEN.COM