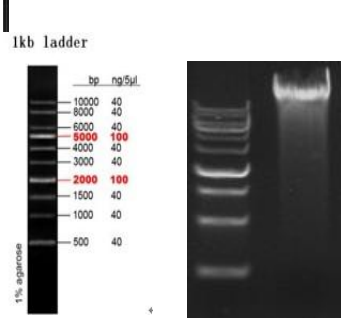


CERTIFICATE OF ANALYSIS

Product information

Name	Panel-Ref® Hematologic Malignancies Cocktail Reference Standard
Catalog No.	CBP90039
Lot No.	CBFA23041901
Format	Genomic DNA
Buffer	Tris-EDTA
Storage Conditions	4°C
Date of Manufacture	2023/04/19
Expiry	36 months from the date of manufacture

Quality Control

Test Items	Standard	Results	Passed
Quantity	0.50 µg/vial*1 vial	0.50 µg/vial*1 vial	√
Concentration	40.00 ng/uL±10%	40.00 ng/uL by Qubit 3.0 detection	√
OD ₂₆₀ /OD ₂₈₀	1.7~2.1	2.03 by Nanodrop detection	√
DNA electrophoresis	No Degradation	 <p> 1kb ladder bp ng/µl 15000 40 8000 40 6000 40 5000 100 4000 40 3000 40 2000 100 1500 40 1000 40 500 40 1kb agarose M 1 M: Marker 1: Panel-Ref® Hematologic Malignancies Cocktail Reference Standard </p>	√

Gene	Mut.	CDS change	Transcript	Mutation type	Chr Position (GRCh37)	COSMIC ID	Variant Classification	%AF
ABL1	p.T315I	c.944C>T	NM_005157.6	Missense	chr9:133748283	COSM12560	Pathogenic	4.94
ABL1	BCR(E13)-ABL1(E2)	N/A	N/A	Translocation	chr22:23632361:+ chr9:133681715:+	N/A	Pathogenic	4.56
MYD88	p.L265P	c.794T>C	ENST00000396334.3	Missense	chr3:38182641	N/A	Pathogenic	4.81
BTK	p.C481S	c.1442G>C	NM_000061.3	Missense	chrX:100611164	COSM6053938	Pathogenic	5.25
FLT3	FLT3-ITD(E598_Y599 insFD FREYE)	c.1795-1796 ins21(TTG ATTTC)	NM_004119.2	Insertion - In frame	N/A	N/A	Pathogenic	5.50

		GAGAAT ATGAAT)						
FLT3	p.D835V	c.2504A>T	NM_004119.3	Missense	chr13:28592641	COSM784	Pathogenic	5.92
IDH2	p.R172K	c.515G>A	NM_002168.4	Missense	chr15:90631838	COSM33733	Pathogenic	5.08
JAK2	p.V617F	c.1849G>T	NM_004972.4	Missense	chr9:5073770	COSM12600	Pathogenic	4.68
KIT	p.D816V	c.2447A>T	NM_000222.3	Missense	chr4:55599321	COSM1314	Pathogenic	4.92
KRAS	p.G12D	c.35G>A	NM_004985.5	Missense	chr12:25398284	COSM521	Pathogenic	5.64
PDGFRA	FIP1L1(E12))-PDGFRA(N/A E12)	N/A	N/A	DEL-like	Chr4:54292891:+ Chr4:55141088:+	N/A	Pathogenic	5.63
PDGFRA	p.D842V	c.2525A>T	NM_006206.6	Missense	chr4:55152093	COSM736	Pathogenic	5.24
PIK3CA	p.H1047R	c.3140A>G	NM_006218.4	Missense	chr3:178952085	COSM775	Pathogenic	5.96
C-MYC	Amplificati on	N/A	N/A	CNV	N/A	N/A	Pathogenic	4.84 copies
CBL	p.Q409fs	c.1227_1227+13del(A GGTACG GATCTA A)	NM_005188.4	splice junction loss	chr11:119149006	N/A	Uncertain Significance	2.79
IDH1	p.R132C	c.394C>T	NM_005896.4	Missense	chr2:209113113	COSM28747	Pathogenic	14.94
NRAS	p.Q61K	c.181C>A	NM_002524.5	Missense	chr1:115256530	COSM580	Pathogenic	16.70
BCORL1	p.P1681Qfs *20	c.5042delC	NM_021946.5	frameshift	chrX:129190011	N/A	Uncertain Significance	10.75
TP53	p.M133K	c.398T>A	NM_000546.6	Missense	chr17:7578532	COSM11781	Likely Pathogenic	0.76
BRAF	p.V600E	c.1799T>A	NM_004333.6	Missense	chr7:140453136	COSM476	Pathogenic	13.17
ARID1A	p.D1850Tfs *33	c.5548delG	NM_006015.6	frameshift	chr1:27105931	COSM133001	Uncertain Significance	7.65
ARID1A	p.P1115Qfs *46	c.3344delC	NM_006015.6	frameshift	chr1:27097751	COSM133000	Uncertain Significance	7.31
EP300	p.K292Rfs* 25	c.875delA	NM_001429.4	frameshift	chr22:41522009	COSM3153084	Uncertain Significance	6.95
EP300	p.M1470Cf s*26	c.4408delA	NM_001429.4	frameshift	chr22:41566525	COSM88790	Uncertain Significance	7.34
CREBBP	N/A	c.1824-2A >G	NM_004380.3	non coding	chr16:3828820	N/A	Likely Pathogenic	7.75
B2M	p.R117*	c.349C>T	NM_004048.4	nonsense	chr15:45008529	COSM279094	Uncertain Significance	7.24
NF1	p.Y628Tfs* 3	c.1882delT	NM_001042492.3	frameshift	chr17:29552144	COSM34040	Pathogenic	7.63
NF1	p.N2341Tfs *5	c.7022delA	NM_001042492.3	frameshift	chr17:29667620	COSM29755	Likely Pathogenic	7.47
TP53	p.S215G	c.643A>G	NM_000546.6	Missense	chr17:7578206	COSM43951	Pathogenic	11.80
MEF2B	p.V316Sfs* 6	c.944dupG	NM_001145785.2	frameshift	chr19:19256775	COSM5367959	Uncertain Significance	7.54
CD79a	p.L191_G208del	c.568-2_610del(TCCC AGGGCC TGAACC TGGACG ACTGCTC CATGTAT	NM_001783.4	splice junction loss	chr19:42384928	N/A	Pathogenic	3.02

GAGGAC ATC)							
KMT2D	p.G3465*	c.10393G>T	NM_003482.4	nonsense	chr12:49428412	COSM2006927	Uncertain Significance 7.24
KMT2D	p.P2550Lfs*33	c.7649delG	NM_003482.4	frameshift	chr12:49433908	COSM4614703	Uncertain Significance 7.24
KMT2A	KMT2A-M LLT3(E10-E6,E9-E6)	N/A	N/A	Translocation	Chr11:118358441 Chr9:20412831	N/A	Pathogenic 2.69
KMT2A	p.D877Pfs*8	c.2629_2630delAG	NM_005933.4	frameshift	chr11:118344503..118344504	COSM2105383	Pathogenic 6.80
KMT2A	p.P773Rfs*8	c.2318delC	NM_005933.4	frameshift	chr11:118344192	COSM1351608	Pathogenic 6.86
ASXL1	p.G645Vfs*58	c.1926del	NM_015338.6	frameshift	chr20:31022441	COSM3737035	Uncertain Significance 6.98
KMT2A	KMT2A-PT D(E2-E8D up)	c.22807bp-Duplication	NM_005933.4	Dup-Like	chr11:118331125-118353931Dup	N/A	Pathogenic 2.60

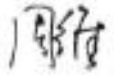
DdPCR Acceptance criteria

Expected value	Acceptance criteria	Expected value	Acceptance criteria
0%	≤0.1%	<5 copies	Expected value ± 30%
<1%	Expected value ± 50%	≥5 and <10 copies	Expected value ± 20%
≥1% and <5%	Expected value ± 30%	≥10 copies	Expected value ± 15%
≥5% and <10%	Expected value ± 20%		
≥10%	Expected value ± 10%		

Caution:

For research use only.

If you have any questions about the Certificate of Analysis, please contact us.

Certified by:  Date:****

 Date:****