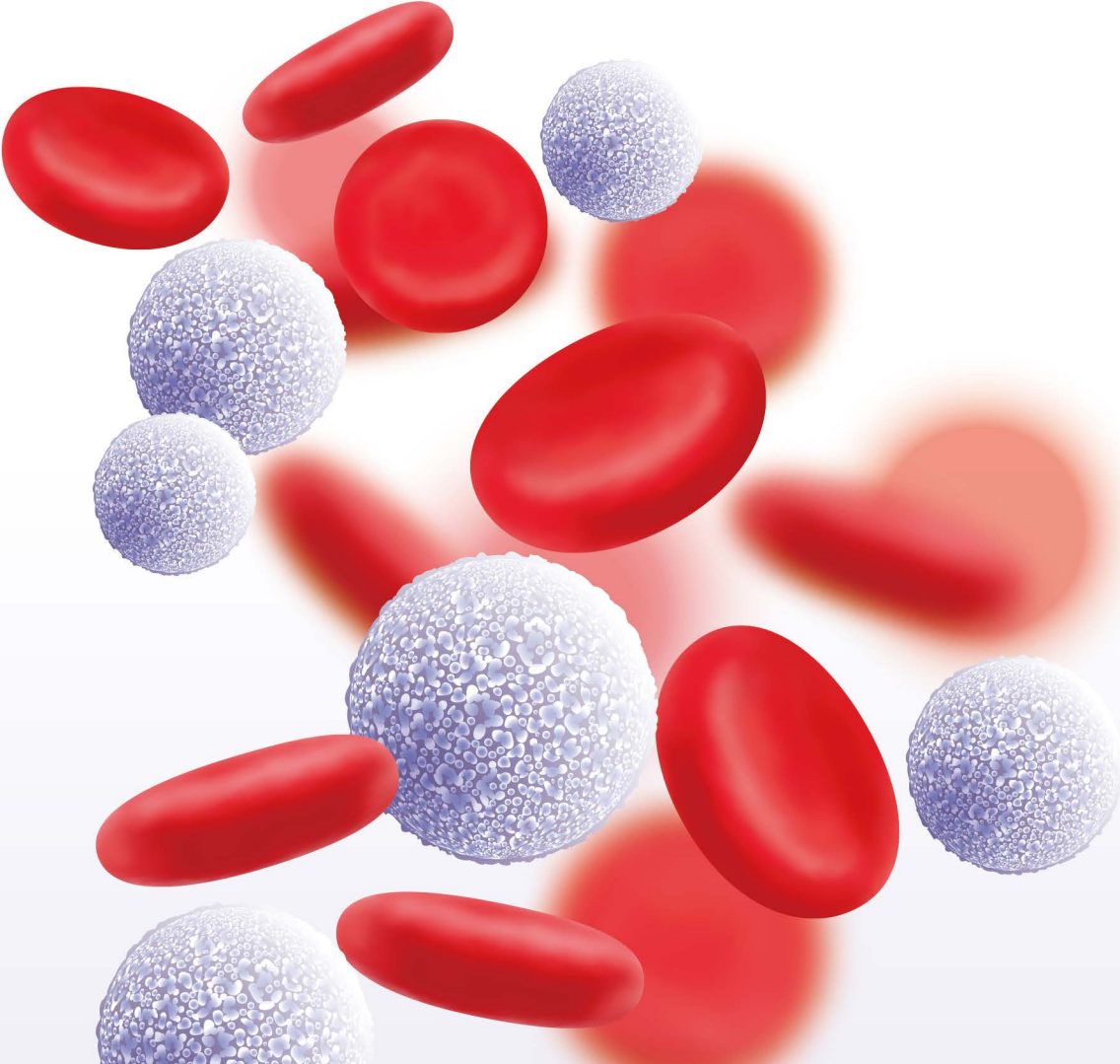




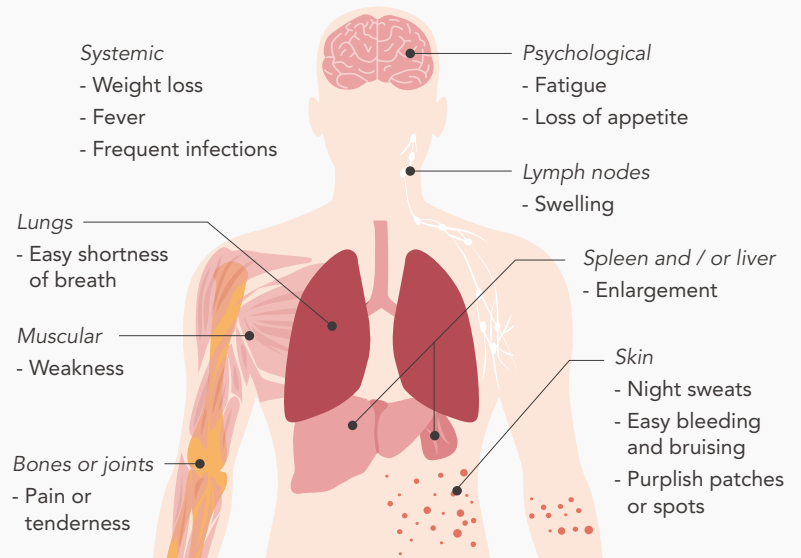
Leukemia Fusion Genes Screening & Quantification

Extensive real-time PCR assays for the detection of leukemia fusion genes to facilitate accurate diagnosis and therapeutic management

Leukemia, also known as blood cancer, usually begins in the bone marrow and results in high numbers of abnormal blood cells.

The exact cause of leukemia is unclear. A combination of genetic factors and environmental factors are believed to play a role.

Common Symptoms of Leukemia



Leukemia patients are often accompanied by chromosomal abnormalities. Abnormal genes formed by chromosomal recombination are called **fusion genes**, which code for fusion proteins with altered functionality.

A better understanding of leukemia fusion genes may benefit patient with leukemia by providing accurate diagnosis and classification, as well as the assessment of prognosis and treatment planning.

Real-time PCR based genetic testing is one of the most effective methods.¹

Screening

Targeted Therapy

BCR-ABL1: The BCR-ABL1-positive patient may benefit from tyrosine kinase inhibitor (TKI) therapy.²

PML-RAR α : All-trans retinoic acid (ATRA) and arsenic trioxide are treatment options for the patient with PML-RAR α positive.^{3,4}

Prognosis

CBF β -MYH11, PML-RAR α , AML1-ETO may indicate a relatively favorable prognosis.⁵

Quantification

Treatment Monitoring

See how patients respond to treatment by measuring the level of specific genes periodically.

Minimal Residual Disease (MRD) Testing

Measuring MRD is an important way to understand whether the patient is getting the most effective treatment to ensure a lasting remission from leukemia.⁶

1. Understanding Lab and Imaging Tests. Leukemia & Lymphoma Society. 2020

2. Tyrosine kinase inhibitor (TKI) therapy. Leukemia & Lymphoma Society. Available from: <https://www.lls.org/>

3. Raffoux E, et al. Journal of clinical oncology, 2003, 21(12): 2326-2334.

4. Estey E, et al. Blood, 2006, 107(9): 3469-3473.

5. Schnittger S, et al. Blood, 2003, 102(8): 2746-2755.

6. Minimal Residual Disease (MRD) | Leukemia & Lymphoma Society. 2019

Key Features



Sample Type:
Blood or bone marrow



Compatible with common
real-time PCR thermal cyclers



Screening of up to
55 fusion genes in one kit



Short TAT:
within 3 hours

Leukemia Fusion Genes Screening Kits

No.	Fusion Gene		Product			No.	Fusion Gene		Product		
	HGNC Nomenclature	Former Nomenclature	Q30	Q51	Q55		HGNC Nomenclature	Former Nomenclature	Q30	Q51	Q55
1	BCR::ABL1	BCR-ABL1	◆		●	29	NPM1::MLF1	NPM1-MLF1	◆	★	●
2	BCR::ABL1 p190	BCR-ABL1 p190		★	●	30	NPM1::RARα	NPM1-RARα	◆	★	●
3	BCR::ABL1 p210	BCR-ABL1 p210		★	●	31	NUMA::RARα	NUMA-RARα		★	●
4	BCR::ABL1 p230	BCR-ABL1 p230			●	32	NUP98::HOTAIR	NUP98-HOXC11		★	●
5	CBFβ::MYH11	CBFβ-MYH11	◆	★	●	33	NUP98::HOTTIP	NUP98-HOXA13		★	●
6	DEK::NUP214	DEK-CAN	◆	★	●	34	NUP98::HOXA11	NUP98-HOXA11		★	●
7	dup MLL	dup MLL		★	●	35	NUP98::HOXA9	NUP98-HOXA9		★	●
8	ETV6::ABL1	TEL-ABL1	◆	★	●	36	NUP98::HOXD13	NUP98-HOXD13		★	●
9	ETV6::JAK2	TEL-JAK2		★	●	37	NUP98::PMX1	NUP98-PMX1		★	●
10	ETV6::PDGFRA	ETV6-PDGFRB		★	●	38	PICALM::MLLT10	CALM-AF10		★	●
11	ETV6::PDGFRB	TEL-PDGFRB	◆	★	●	39	PML::RARα	PML-RARα	◆		●
12	ETV6::RUNX1	TEL-AML1	◆	★	●	40	PML::RARα L	PML-RARα L		★	●
13	FIP1L1::PDGFRA	FIP1L1-PDGFRB	◆	★	●	41	PML::RARα S	PML-RARα S		★	●
14	FIP1L1::RARα	FIP1L1-RARα		★	●	42	PML::RARα V	PML-RARα V		★	●
15	FUS::ERG	TLS-ERG	◆	★	●	43	PRKAR1A::RARα	PRKAR1A-RARα		★	●
16	KMT2A::AF1p	MLL-AF1p	◆	★	●	44	RUNX1::CBFA2T3	AML1-MTG16	◆	★	●
17	KMT2A::AFDN	MLL-AF6	◆	★	●	45	RUNX1::MECOM	AML1-MDS1/EVI1	◆	★	●
18	KMT2A::AFF1	MLL-AF4	◆	★	●	46	RUNX1::RPL22	AML1-EAP	◆	★	●
19	KMT2A::ELL	MLL-ELL	◆	★	●	47	RUNX1::RUNX1T1	AML1-ETO	◆	★	●
20	KMT2A::FOXO4	MLL-AFX1		★	●	48	SET::NUP214	SET-CAN	◆	★	●
21	KMT2A::MLLT1	MLL-ENL	◆	★	●	49	STAT5::RARα	STAT5-RARα		★	●
22	KMT2A::MLLT10	MLL-AF10	◆	★	●	50	STIL::TAL1	SIL-TAL1	◆	★	●
23	KMT2A::MLLT11	MLL-AF1q	◆	★	●	51	TCF3::PBX1	E2A-PBX1	◆	★	●
24	KMT2A::MLLT3	MLL-AF9	◆	★	●	52	TFPT::HLF	E2A-HLF	◆	★	●
25	KMT2A::MLLT6	MLL-AF17	◆	★	●	53	TLX1	HOX11		★	●
26	KMT2A::SEPT6	MLL-SEPT6	◆	★	●	54	TLX3	HOX11L2		★	●
27	MECOM	EVI1		★	●	55	ZBTB16::RARα	PLZF-RARα	◆	★	●
28	NPM1::ALK1	NPM1-ALK1		★	●						

◆ Targets included in Q30 kit

★ Targets included in Q51 kit

● Targets included in Q55 kit



Applicable for the real-time PCR thermal cycler with FAM, HEX, ROX and Cy5 detection channels.

Validated real-time PCR models:
CFX96, ABI7500, Light Cycler 96,
Mx3005P / 3000P, SLAN 96s



Quantification of Specific Leukemia Fusion Genes



BCR-ABL1 Genetic Testing

The presence of the gene sequence known as BCR-ABL1 confirms the diagnosis of CML and a form of acute lymphoblastic lymphoma (ALL), called Philadelphia chromosome (Ph)-positive ALL.

Once CML or Ph-positive ALL has been diagnosed, BCR-ABL1 quantitative genetic testing is ordered periodically (typically every 3 months) to monitor the response to treatment and monitor for recurrence.

- **BCR-ABL1 Genotyping Kit:** Differentiation of BCR-ABL1 p210, BCR-ABL1 p190, BCR-ABL1 p230 splice variants
- **BCR-ABL1 p190 Kit:** Quantification of BCR-ABL1 p190 transcripts
- **BCR-ABL1 p210 Kit:** Quantification of BCR-ABL1 p210 transcripts



PML-RAR α Genetic Testing

Up to 98% of cases of acute promyelocytic leukemia (APL), a subtype of AML, have a characteristic t(15;17) PML-RAR α reciprocal chromosomal translocation.

Definitive diagnosis of APL requires testing for the PML-RAR α fusion gene.

- **PML-RAR α Genotyping Kit:** Differentiation of the subtype of PML-RAR α L, S and V transcripts
- **PML-RAR α L Detection Kit:** Quantification of PML-RAR α L transcripts
- **PML-RAR α S Detection Kit:** Quantification of PML-RAR α S transcripts
- **PML-RAR α V Detection Kit:** Quantification of PML-RAR α V transcripts



Quantification Kits for Other Fusion Genes

The detection kits of 55 fusion genes are available individually. Please contact your sales representative or local distributor for more details.



Ordering Information

Cat. No	Product	Size
803041	Leukemia Fusion Genes (Q30) Screening Kit	20 Tests/Kit
803100	Leukemia Fusion Genes (Q51) Screening Kit	20 Tests/Kit
803540	Leukemia Fusion Genes (Q55) Screening Kit	20 Tests/Kit
803317	BCR-ABL1 p190 Kit	20 Tests/Kit
803318	BCR-ABL1 p210 Kit	20 Tests/Kit
803215	BCR-ABL1 Genotyping Kit	20 Tests/Kit
803212	PML-RAR α L Detection Kit	20 Tests/Kit
803213	PML-RAR α S Detection Kit	20 Tests/Kit
803214	PML-RAR α V Detection Kit	20 Tests/Kit
803216	PML-RAR α Genotyping Kit	20 Tests/Kit
803209	AML1-ETO Detection Kit	20 Tests/Kit
803319	WT1 Detection Kit	20 Tests/Kit
803409	CBF β -MYH11 Detection Kit	20 Tests/Kit
	Quantitative Detection Kits for Other Fusion Genes	20 Tests/Kit

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