

Table S1. Probes used in this work.

Manufacturer	Name	Target	Dye Color	Catalog number	Use in figure	
	GLP 13 / 21	13q14/21q22	G/ R	F01001		
	GLP <i>P53</i> / 1q21	17p13.1/1q21	G/R	F01003/ F01003	Figure S3 E	
	GLP <i>IGH</i>	14q32	R/ G	F01003	Figure S3C	
	GLP <i>C-MYC</i>	8q24	R/G	F04016M	Figure 2 D	
	GLP <i>BCR / ABL</i>	22q11/9q34	G/ R	F01005	Figure S4 C Figure S7 C	
	GLP <i>TEL / AML1</i>	12p13/21q22	R/ G	F01036	Figure 2 E	
	GLP <i>MLL</i>	11q23	G /R	F01036	Figure 3 B	
	GLP <i>D7S486 / CSP7</i>	7q31/7p11-q11	R/G	F01032	Figure S7 D	
Beijing Medical Technology Ltd.	Jinpujia Co.,	CSP X / Y	Xp11.1-q11.1/ Yp11.1-q11.1	G /R	F01006	
		GLP <i>PML / RARA</i>	15q22/17q21	G/ R	F01023	Figure S8 B
		GLP <i>AML1 / ETO</i>	21q22/8q22	G/ R	F01025	Figure 2 C Figure S2 C
		GLP <i>IGH / CCND1</i>	14q32/11q13	G/ R	F01019	
		GLP <i>BCL6</i>	3q27	R /G	F04011M	
		CSP 3 / CSP 7	3p11.1-q11.1/7p1 1.1-q11.1	R/G	F01008	
		GLP <i>D20S108 / CSP8</i>	20q12/8p11-q11	R/G	F01032	
		GLP <i>CSF1R / D5S23 D5S721</i>	5q33/5p15	R/G	F01032	
		GLP <i>p16 / CSP 17</i>	9p21/17p11.1-q11 .1	R/ G	F01008	Figure S4 B
Guangzhou Anbiping Pharmaceutical Technology Ltd.	Co.,	GSP <i>IGH / CCND3</i>	6p21/14q32	G/R	F.01123-01	Figure S3 D
		GSP <i>EWSR1</i>	22q12	G/R	F.01194-0	Figure S2 B
		GSP <i>PDGFRB</i>	5q32	G/R	F.01033-01	
		GSP <i>TCF3 / PBX1</i>	1q23/19p13	R/G	F.01095-01	

4	4G4O(32)	4G4O(10)	3G3O(38)	3G4O(40)	2G(100)	3F(34)	3G3O(38)	4G3O(10)	3F(42)	5F(35)	3G3O(41)	4G4O(40)	3F(37)	4G3O(37)	3G4O(40)	2F101G	3F(39)	3G3O(36)	4G4O(40)
	4G5O(10)	4GMO(30)	4G3O(4)	2G2O(60)		4F(10)	2G2O(62)	3G3O(20)	2F(58)	4F(8)	2G2O(59)	2G2O(60)	2F(62)	2G2O(63)	2G2O(60)	(40)	2G2O	3G4O(5)	4G5O(4)
	2G2O(58)	2G2O(60)	2G2O(58)			2F(56)		2G3O(20)		2F(57)						4F(5)	(61)	2G2O(59)	2G2O(56)
5	4G4O(50)	4G4O(45)	4G4O(47)	4G4O(53)	2G	4F(50)	4G4O(46)	4G4O(52)	5F(4)	5F(6)	4G4O(49)	6G4O(49)	4F(48)	4F2G2O	4G4O(55)	4F(45)	4F(38)	4G4O(51)	4G4O(48)
	2G2O(50)	2G2O(53)	2G2O(53)	2G2O(47)	(100)	2F(50)	2G2O(54)	2G2O(48)	3F(4)	4F(44)	2G2O(51)	3G2O(51)	2F(52)	(51)	2G2O(45)	2F(45)	3F(18)	2G2O(49)	2G2O(52)
									4F(40)	2F(50)				2F1G1O			2F(44)		
6	4G4O(90)	4G3O(90)	3G3O(90)	4G4O(95)	2G(90)	3F(90)	3G3O(93)	4G3O(90)	3F(90)	3F(10)	3G3O(90)	6G4O(95)	3F(88)	6G6O(82)	4G4O(92)	4F(93)	4F(82)	3G4O(83)	4G4O(82)
	2G2O(10)	2G2O(10)	2G2O(10)	2G2O(5)		2F(90)	2G2O(3)	4G2O(5)	2F(10)	2F(90)	2G2O(10)	2G2O(5)	2F(8)	3G3O(11)	2G2O(8)	2F(7)	3F(14)	4G4O(10)	MG4O(11)
							4G4O(4)	2G2O(5)						2G2O(7)			2F(4)	2G2O(7)	2G2O(7)
7	4G4O(50)	4G4O(53)	4G4O(50)	4G4O(52)	2G2O(50)	4F(52)	4G4O(48)	4G4O(51)	4F(56)	4F(46)	4G4O(49)	6G4O(50)	4F(46)	2F4G4O	4G4O	4F(50)	4F(76)	4G4O(50)	4G4O(50)
	2G2O(50)	2G2O(47)	2G2O(50)	2G2O(48)	GO(50)	3F(4)	2G2O(52)	2G2O(49)	5F(3)	2F(54)	2G2O(51)	3G2O(50)	5F(4)	(50)	(47)	2F(50)	2F(24)	2G2O(50)	2G2O(50)
						2F(44)			2F(41)				2F(50)	1F2G2O	2G2O(53)				
8	4G4O(39)	4G4O(40)	4G4O(47)	4G4O(43)	2G2O(58)	4F(36)	4G4O(43)	6G4O(39)	4F(40)	4F(40)	4G2O(39)	4G4O(42)	4F(44)	4G4O(37)	4G4O(37)	6F(41)	4F(40)	4G4O(34)	4G4O(40)
	2G2O(61)	2G2O(60)	2G2O(53)	2G2O(57)	1G1O(42)	2F(64)	2G2O(57)	3G2O(61)	2F(40)	2F(60)	2G1O(61)	2G2O(58)	2F(56)	2G2O(63)	2G2O(63)	3F(59)	2F(60)	2G2O(66)	2G2O(60)
9	2G4O(55)	4G4O(58)	4G3O(56)	2G4O(56)	2G2O	4F(60)	4G6O(58)	4G4O(60)	4F(58)	4F(48)	3G3O(78)	4G4O(60)	6F(56)	4G4O(60)	4G4O(59)	4F(56)	1F(10)	4G4O(64)	4G4O(56)
	1G2O(16)	2G2O(42)	2G2O(44)	1G2O(20)	(55)	2F(40)	2G3O(31)	2G2O(40)	2F(42)	3F(10)	4G4O(6)	2G2O(40)	3F(44)	7G7O(1)	2G2O(41)	2F(44)	2F(89)	2G2O(36)	2G2G(44)
	2G5O(4)			2G2O(24)	GO(45)		2G2O(11)		2F(44)	2G2O(16)				2G2O(39)		4F(1)			
10	4G4O(35)	4G4O(42)	4G4O(37)	4G4O(34)	2G2O(48)	4F(36)	4G4O(37)	4G4O(36)	5F(5)	4F(37)	4G4O(36)	4G4O(38)	4F(31)	4G4O(32)	4F2G2O	4F(33)	2F(48)	4G4O(37)	4G4O(32)
	2G2O(65)	2G2O(58)	2G2O(63)	2G2O(66)	1G1O(52)	2F(64)	2G2O(63)	2G2O(64)	3F(10)	2F(63)	2G2O(64)	2G2O(62)	2F(69)	4G5O(4)	(34)	2F(67)	3F(18)	2G2O(63)	6G6O(1)
									4F(20)					2G2O(64)	2F1O1G		4F(34)		2G2O(67)
								2F(65)						(66)					

Note: 1 = At diagnosis; 2 = At relapse

Abbreviation : G = green signal; O = red signal; M = multiple signals; F = yellow signal.

Table S3: Main Characteristics of Patients with AML with ins (21;8).

Case	Age/Sex	FAB	Cytogenetic analysis	Revised cytogenetic result following FISH	Response ^b	Reference
1	2.9/F	M2	45,X,-X	45,X,-X,der(7)t(7;8)(q34;q24),ins(21;8)(q22;q22q22)	CCR	
2	12.2/M	M1	47,XY,+8/46,XY	46,XY,ins(21;8)(q22;q22q22)/47,XY,+8,ins(21;8)(q22;q22q22)	CR	Gamerdinger et al., 2003
3	3.8/F	M1	47,XX,der(3)t(3;?8)(q27;?q13),der(21)t(8;21)(q22;q22),+?der(21)t(8;21)(q22;q22)	47,XX,der(3)t(3;8)(q29;q13)del(8)(q21q22),+8,der(8)t(3;8)(q29;q13),ins(21;8)(q22;q21q22)	CCR	
4	43/M	M2	45,X,-Y	45,X,-Y,ins(21;8)(q22;q22q22)	CR	Onozawa et al., 2003
5	73/F	M2	46,XX,ins(21;8)(q12;q13q22)	46,XX,ins(21;8)(q12;q13q22)	CR	Yamazaki et al., 2000
6	37/M	M2	46,XY,ins(21;8)(q22;q21q22)	46,XY,ins(21;8)(q22;q21q22)	NA	Harrison et al., 1999
7	NA	M2	ins(21;8),del(8) ^a	ins(21;8) ^a	NA	Kazama et al., 1996
8	48/F	M2	NA	46,XX,ins(21;8)(q22;q21q22)	CR	
9	10/F	M2	46,XX[20]	46,XX,ins(21;8)(q22;q21q22)	CR	
10	43/M	M2	46,XY[1]/46,XY,t(8;21)(q22;q22)[14]	46,XY,ins(21;8)(q22;q11q22)	CR	Giorgina Specchia, et al., 2004
11	54/M	M2	46,XY[20]	46,XY,ins(21;8)(q22;q21q22)	CCR	
12	19/F	M2	46,XY[20]	46,XX,ins(21;8)(q22;q13q22)	CR	
13	48/M	M2	47,XY,+8[22]	47,XY,p8,ins(21;8)(q22;q22q22)	ED	Frank G, et al., 2011
14	47/M	M2	45,X,-Y,t(8;21)(q22;q22)[20].	45,X,-Y,der(8)inv(8)(q22q24.1)ins(21;8)(q22;q12q22),der(21)ins(21;8)(q22;q12q22)	CR	Jae-Hee Lee, et al., 2014
15	23/M	M2	92,XXYY,t(8,21)(q22;q21)X2[8]/46,t(8;21)(q22;q21)[12]	92,XXYY,ins(21;8)(q22;q24;q22)	R	In our present case

Note: ^a: Partial cytogenetic data are available.^b: CR = complete remission;

Abbreviation : CCR = continuous complete remission; R = Relapse;