

Supplemental Table 1. The amount of input DNA and conformity degree of 10% RMs

Mutations	Cell line	Frequency	Input DNA (ng)	Theoretical concentration (ng/ml)	Extraction concentration (ng/ml)	Conformity degree
KRAS p.G12D	LS180	45.52%	1144	8.4	9.6	1.2
KRAS p.G12C	NCI-H23	75.32%	622	7.5	7.9	1.1
KRAS p.G12A	SW1116	61.65%	787	7.8	7.6	1.0
KRAS p.G13D	HCT-15	46.41%	1116	8.3	8.6	1.0
KRAS p.G12S	A549	100.00%	451	7.2	8.4	1.2
KRAS p.G13C	NCI-H1355	47.04%	1097	8.3	10.8	1.3
NRAS p.Q61K	NCI-H2087	30.35%	1996	9.7	10.4	1.1
NRAS p.Q61R	A2058	30.19%	2012	9.7	13.7	1.4
BRAF p.V600E	NCI-H1395	96.63%	469	7.2	11.9	1.6
BRAF p.G469A	NCI-H2087	38.76%	1413	8.8	11.2	1.3
BRAF p.L597V	T84	71.10%	665	7.6	10.1	1.3
PIK3CA p.E542K	MDA-MB-453	66.50%	719	7.7	11.4	1.5
PIK3CA p.E545K	GP2D	48.00%	1069	8.2	10.5	1.3
PIK3CA p.H1047R	NCI-1975	75.78%	618	7.6	10.2	1.3
PIK3CA p.H1047L	SW48	28.77%	2164	10.1	12.2	1.2
EGFR p.T790M	HCC 2935	45	790	9.0	8.3	0.9
EGFR p.G719S	HCC827	25	1777	7.7	7.8	1.0
EGFR p.L858R	Hs 746T	16.17%	6584	9.75	9.8	1.0
EGFR p.E746_A750del	NCI-H2347	99.88%	452	7.2	9.7	1.3
EGFR p.L747_E749del	NCI-H596	47.98%	535	8.3	10.9	1.3
EGFR p.E746_S752>I	NCI-1975	70.50%	671	7.6	9.6	1.3
EGFR gain	HCC827	60.06%	36	7.7	7.8	1.0
MET gain	HCC 4006	62.49%	344	7.7	8.0	1.0

Supplementary table 2. Information of the RMs

Sample ID	mutations	Designed frequency	AA change	Cosmic ID	Reference type	Other mutations
CP-000	Wide type	/	/	/	Negative	/
CP_001_01	KRAS p.G12D	3.00%	p.G12D	COSM521	Positive	PIK3CA:p.H1047R
CP_001_02	KRAS p.G12D	1.00%	p.G12D	COSM521	LOD	PIK3CA:p.H1047R
CP_001_03	KRAS p.G12D	0.30%	p.G12D	COSM521	LOD	PIK3CA:p.H1047R
CP_001_04	KRAS p.G12D	0.10%	p.G12D	COSM521	LOD	PIK3CA:p.H1047R
CP_003_01	KRAS p.G12C	3.00%	p.G12C	COSM516	positive	/
CP_003_02	KRAS p.G12C	1.00%	p.G12C	COSM516	LOD	/
CP_003_03	KRAS p.G12C	0.30%	p.G12C	COSM516	LOD	/
CP_003_04	KRAS p.G12C	0.10%	p.G12C	COSM516	LOD	/
CP_004_01	KRAS p.G12A	3.00%	p.G12A	COSM522	positive	/
CP_004_02	KRAS p.G12A	1.00%	p.G12A	COSM522	LOD	/
CP_004_03	KRAS p.G12A	0.30%	p.G12A	COSM522	LOD	/
CP_004_04	KRAS p.G12A	0.10%	p.G12A	COSM522	LOD	/
CP_005_01	KRAS p.G13D	3.00%	p.G13D	COSM532	positive	PIK3CA:p.E545K PIK3CA:p.D549N
CP_005_02	KRAS p.G13D	1.00%	p.G13D	COSM532	LOD	PIK3CA:p.E545K PIK3CA:p.D549N
CP_005_03	KRAS p.G13D	0.30%	p.G13D	COSM532	LOD	PIK3CA:p.E545K PIK3CA:p.D549N
CP_005_04	KRAS p.G13D	0.10%	p.G13D	COSM532	LOD	PIK3CA:p.E545K PIK3CA:p.D549N
CP_006_01	KRAS p.G12S	3.00%	p.G12S	COSM517	positive	/
CP_006_02	KRAS p.G12S	1.00%	p.G12S	COSM517	LOD	/
CP_006_03	KRAS p.G12S	0.30%	p.G12S	COSM517	LOD	/
CP_006_04	KRAS p.G12S	0.10%	p.G12S	COSM517	LOD	/
CP_007_01	KRAS p.G13C	3.00%	p.G13C	COSM527	positive	/
CP_007_02	KRAS p.G13C	1.00%	p.G13C	COSM527	LOD	/
CP_007_03	KRAS p.G13C	0.30%	p.G13C	COSM527	LOD	/
CP_007_04	KRAS p.G13C	0.10%	p.G13C	COSM527	LOD	/
CP_009_01	NRAS p.Q61K	3.00%	p.Q61K	COSM580	positive	BRAF:p.L597V TP53:p.V157F
CP_009_02	NRAS p.Q61K	1.00%	p.Q61K	COSM580	LOD	BRAF:p.L597V TP53:p.V157F
CP_009_03	NRAS p.Q61K	0.30%	p.Q61K	COSM580	LOD	BRAF:p.L597V TP53:p.V157F
CP_009_04	NRAS p.Q61K	0.10%	p.Q61K	COSM580	LOD	BRAF:p.L597V TP53:p.V157F
CP_010_01	NRAS p.Q61R	3.00%	p.Q61R	COSM584	positive	/
CP_010_02	NRAS p.Q61R	1.00%	p.Q61R	COSM584	LOD	/

CP_010_03	NRAS p.Q61R	0.30%	p.Q61R	COSM584	LOD	/
CP_010_04	NRAS p.Q61R	0.10%	p.Q61R	COSM584	LOD	/
CP_011_01	BRAF p.V600E	3.00%	p.V600E	COSM476	positive	MAP2K1:p.P124S
CP_011_02	BRAF p.V600E	1.00%	p.V600E	COSM476	LOD	MAP2K1:p.P124S
CP_011_03	BRAF p.V600E	0.30%	p.V600E	COSM476	LOD	MAP2K1:p.P124S
CP_011_04	BRAF p.V600E	0.10%	p.V600E	COSM476	LOD	MAP2K1:p.P124S
CP_012_01	BRAF p.469A	3.00%	p.G469A	COSM460	positive	/
CP_012_02	BRAF p.469A	1.00%	p.G469A	COSM460	LOD	/
CP_012_03	BRAF p.469A	0.30%	p.G469A	COSM460	LOD	/
CP_012_04	BRAF p.469A	0.10%	p.G469A	COSM460	LOD	/
CP_013_01	BRAF p.L597V	3.00%	p.L597V	COSM470	positive	NRAS:p.Q61K TP53:p.V157F
CP_013_02	BRAF p.L597V	1.00%	p.L597V	COSM470	LOD	NRAS:p.Q61K TP53:p.V157F
CP_013_03	BRAF p.L597V	0.30%	p.L597V	COSM470	LOD	NRAS:p.Q61K TP53:p.V157F
CP_013_04	BRAF p.L597V	0.10%	p.L597V	COSM470	LOD	NRAS:p.Q61K TP53:p.V157F
CP_014_01	PI3KCA p.E542K	3.00%	p.E542K	COSM760	positive	KRAS:p.G13D
CP_014_02	PI3KCA p.E542K	1.00%	p.E542K	COSM760	LOD	KRAS:p.G13D
CP_014_03	PI3KCA p.E542K	0.30%	p.E542K	COSM760	LOD	KRAS:p.G13D
CP_014_04	PI3KCA p.E542K	0.10%	p.E542K	COSM760	LOD	KRAS:p.G13D
CP_015_01	PIK3CA p.E545K	3.00%	p.E545K	COSM763	positive	MET:c.3082+1G>T
CP_015_02	PIK3CA p.E545K	1.00%	p.E545K	COSM763	LOD	MET:c.3082+1G>T
CP_015_03	PIK3CA p.E545K	0.30%	p.E545K	COSM763	LOD	MET:c.3082+1G>T
CP_015_04	PIK3CA p.E545K	0.10%	p.E545K	COSM763	LOD	MET:c.3082+1G>T
CP_016_01	PIK3CA p.H1047R	3.00%	p.H1047R	COSM775	positive	/
CP_016_02	PIK3CA p.H1047R	1.00%	p.H1047R	COSM775	LOD	/
CP_016_03	PIK3CA p.H1047R	0.30%	p.H1047R	COSM775	LOD	/
CP_016_04	PIK3CA p.H1047R	0.10%	p.H1047R	COSM775	LOD	/
CP_017_01	PIK3CA p.H1047L	3.00%	p.H1047L	COSM776	positive	KRAS:p.G12D
CP_017_02	PIK3CA p.H1047L	1.00%	p.H1047L	COSM776	LOD	KRAS:p.G12D
CP_017_03	PIK3CA p.H1047L	0.30%	p.H1047L	COSM776	LOD	KRAS:p.G12D
CP_017_04	PIK3CA p.H1047L	0.10%	p.H1047L	COSM776	LOD	KRAS:p.G12D
CP_018_01	EGFR p.T790M	3.00%	p.T790M	COSM6240	positive	EGFR:p.L858R TP53

						p.R273H	
CP_018_02	EGFR p.T790M	1.00%	p.T790M	COSM6240	LOD	EGFR:p.L858R	TP53
						p.R273H	
CP_018_03	EGFR p.T790M	0.30%	p.T790M	COSM6240	LOD	EGFR:p.L858R	TP53
						p.R273H	
CP_018_04	EGFR p.T790M	0.10%	p.T790M	COSM6240	LOD	EGFR:p.L858R	TP53
						p.R273H	
CP_019_01	EGFR p.G719S	3.00%	p.G719S	COSM6252	positive	MAP2K1:p.Q56P	
CP_019_02	EGFR p.G719S	1.00%	p.G719S	COSM6252	LOD	MAP2K1:p.Q56P	
CP_019_03	EGFR p.G719S	0.30%	p.G719S	COSM6252	LOD	MAP2K1:p.Q56P	
CP_019_04	EGFR p.G719S	0.10%	p.G719S	COSM6252	LOD	MAP2K1:p.Q56P	
CP_020_01	EGFR p.L858R	3.00%	p.L858R	COSM6224	positive	EGFR:p.T790M	TP53
						p.R273H	
CP_020_02	EGFR p.L858R	1.00%	p.L858R	COSM6224	LOD	EGFR:p.T790M	TP53
						p.R273H	
CP_020_03	EGFR p.L858R	0.30%	p.L858R	COSM6224	LOD	EGFR:p.T790M	TP53
						p.R273H	
CP_020_04	EGFR p.L858R	0.10%	p.L858R	COSM6224	LOD	EGFR:p.T790M	TP53
						p.R273H	
CP_022_01	EGFR p.E746A750del	3.00%	p.E746_A750del	COSM6225	positive	/	
CP_022_02	EGFR p.E746A750del	1.00%	p.E746_A750del	COSM6225	LOD	/	
CP_022_03	EGFR p.E746A750del	0.30%	p.E746_A750del	COSM6225	LOD	/	
CP_022_04	EGFR p.E746A750del	0.10%	p.E746_A750del	COSM6225	LOD	/	
CP_023_01	EGFR p.L747_A750>P	3.00%	p.L747_E749del	COSM12382	positive	/	
CP_023_02	EGFR p.L747_A750>P	1.00%	p.L747_E749del	COSM12382	LOD	/	
CP_023_03	EGFR p.L747_A750>P	0.30%	p.L747_E749del	COSM12382	LOD	/	
CP_023_04	EGFR p.L747_A750>P	0.10%	p.L747_E749del	COSM12382	LOD	/	
CP_024	MET gain	3~5	/	/	positive	MET:c.3082+1G>T	
CP_026_01	EGFR p.EGFR p.E746_S752>I	3.00%	p.E746_S752delinsI	COSM12385	positive	TP53:p.Y220C	
CP_026_02	EGFR p.EGFR p.E746_S752>I	1.00%	p.E746_S752delinsI	COSM12385	LOD	TP53:p.Y220C	
CP_026_03	EGFR p.EGFR p.E746_S752>I	0.30%	p.E746_S752delinsI	COSM12385	LOD	TP53:p.Y220C	
CP_026_04	EGFR p.EGFR	0.10%	p.E746_S752delinsI	COSM12385	LOD	TP53:p.Y220C	

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	p.E746_S752>1					
CP_027	EGFR gain	3~5	/	/	positive	EGFR:p.E746_A750del

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Supplementary Table 3 the duplication test results of homogeneity

No.	Sample ID	mutation	Designed frequency	Test 1	Test 2	Test 3
1	CP_001_01	KRAS p.G12D	3.00%	4.88%	3.50%	5.71%
2	CP_001_02	KRAS p.G12D	1.00%	0.51%	1.60%	2.19%
3	CP_001_03	KRAS p.G12D	0.30%	0.14%	0.23%	1.08%
4	CP_001_04	KRAS p.G12D	0.10%	0.17%	0.26%	0.59%
5	CP_003_01	KRAS p.G12C	3.00%	4.38%	5.03%	3.11%
6	CP_003_02	KRAS p.G12C	1.00%	1.28%	1.74%	1.43%
7	CP_003_03	KRAS p.G12C	0.30%	0.27%	0.16%	0.53%
8	CP_003_04	KRAS p.G12C	0.10%	0.13%	0.06%	0.31%
9	CP_004_01	KRAS p.G12A	3.00%	4.08%	5.37%	2.87%
10	CP_004_02	KRAS p.G12A	1.00%	1.18%	1.34%	1.76%
11	CP_004_03	KRAS p.G12A	0.30%	0.96%	0.33%	0.26%
12	CP_004_04	KRAS p.G12A	0.10%	0.47%	0.00%	0.09%
13	CP_005_01	KRAS p.G13D	3.00%	2.94%	3.78%	2.99%
14	CP_005_02	KRAS p.G13D	1.00%	1.37%	1.24%	0.85%
15	CP_005_03	KRAS p.G13D	0.30%	0.24%	0.44%	0.28%
16	CP_005_04	KRAS p.G13D	0.10%	0.11%	0.74%	0.13%
17	CP_006_01	KRAS p.G12S	3.00%	2.11%	4.87%	3.71%
18	CP_006_02	KRAS p.G12S	1.00%	1.47%	1.61%	0.56%
19	CP_006_03	KRAS p.G12S	0.30%	0.48%	0.62%	0.27%
20	CP_006_04	KRAS p.G12S	0.10%	0.10%	0.00%	0.28%
21	CP_007_01	KRAS p.G13C	3.00%	2.35%	4.95%	2.81%
22	CP_007_02	KRAS p.G13C	1.00%	0.96%	1.28%	1.09%
23	CP_007_03	KRAS p.G13C	0.30%	0.44%	1.05%	0.62%
24	CP_007_04	KRAS p.G13C	0.10%	0.07%	0.00%	0.00%
25	CP_009_01	NRAS p.Q61K	3.00%	3.06%	4.99%	4.93%
26	CP_009_02	NRAS p.Q61K	1.00%	0.99%	1.09%	0.32%
27	CP_009_03	NRAS p.Q61K	0.30%	1.09%	0.00%	0.31%
28	CP_009_04	NRAS p.Q61K	0.10%	0.07%	0.00%	0.00%
29	CP_010_01	NRAS p.Q61R	3.00%	1.28%	2.64%	3.52%
30	CP_010_02	NRAS p.Q61R	1.00%	0.98%	0.77%	1.30%
31	CP_010_03	NRAS p.Q61R	0.30%	0.53%	0.65%	0.32%
32	CP_010_04	NRAS p.Q61R	0.10%	0.08%	0.30%	0.08%
33	CP_012_01	BRAF p.469A	3.00%	2.07%	1.60%	5.71%
34	CP_012_02	BRAF p.469A	1.00%	0.93%	1.17%	1.39%
35	CP_012_03	BRAF p.469A	0.30%	0.21%	0.07%	0.60%
36	CP_012_04	BRAF p.469A	0.10%	0.45%	0.30%	0.06%
37	CP_013_01	BRAF p.L597V	3.00%	2.21%	3.33%	3.46%
38	CP_013_02	BRAF p.L597V	1.00%	1.32%	1.47%	1.34%
39	CP_013_03	BRAF p.L597V	0.30%	0.21%	0.58%	0.64%
40	CP_013_04	BRAF p.L597V	0.10%	0.28%	0.04%	0.15%

41	CP_014_01	PI3KCA p.E542K	3.00%	4.25%	4.92%	4.84%
42	CP_014_02	PI3KCA p.E542K	1.00%	1.88%	2.98%	1.41%
43	CP_014_03	PI3KCA p.E542K	0.30%	0.53%	0.28%	0.53%
44	CP_014_04	PI3KCA p.E542K	0.10%	0.43%	0.00%	0.22%
45	CP_015_01	PIK3CA p.E545K	3.00%	3.59%	5.59%	5.55%
46	CP_015_02	PIK3CA p.E545K	1.00%	0.71%	1.28%	2.91%
47	CP_015_03	PIK3CA p.E545K	0.30%	/	0.13%	1.37%
48	CP_015_04	PIK3CA p.E545K	0.10%	0.10%	0.07%	0.29%
49	CP_016_01	PIK3CA p.H1047R	3.00%	4.99%	2.75%	4.54%
50	CP_016_02	PIK3CA p.H1047R	1.00%	0.59%	0.43%	1.19%
51	CP_016_03	PIK3CA p.H1047R	0.30%	0.40%	0.98%	0.52%
52	CP_016_04	PIK3CA p.H1047R	0.10%	0.14%	0.34%	0.35%
53	CP_017_01	PIK3CA p.H1047L	3.00%	3.64%	3.36%	4.68%
54	CP_017_02	PIK3CA p.H1047L	1.00%	1.09%	0.35%	0.76%
55	CP_017_03	PIK3CA p.H1047L	0.30%	0.37%	0.70%	0.56%
56	CP_017_04	PIK3CA p.H1047L	0.10%	0.21%	0.31%	0.33%
57	CP_018_01	EGFR p.T790M	3.00%	3.34%	3.17%	4.21%
58	CP_018_02	EGFR p.T790M	1.00%	0.86%	1.67%	1.47%
59	CP_018_03	EGFR p.T790M	0.30%	1.41%	0.43%	0.42%
60	CP_018_04	EGFR p.T790M	0.10%	0.39%	0.24%	0.28%
61	CP_019_01	EGFR p.G719S	3.00%	3.51%	2.95%	2.78%
62	CP_019_02	EGFR p.G719S	1.00%	1.97%	2.04%	1.93%
63	CP_019_03	EGFR p.G719S	0.30%	0.29%	0.24%	0.21%
64	CP_019_04	EGFR p.G719S	0.10%	0.23%	0.39%	0.48%
65	CP_020_01	EGFR p.L858R	3.00%	3.96%	3.60%	4.80%
66	CP_020_02	EGFR p.L858R	1.00%	1.61%	1.61%	1.27%
67	CP_020_03	EGFR p.L858R	0.30%	0.44%	0.17%	0.30%
68	CP_020_04	EGFR p.L858R	0.10%	0.30%	0.29%	0.20%
69	CP_022_01	EGFR p.E746A750del	3.00%	1.62%	4.27%	3.75%
70	CP_022_02	EGFR p.E746A750del	1.00%	0.00%	1.50%	0.67%
71	CP_022_03	EGFR p.E746A750del	0.30%	0.43%	1.18%	0.51%
72	CP_022_04	EGFR p.E746A750del	0.10%	0.39%	0.81%	0.86%
73	CP_023_01	EGFR p.L747_A750>P	3.00%	3.15%	3.29%	4.89%
74	CP_023_02	EGFR p.L747_A750>P	1.00%	1.18%	1.43%	1.57%
75	CP_023_03	EGFR p.L747_A750>P	0.30%	0.58%	0.50%	0.68%
76	CP_023_04	EGFR p.L747_A750>P	0.10%	0.16%	0.27%	0.13%
77	CP_024	MET gain	3~5 copies	5.10	6.02	6.10
78	CP_027	EGFR gain	3~5 copies	6.77	5.67	6.86
79	CP_000	Wild type	-	-	-	-
80	CP_011_01	BRAF p.V600E	3.00%	5.39%	6.42%	5.77%
81	CP_011_02	BRAF p.V600E	1.00%	1.61%	1.84%	3.12%

<b>82</b>	CP_011_03	BRAF p.V600E	0.30%	0.51%	0.59%	0.73%
<b>83</b>	CP_011_04	BRAF p.V600E	0.10%	0.32%	0.54%	0.64%
<b>84</b>	CP_026_01	EGFR p.EGFR p.E746_S752>I	3.00%	6.36%	2.80%	5.32%
<b>85</b>	CP_026_02	EGFR p.EGFR p.E746_S752>I	1.00%	1.86%	1.69%	2.38%
<b>86</b>	CP_026_03	EGFR p.EGFR p.E746_S752>I	0.30%	0.93%	1.08%	1.08%
<b>87</b>	CP_026_04	EGFR p.EGFR p.E746_S752>I	0.10%	0.18%	0.25%	0.25%



Supplementary Table 4 collaborative evaluation of the cfDNA RMs by NGS

No.	Sample ID	Designed frequency	BGI	Geneplus	Genetron Health	Amoy Diagnostics	Geneseeq
1	CP_001_01	3.00%	4.88%	2.70%	3.54%	5.33%	2.95%
2	CP_001_02	1.00%	0.51%	1.50%	1.35%	2.17%	1.07%
3	CP_001_03	0.30%	0.14%	0.57%	0.51%	0.53%	0.32%
4	CP_001_04	0.10%	0.17%	0.24%	0.18%	0.25%	0.17%
5	CP_003_01	3.00%	4.38%	3.28%	3.30%	6.22%	4.20%
6	CP_003_02	1.00%	1.28%	1.32%	1.49%	1.65%	0.73%
7	CP_003_03	0.30%	0.27%	0.61%	0.64%	0.43%	0.80%
8	CP_003_04	0.10%	0.13%	-	0.32%	-	0.33%
9	CP_004_01	3.00%	4.08%	2.76%	3.05%	4.54%	3.32%
10	CP_004_02	1.00%	1.18%	0.97%	0.99%	2.48%	0.75%
11	CP_004_03	0.30%	0.96%	0.30%	0.29%	0.55%	0.38%
12	CP_004_04	0.10%	0.47%	0.33%	0.14%	0.56%	0.09%
13	CP_005_01	3.00%	2.94%	2.07%	5.02%	4.04%	3.16%
14	CP_005_02	1.00%	1.37%	1.17%	1.49%	1.16%	0.66%
15	CP_005_03	0.30%	0.24%	0.22%	0.42%	0.32%	0.21%
16	CP_005_04	0.10%	0.11%	0.23%	0.24%	0.14%	0.06%
17	CP_006_01	3.00%	2.11%	2.03%	3.89%	4.79%	2.91%
18	CP_006_02	1.00%	1.47%	0.61%	1.45%	1.88%	1.01%
19	CP_006_03	0.30%	0.48%	0.23%	0.32%	0.49%	0.50%
20	CP_006_04	0.10%	0.10%	0.12%	0.20%	0.23%	0.20%
21	CP_007_01	3.00%	2.35%	3.21%	2.27%	5.00%	4.15%
22	CP_007_02	1.00%	0.96%	1.19%	0.98%	1.20%	1.53%
23	CP_007_03	0.30%	0.44%	0.28%	0.32%	0.80%	0.44%
24	CP_007_04	0.10%	0.07%	0.15%	0.00%	0.19%	-
25	CP_009_01	3.00%	3.06%	3.21%	5.39%	3.67%	4.67%
26	CP_009_02	1.00%	0.99%	1.34%	1.56%	1.12%	1.00%
27	CP_009_03	0.30%	1.09%	0.45%	0.59%	0.68%	0.22%
28	CP_009_04	0.10%	0.07%	0.19%	0.26%	-	-
29	CP_010_01	3.00%	1.28%	2.45%	5.45%	3.16%	3.31%
30	CP_010_02	1.00%	0.98%	0.75%	1.67%	0.99%	0.86%
31	CP_010_03	0.30%	0.53%	0.51%	fail	0.24%	0.18%
32	CP_010_04	0.10%	0.08%	-	0.29%	-	-
33	CP_012_01	3.00%	2.07%	2.82%	3.87%	3.91%	3.86%
34	CP_012_02	1.00%	0.93%	0.91%	1.28%	1.42%	1.71%
35	CP_012_03	0.30%	0.21%	0.53%	0.81%	0.80%	0.57%
36	CP_012_04	0.10%	0.45%	0.31%	0.06%	-	0.11%
37	CP_013_01	3.00%	2.21%	2.63%	4.06%	3.39%	2.53%
38	CP_013_02	1.00%	1.32%	1.08%	1.20%	1.34%	0.86%
39	CP_013_03	0.30%	0.21%	0.39%	0.34%	0.56%	0.60%

40	CP_013_04	0.10%	0.28%	0.47%	0.00%	0.12%	-
41	CP_014_01	3.00%	4.25%	2.71%	3.48%	3.03%	3.97%
42	CP_014_02	1.00%	1.88%	1.18%	1.27%	1.59%	1.57%
43	CP_014_03	0.30%	0.53%	0.30%	0.19%	0.31%	0.20%
44	CP_014_04	0.10%	0.43%	0.22%	0.20%	0.29%	0.25%
45	CP_015_01	3.00%	3.59%	2.20%	3.96%	4.06%	3.69%
46	CP_015_02	1.00%	0.71%	0.77%	1.25%	1.62%	1.23%
47	CP_015_03	0.30%	/	0.37%	0.50%	0.70%	0.36%
48	CP_015_04	0.10%	0.10%	0.10%	0.10%	-	-
49	CP_016_01	3.00%	4.99%	2.92%	6.88%	4.40%	3.06%
50	CP_016_02	1.00%	0.59%	0.80%	1.86%	1.78%	0.97%
51	CP_016_03	0.30%	0.40%	0.31%	0.64%	0.29%	0.50%
52	CP_016_04	0.10%	0.14%	0.24%	0.13%	0.14%	0.11%
53	CP_017_01	3.00%	3.64%	2.07%	2.96%	4.07%	3.74%
54	CP_017_02	1.00%	1.09%	1.00%	1.22%	1.68%	1.53%
55	CP_017_03	0.30%	0.37%	0.55%	0.27%	0.44%	0.55%
56	CP_017_04	0.10%	0.21%	0.09%	0.20%	0.34%	-
57	CP_018_01	3.00%	3.34%	2.42%	3.32%	3.83%	3.65%
58	CP_018_02	1.00%	0.86%	0.62%	1.36%	1.23%	1.10%
59	CP_018_03	0.30%	1.41%	0.37%	0.41%	0.43%	0.49%
60	CP_018_04	0.10%	0.39%	0.15%	0.17%	0.24%	0.14%
61	CP_019_01	3.00%	3.51%	2.46%	5.35%	4.69%	4.83%
62	CP_019_02	1.00%	1.97%	0.75%	1.84%	1.46%	0.98%
63	CP_019_03	0.30%	0.29%	0.61%	0.88%	0.45%	0.46%
64	CP_019_04	0.10%	0.23%	0.29%	0.24%	-	0.11%
65	CP_020_01	3.00%	3.96%	2.40%	2.25%	4.87%	4.58%
66	CP_020_02	1.00%	1.61%	1.32%	0.51%	1.87%	1.56%
67	CP_020_03	0.30%	0.44%	0.49%	0.28%	0.56%	0.51%
68	CP_020_04	0.10%	0.30%	0.29%	0.08%	0.32%	0.36%
69	CP_022_01	3.00%	1.62%	1.73%	5.81%	3.49%	2.82%
70	CP_022_02	1.00%	0.00%	0.55%	1.56%	1.12%	0.72%
71	CP_022_03	0.30%	0.43%	0.32%	0.49%	0.37%	0.54%
72	CP_022_04	0.10%	0.39%	0.22%	0.13%	0.19%	0.11%
73	CP_023_01	3.00%	3.15%	1.66%	5.09%	4.84%	4.21%
74	CP_023_02	1.00%	1.18%	0.56%	1.65%	1.20%	1.66%
75	CP_023_03	0.30%	0.58%	0.14%	0.24%	0.39%	0.49%
76	CP_023_04	0.10%	0.16%	0.15%	0.13%	-	0.07%
77	CP_024	Gain:3~5	5.10	Gain:4-7	Gain:3	-	2.8
78	CP_027	Gain:3~5 copies	6.77	Gain:4-8	Gain:4	-	2.9
79	CP_000	wild type	-	-	-	-	-
80	CP_011_01	3.00%	5.39%	3.54%	5.48%	5.17%	4.87%
81	CP_011_02	1.00%	1.61%	1.51%	2.55%	1.81%	1.84%

82	CP_011_03	0.30%	0.51%	0.51%	0.91%	0.47%	0.66%
83	CP_011_04	0.10%	0.32%	0.17%	0.15%	0.42%	0.15%
84	CP_026_01	3.00%	6.36%	1.16%	5.14%	3.64%	2.09%
85	CP_026_02	1.00%	1.86%	0.28%	1.37%	0.96%	1.04%
86	CP_026_03	0.30%	0.93%	0.15%	0.41%	0.56%	0.30%
87	CP_026_04	0.10%	0.18%	-	0.15%	0.10%	0.15%