

FIG. 1A

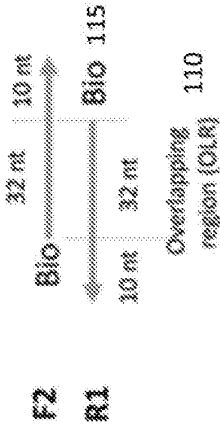


FIG. 1B

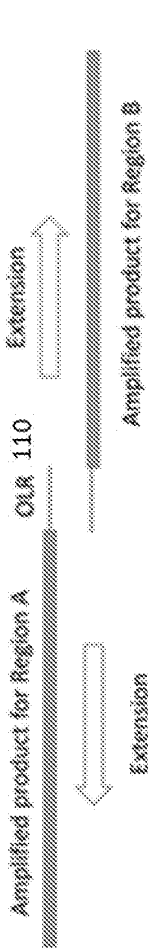


FIG. 1C



FIG. 1D

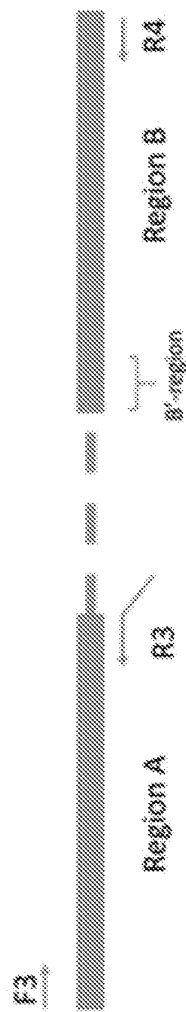


FIG. 2A

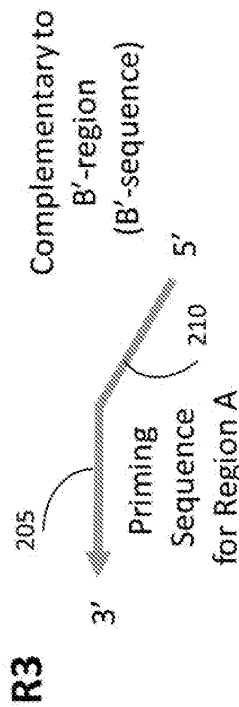


FIG. 2B

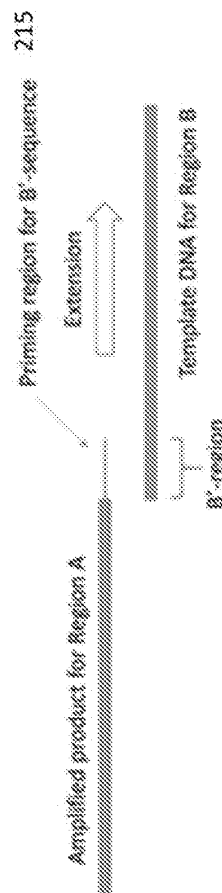
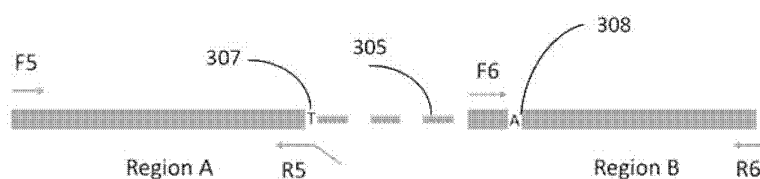
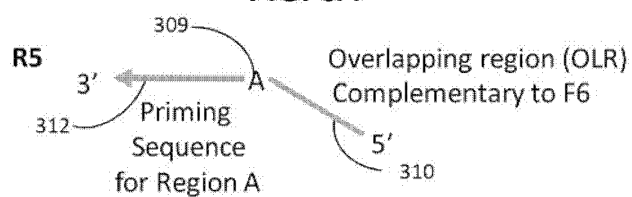
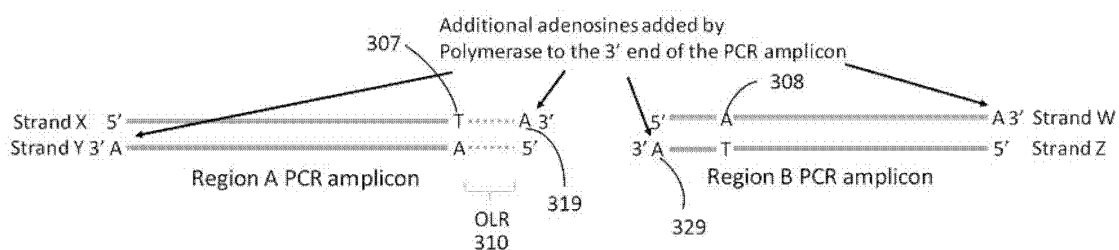
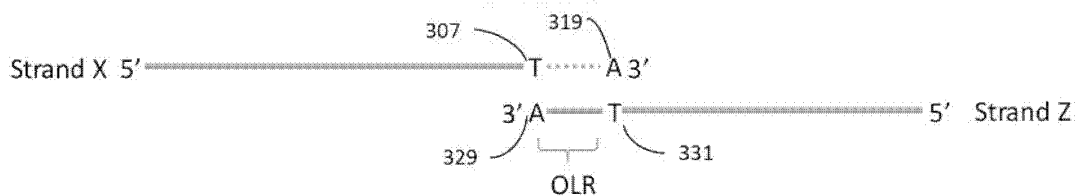
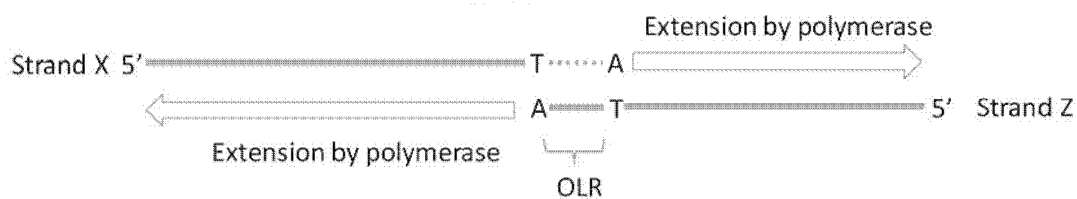
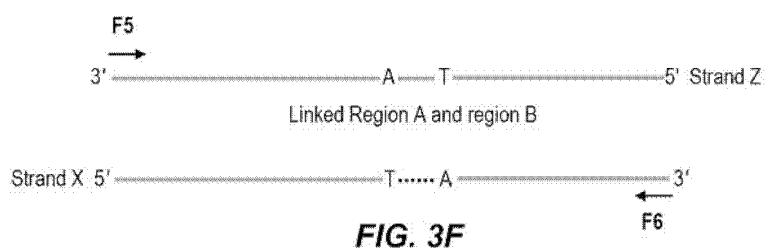


FIG. 2C

**FIG. 3A****FIG. 3B****FIG. 3C****FIG. 3D****FIG. 3E****FIG. 3F**

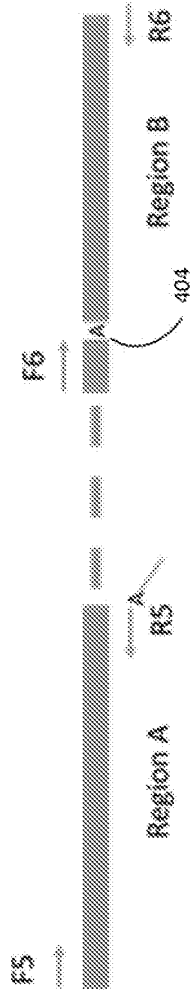


FIG. 4A

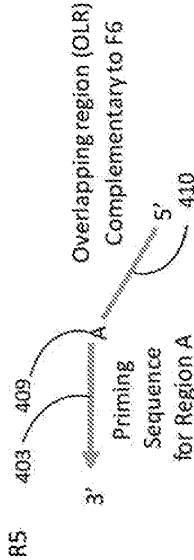


FIG. 4B

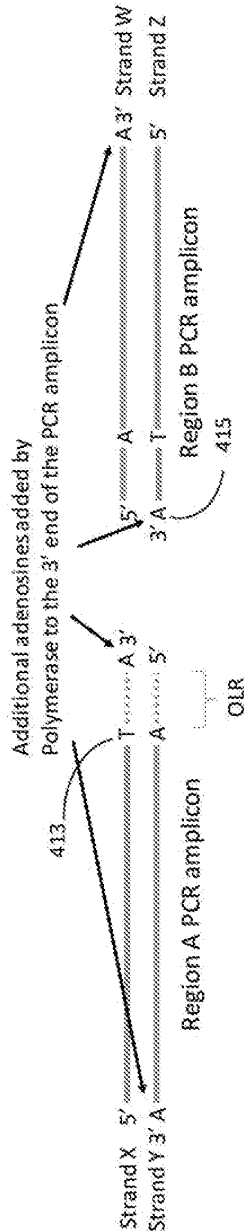
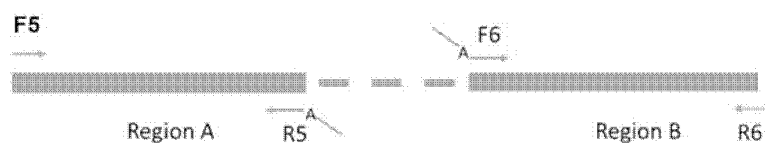
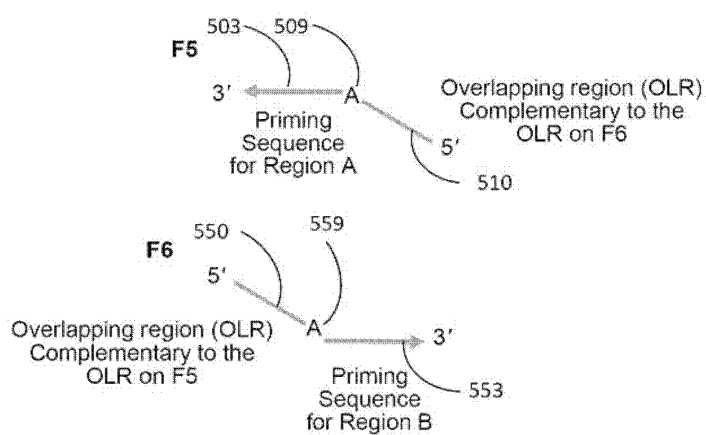
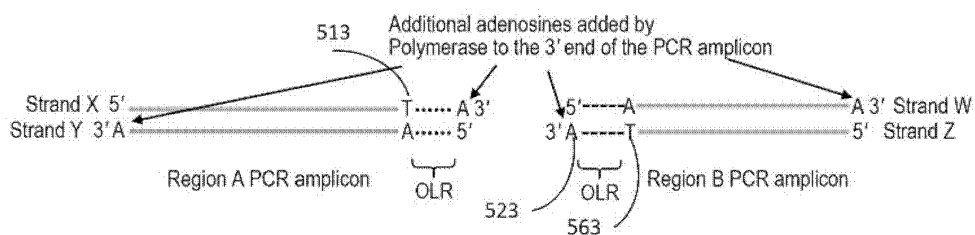
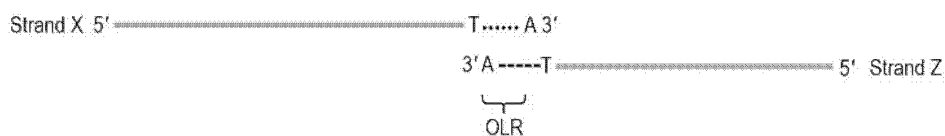


FIG. 4C

**FIG. 5A****FIG. 5B****FIG. 5C****FIG. 5D**

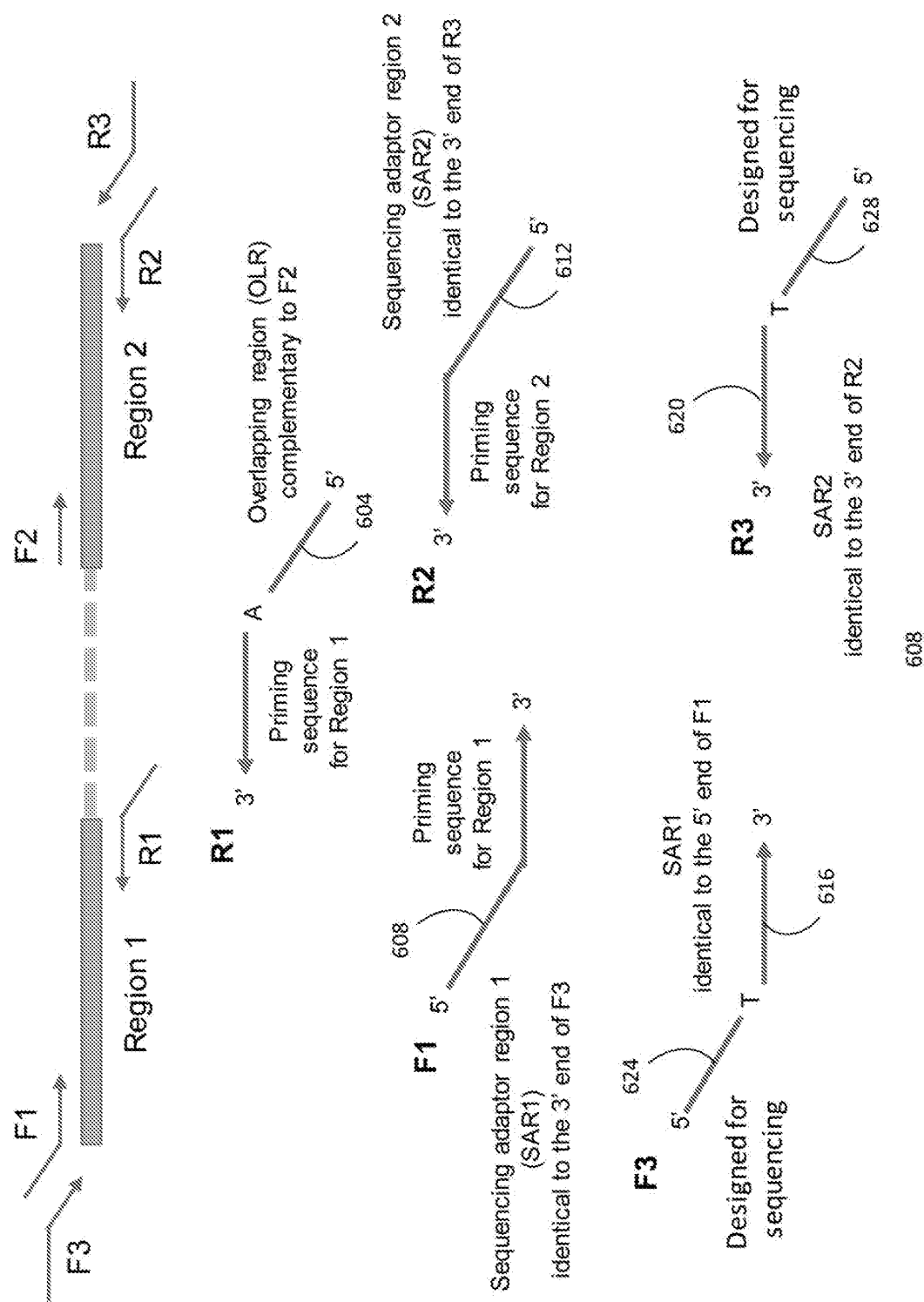


FIG. 6

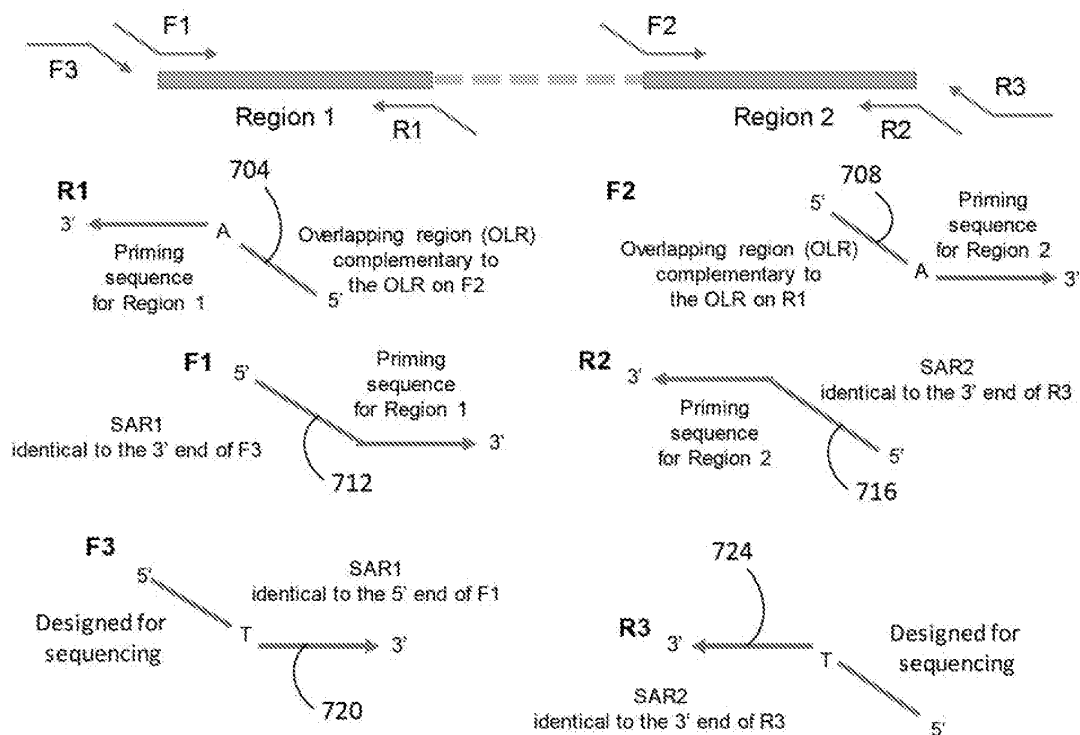


FIG. 7A



FIG. 7B

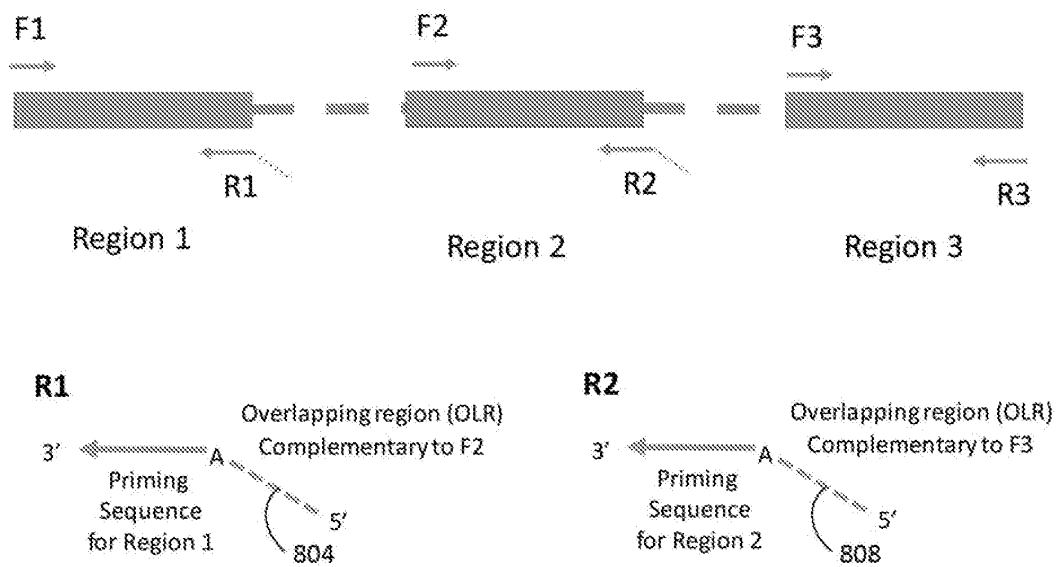


FIG. 8A

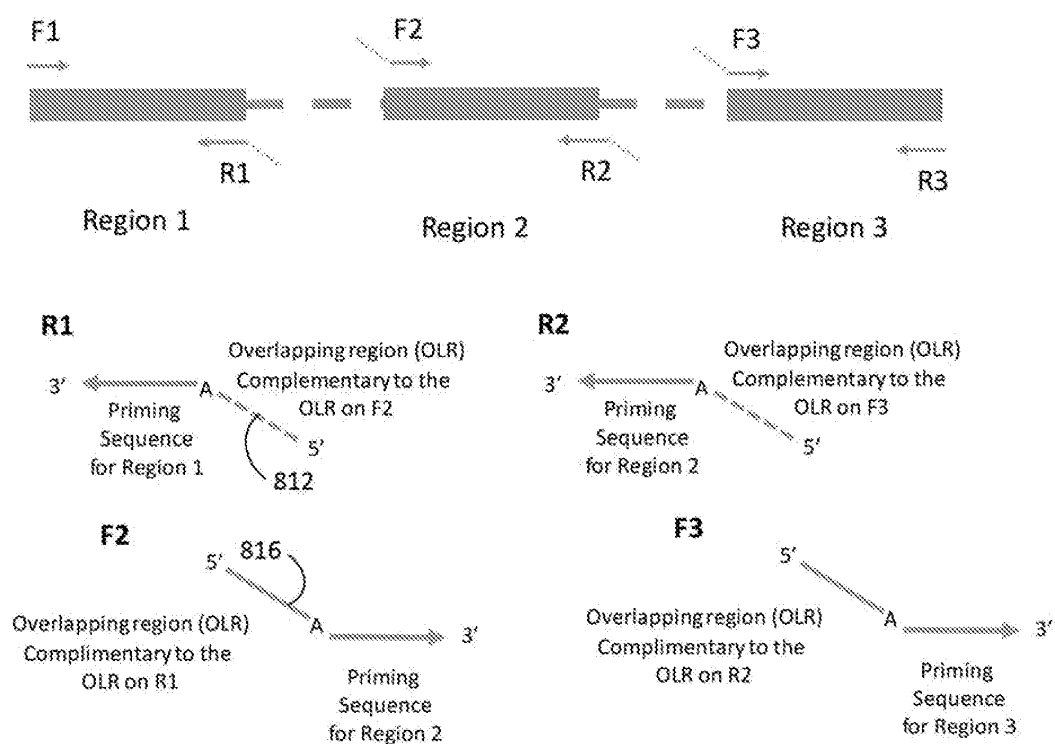


FIG. 8B

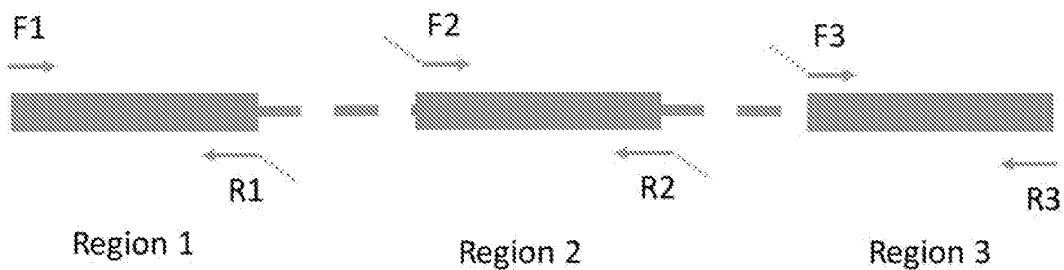


FIG. 9A

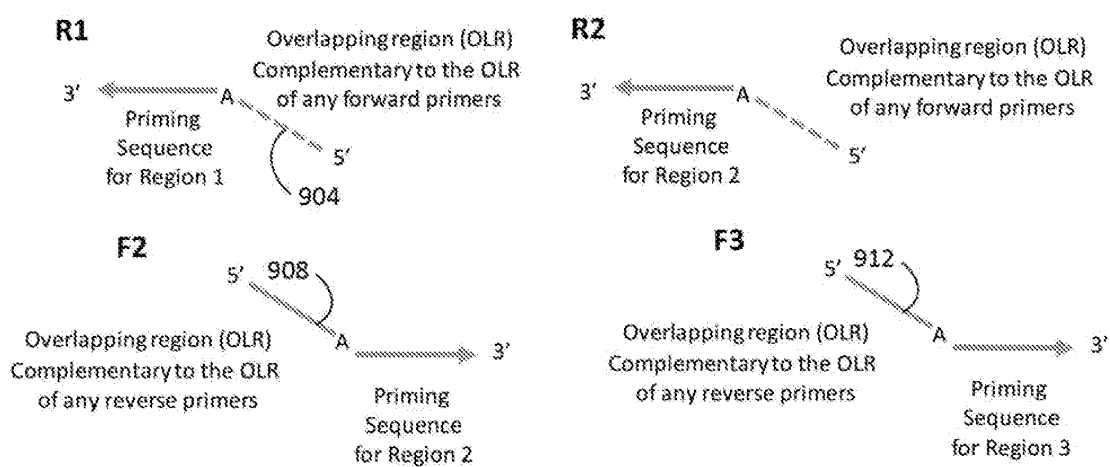


FIG. 9B

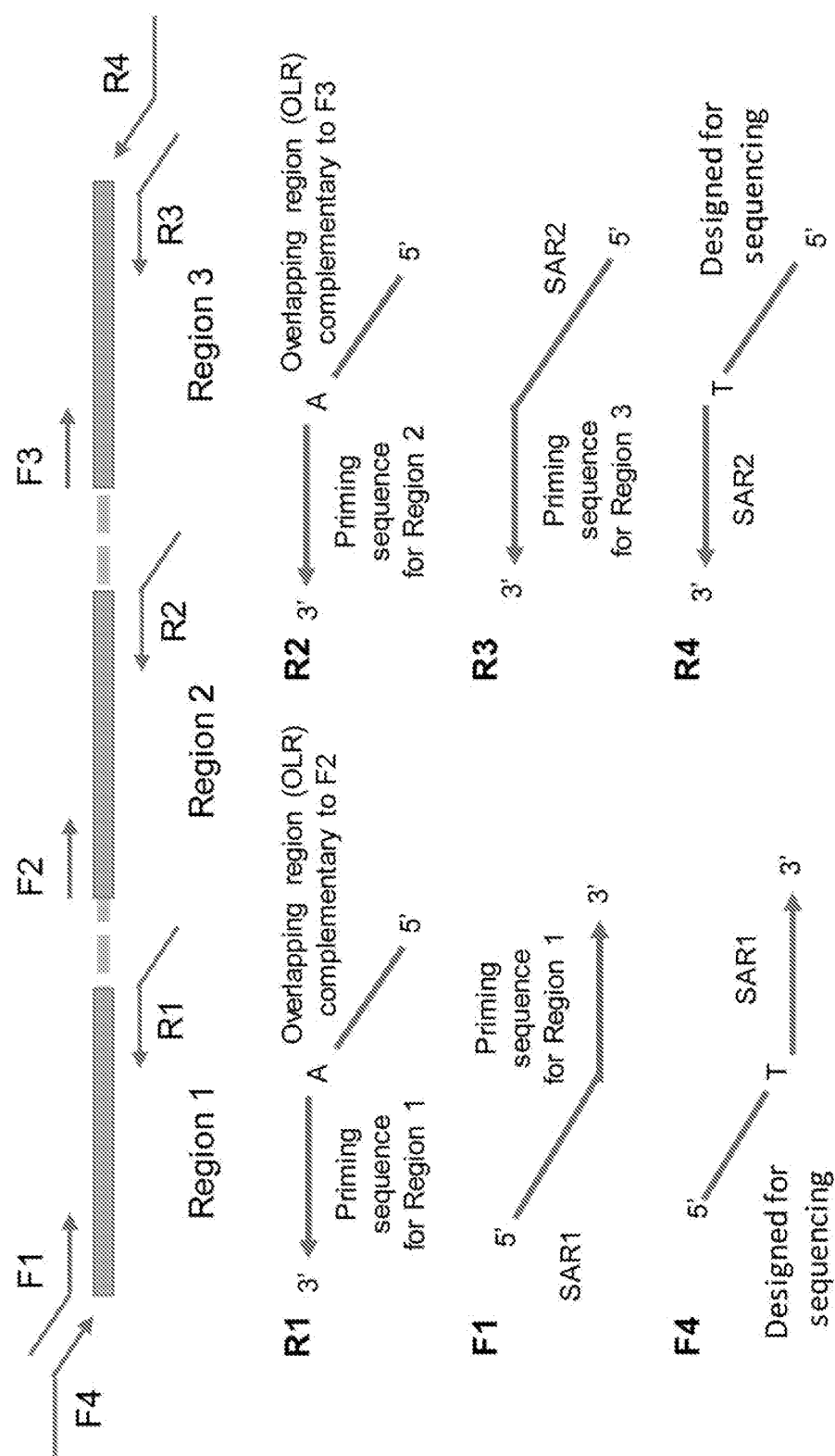


FIG. 10A

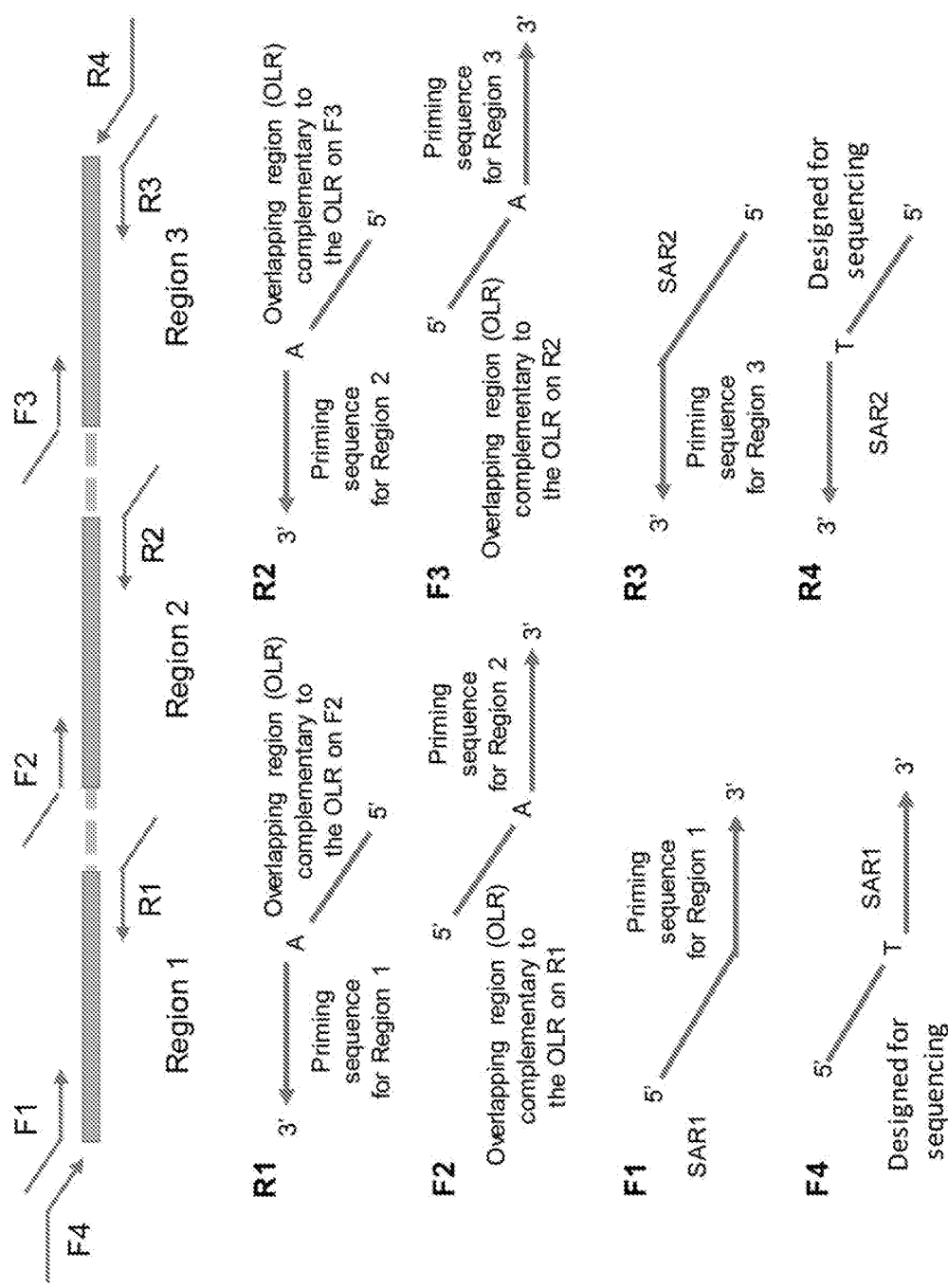


FIG. 10B

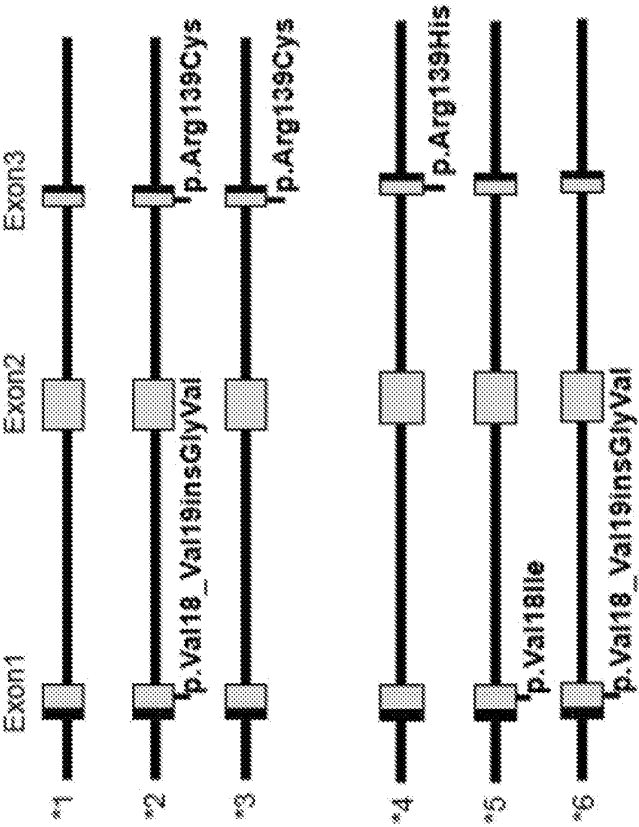


FIG. 11

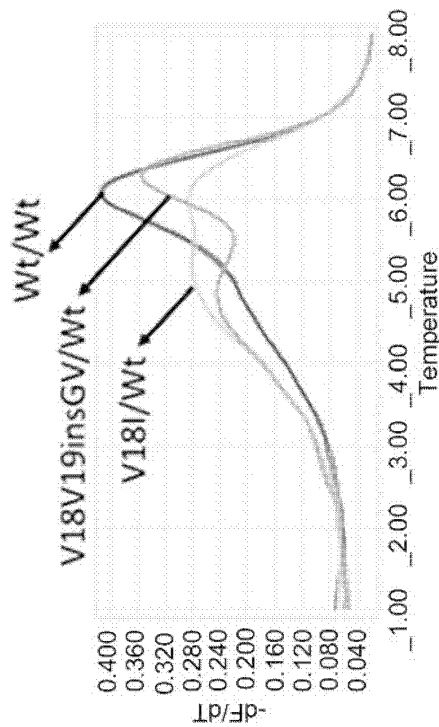


FIG. 12A

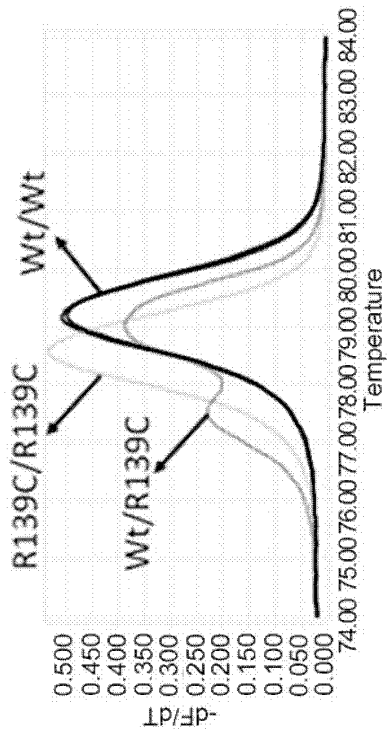


FIG. 12B

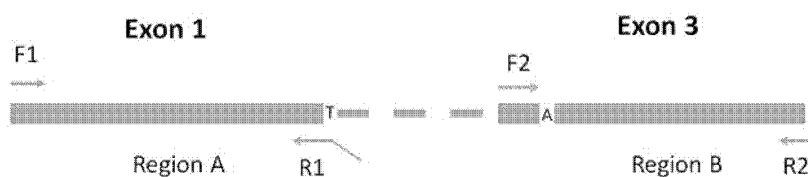


FIG. 13A

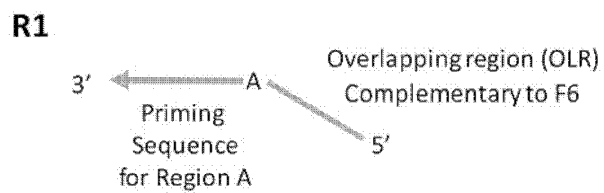


FIG. 13B

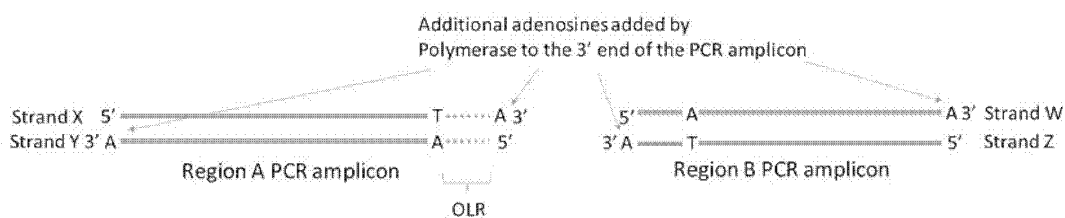


FIG. 13C

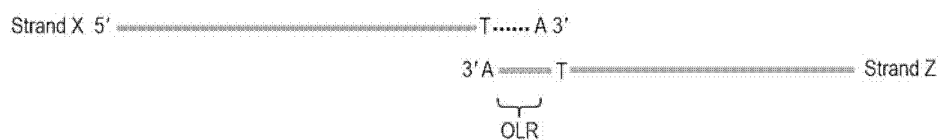


FIG. 13D

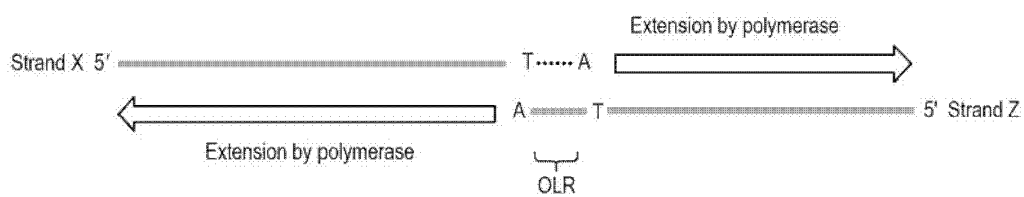


FIG. 13E

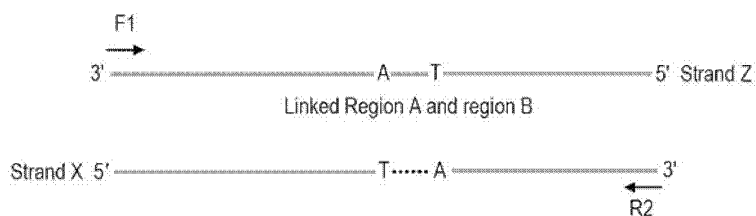
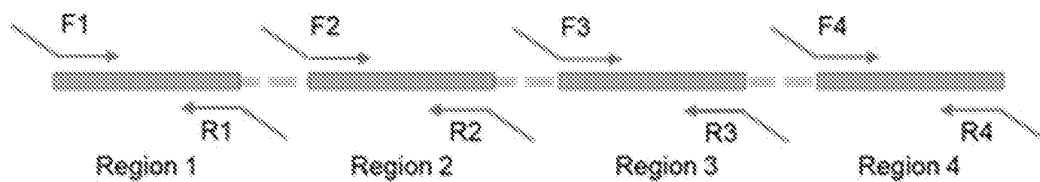
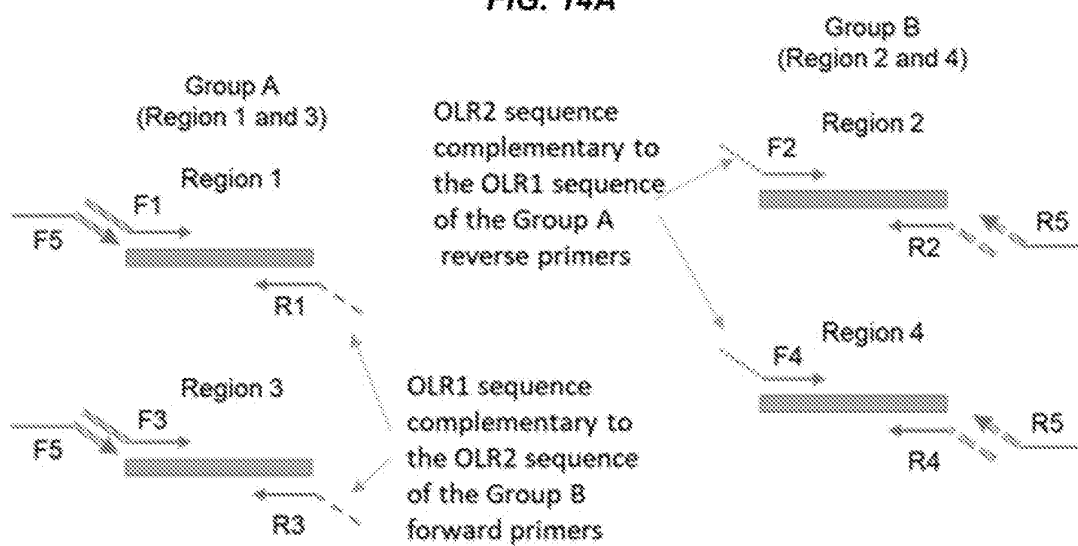
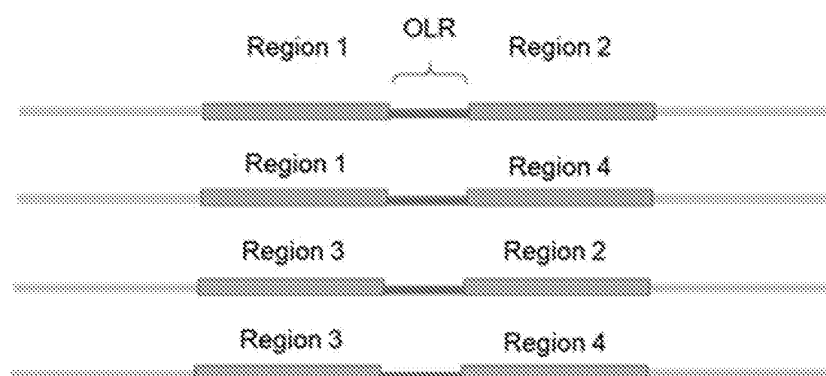
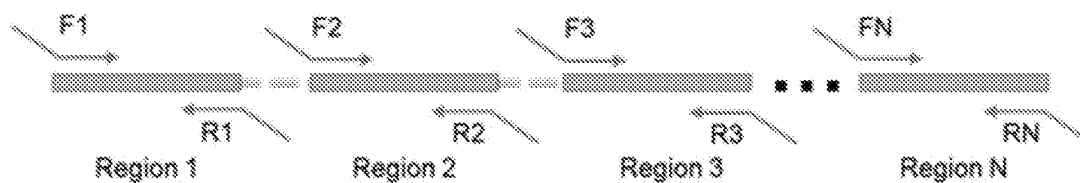


FIG. 13F

**FIG. 14A****FIG. 14B****FIG. 14C**

**Group A**

Region 1
Region 4
Region 7

•
•
•

Group B

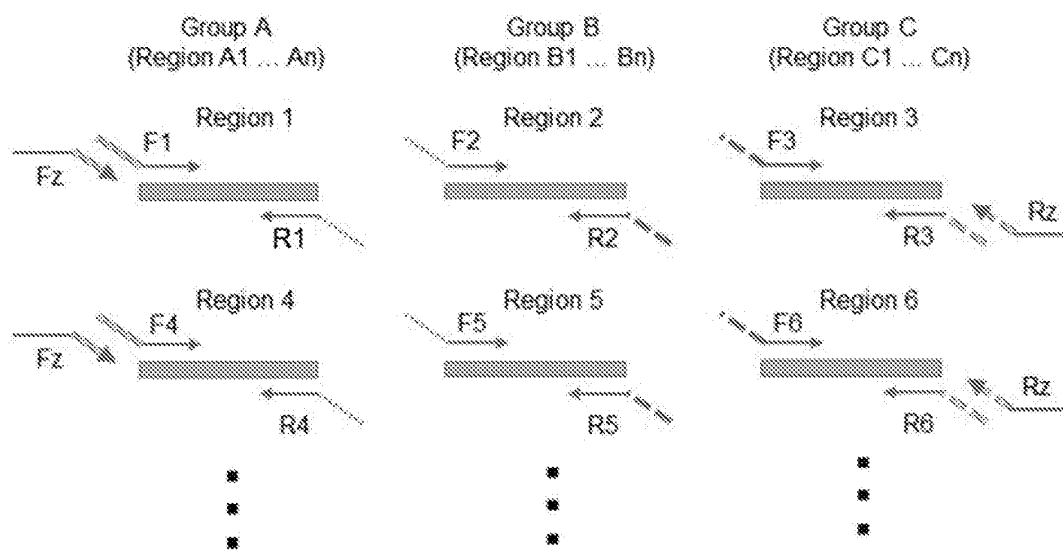
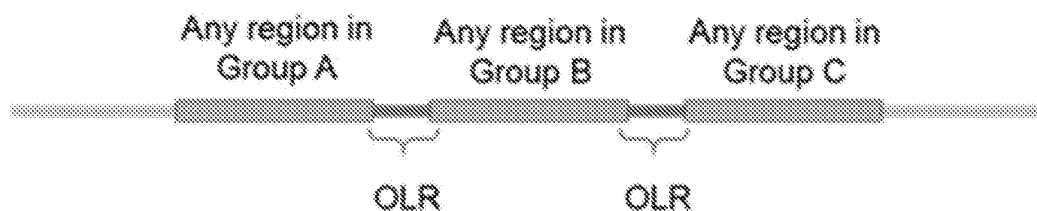
Region 2
Region 5
Region 8

•
•
•

Group C

Region 3
Region 6
Region 9

•
•
•

FIG. 15A**FIG. 15B****FIG. 15C**

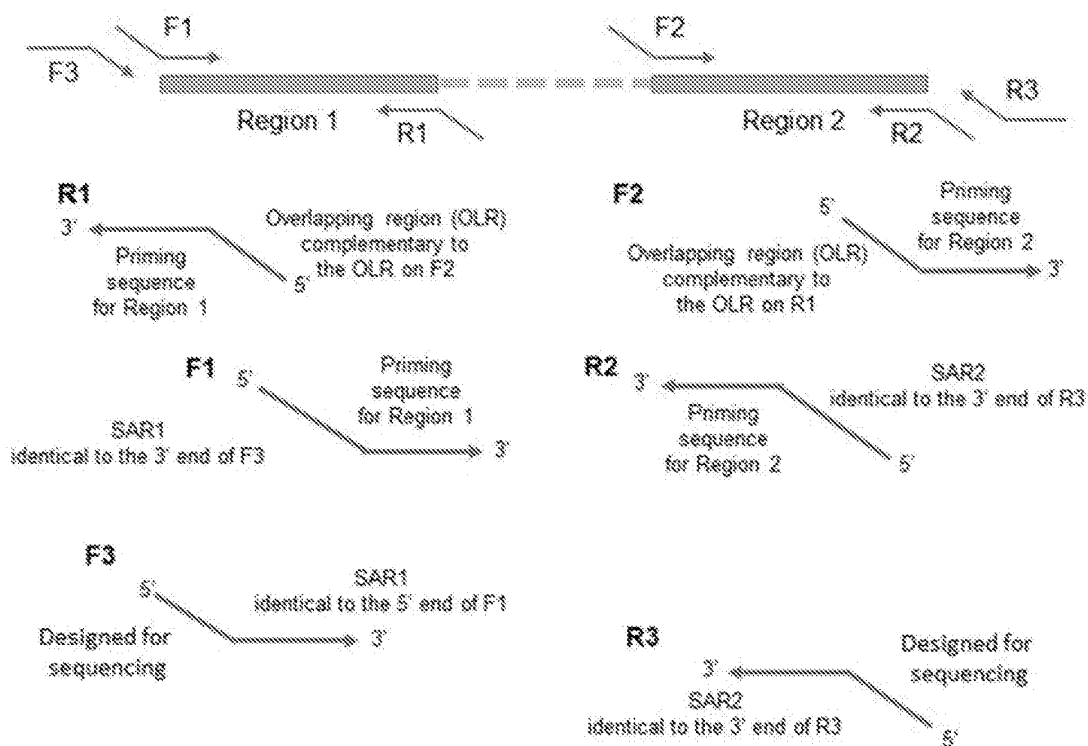


FIG. 16A



FIG. 16B

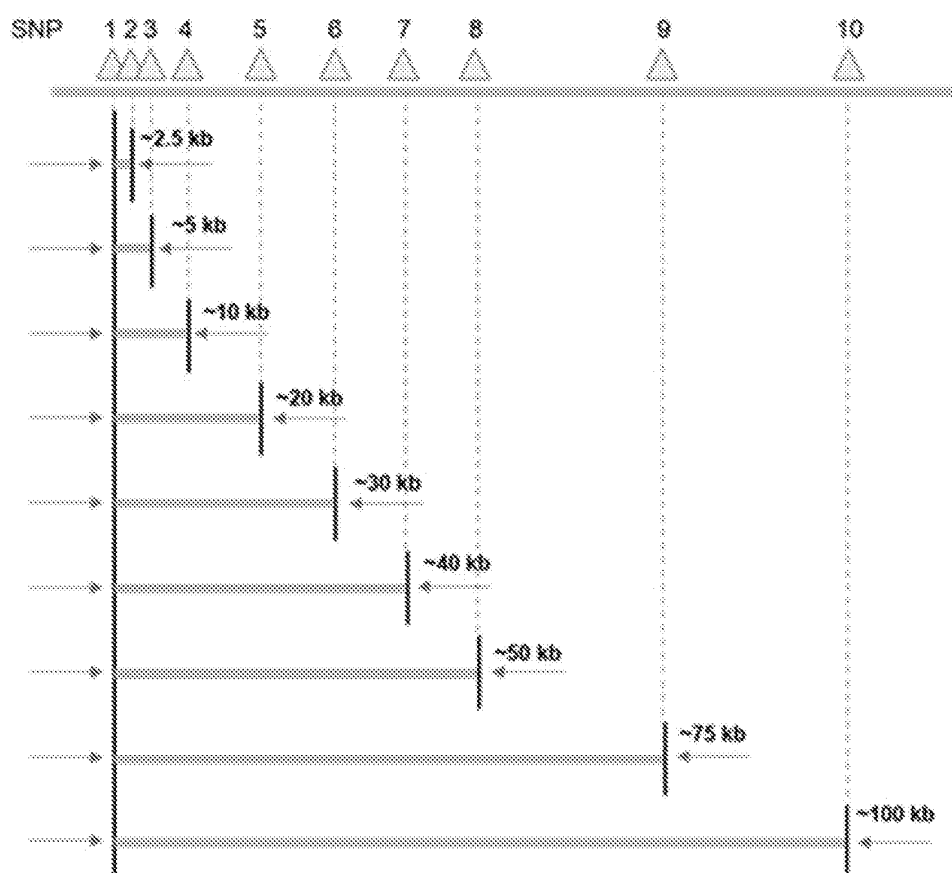


FIG. 17A

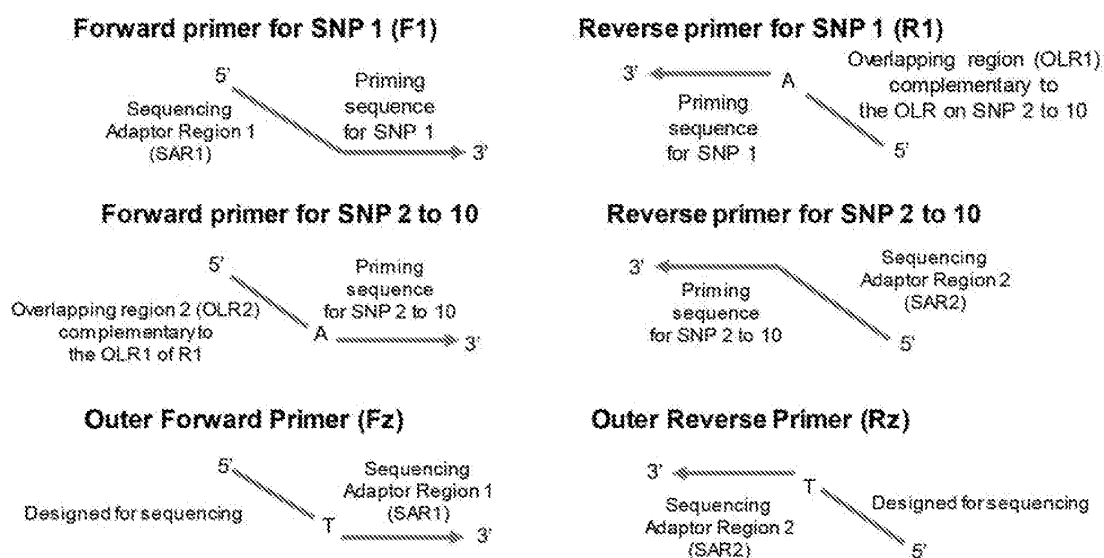


FIG. 17B

SNP ID	Coordinate on Chr11	Distance from the first SNP (kb)	Genotype	Forward primer (5' to 3')	Reverse primer (5' to 3')
rs11036868	5331270	-	T / C	AATCGGGAAGCT GAAGGCCAAGGA CTGTAGAGACAT AGATGA	<u>CACTACCGTC</u> <u>GGATGACATA</u> CTGGAGAGAT TTCATCCTTGG AG
rs78930059	5333450	2.18	G / T	<u>ATGTCATCCGACG</u> <u>GTAGTG</u> AGCAAT GACAGAGTTTGA CATATTGATT	GTGCTCTTCC GATCTGTTAG TGATCAATGT GTTAATCATA AAGTAATT
rs10768807	5336582	5.31	T / A	<u>ATGTCATCCGACG</u> <u>GTAGTG</u> ACCTTCC TCCATAATCACAT CTGCTA	GTGCTCTTCC GATCTCTGTT GCACCAACCT AATATAAGGA A
rs4910551	5343046	11.78	G / A	<u>ATGTCATCCGACG</u> <u>GTAGTG</u> AGGAGT GACAATACAGAA AAAAATAGAGG	GTGCTCTTCC GATCTGAGGG GATTTGTATC CGTTGTTC
rs10837882	5351633	20.36	T / A	<u>ATGTCATCCGACG</u> <u>GTAGTG</u> ACCTACA TCTCCATACTTCT TGGCAAT	GTGCTCTTCC GATCTATGAT CATTCCTGAT GAGAAAGAG AAG
rs2736557	5361361	30.09	G / T	<u>ATGTCATCCGACG</u> <u>GTAGTG</u> AGGAGA GAGGAGTGGGCC GTA	GTGCTCTTCC GATCTAAAGA AAATTAGTTT CAGAAACTCC TCC
rs884222	5371742	40.47	A / T	<u>ATGTCATCCGACG</u> <u>GTAGTG</u> ATATCCA TCAATACAACACC TTCCATAG	GTGCTCTTCC GATCTACAGT AGATGTTAGA TGCCCTTACA CA
rs2736543	5381334	50.06	A / G	<u>ATGTCATCCGACG</u> <u>GTAGTG</u> ATACCTT AAAGGTTAAGGC CTGAATG	GTGCTCTTCC GATCTGGGGA AGGTGAAGTA TCAACACA
rs4910781	5406896	75.63	A / C	<u>ATGTCATCCGACG</u> <u>GTAGTG</u> AAGCAA ACTCAGAGGGTT GGAGTAC	GTGCTCTTCC GATCTTATTTT TGAGCTCTG ACAGTTGTCT CC
rs10838096	5431296	100.03	A / G	<u>ATGTCATCCGACG</u> <u>GTAGTG</u> ACCTGA CTCCATGCAGGA GA	GTGCTCTTCC GATCTGTTGA CTTTGATGGC TGCCTG

FIG. 18

SNP pairing	Hap I: C allele at SNP 1 (Reference: 5'-CTAATTAAAG-3')		Hap II: T allele at SNP 1 (Reference: 5'-TGTGAGAGCA-3')	
	Alleles combination (frequency)	Determined Hap I	Alleles combination (frequency)	Determined Hap II
SNP 1—SNP 2	C—T (80.5%) C—G (19.5%)	CT-----	T—G (84.7%) T—T (15.3%)	TG-----
SNP 1—SNP 3	C—A (89%) C—T (11%)	C—A-----	T—T (85.5%) T—A (14.5%)	T—T-----
SNP 1—SNP 4	C—A (81.3%) C—G (18.7%)	C—A-----	T—G (83.1%) T—A (16.9%)	T—G-----
SNP 1—SNP 5	C—T (67.8%) C—A (32.2%)	C---T-----	T—A (90.3%) T—T (9.7%)	T---A-----
SNP 1—SNP 6	C—T (80.2%) C—G (19.8%)	C---T-----	T—G (86.4%) T—T (13.6%)	T---G-----
SNP 1—SNP 7	C—T (67.2%) C—A (32.8%)	C-----T---	T—A (65.2%) T—T (34.8%)	T-----A---
SNP 1—SNP 8	C—A (68.6%) C—G (31.4%)	C-----A---	T—G (61.7%) T—A (38.3%)	T-----G---
SNP 1—SNP 9	C—A (65.8%) C—C (34.2%)	C-----A-	T—A (53%) T—C (47%)	T-----x-
SNP 1—SNP 10	C—G (58.1%) C—A (41.9%)	C-----x	T—A (50.4%) T—G (49.6%)	T-----x

FIG. 19

Region No.	SNP ID	Coordinate on chr11	Forward primer (5' to 3')	Reverse primer (5' to 3')
1	rs7930833	5222527	AATCGGGAAGCTGA AGCTTGATAGTTTCT ACTTTGGGTTGATAA TT	<u>CACTACCGTCGGATGAC</u> <u>ATAATGGGAAGACATGT</u> ATATAATCTTAGAGATA
2	rs1236487 2	5222914	<u>ATGTCATCCGACGG</u> <u>TAGTG</u> AGCAGAAAG AGATAATATTAAGG ATAATCAG	GTGCTCTTCCGATCTGC AGAAAGAGATAATATT AAGGATAATCAG
3	rs1083762 8	5223174	<u>ATGTCATCCGACGG</u> <u>TAGTG</u> AGTCAAATG GATATTTGTATCTGA AAAATC	GTGCTCTTCCGATCTAT GCATCTTGATGATTAGA ATTGCA
4	rs2187610	5224176	AATCGGGAAGCTGA AGTCATGGTTCACCT TTCATTTGTTC	<u>CACTACCGTCGGATGAC</u> <u>ATAACATCAA</u> ACTAAAA AATTTCACACAA
5	rs1076868 2	5224277	<u>ATGTCATCCGACGG</u> <u>TAGTG</u> ACAAATTCA AAAAACGGCTGCA	GTGCTCTTCCGATCTAA GAAATCAAAAGAAGAA AATTCTAATATTCA
6	rs1083763 0	5224812	AATCGGGAAGCTGA AGGTAATAAGACAG TAGTGAATATCAAG CTACAAA	<u>CACTACCGTCGGATGAC</u> <u>ATAAGTTAGG</u> ACTGAGA AGAATTTGAAAGG
7	rs1083763 1	5225126	<u>ATGTCATCCGACGG</u> <u>TAGTG</u> AGTATCTCTA AGCAAGAGAACTGA GTGG	GTGCTCTTCCGATCTATT TGCTTATCCTGCATCTCT CAG
8	rs7110263	5225282	AATCGGGAAGCTGA AGTTTTCTGAGGGAT GAATAAGGCAT	<u>CACTACCGTCGGATGAC</u> <u>ATAATTGGCAACAG</u> CCC CTGAT
9	rs1609812	5225911	<u>ATGTCATCCGACGG</u> <u>TAGTG</u> ATACAATTTA TATGCAGAAATATTT ATATGCAG	GTGCTCTTCCGATCTATT TCTGGGTAAAGGCAATA GCAA
10	rs7480526	5226503	AATCGGGAAGCTGA AGTTCCCATTTCTAAA CTGTACCCTGTT	<u>CACTACCGTCGGATGAC</u> <u>ATAATGGTTAAG</u> TTTCA TTCATAGGAAGG

FIG. 20

Region No.	SNP ID	Coordinate on chr11	Forward primer (5' to 3')	Reverse primer (5' to 3')
11	rs10768683	5226561	AATCGGGAAGCTGAAG CCTATGACATGAACTTA ACCATAGAAA	<u>CACTACCGTCGGATGAC</u> <u>ATATGAGAACTTCAGGG</u> TGAGTCTATG
12	rs10742583	5227411	<u>ATGTCATCCGACGGTA</u> <u>GTG</u> ATTCCCAATTTTCT TATTACACAAATAAGA	GTGCTCTTCCGATCTAA ACTCTTCCACTTTTAGTG CATCAA
13	rs11036364	5227774	AATCGGGAAGCTGAAG TTAGTTACTTATTAGGT TTTGGGAAACAAG	<u>CACTACCGTCGGATGAC</u> <u>ATAATTTT</u> GACTGCAT TAAGAGGTCTCTAGT
14	rs7936823	5228938	<u>ATGTCATCCGACGGTA</u> <u>GTG</u> AGAAAAGACGTCT TTAAAATATTTTAAATG TT	GTGCTCTTCCGATCTAA AATCTAACAGCCAAGTC AAATCTG
15	rs3813727	5234682	AATCGGGAAGCTGAAG CTGTCATGTGTGCTTG ACTCAGAA	<u>CACTACCGTCGGATGAC</u> <u>ATAAGATGCGGTGGGG</u> AGATATG
16	rs10837643	5236808	<u>ATGTCATCCGACGGTA</u> <u>GTG</u> AAAGGCCATGAGG ACTGTTATTTG	GTGCTCTTCCGATCTAG CCAAGTCTTTGGAATTA ACAGAC
17	rs4283007	5237260	AATCGGGAAGCTGAAG CCGCATCCAGCCAGGA TA	<u>CACTACCGTCGGATGAC</u> <u>ATAACAAGAGTAGATG</u> CTATTCTTTCCACTTT
18	rs4402323	5237362	<u>ATGTCATCCGACGGTA</u> <u>GTG</u> ATAGATAGGGACA AATTGAAGCAGAA	GTGCTCTTCCGATCTCA TTTCCCTACCTCTAATCA ACAGTT
19	rs4910736	5237759	<u>ATGTCATCCGACGGTA</u> <u>GTG</u> AGAAGTATGAAGT AAGACATAGTCCCCAA	GTGCTCTTCCGATCTATT AAAATCGATACTGAGTT CTAAAATCATC
20	rs2105819	5238497	AATCGGGAAGCTGAAG GCTCTCCACAATTCTAA TCTCAGTTC	<u>CACTACCGTCGGATGAC</u> <u>ATAATTGATAAGATAAT</u> ATGAAAACACAGAATTC A

FIG. 20 (cont.)



FIG. 21A

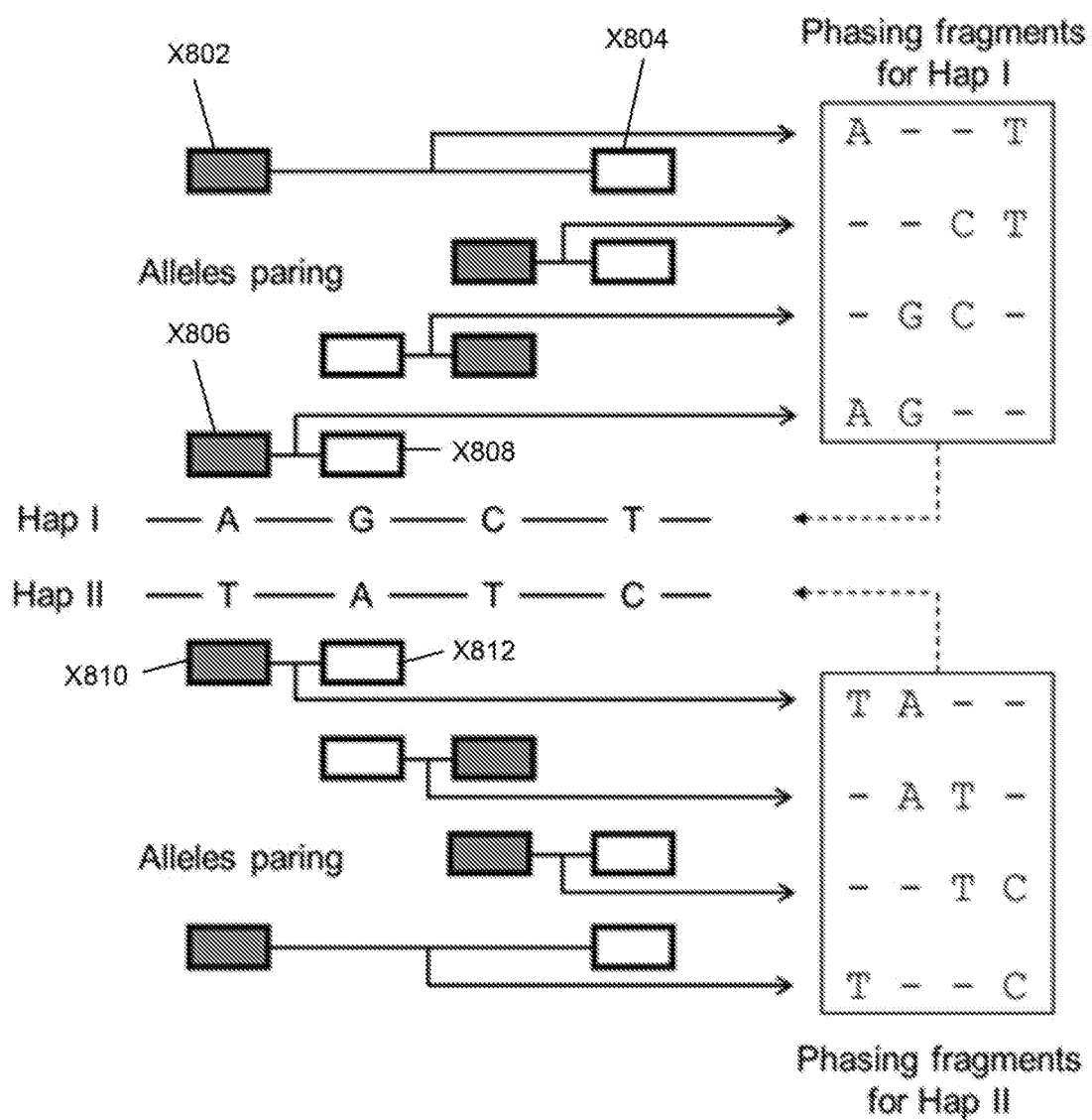


FIG. 21B

	SNP No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Family 1																					
Father	Hap I*	C	A	C	A	C	T	G	A	C	A	G	G	A	T	A	C	G	A	G	C
	Hap II	C	G	G	A	C	A	G	A	A	A	G	A	G	A	T	A	C	A	G	T
Mother	Hap I	C	G	G	A	C	A	G	A	A	A	A	A	G	A	T	A	C	A	G	T
	Hap II*	G	A	G	G	G	T	T	G	A	G	A	G	A	T	A	C	G	A	C	C
Fetus	Hap from father	C	A	C	A	C	T	G	A	C	A	G	G	A	T	A	C	G	A	G	C
	Hap from mother	G	A	G	G	G	T	T	G	A	G	A	G	A	T	A	C	G	A	C	C
Family 2																					
Father	Hap I	G	A	G	G	G	T	T	G	A	G	A	A	G	A	T	A	C	A	C	T
	Hap II*	G	A	G	G	G	T	T	G	A	G	A	G	A	T	A	C	G	A	C	C
Mother	Hap I*	C	G	G	A	C	A	G	A	A	A	G	G	A	T	A	C	G	A	G	C
	Hap II	G	A	G	G	G	T	T	G	A	G	A	A	G	A	T	A	C	A	C	T
Fetus	Hap from Father	G	A	G	G	G	T	T	G	A	G	A	G	A	T	A	C	G	A	C	C
	Hap from Mother	C	G	G	A	C	A	G	A	A	A	G	G	A	T	A	C	G	A	G	C
Family 3																					
Father	Hap I	C	A	C	A	C	T	G	A	C	A	G	A	G	A	T	A	C	A	G	T
	Hap II*	C	A	G	A	C	T	G	A	C	A	G	G	A	T	A	C	G	A	G	C
Mother	Hap I	C	A	C	A	C	T	G	A	C	A	G	G	A	T	A	C	G	A	G	C
	Hap II*	G	A	G	G	G	T	T	G	A	G	G	G	A	T	A	C	G	A	C	C
Fetus	Hap from Father	C	A	G	A	C	T	G	A	C	A	G	G	A	T	A	C	G	A	G	C
	Hap from Mother	G	A	G	G	G	T	T	G	A	G	G	G	A	T	A	C	G	A	C	C

FIG. 22

	SNP No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	Family 4																				
Father	Hap I*	G	A	G	G	G	T	T	G	A	G	A	A	G	A	T	A	C	A	C	T
	Hap II*	G	A	G	G	G	T	T	G	A	G	A	A	G	A	T	A	C	A	C	T
Mother	Hap I*	C	G	G	A	C	A	G	A	A	A	A	A	G	A	T	A	C	A	G	T
	Hap II	G	A	G	G	G	T	T	A	A	G	A	A	A	T	A	C	G	A	C	C
Fetus	Hap from father	G	A	G	G	G	T	T	G	A	G	A	A	G	A	T	A	C	A	C	T
	Hap from mother	C	G	G	A	C	A	G	A	A	A	A	A	G	A	T	A	C	A	G	T

FIG. 22 (cont.)

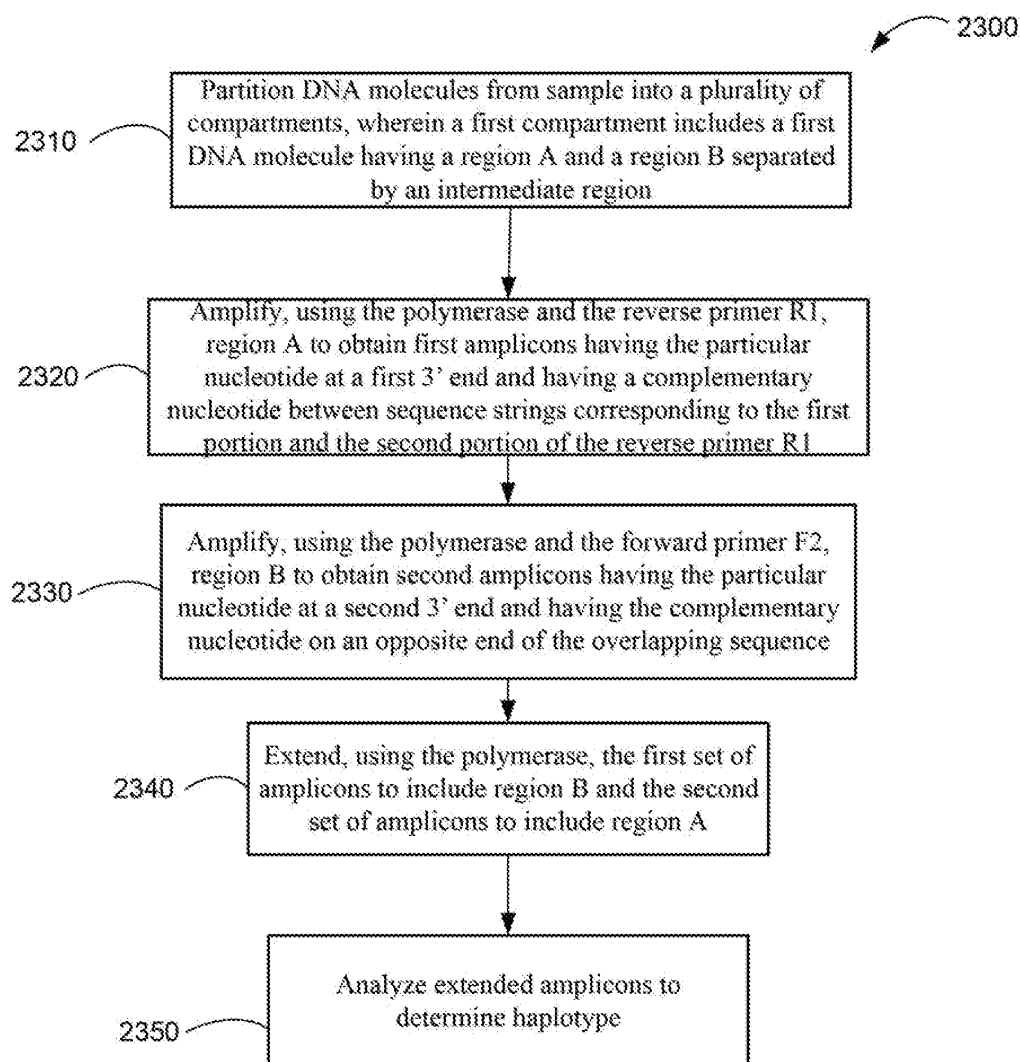


FIG. 23

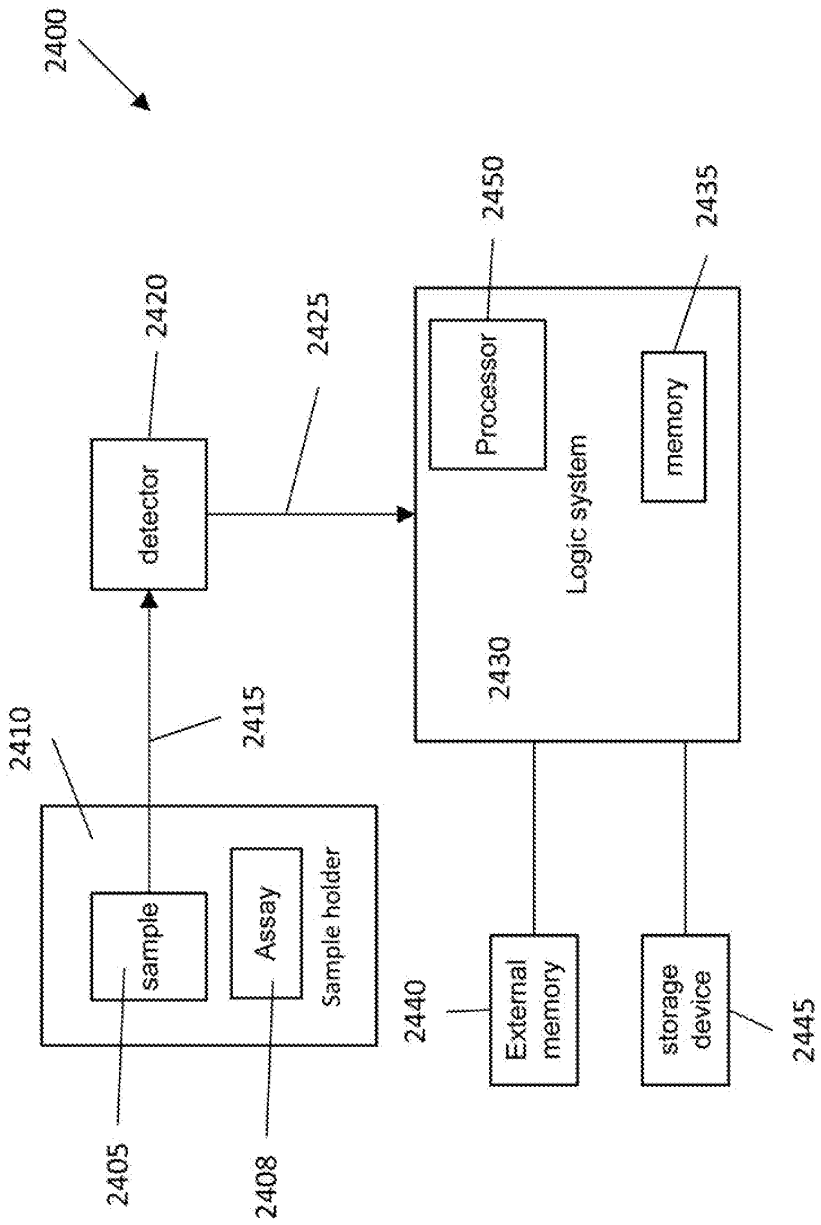


FIG. 24

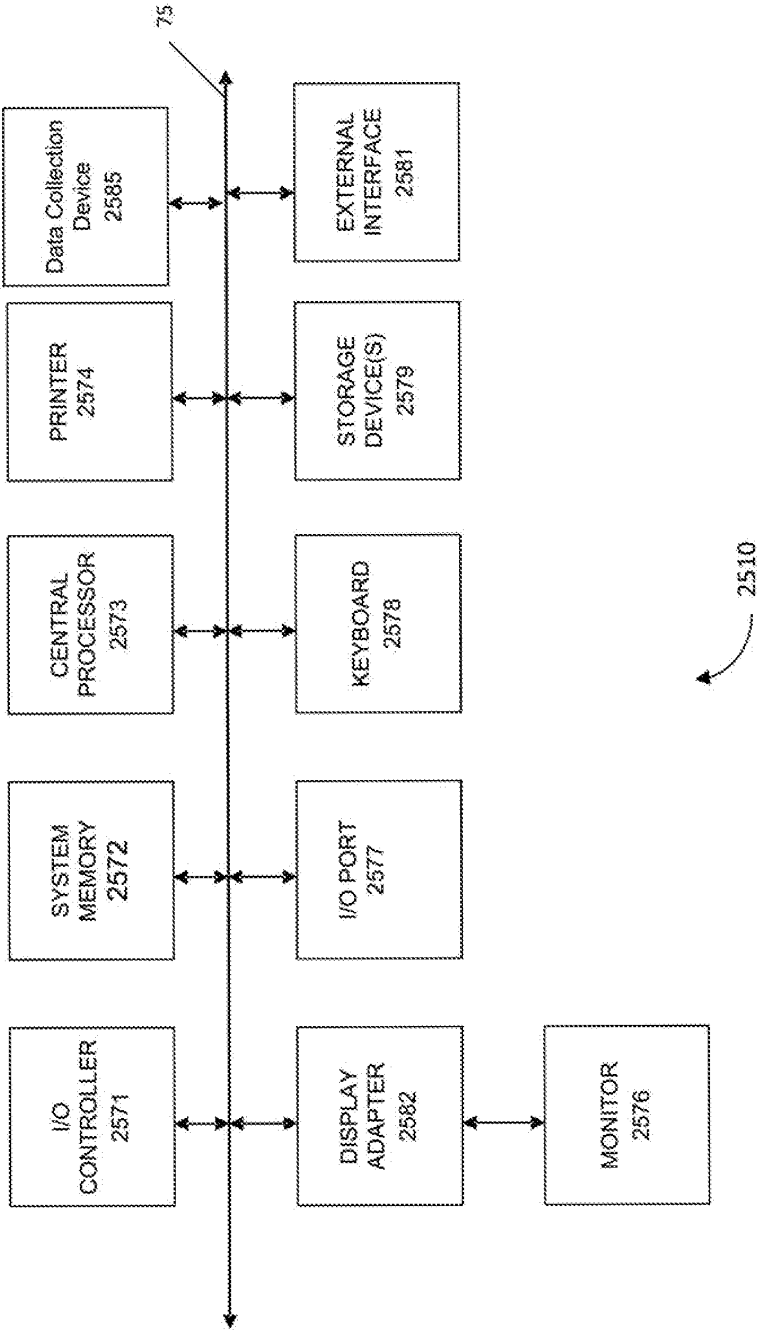


FIG. 25