

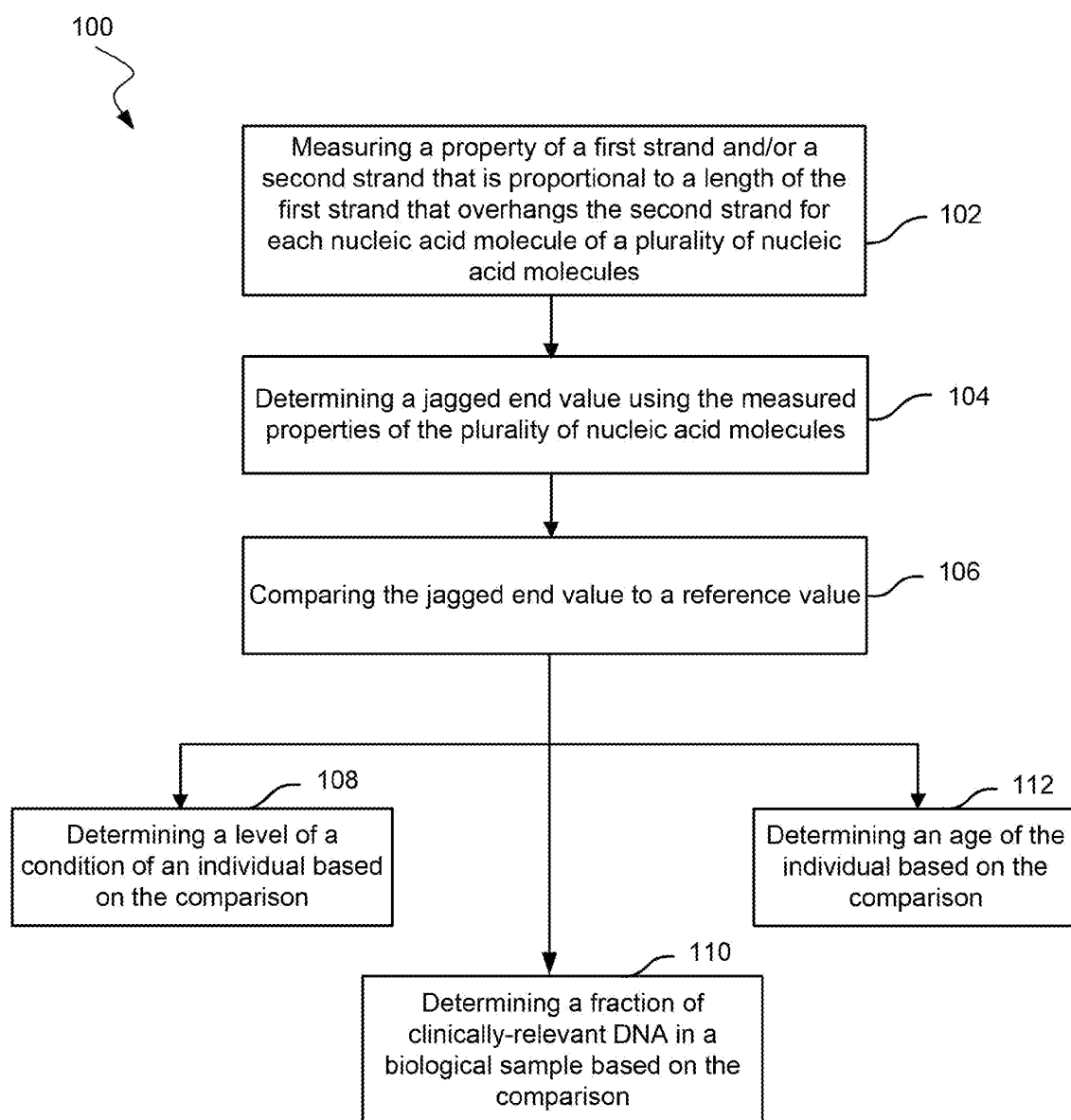


FIG. 1

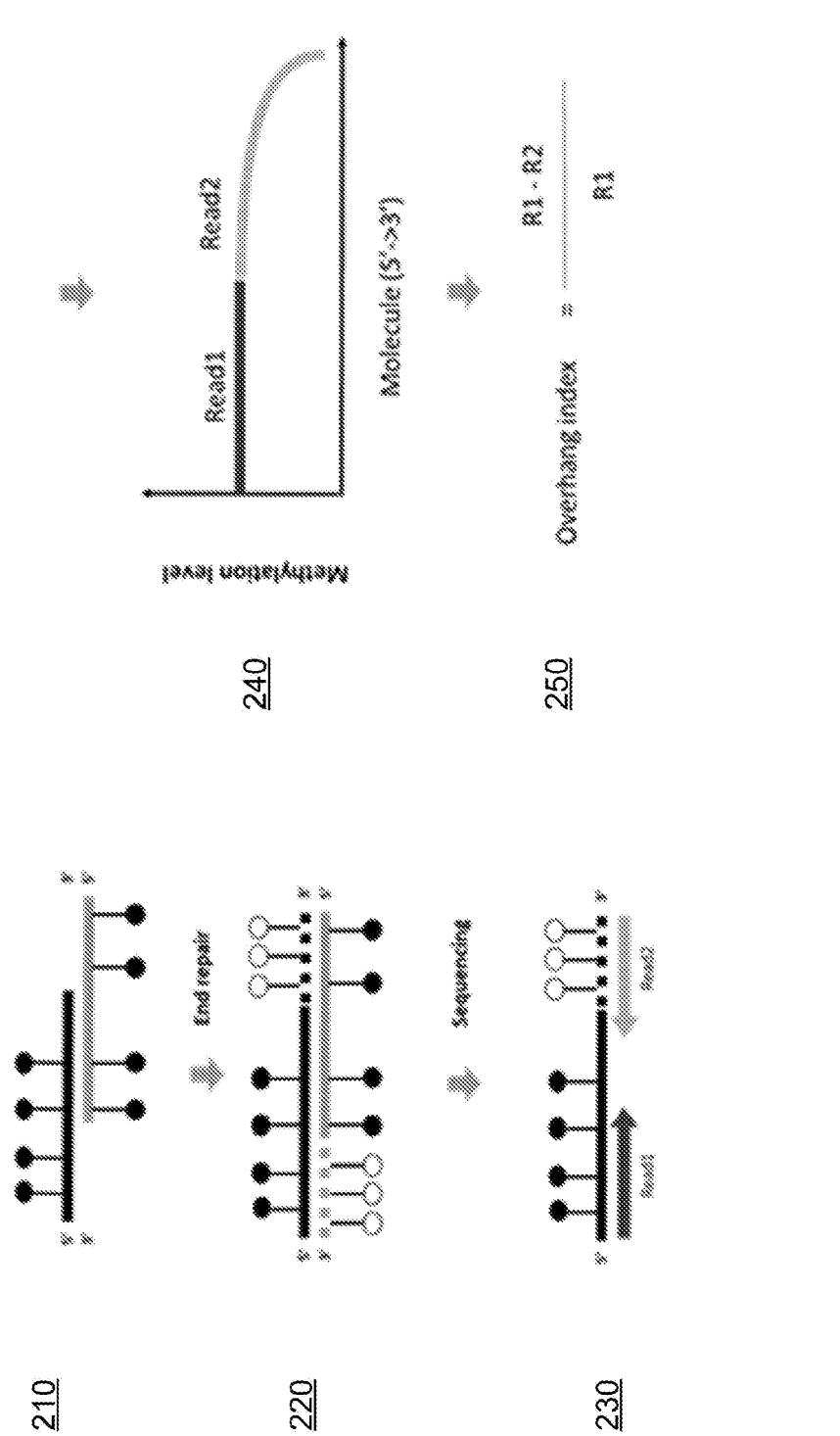
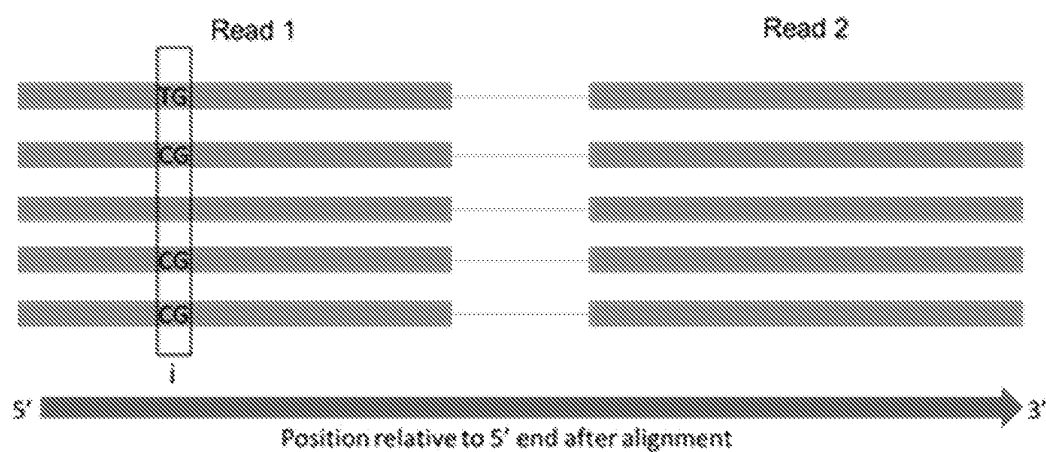


FIG. 2



Methylation level at the relative position i, $MD_i = \frac{\text{No. of CG}}{\text{No. of CG and TG}}$

e.g. Methylation level at the relative position i, $MD_i = \frac{3}{3+1} = 75\%$

Overall overhang index = $\frac{\text{mean of MDi in read1} - \text{mean of MDi in read2}}{\text{mean of MDi in read1}}$

FIG. 3

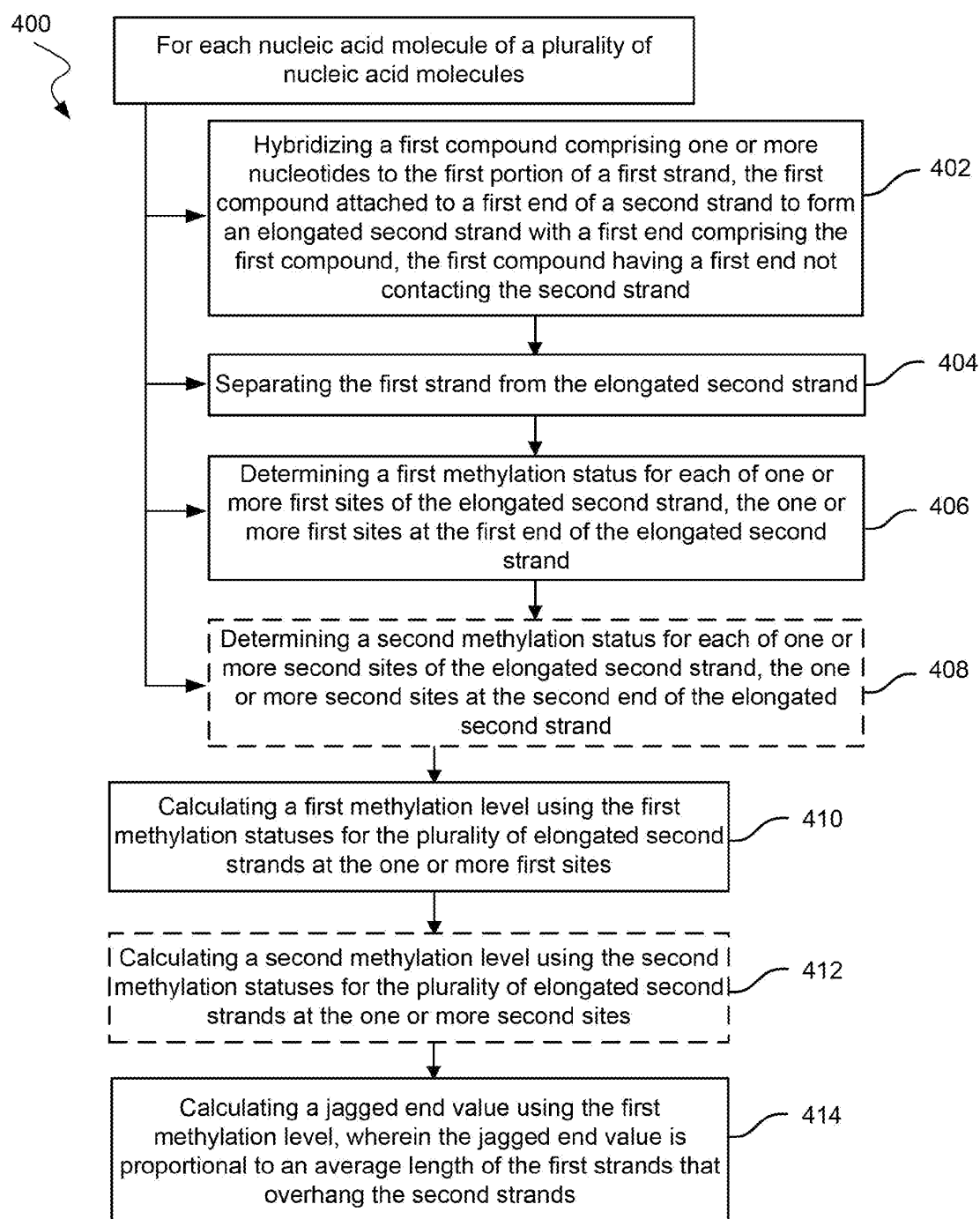


FIG. 4

FIG. 5A

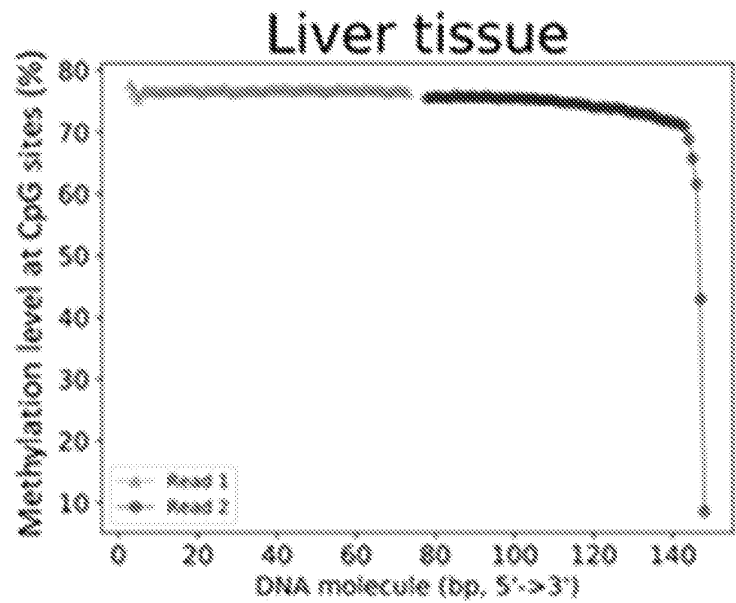
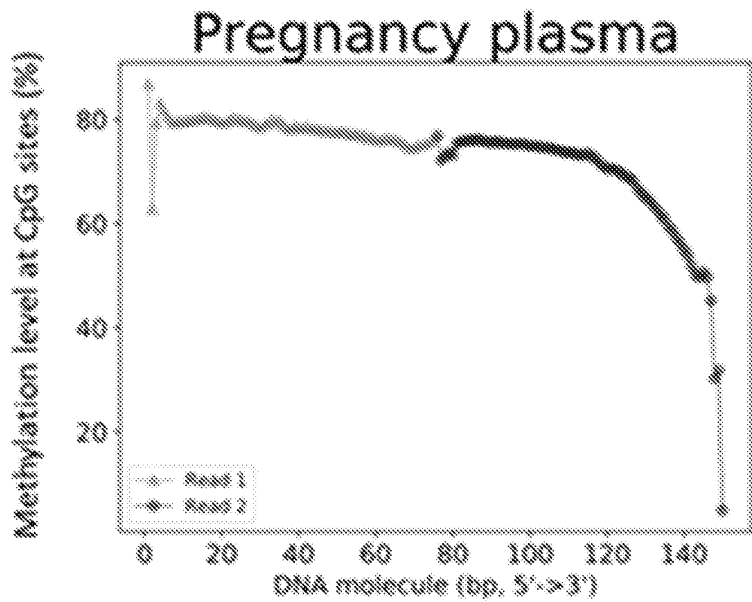


FIG. 5B



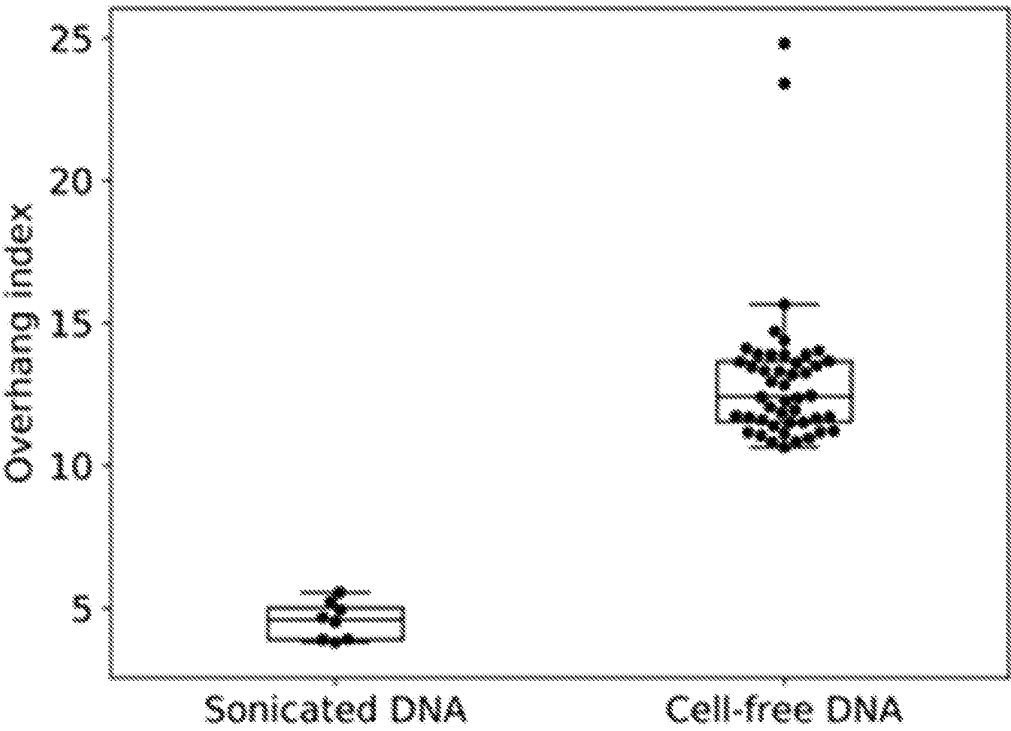


FIG. 6

FIG. 7A

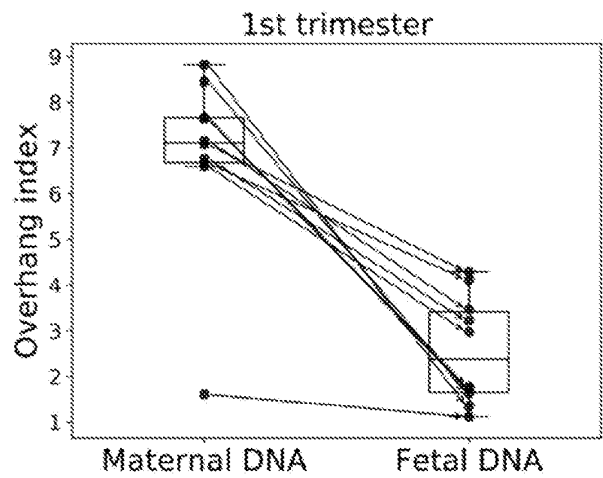


FIG. 7B

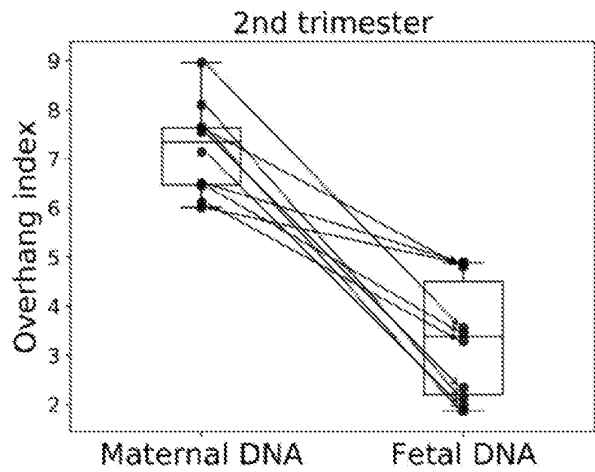
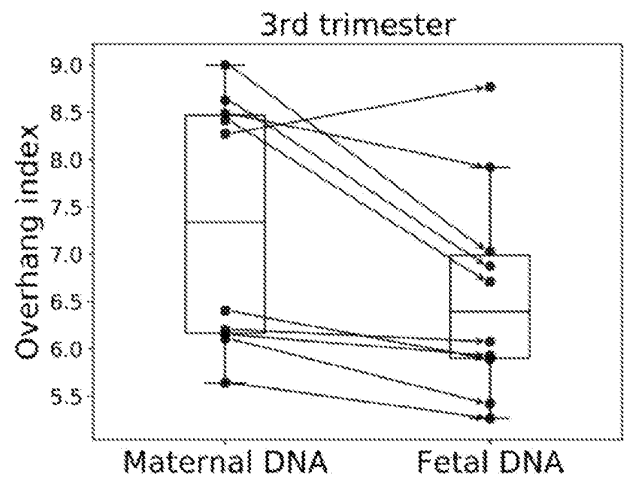


FIG. 7C



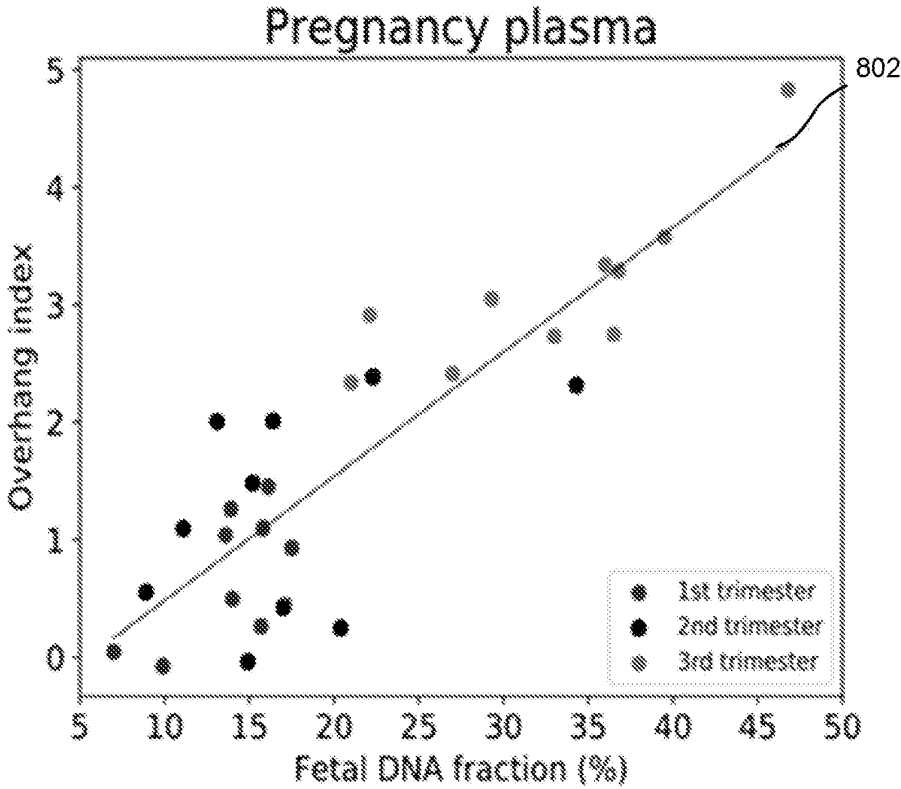


FIG. 8

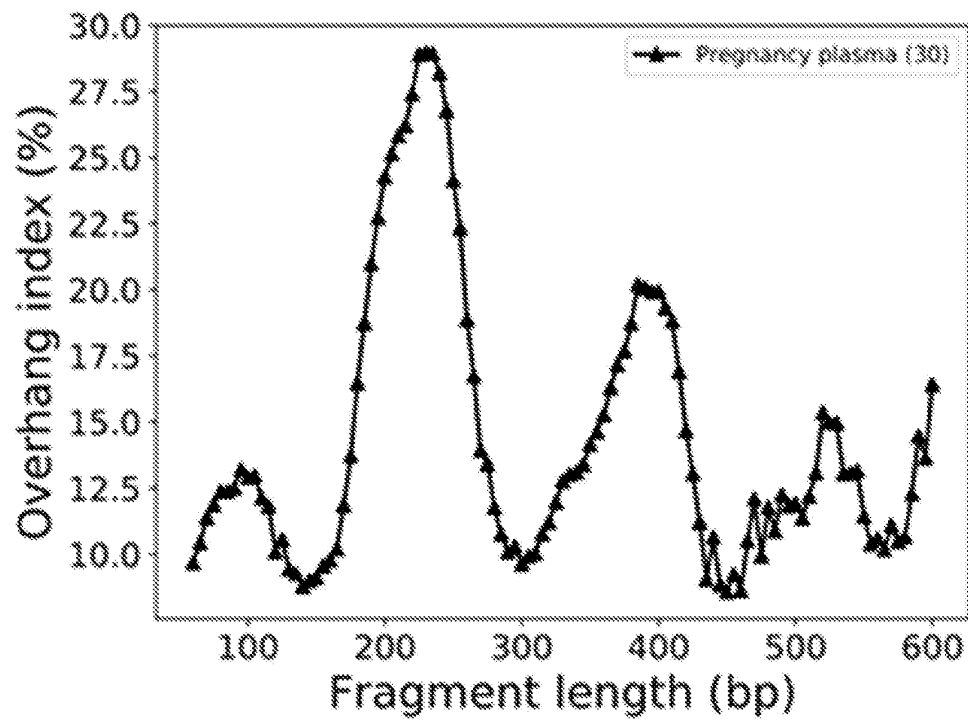


FIG. 9

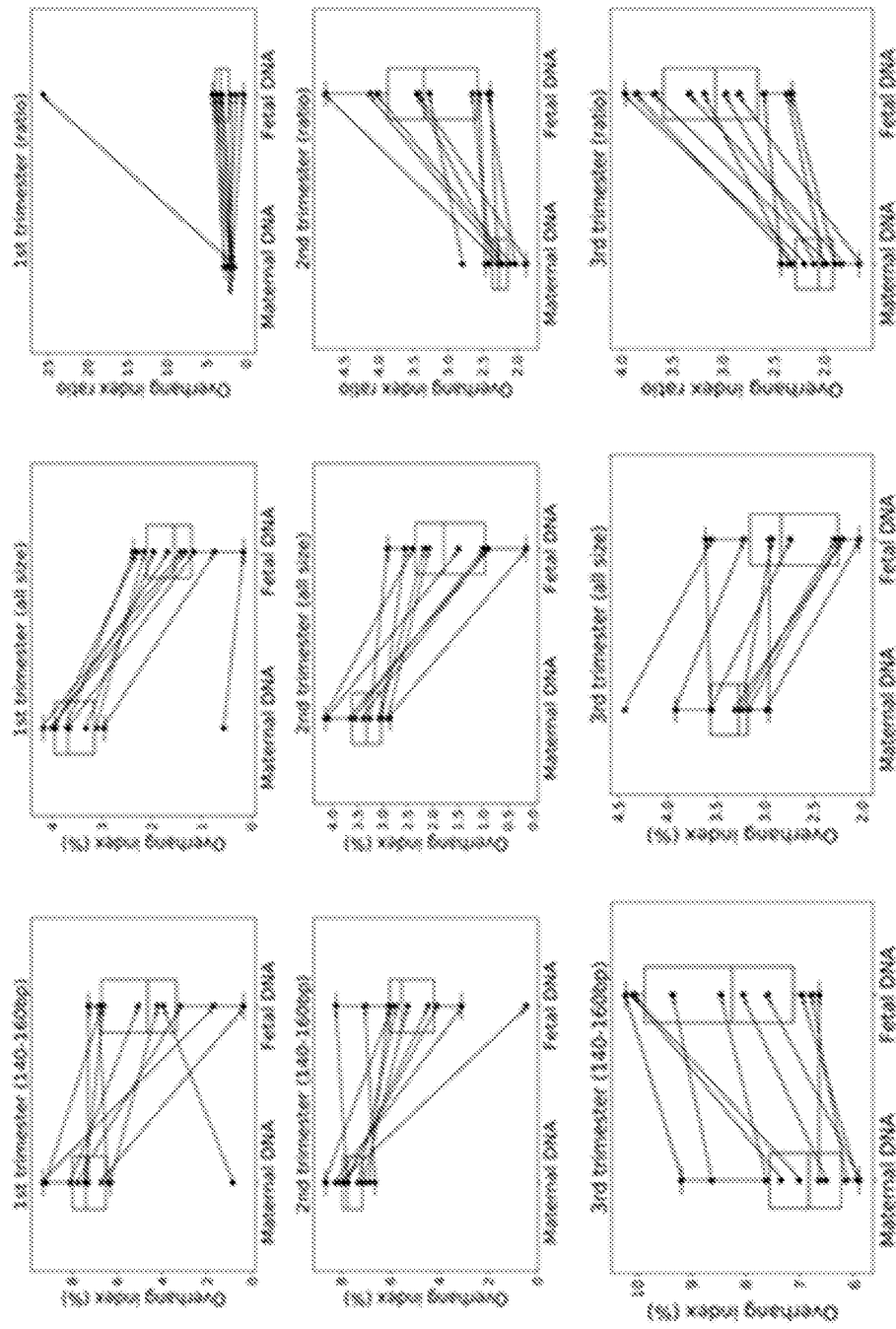


FIG. 10

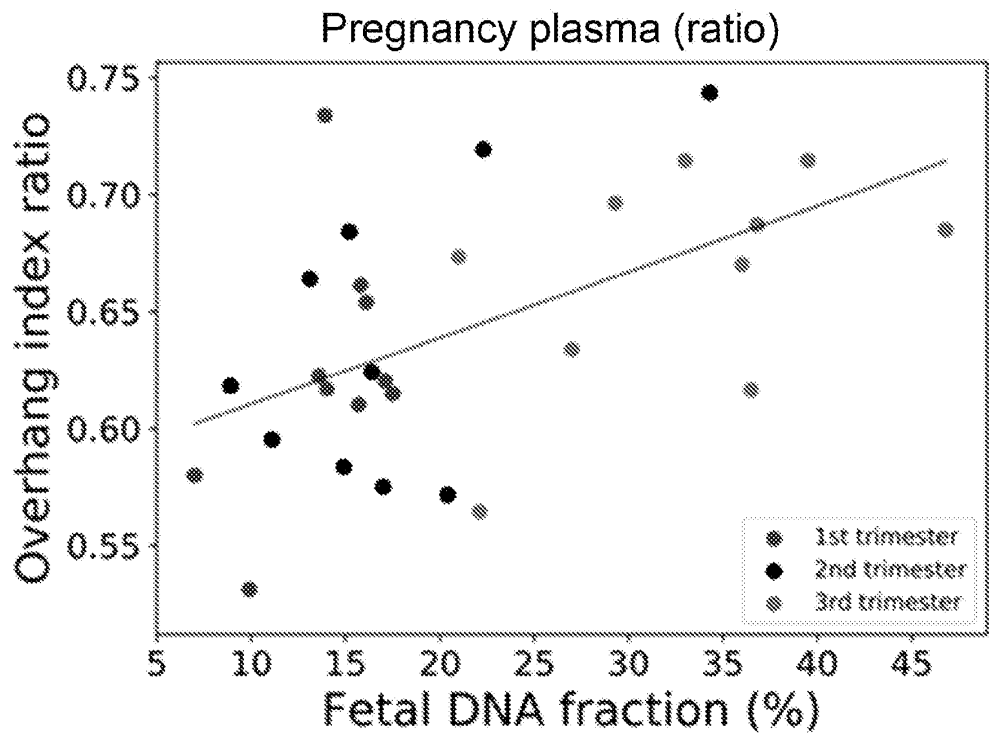


FIG. 11

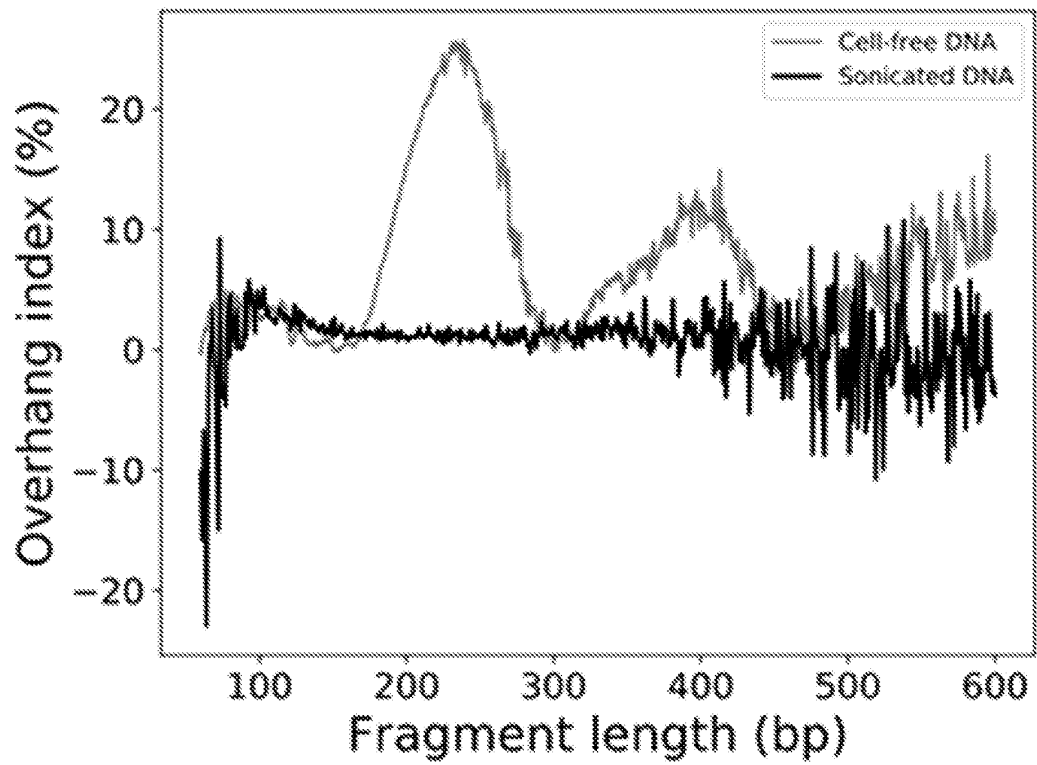


FIG. 12

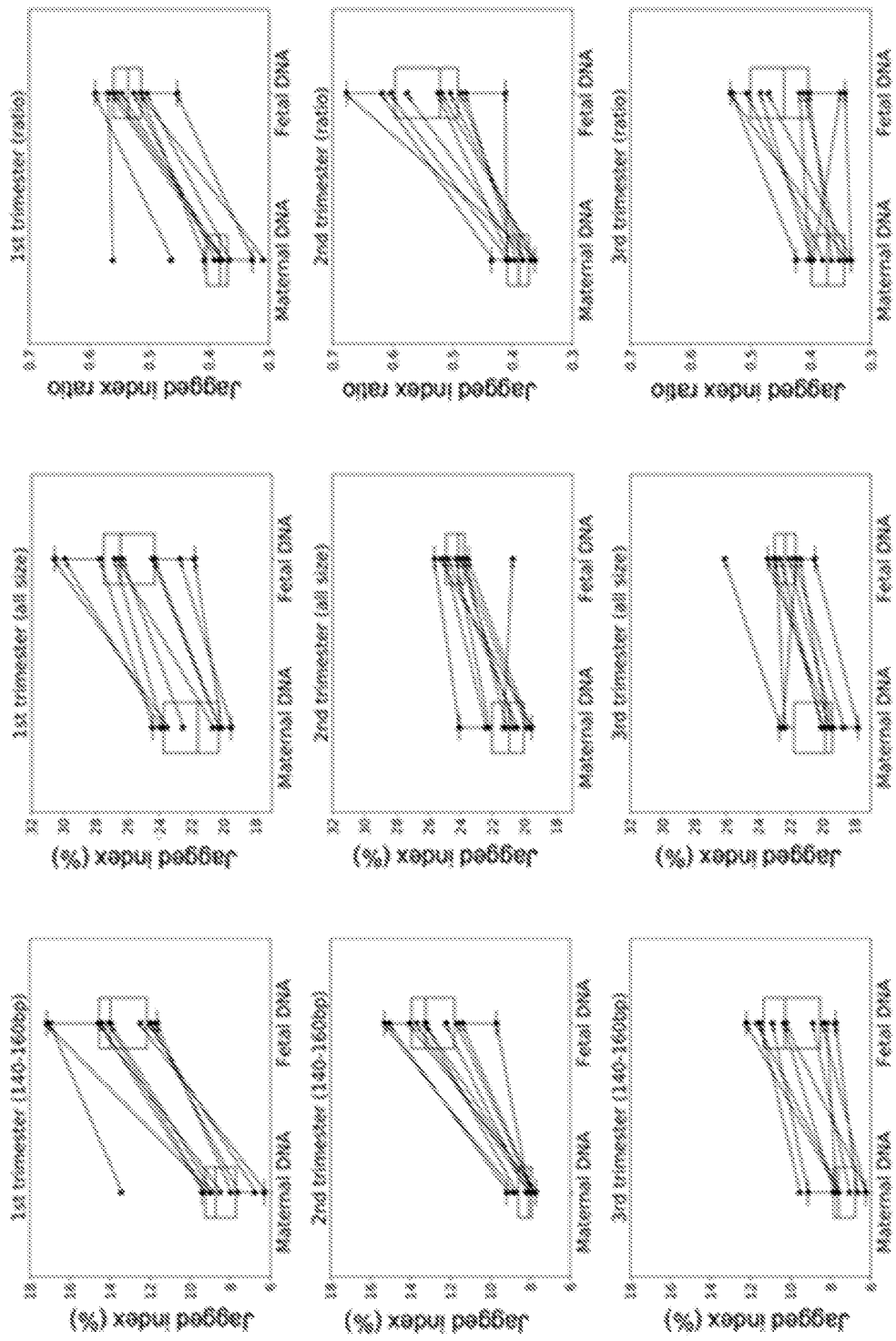


FIG. 13

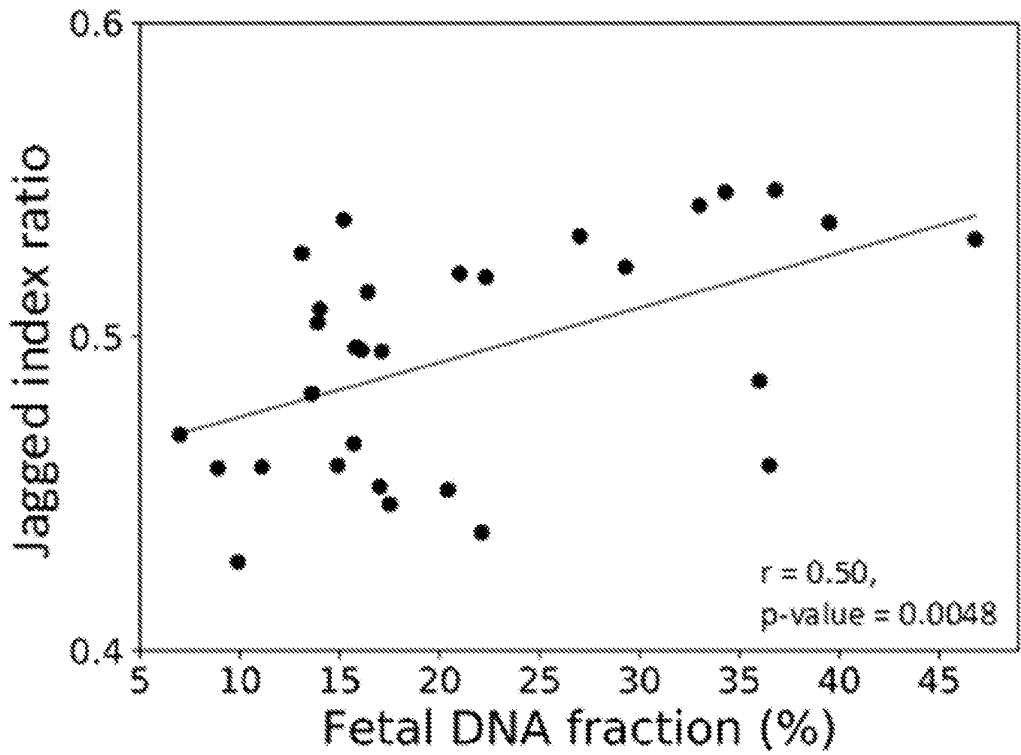


FIG. 14

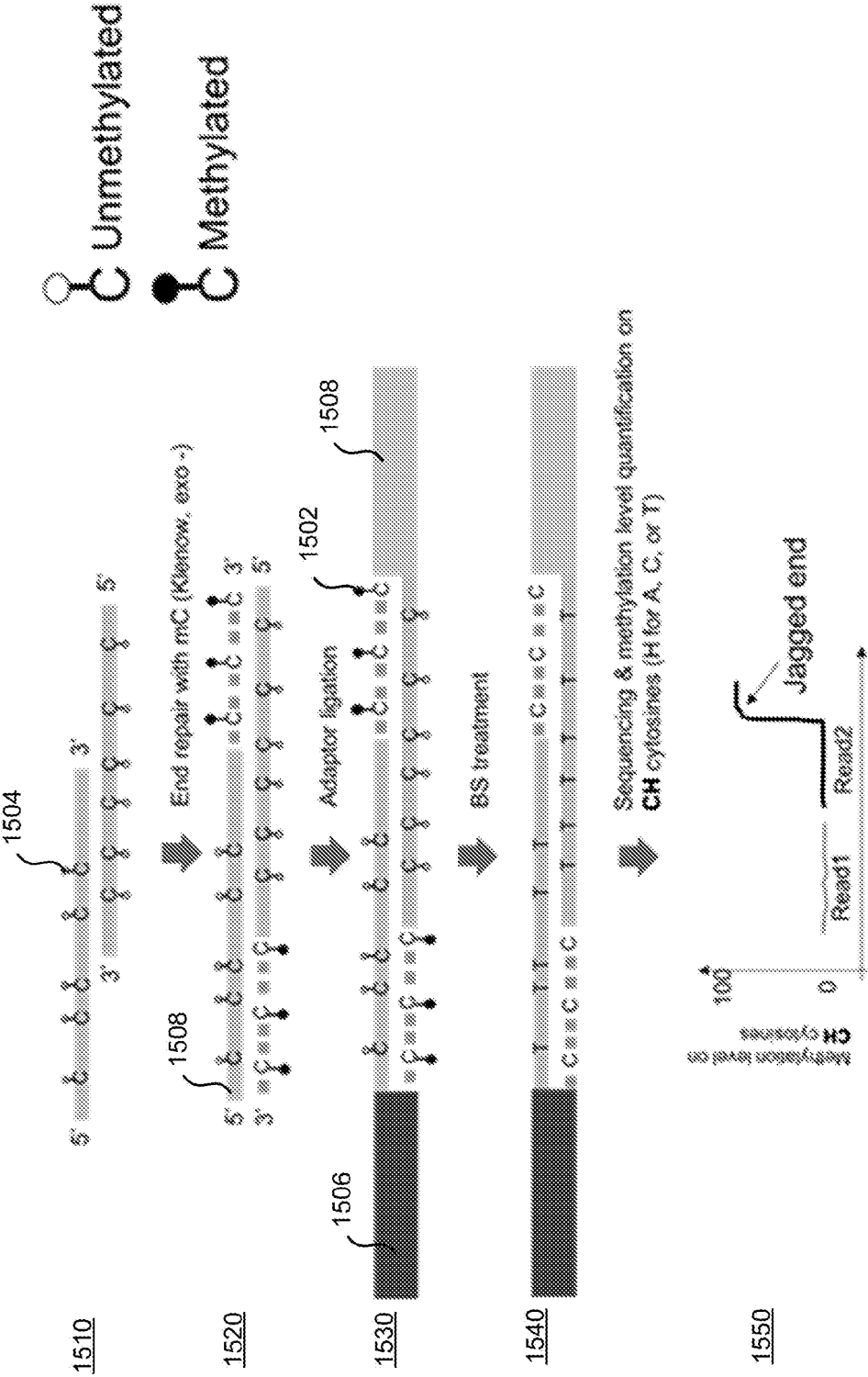


FIG. 15

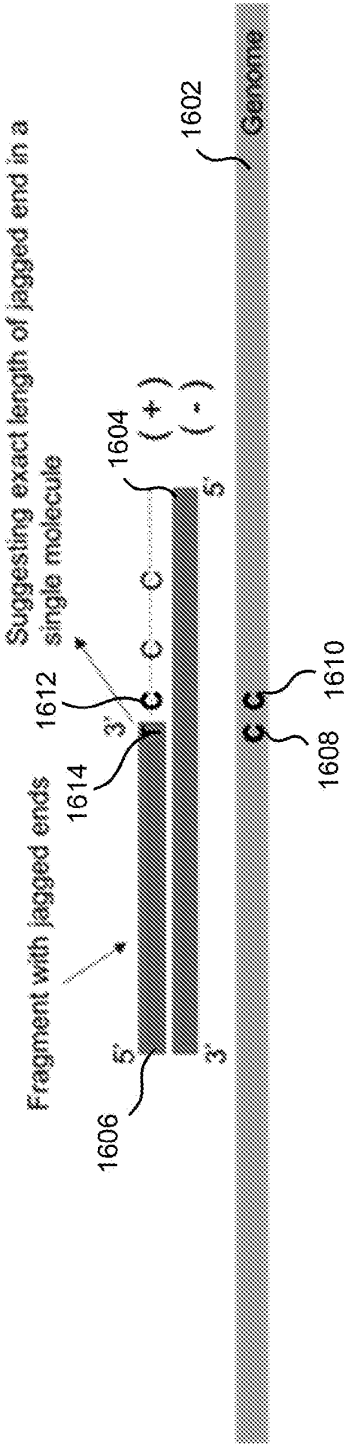


FIG. 16

Sample	Raw fragments	Mapped fragments	Mapped rate (%)	Duplication rate (%)	Depth (X)	Gestational Age(trimester)
M12938	316,317,123	202,958,157	64.00	14.47	8.67	1st
M12961	274,717,558	195,438,667	71.00	14.41	8.36	
M12910	308,027,461	198,130,777	64.00	25.02	7.42	
M12920	321,476,003	224,631,560	69.00	24.47	8.48	
M12974	334,056,147	242,833,691	72.00	22.49	9.41	
M12914	350,267,679	223,811,642	63.00	34.06	7.37	2nd
M12923	345,167,950	219,406,949	63.00	28.15	7.88	
M12926	337,735,283	224,149,850	66.00	29.09	7.94	
M12976	258,722,337	164,874,107	63.7	16.5	6.9	
M12935	343,121,433	255,412,343	74.00	16.33	10.68	
M12989	318,775,149	228,443,016	71.00	12.68	9.97	3rd
M13017	334,824,070	246,043,526	73.00	8.11	11.30	
M13058	335,482,827	240,519,881	71.00	8.48	11.00	
M13062	332,048,307	239,931,793	72.00	11.06	10.66	
M13065	349,081,340	262,357,875	75.00	10.37	11.75	
M13075	225,908,445	147,963,756	65.00	10.9	6.6	

FIG. 17

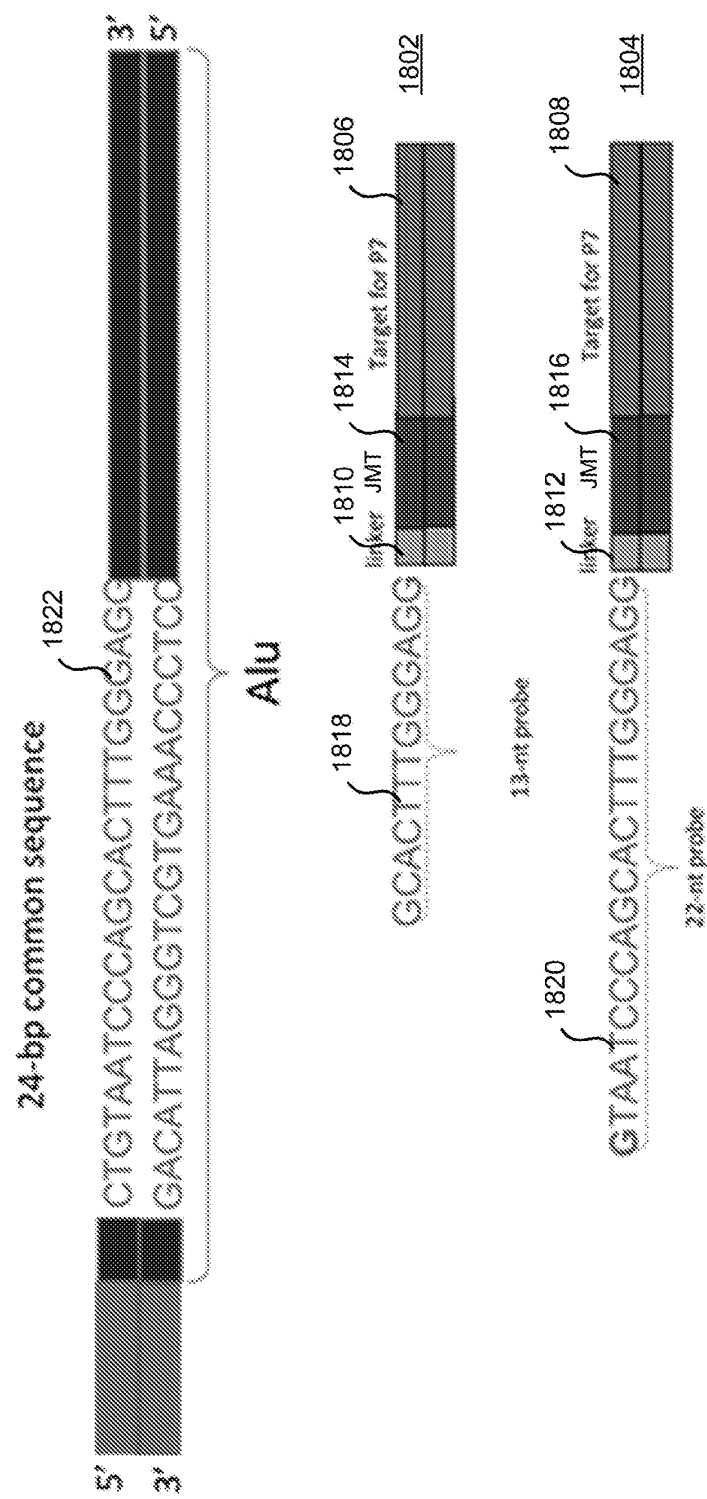


FIG. 18

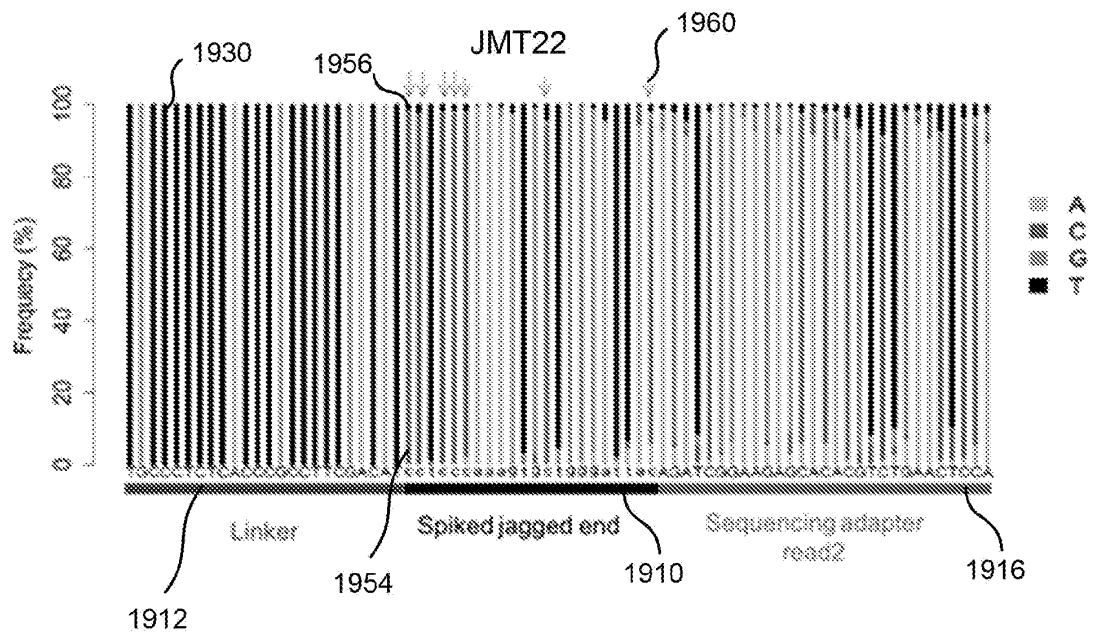


FIG. 19A

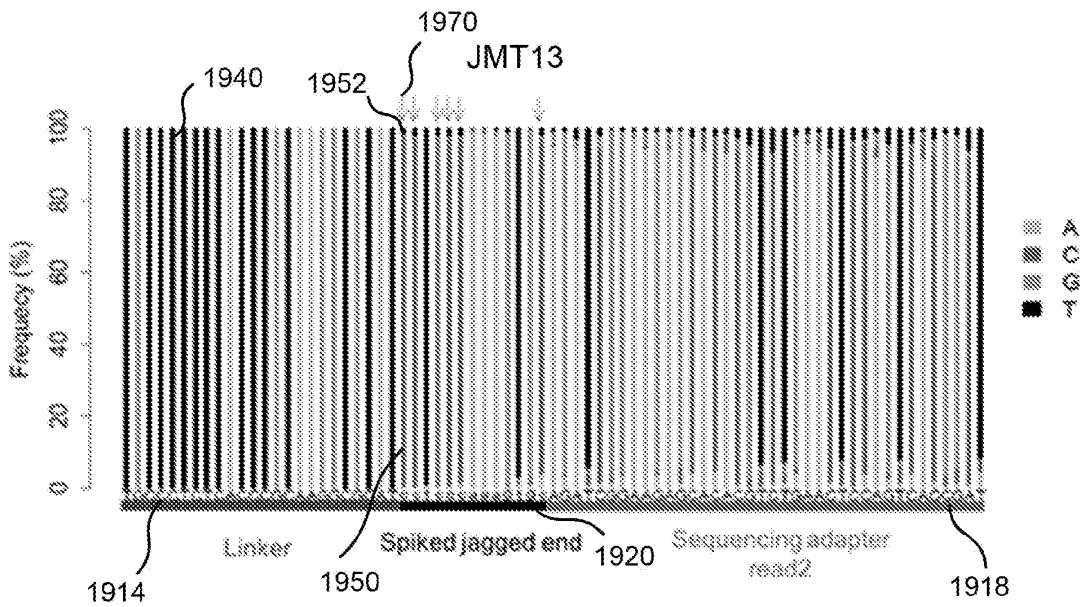


FIG. 19B

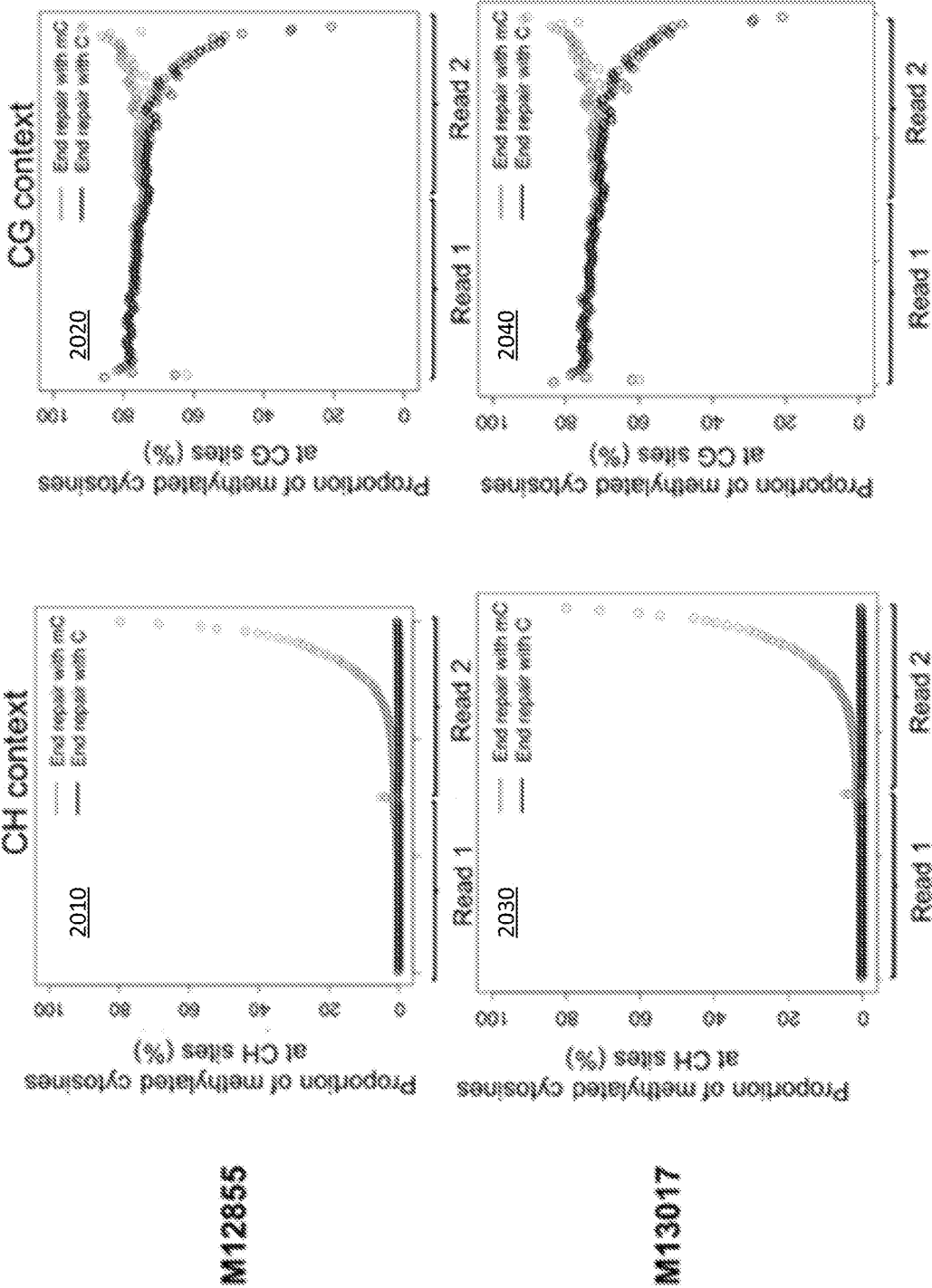


FIG. 20

No. of informative "C" in jagged ends	Samples	End-repair method	Percentage of fragments carrying informative "C"	Relative fold enrichment (X)
1	M12855	C	8.29	
		mC	58.73	7.1
	M13017	C	8.4	
		mC	59.77	7.1
2	M12855	C	0.98	
		mC	32.49	33.2
	M13017	C	0.9	
		mC	33.74	37.5
3	M12855	C	0.2	
		mC	19.89	99.5
	M13017	C	0.16	
		mC	20.48	128

FIG. 21

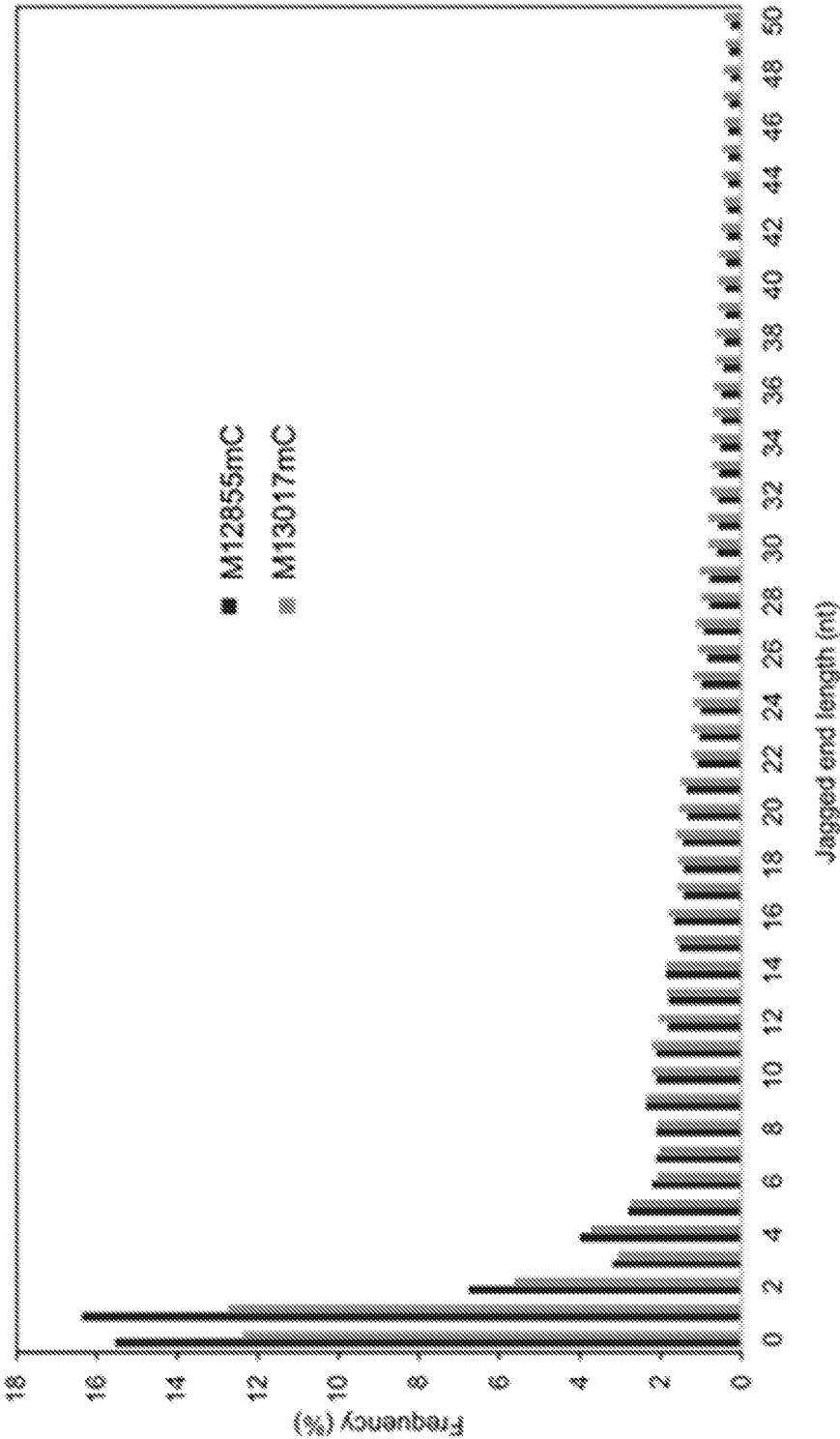
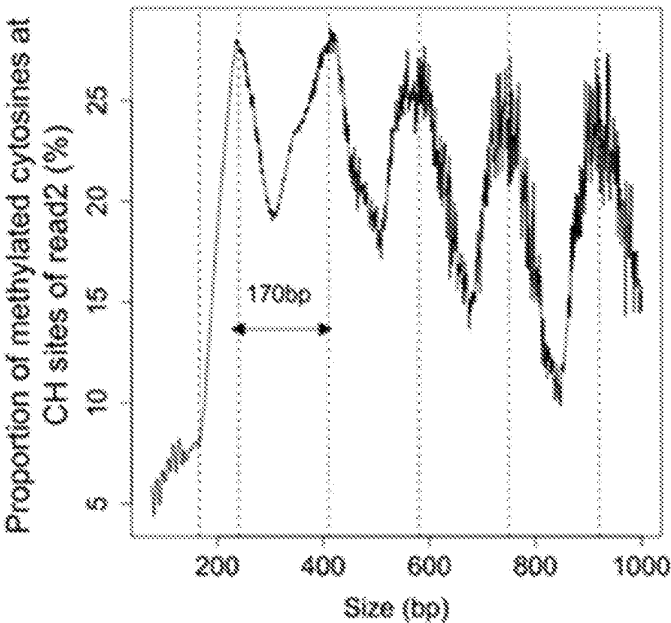
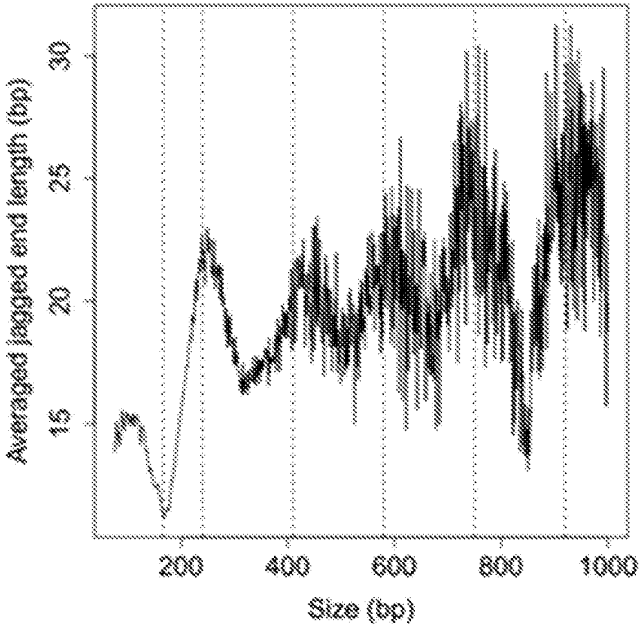


FIG. 22



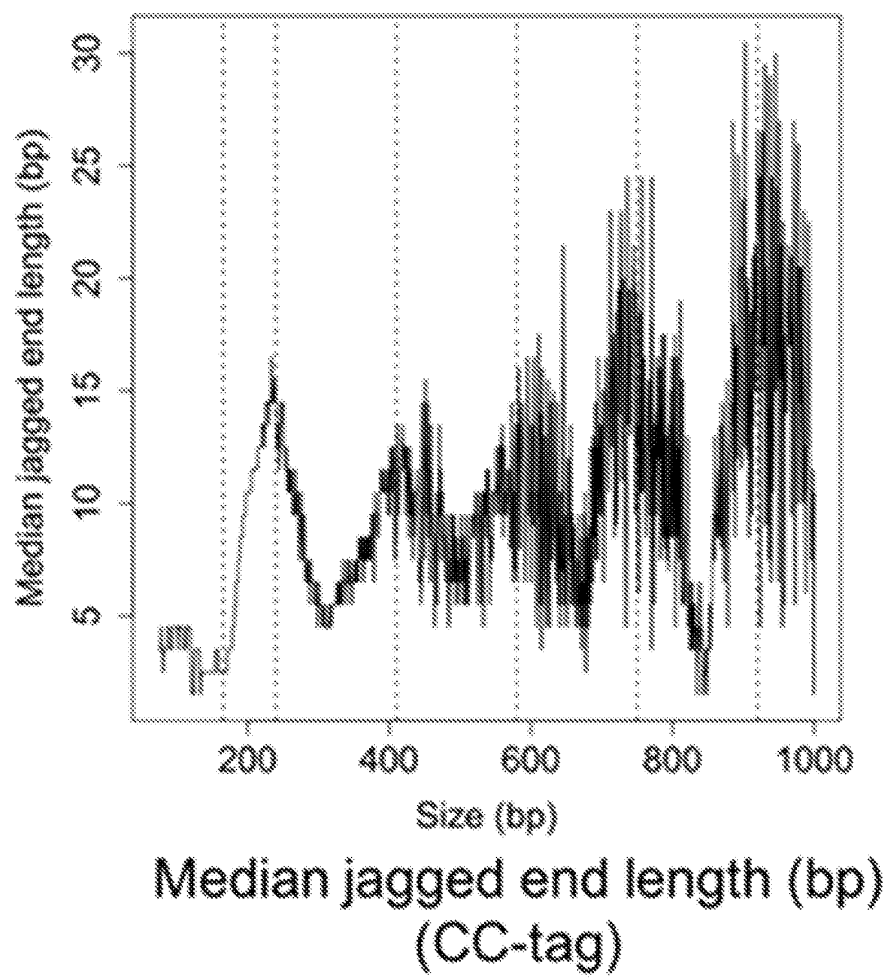
Methylation at CH sites of read2

FIG. 23A



Averaged jagged end length (bp)
(CC-tag)

FIG. 23B

**FIG. 24**

Sample	Fetal DNA fraction (%)	No. of informative SNPs	Shared sequences	Fetal-specific sequences	Gestational Age(trimester)
M12910	21.04	201,437	772,759	90,868	1st
M12920	13.77	205,424	951,630	70,372	
M12938	11.24	208,552	989,260	58,913	
M12961	5.07	206,215	1,004,254	26,111	
M12974	12.61	203,838	1,058,091	71,210	
M12914	9.41	202,551	817,079	40,348	2nd
M12923	9.11	200,549	904,256	43,149	
M12926	29.23	178,623	712,179	121,918	
M12935	15.29	197,087	1,157,109	95,806	
M12976	9.86	198,590	785,788	40,743	
M12989	28.53	200,982	988,217	164,402	3rd
M13017	28.41	204,228	1,207,042	199,838	
M13058	41.27	206,135	1,048,754	272,688	
M13062	28.43	204,965	1,099,624	182,176	
M13065	38.08	201,104	1,113,860	261,959	

FIG. 25

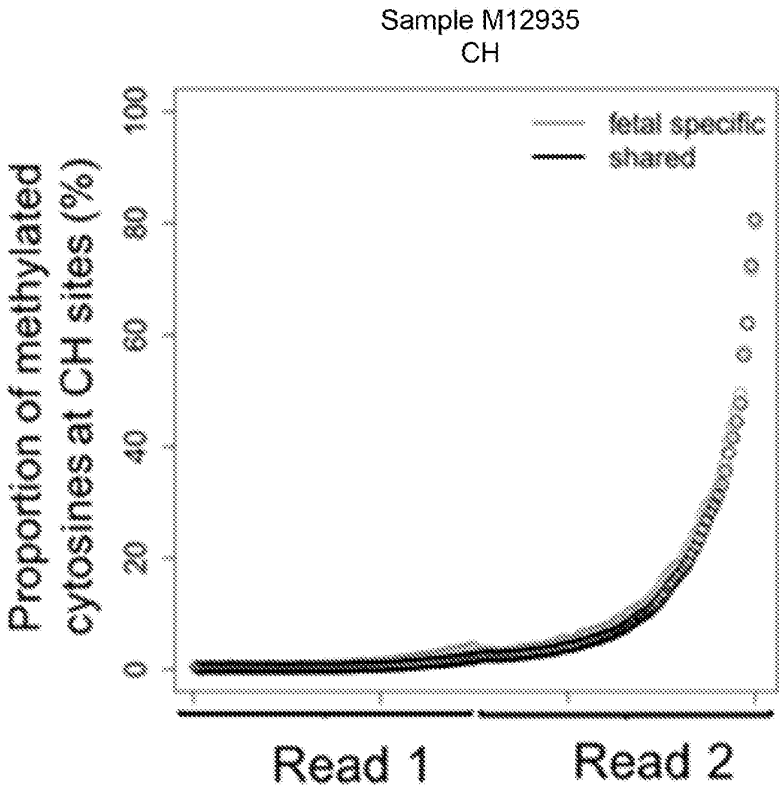


FIG. 26

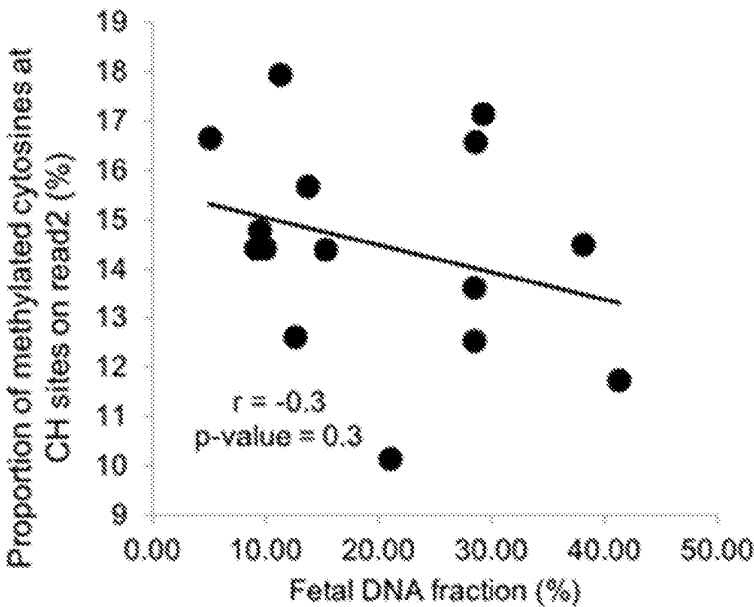


FIG. 27A

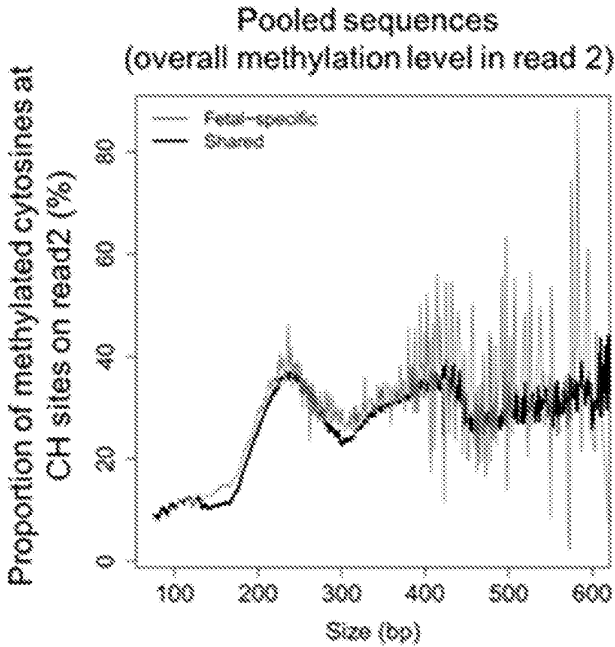


FIG. 27B

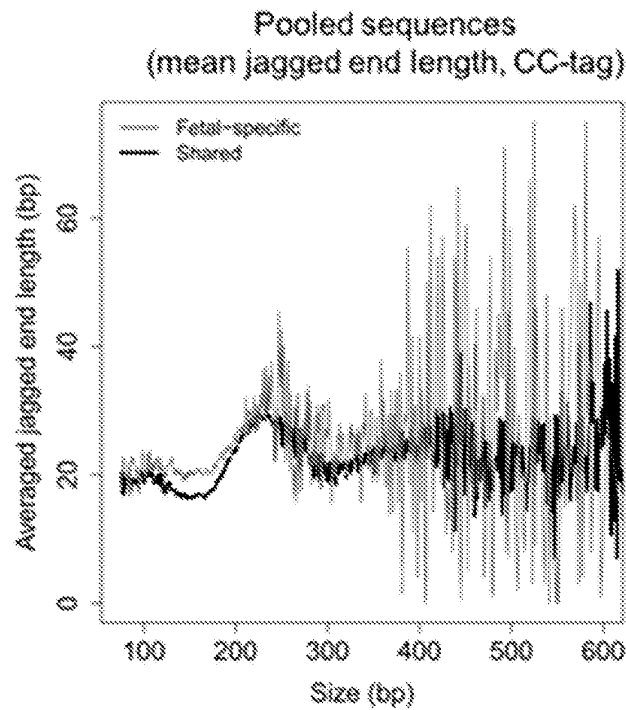


FIG. 28A

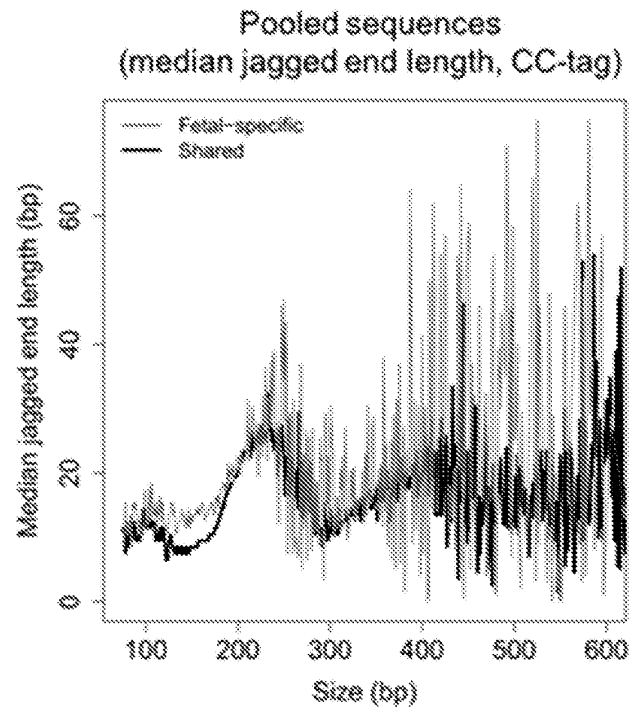


FIG. 28B

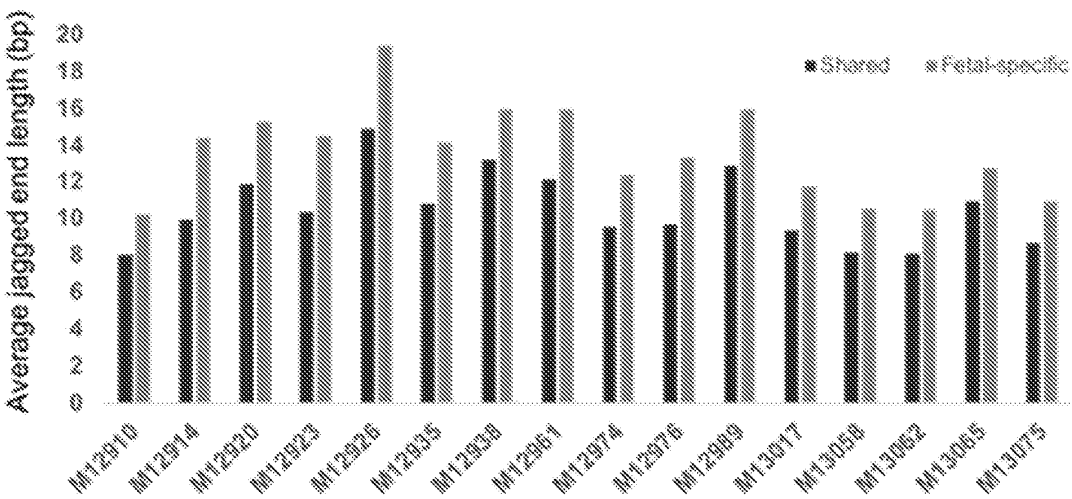


FIG. 29A

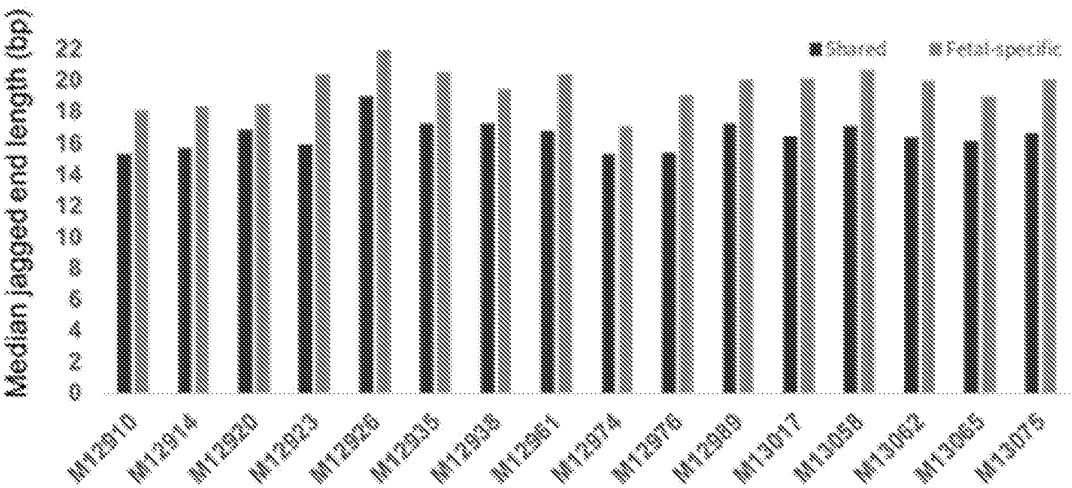


FIG. 29B

140-bp molecules

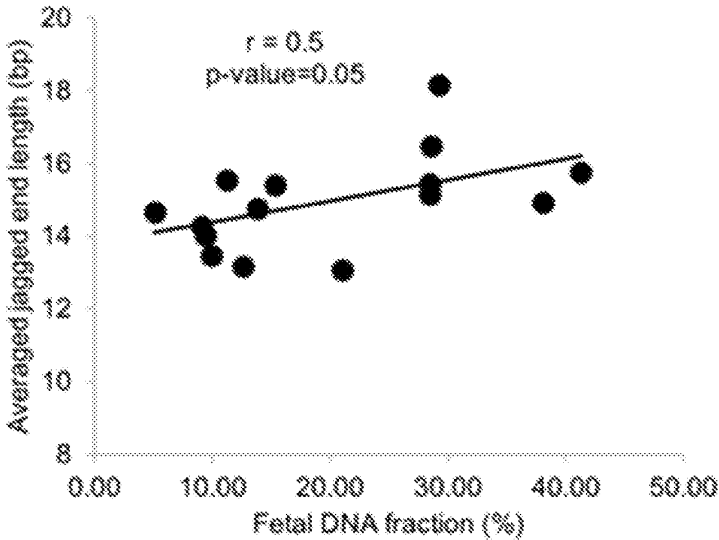


FIG. 30A

166-bp molecules

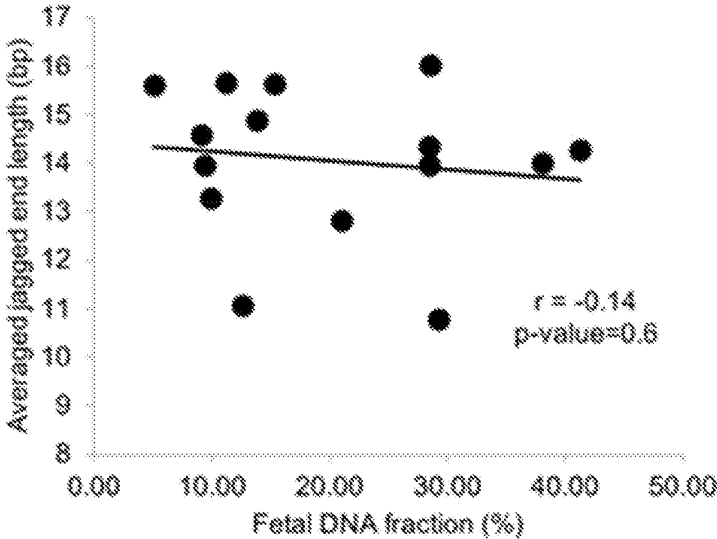


FIG. 30B

200-bp molecules

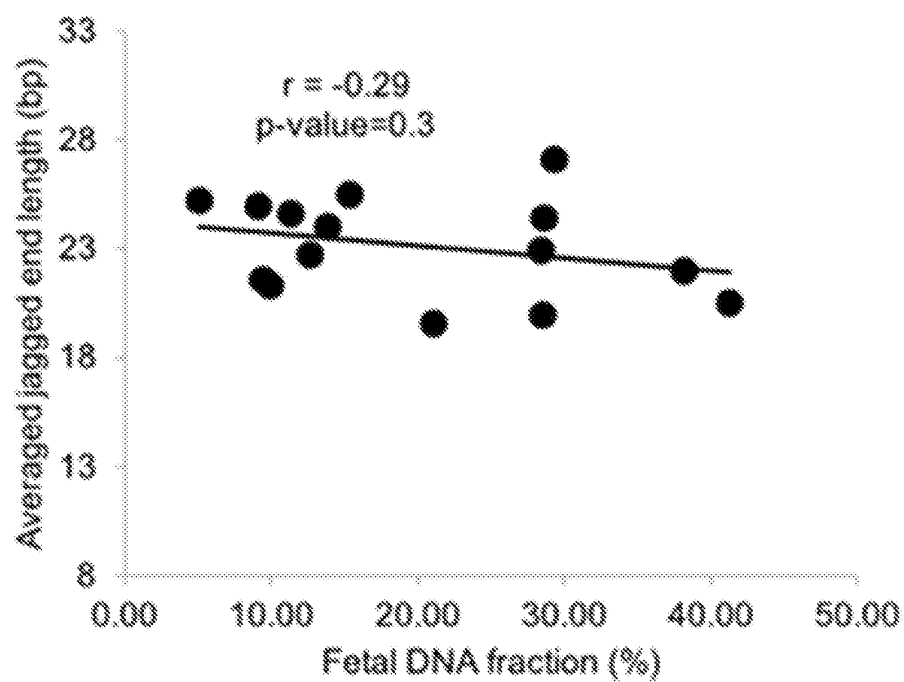
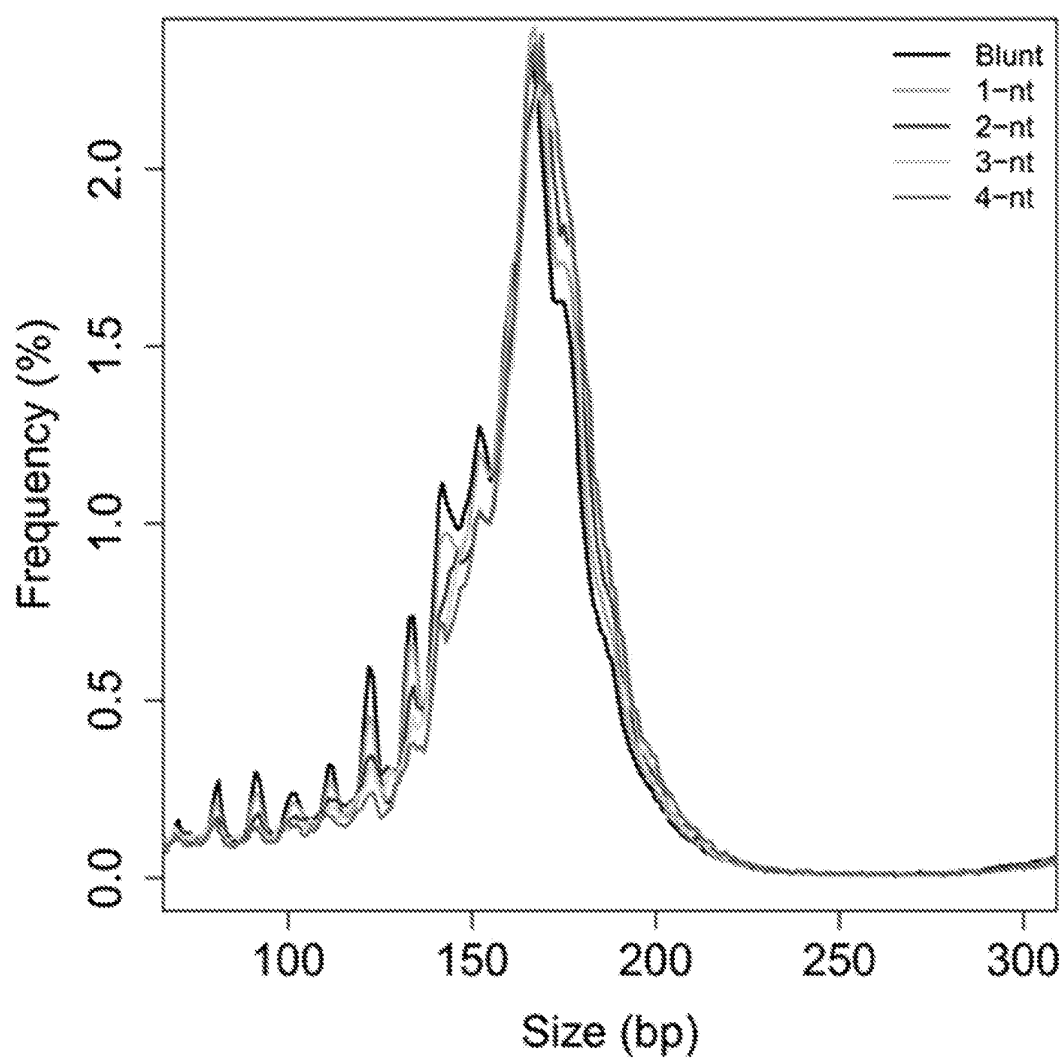


FIG. 31

**FIG. 32**

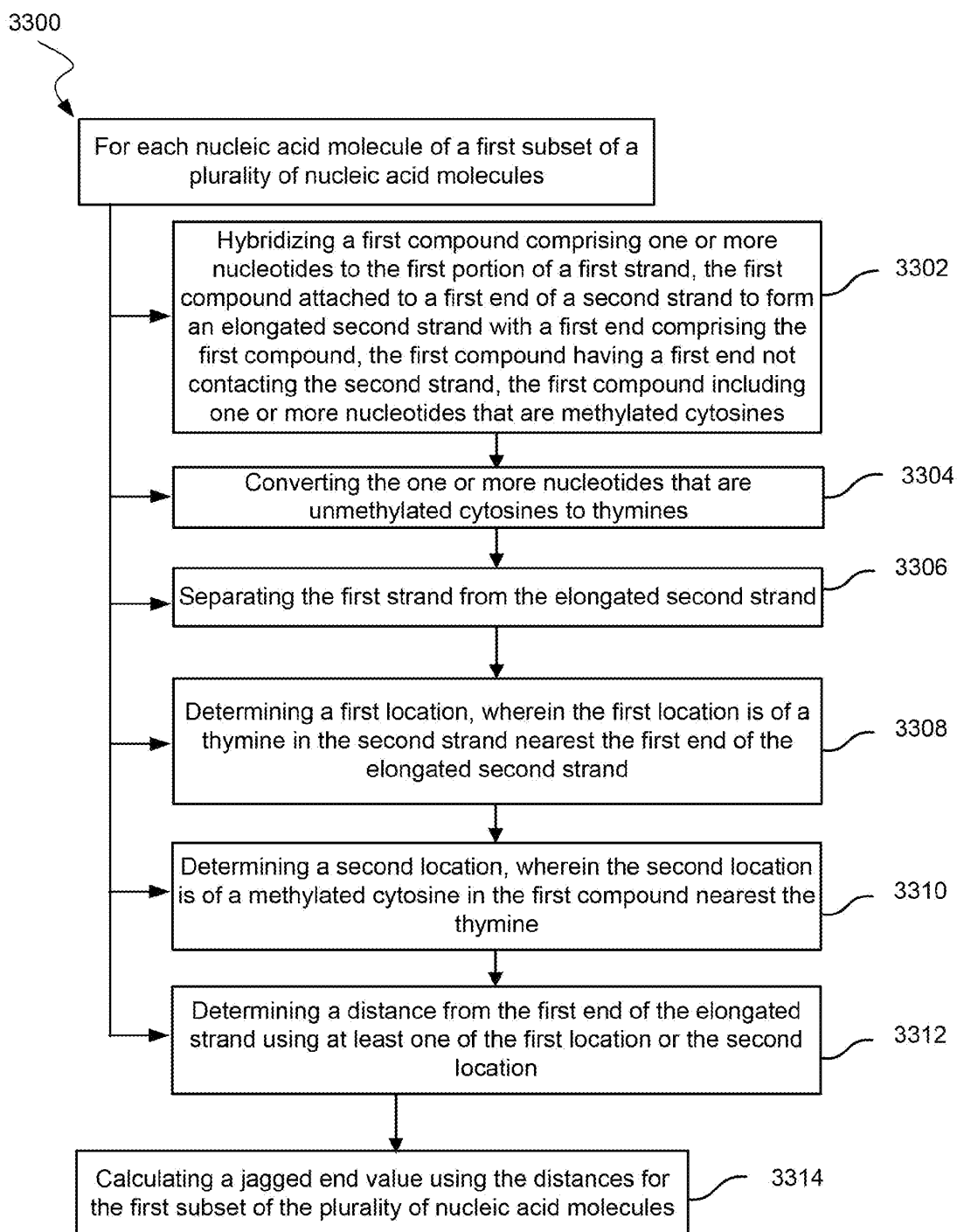


FIG. 33

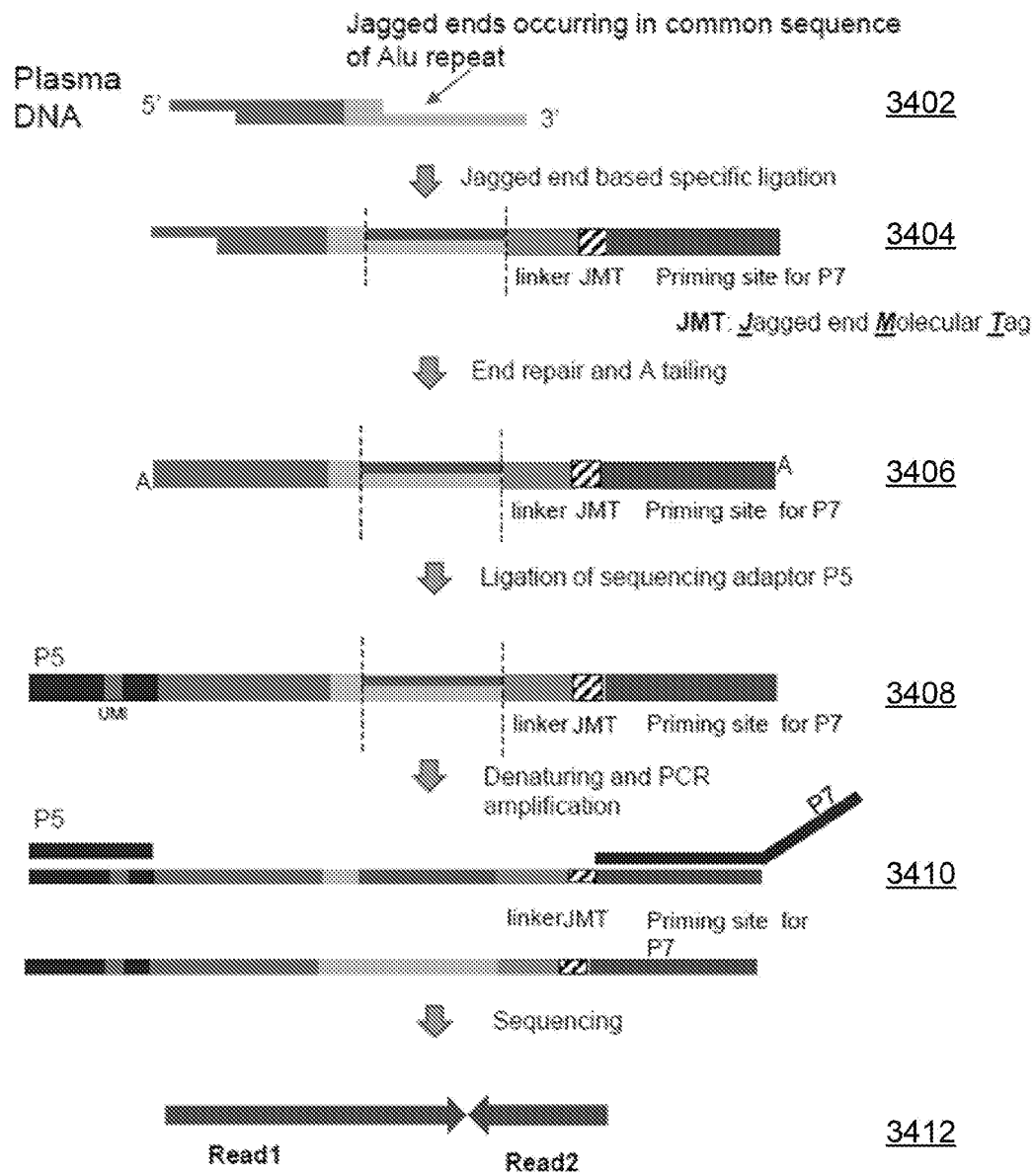


FIG. 34

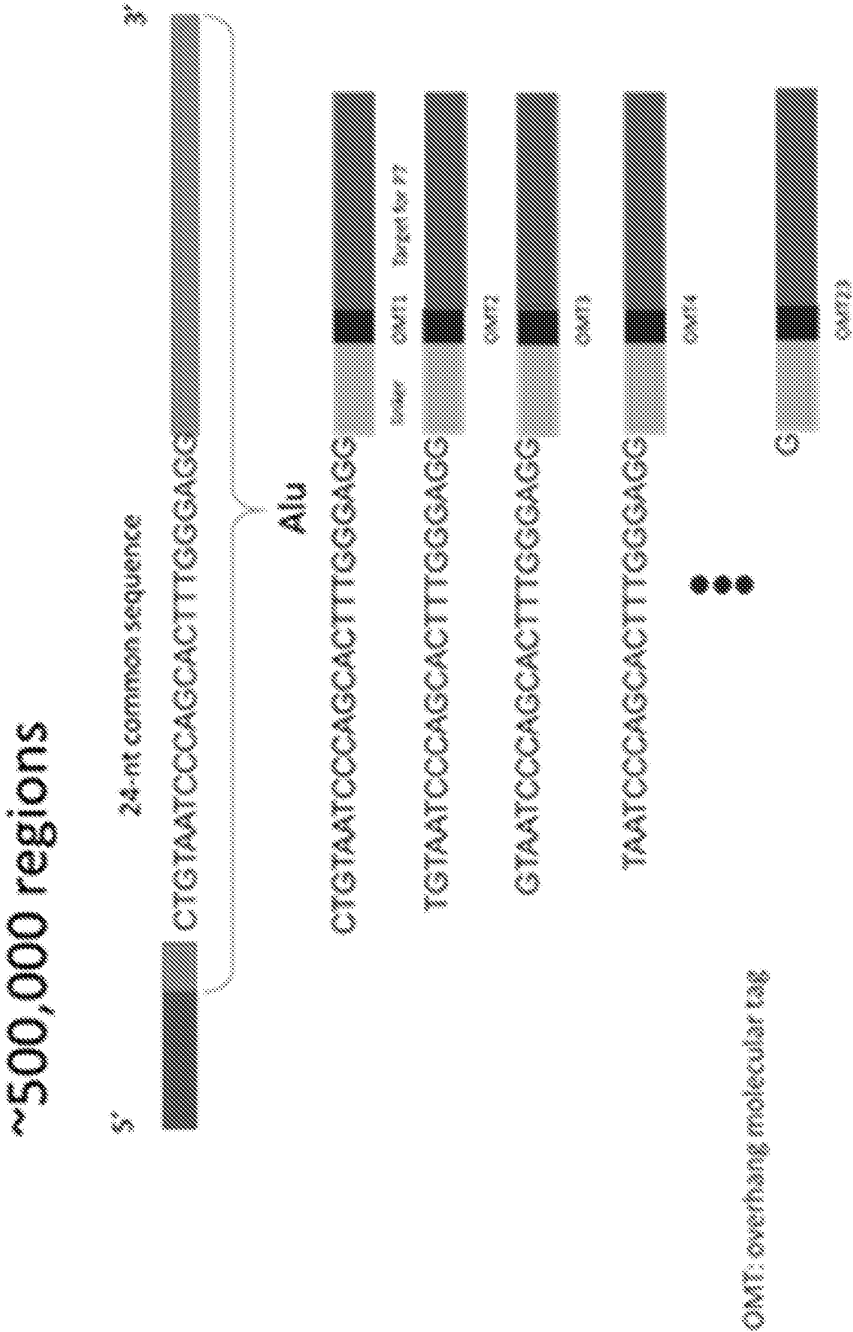


FIG. 35

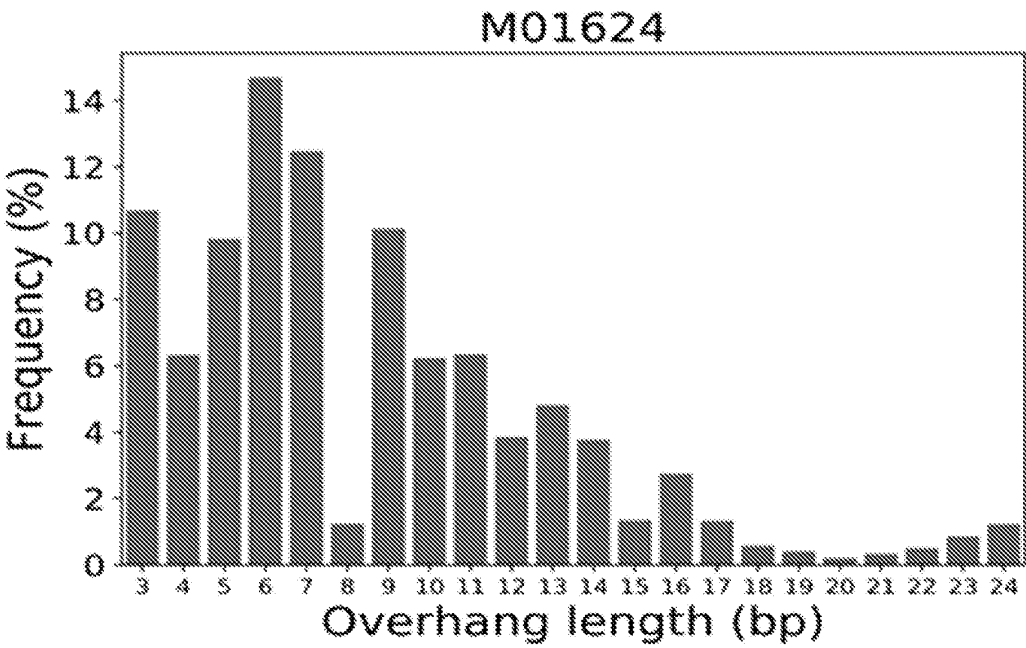


FIG. 36

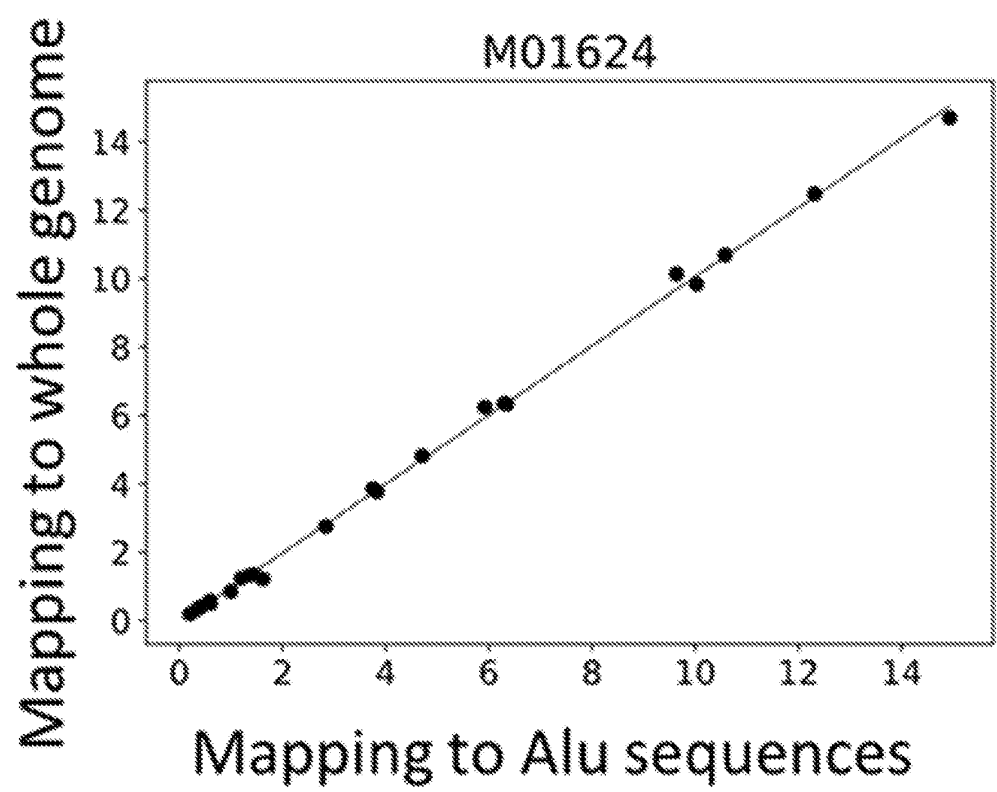
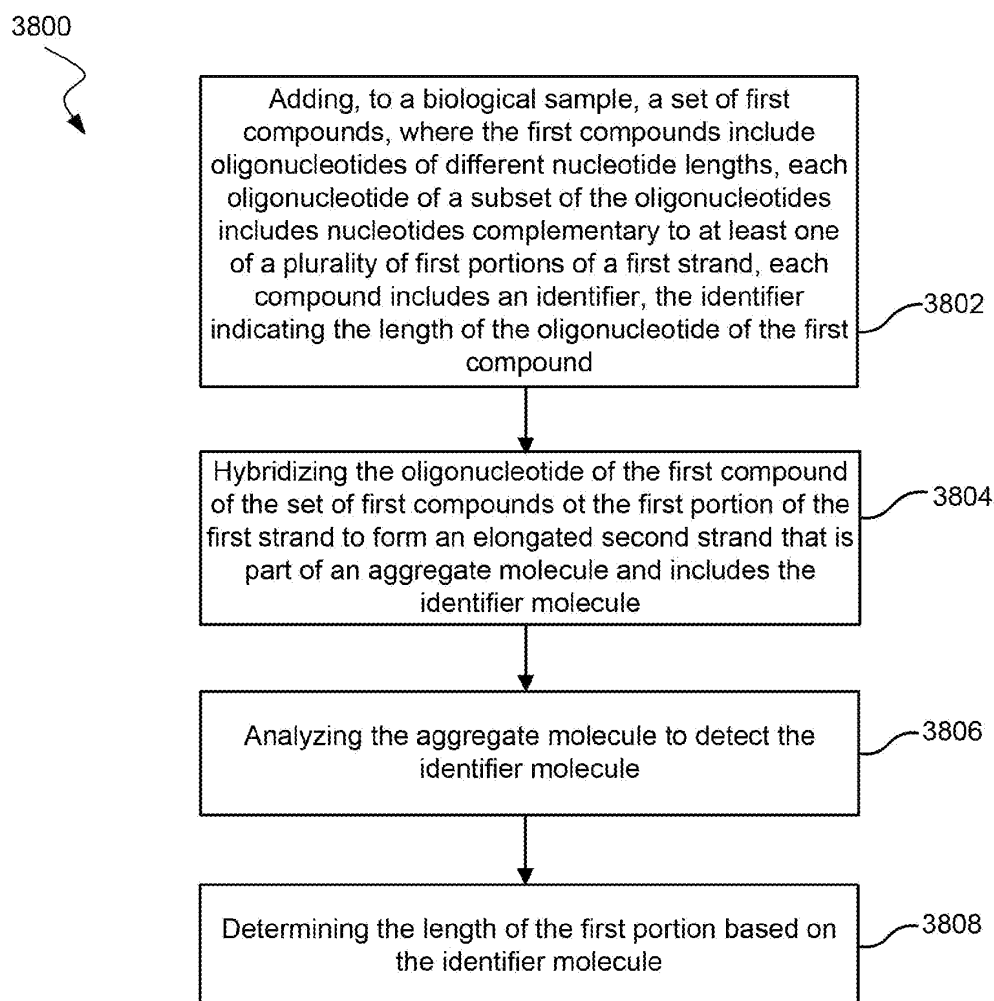


FIG. 37

**FIG. 38**

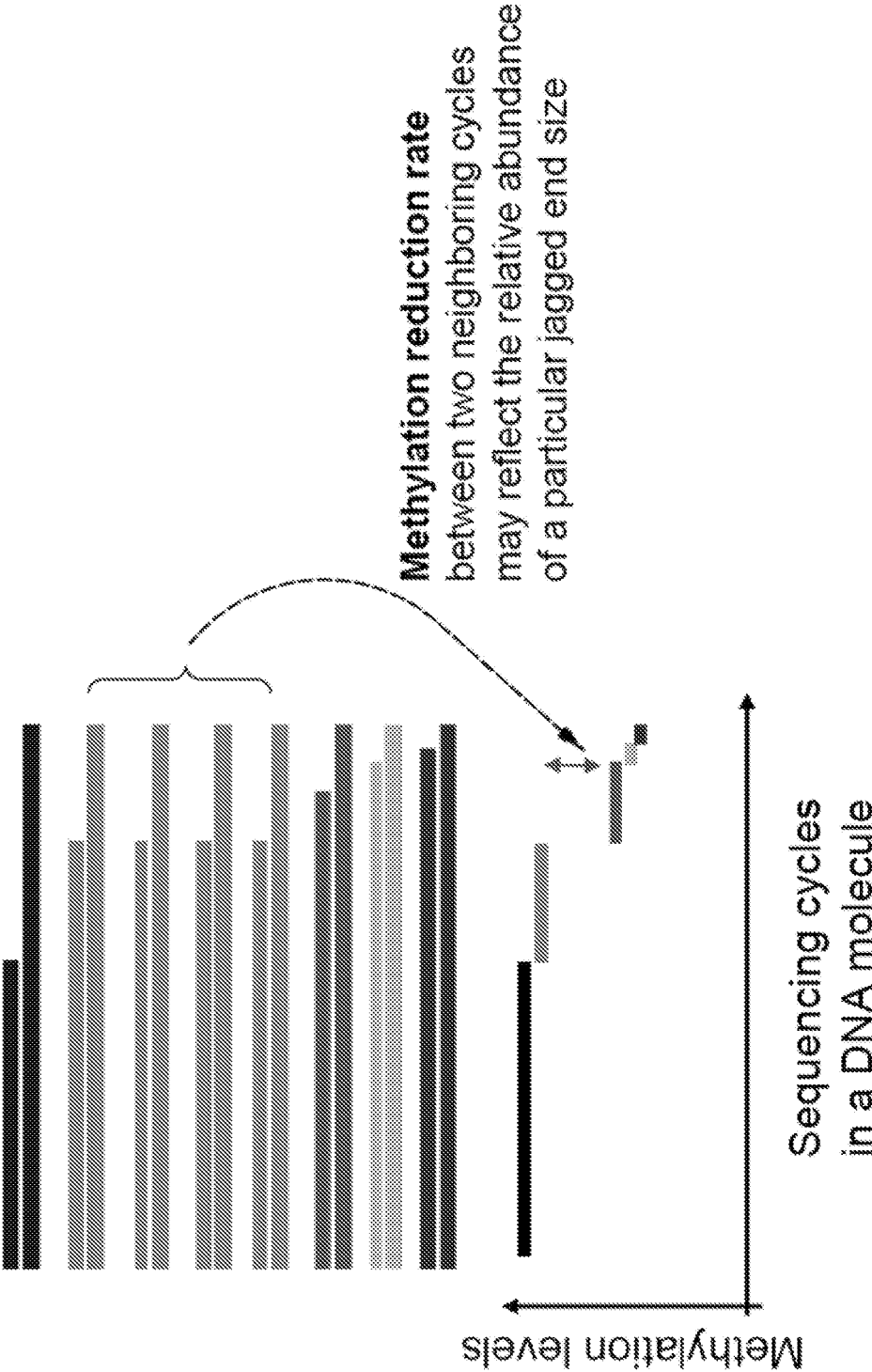
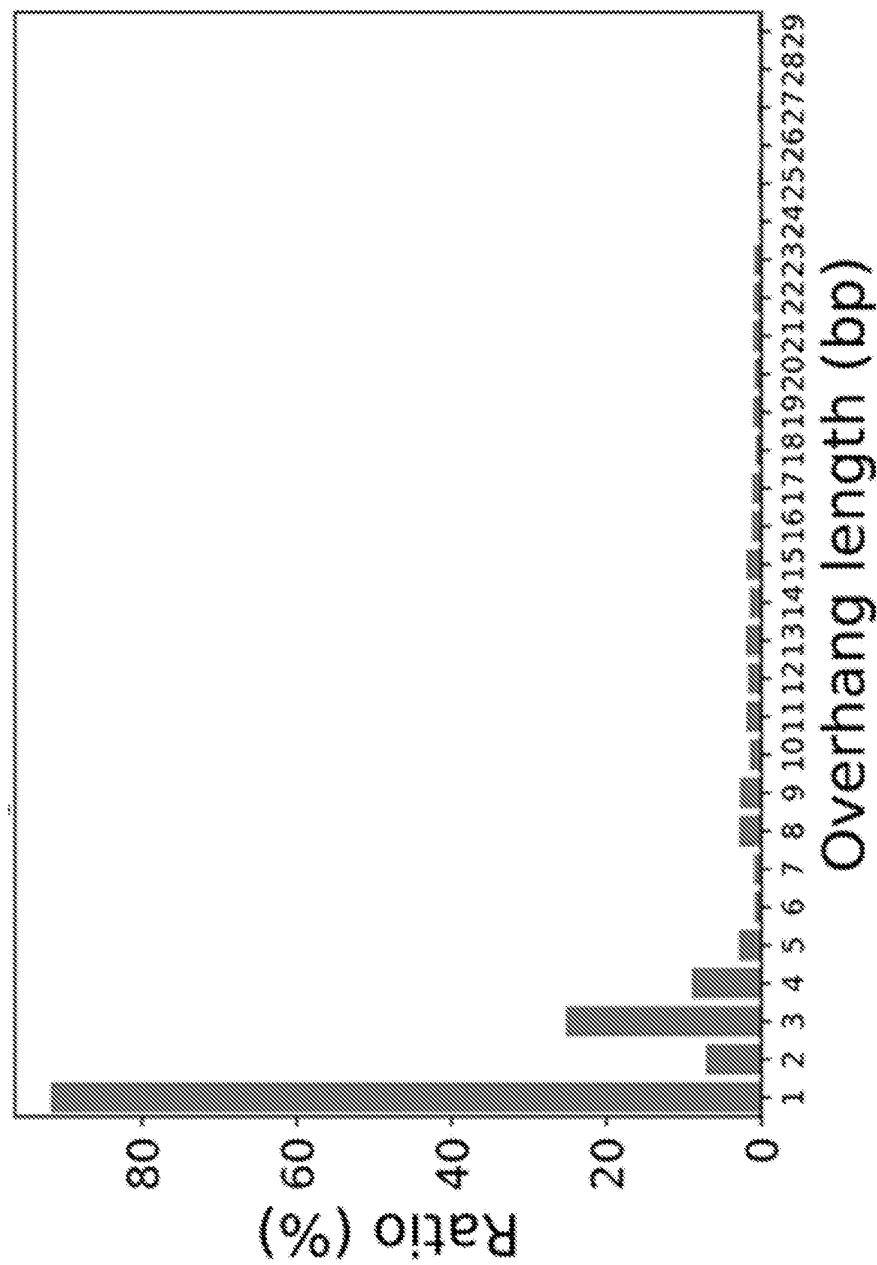


FIG. 39



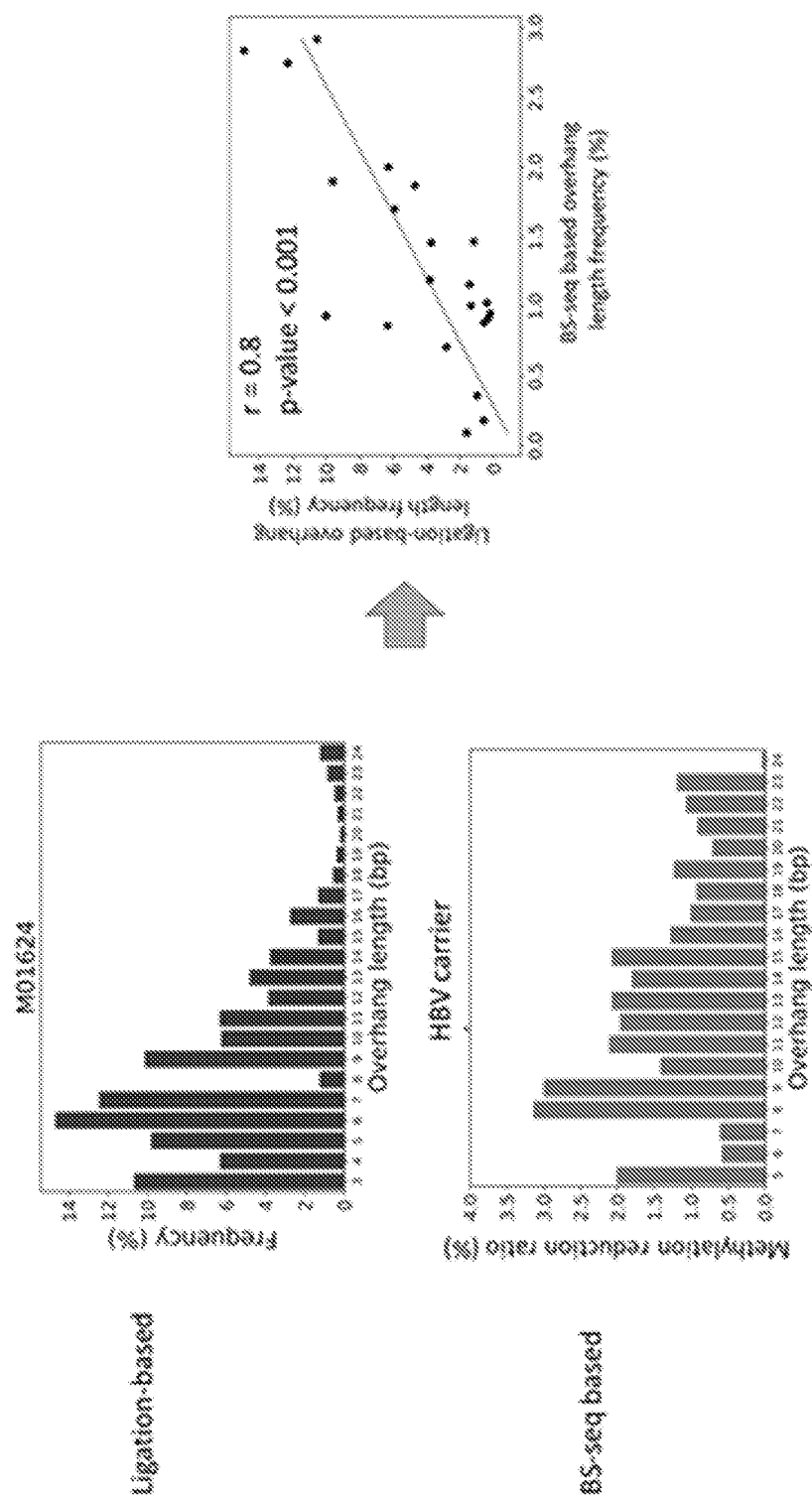
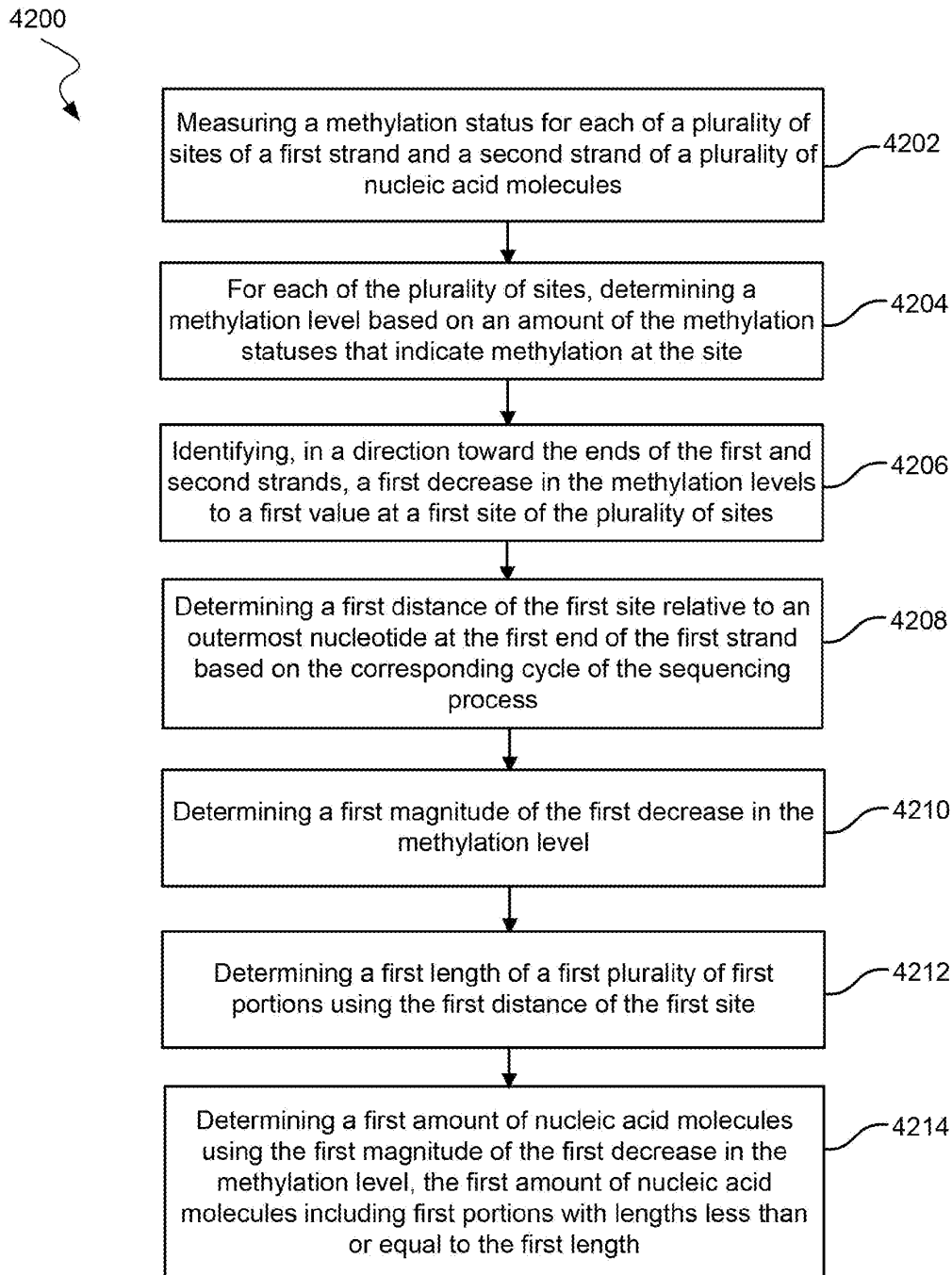


FIG. 41

**FIG. 42**

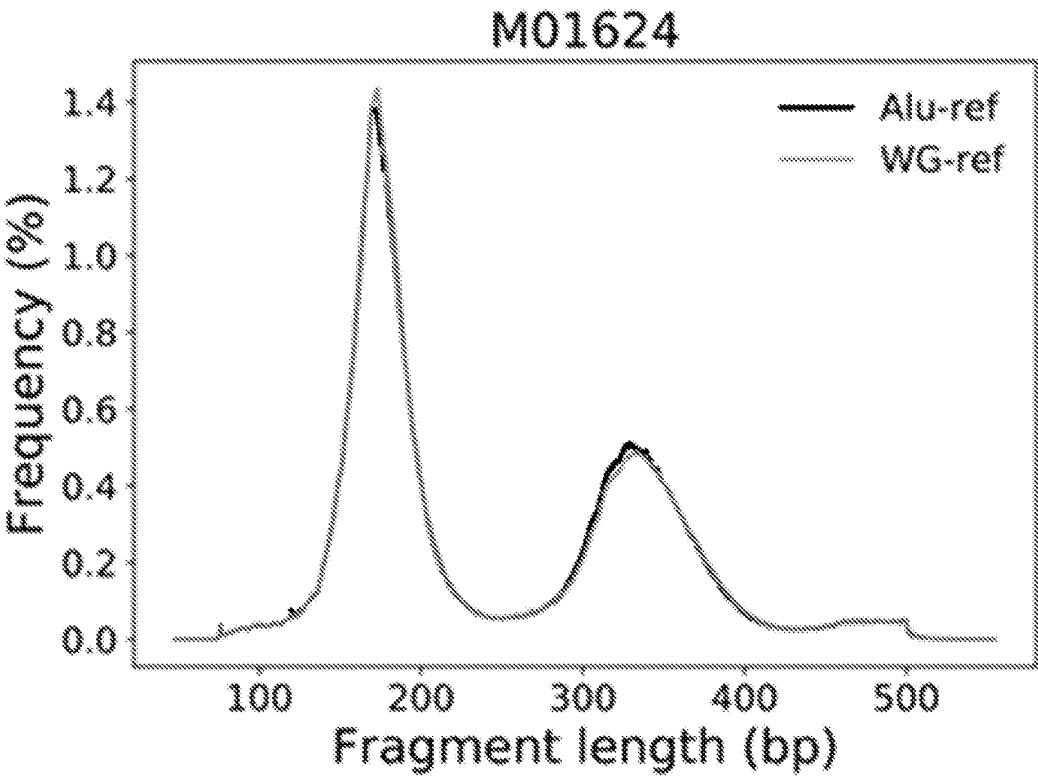


FIG. 43

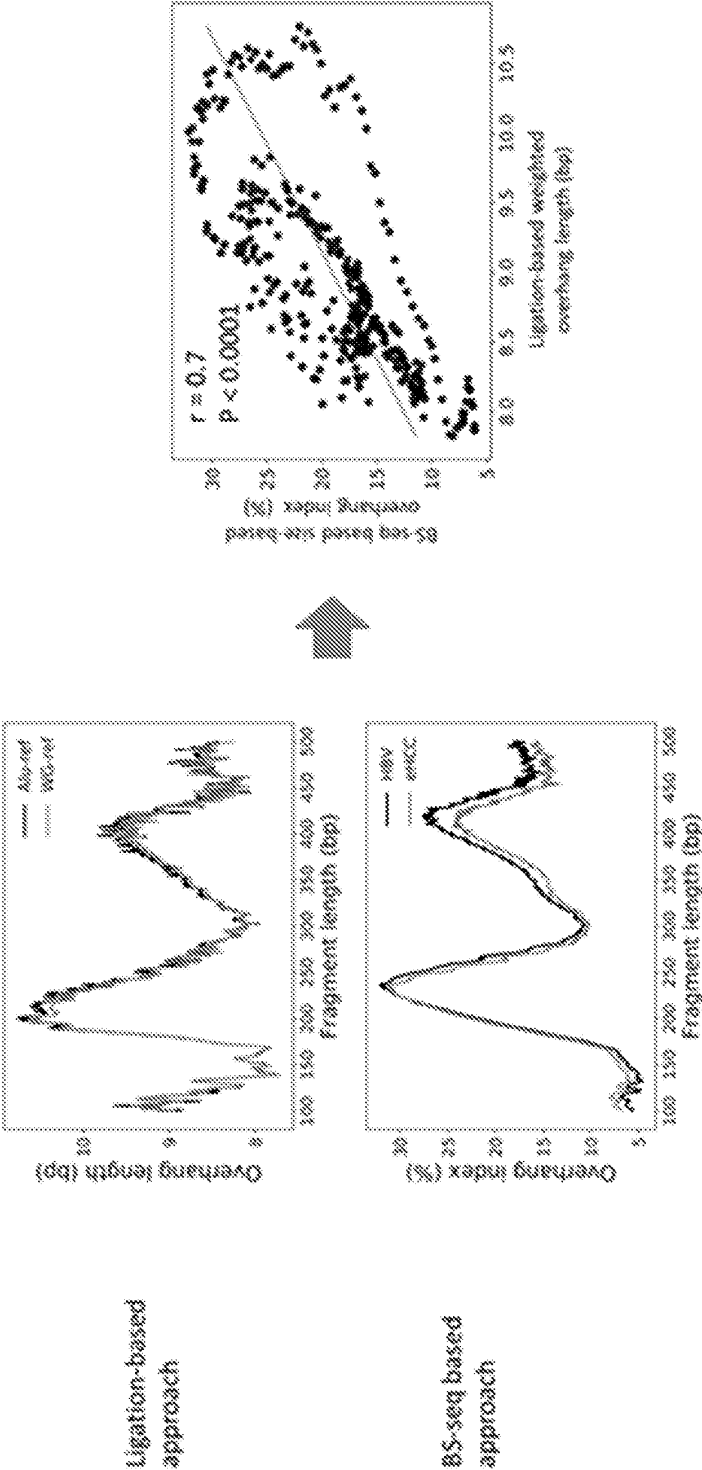


FIG. 44

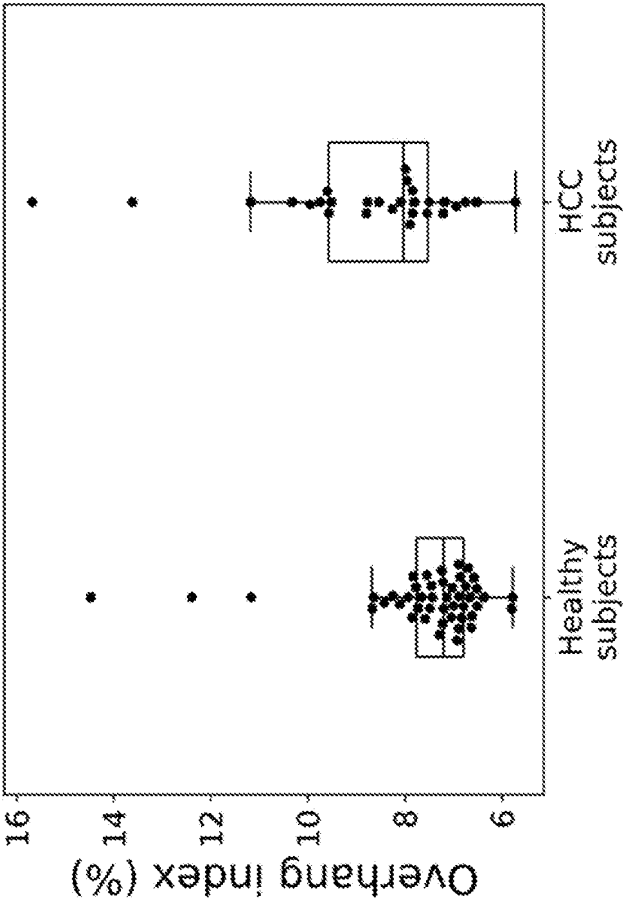


FIG. 45

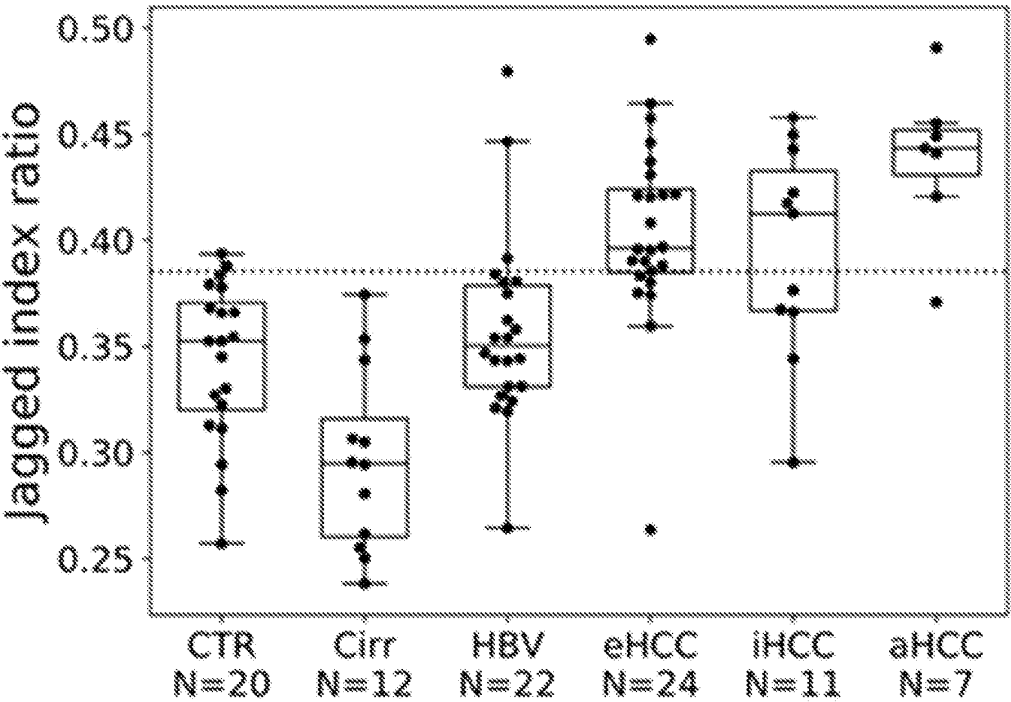


FIG. 46

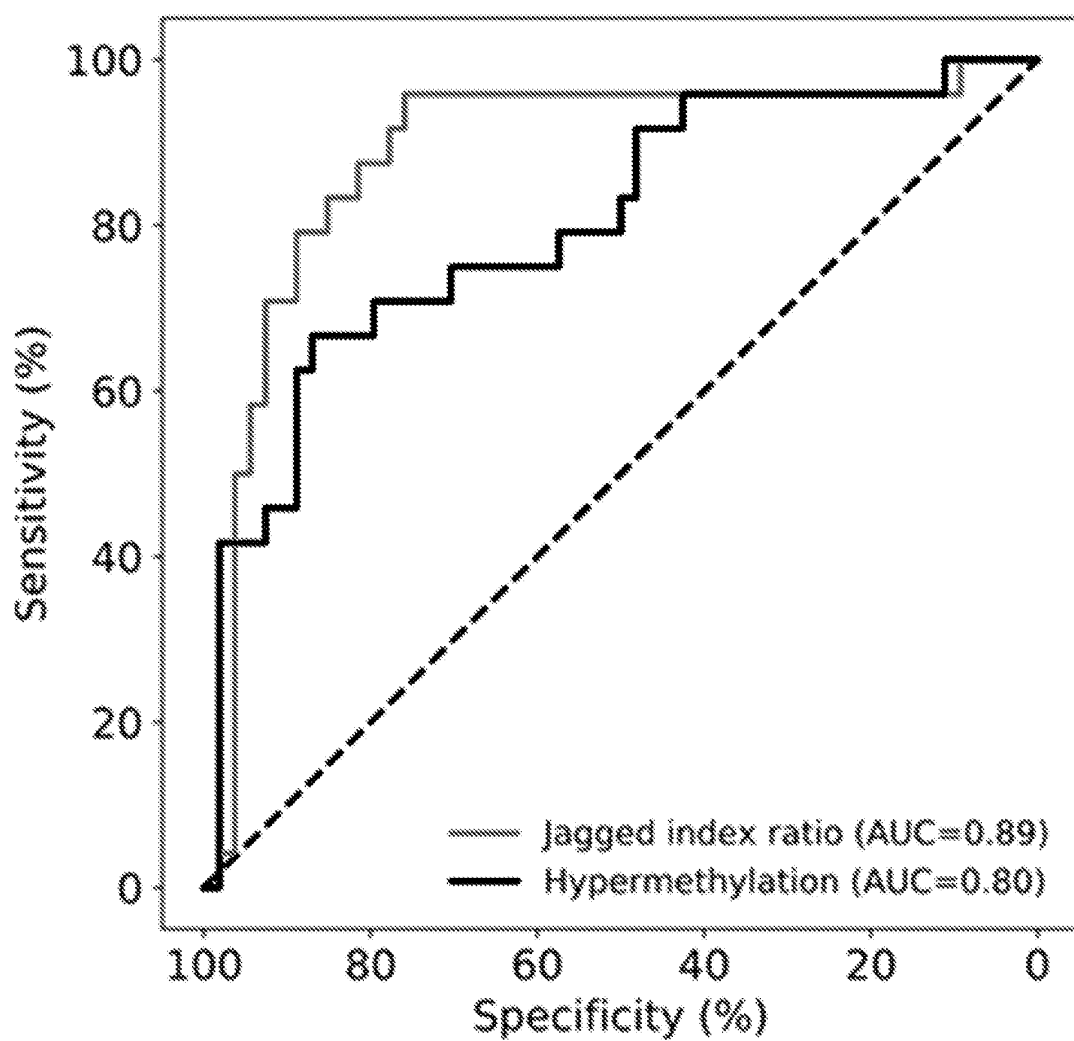


FIG. 47

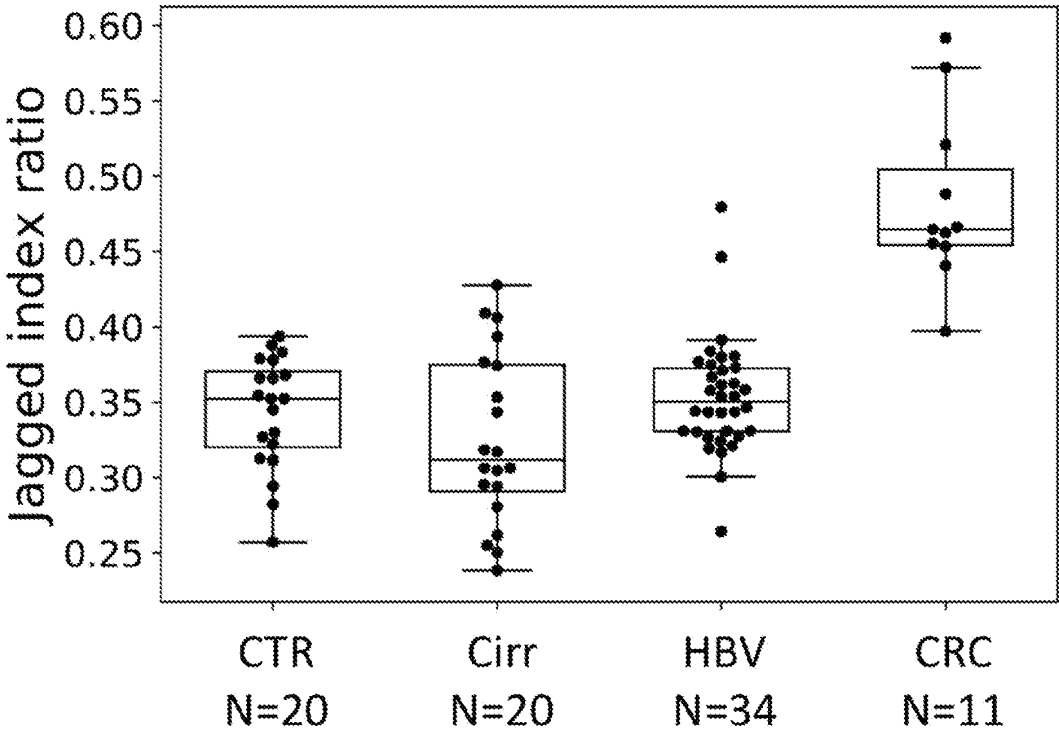


FIG. 48

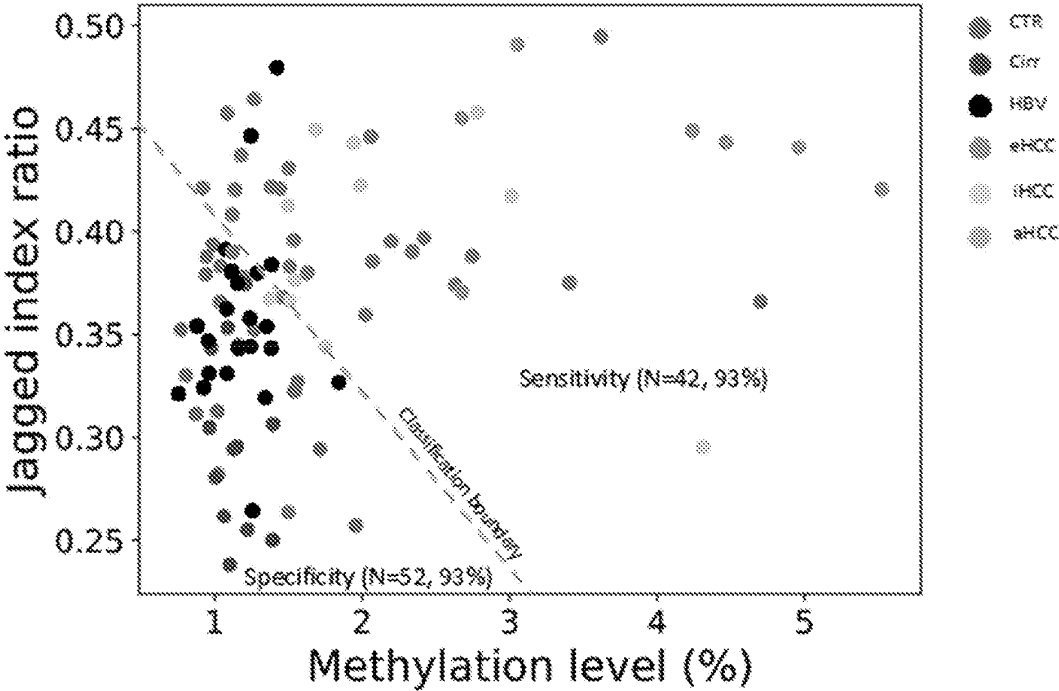


FIG. 49

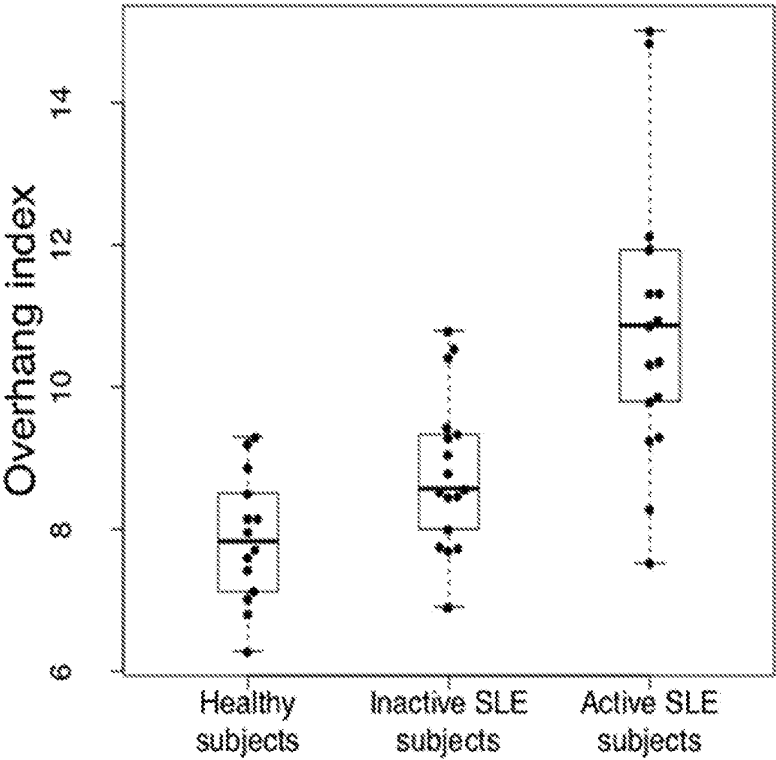


FIG. 50

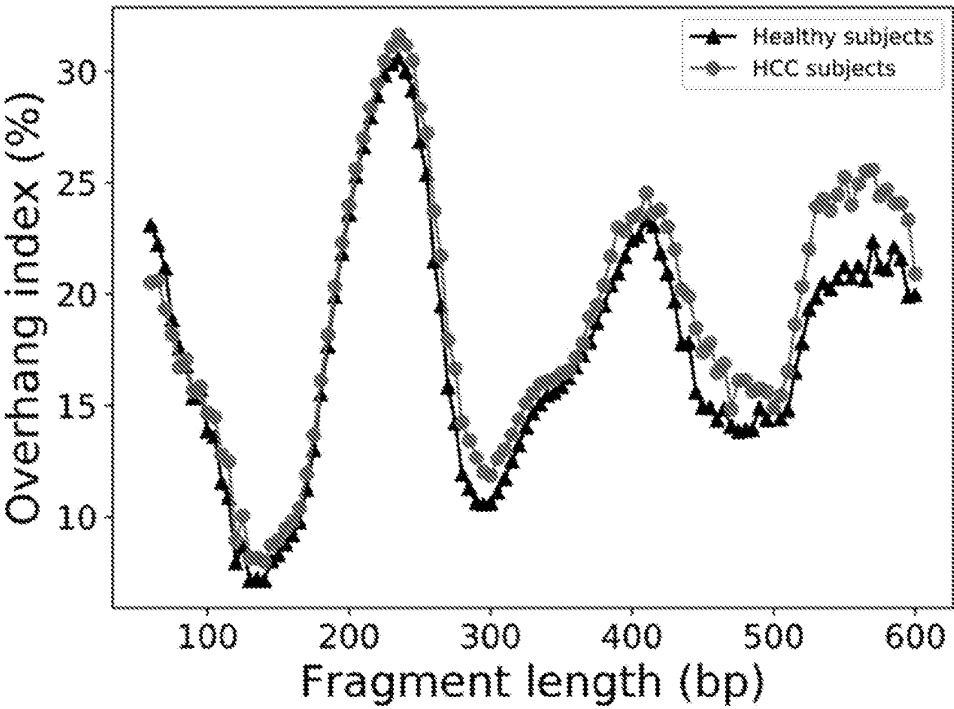


FIG. 51

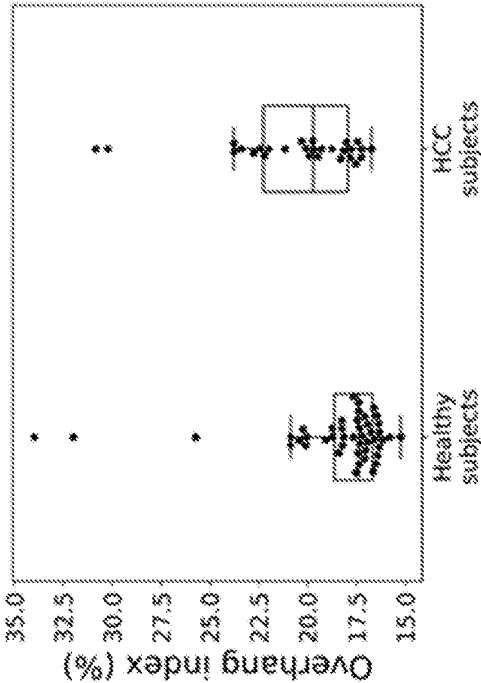


FIG. 52B

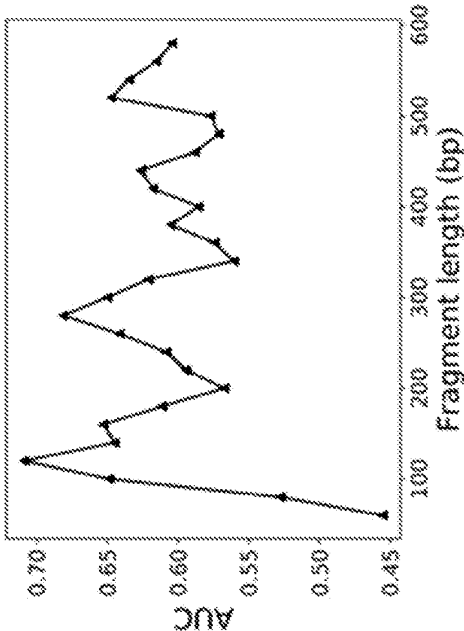


FIG. 52A

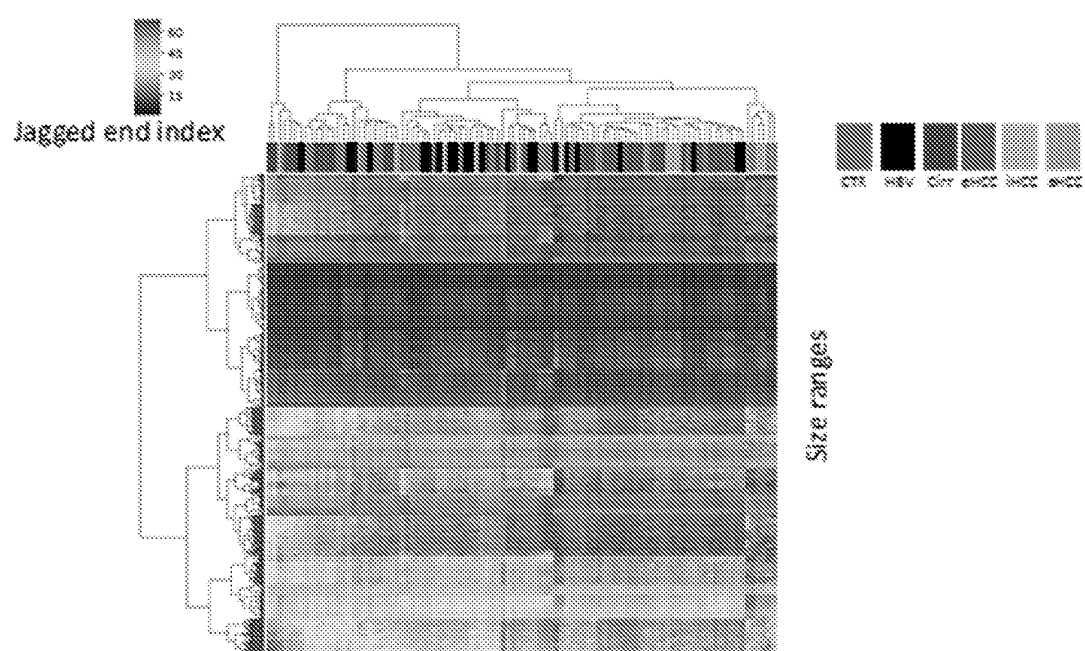


FIG. 53

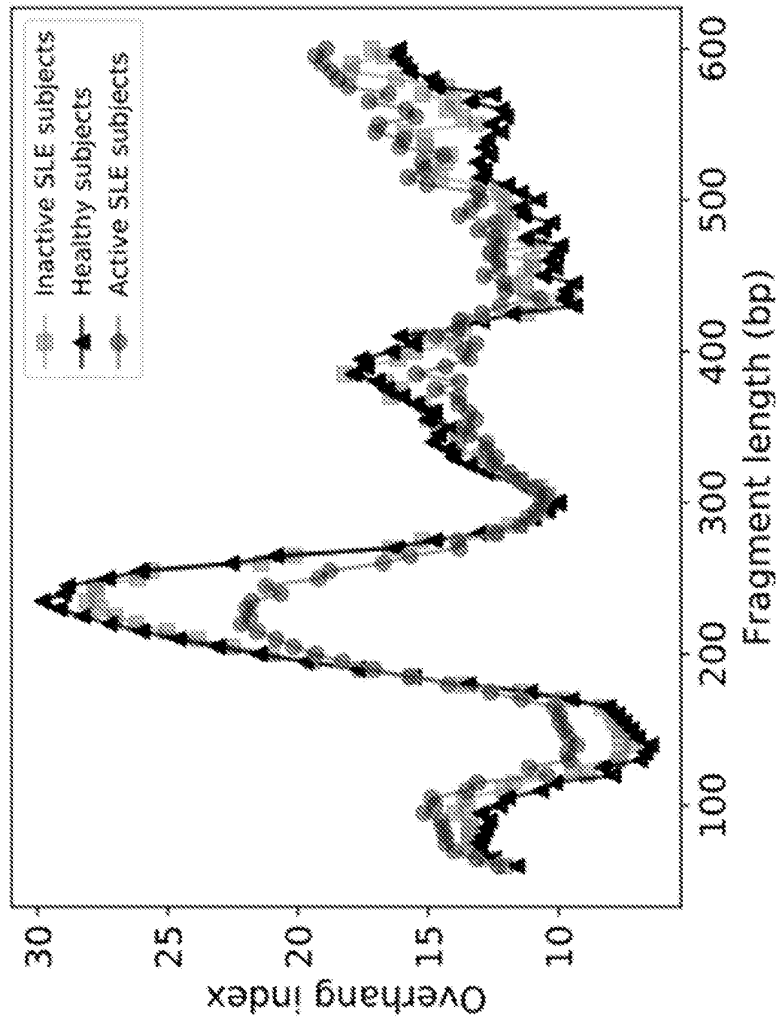


FIG. 54

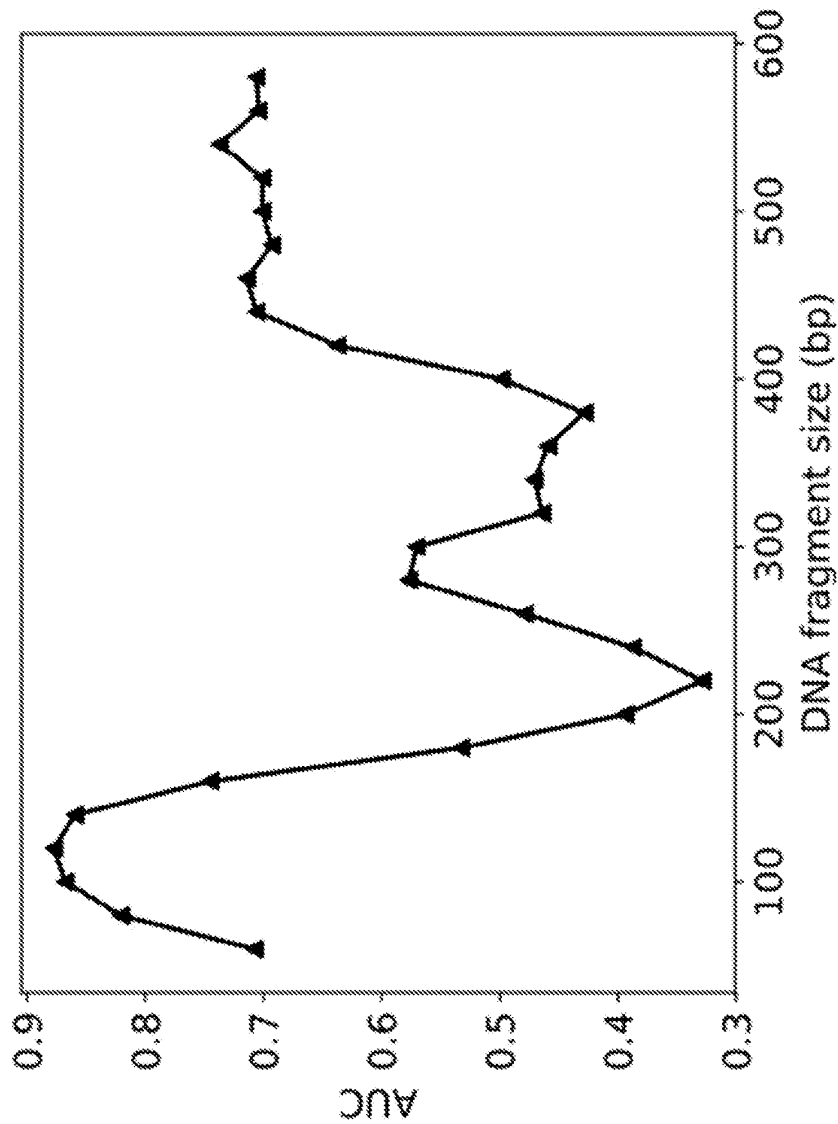


FIG. 55

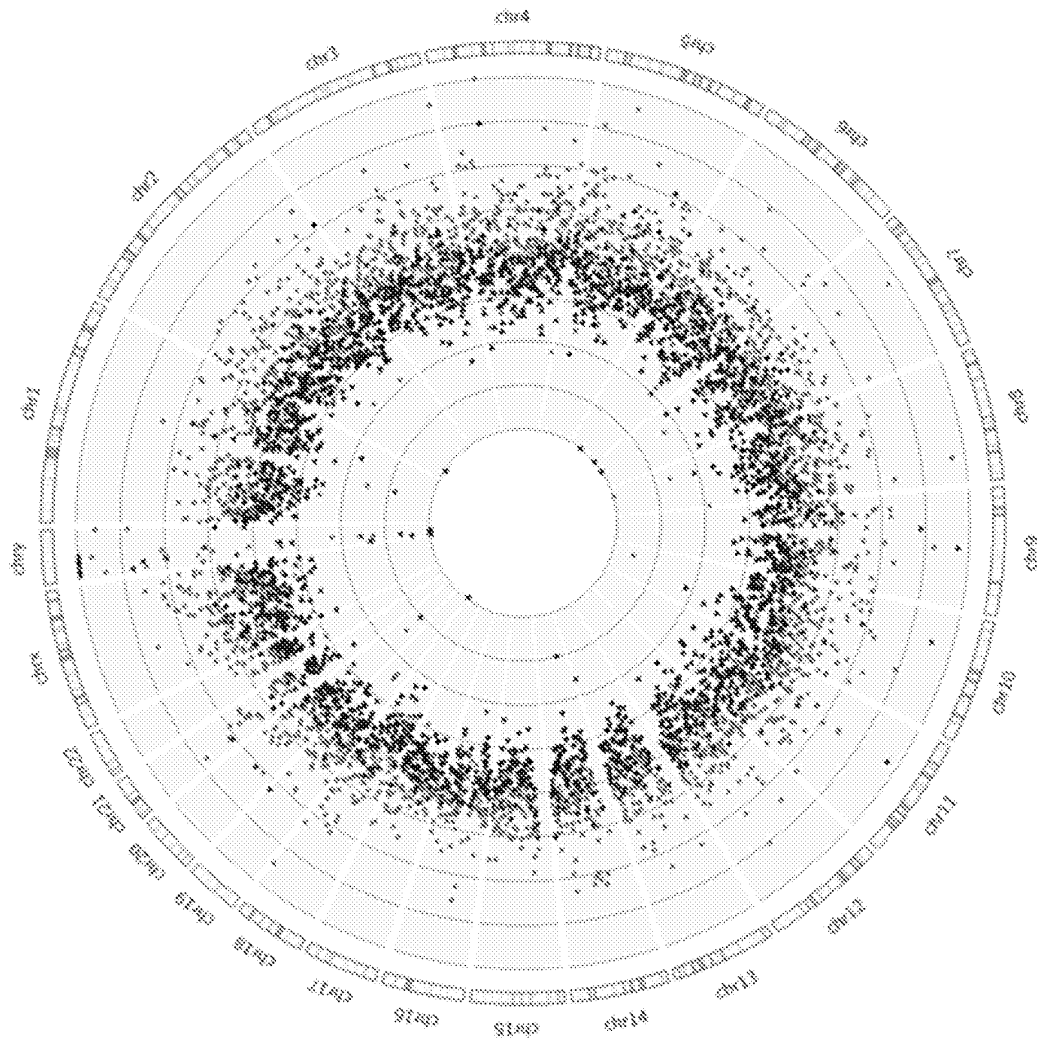


FIG. 56

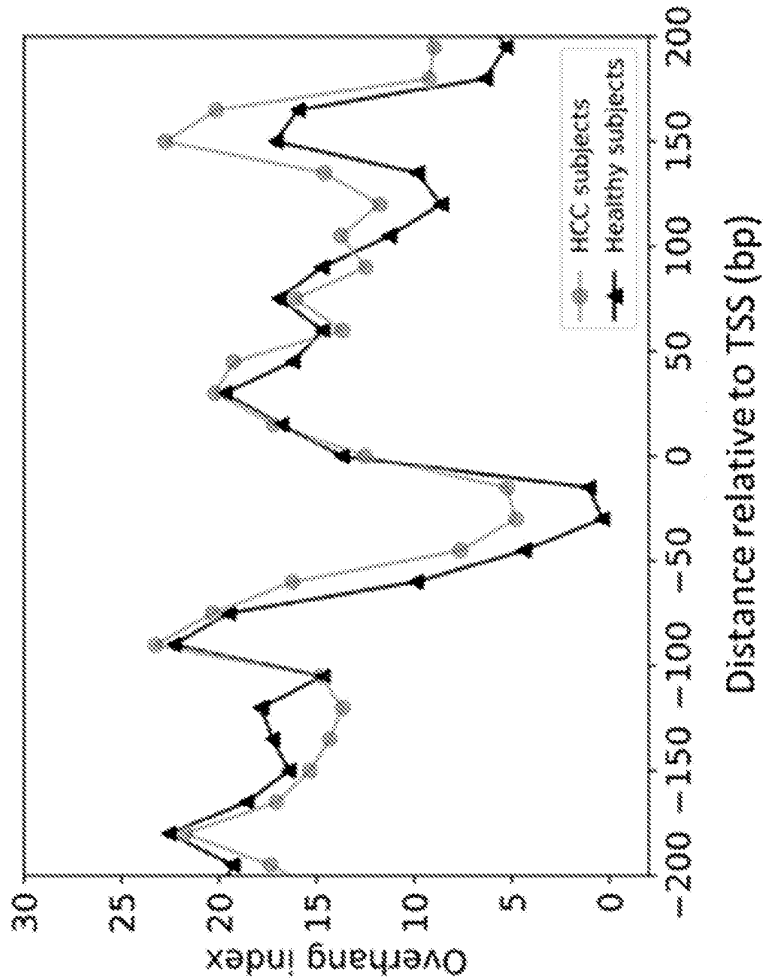


FIG. 57

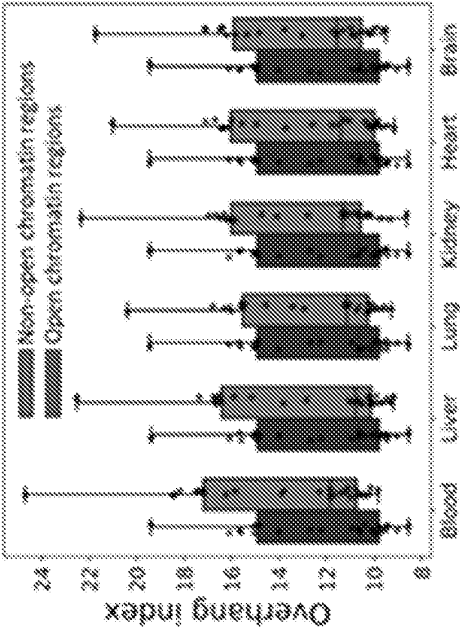


FIG. 58B

Tissue	P-value
Blood	3.2662e-06
Liver	1.1697e-05
Lung	0.4844
Kidney	0.0094
Heart	0.0272
Brain	0.1848

FIG. 58D

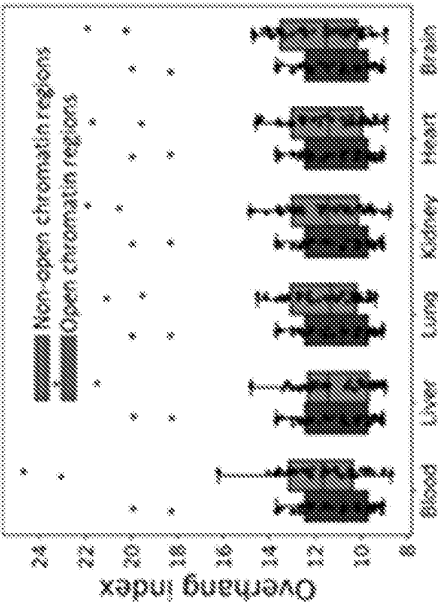


FIG. 58A

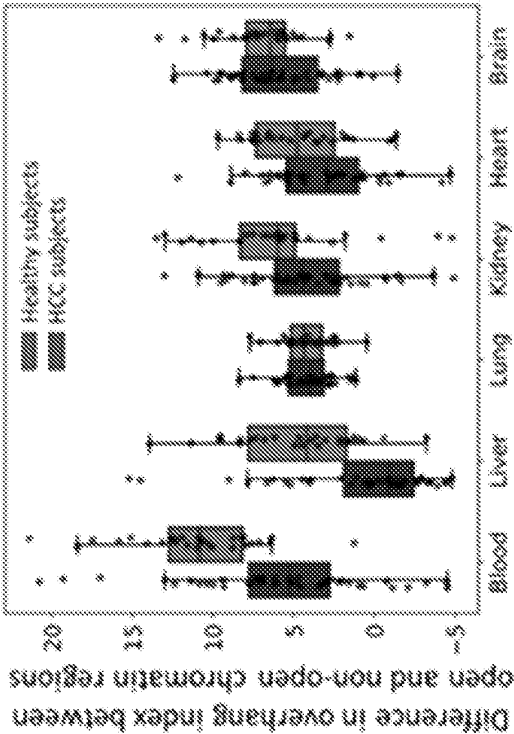
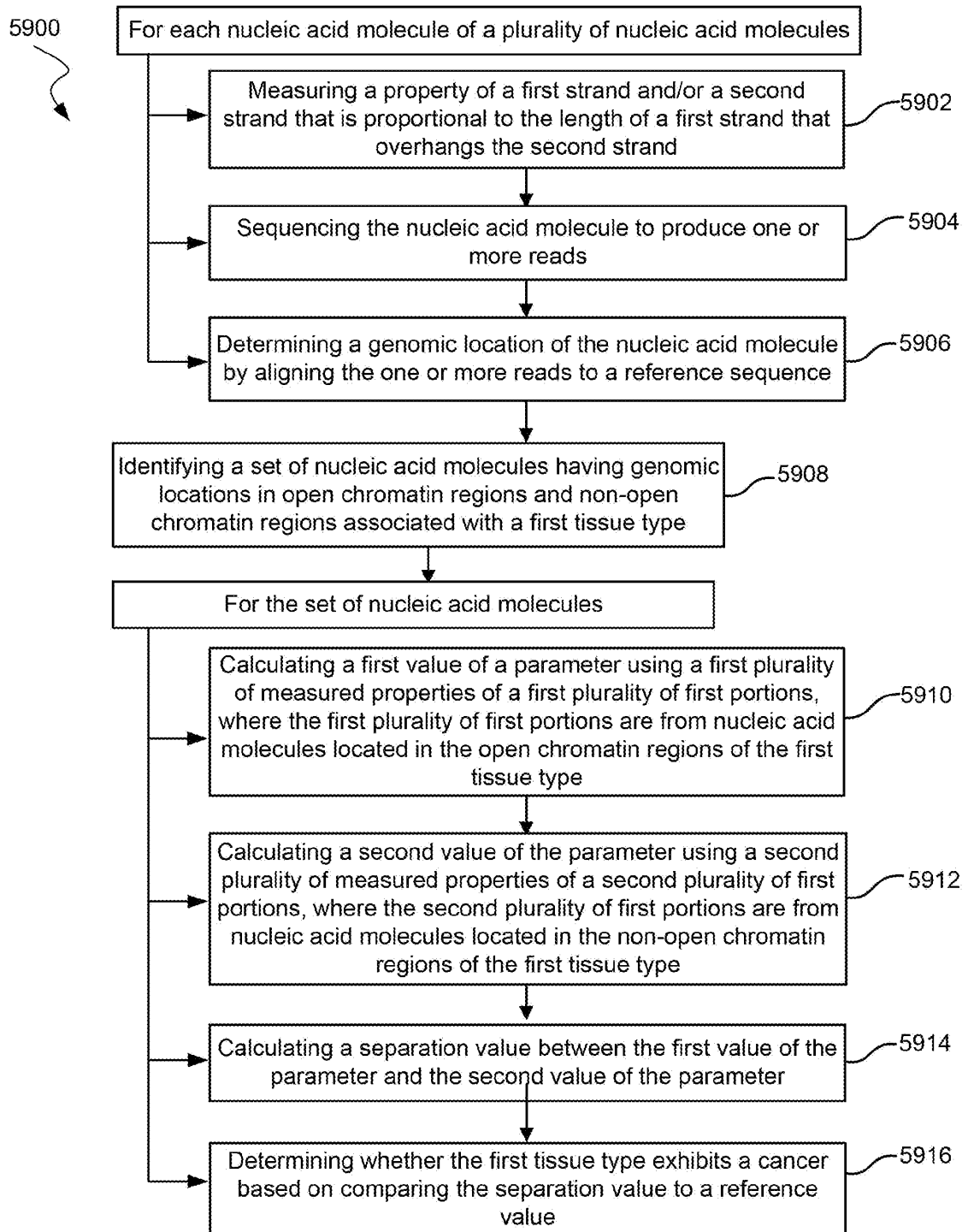


FIG. 58C

**FIG. 59**

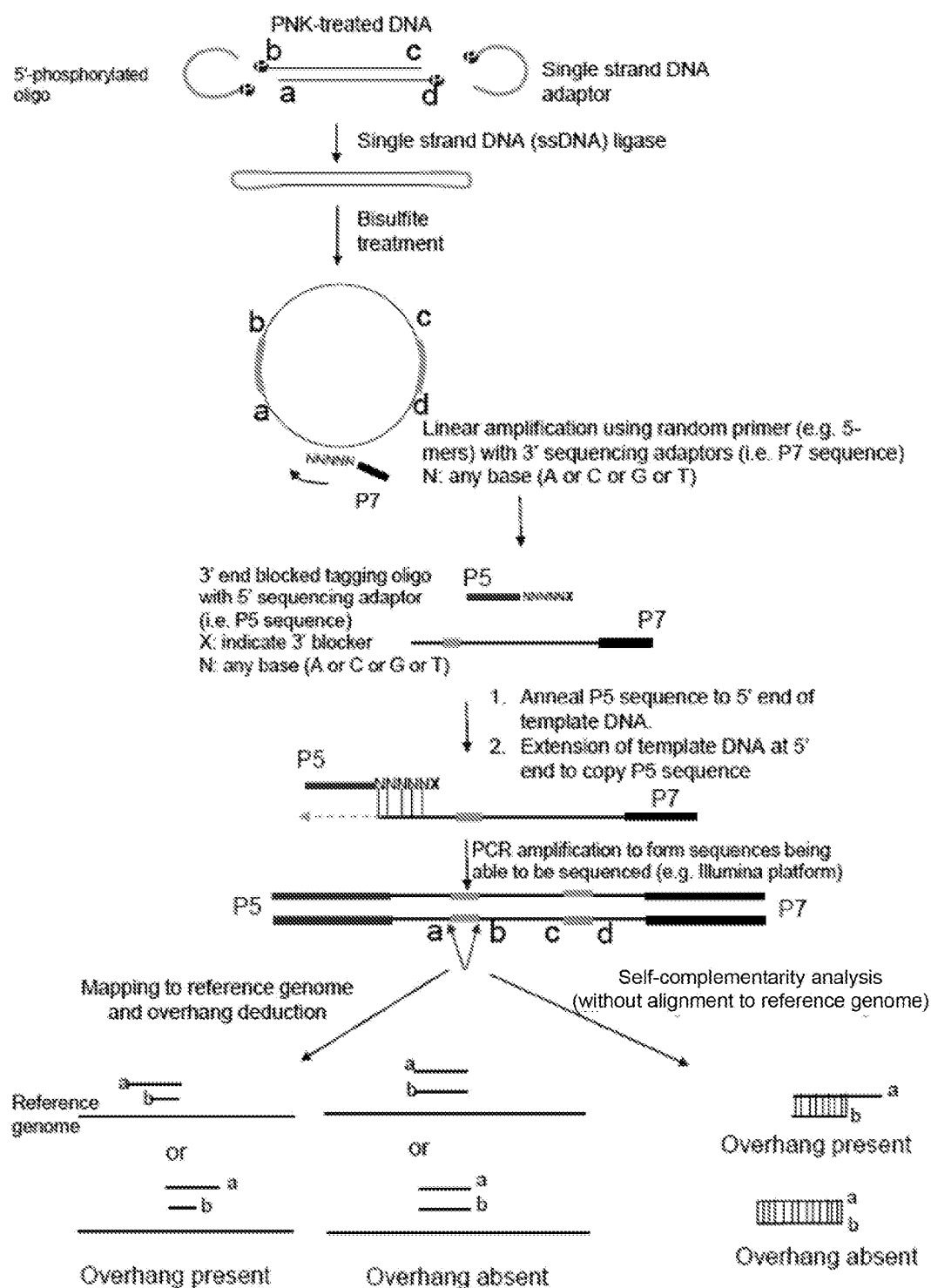


FIG. 60

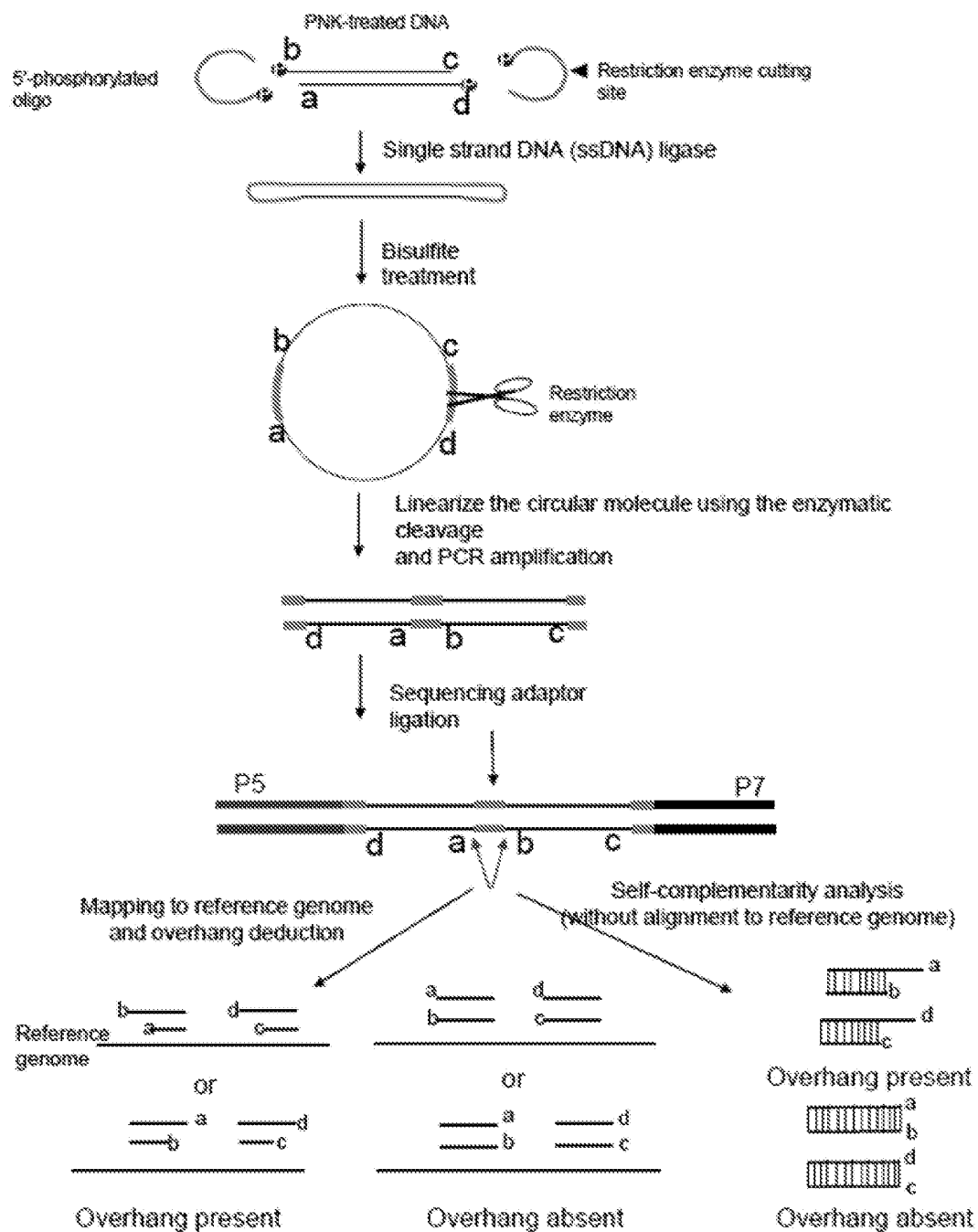


FIG. 61

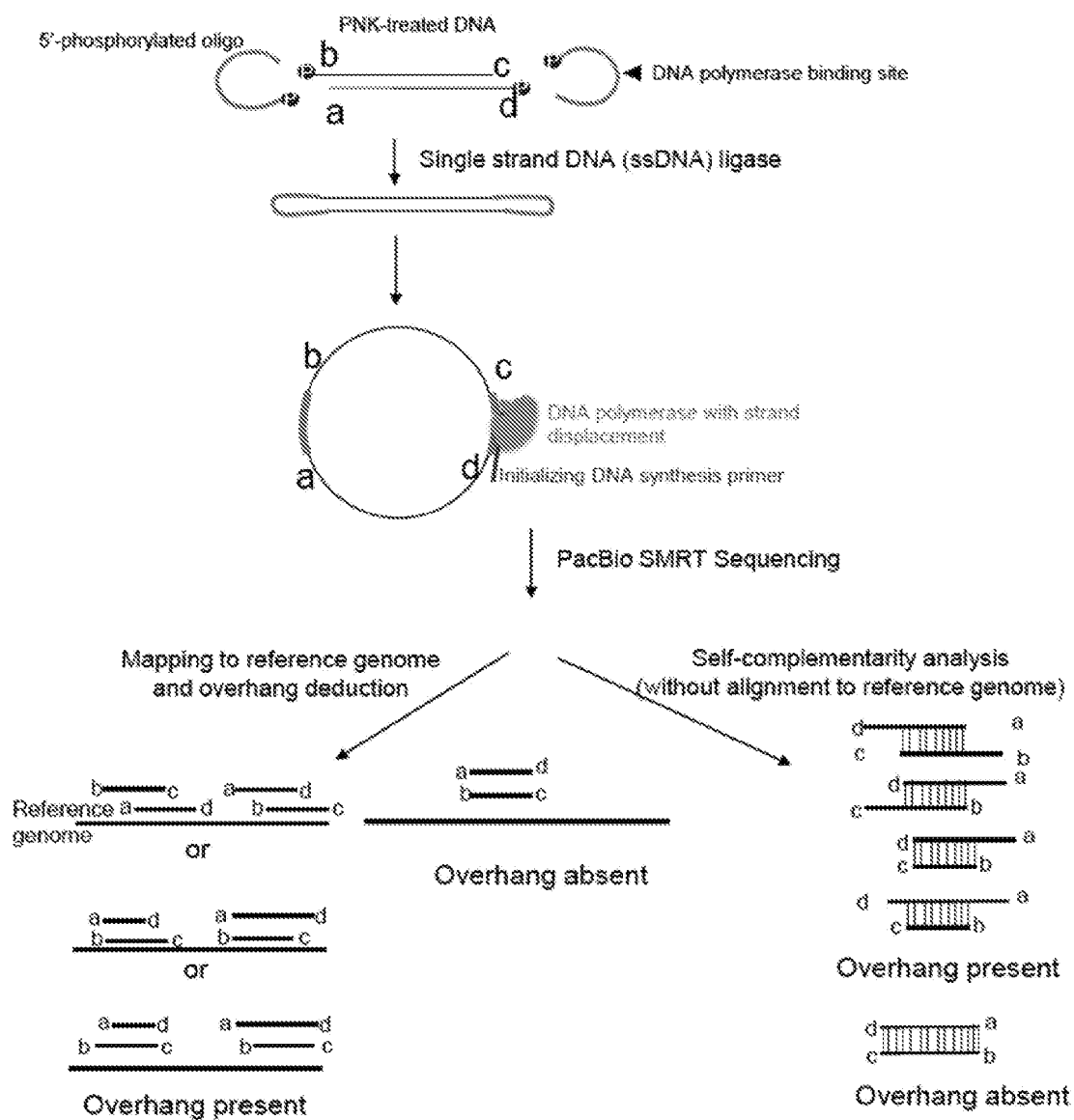


FIG. 62

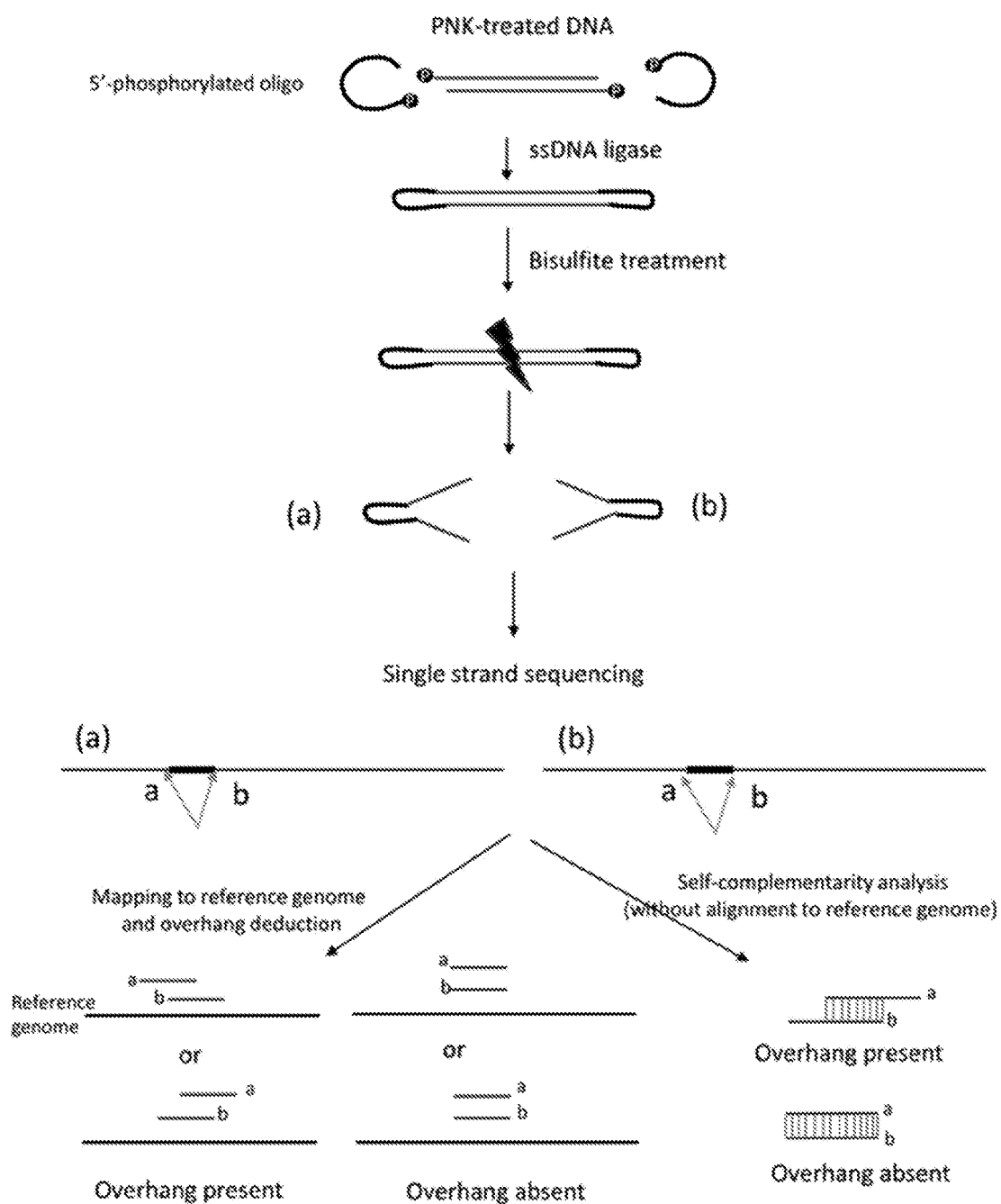
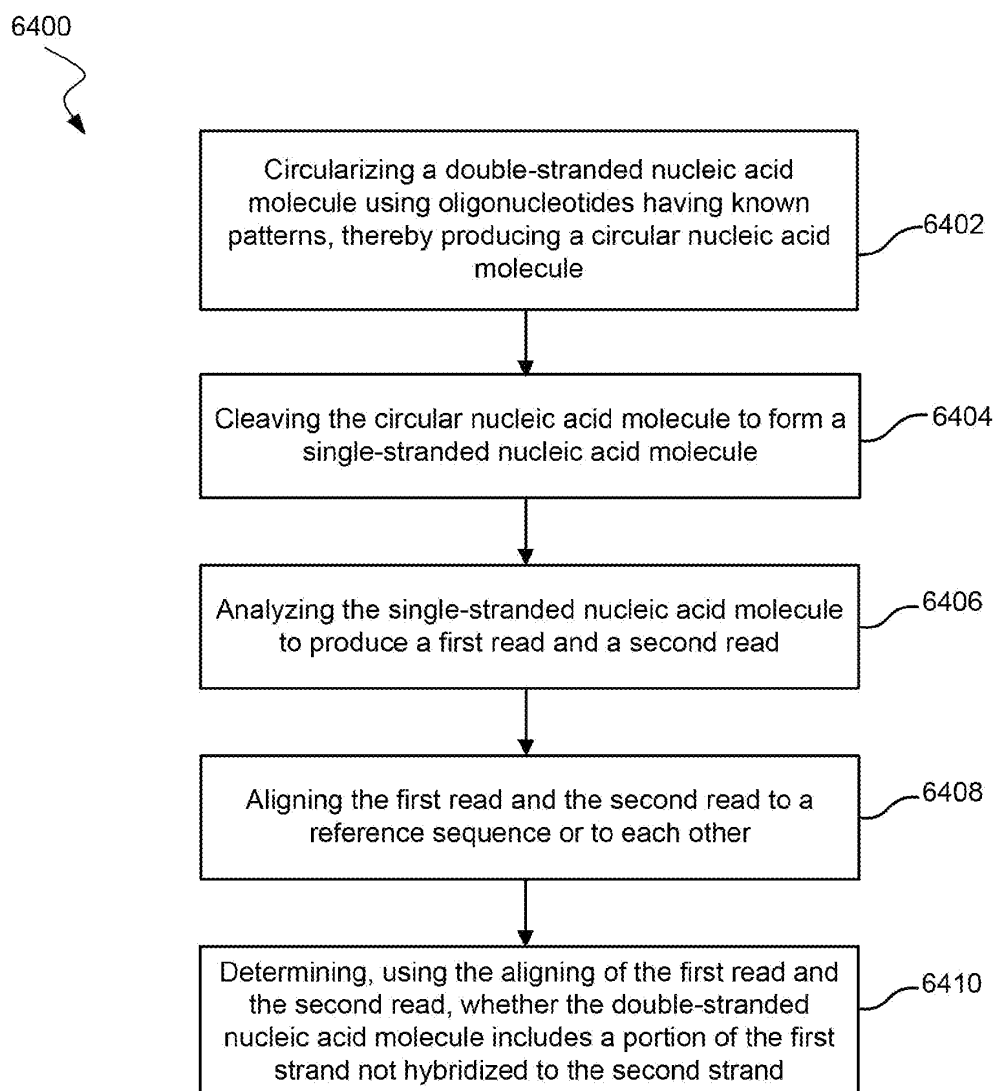
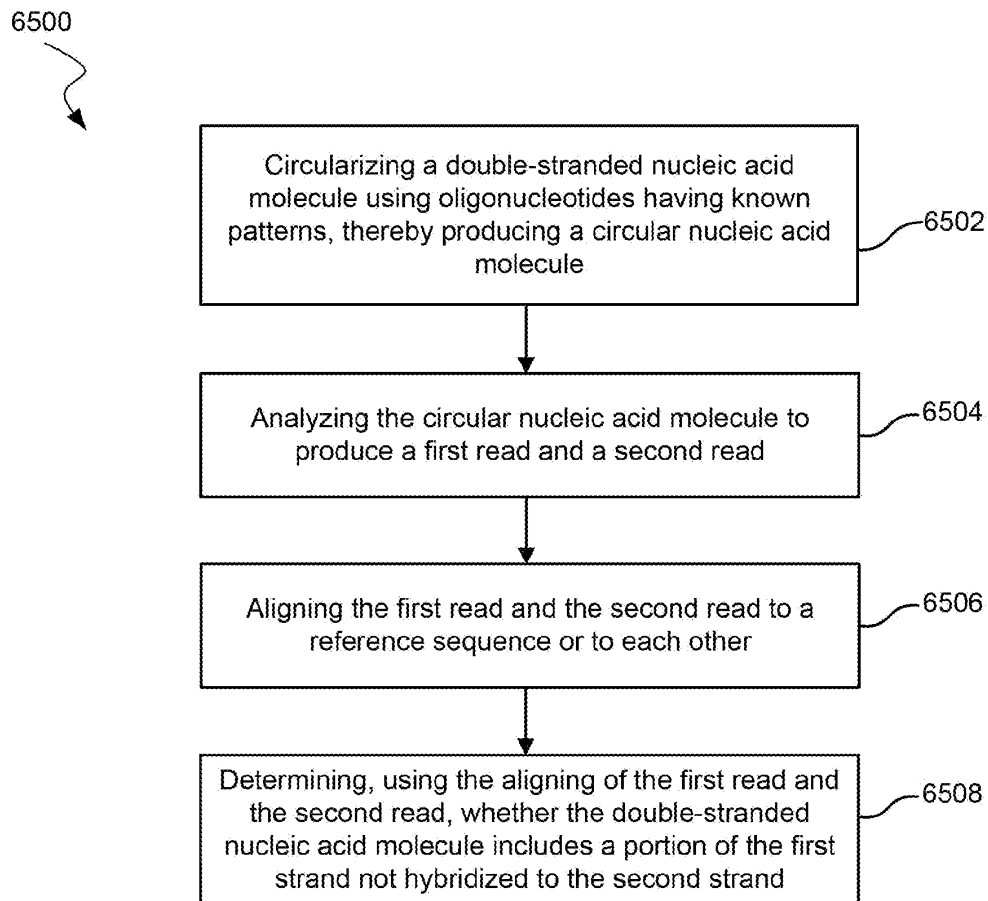


FIG. 63

**FIG. 64**

**FIG. 65**

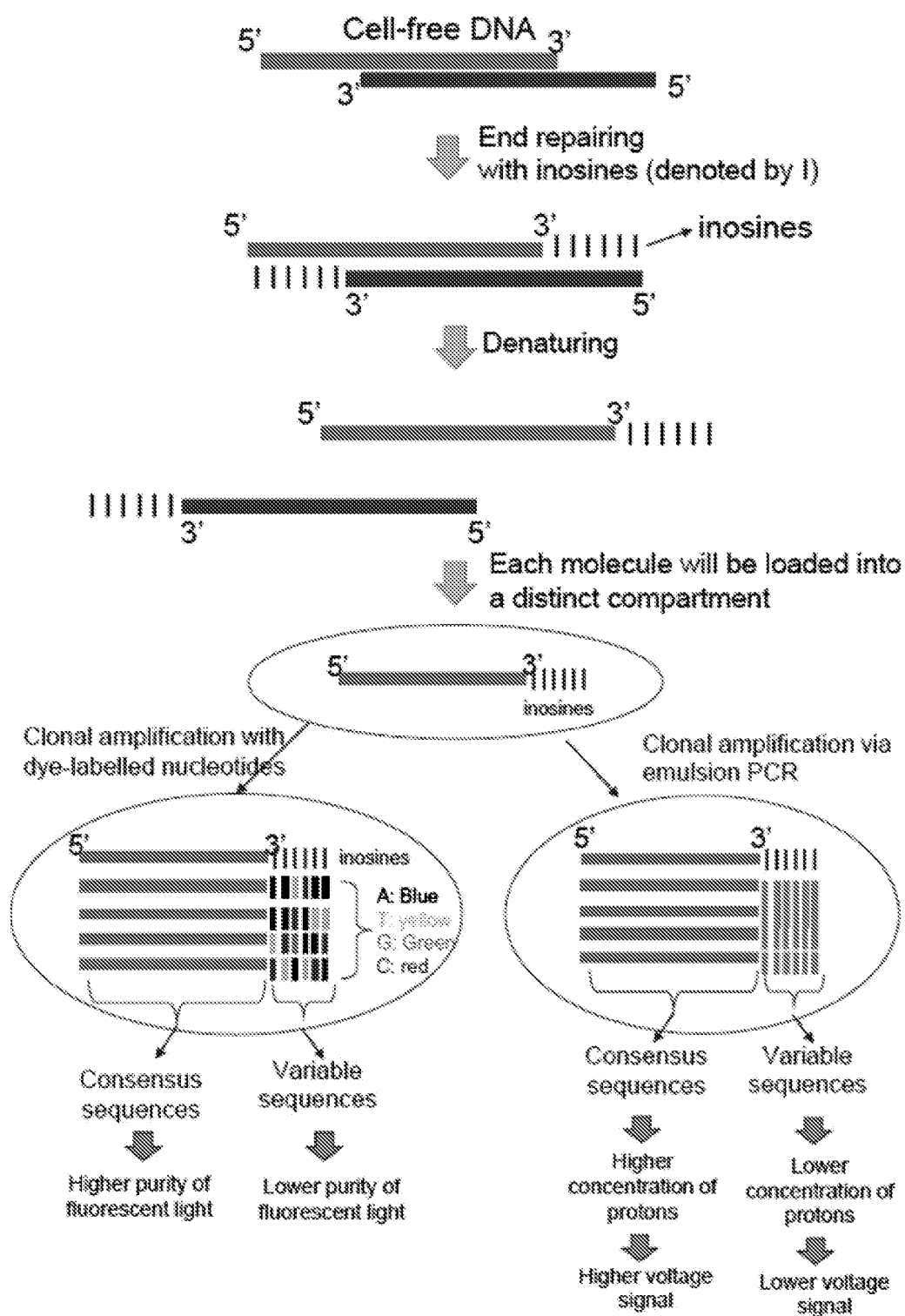
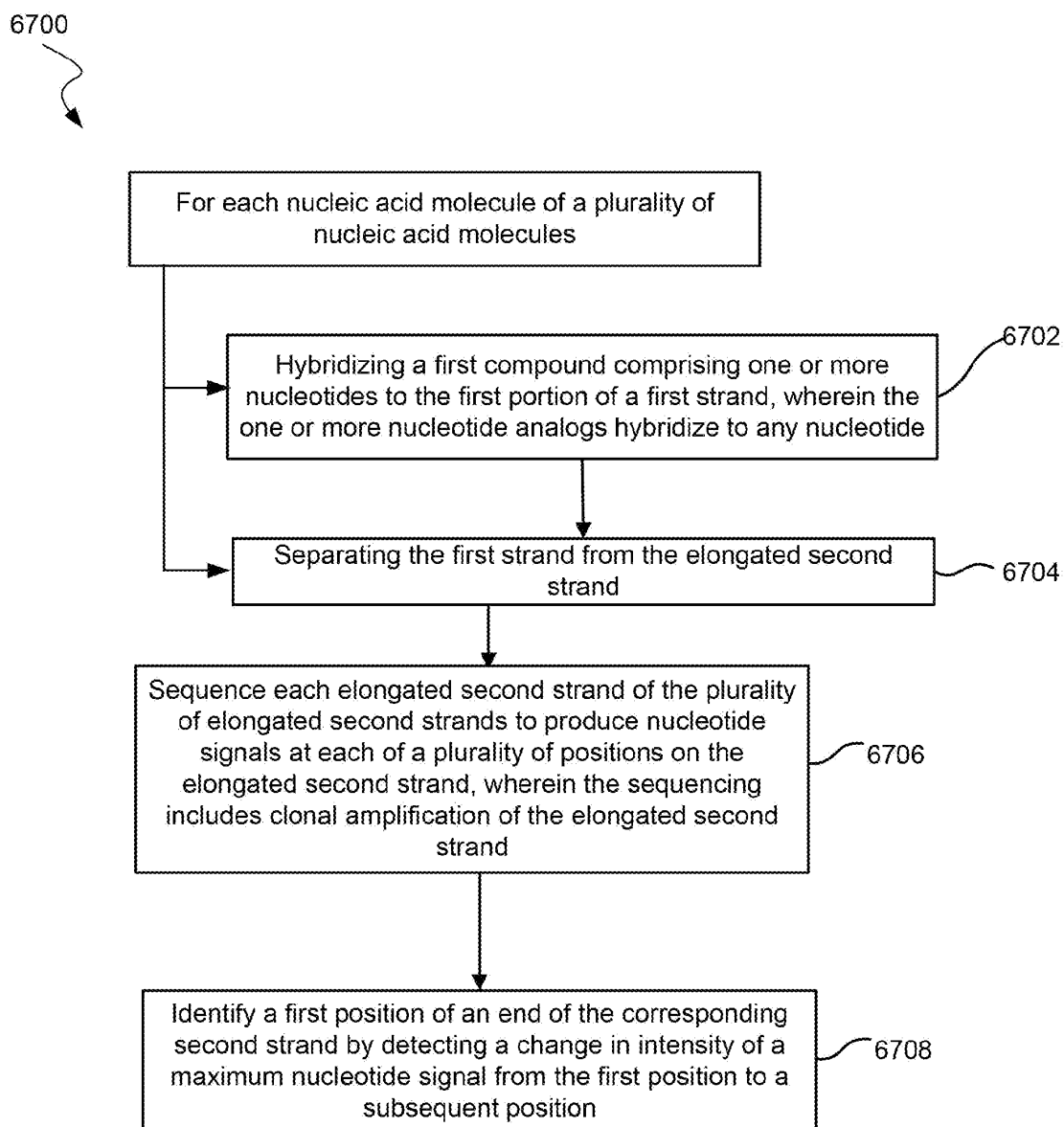


FIG. 66

**FIG. 67**

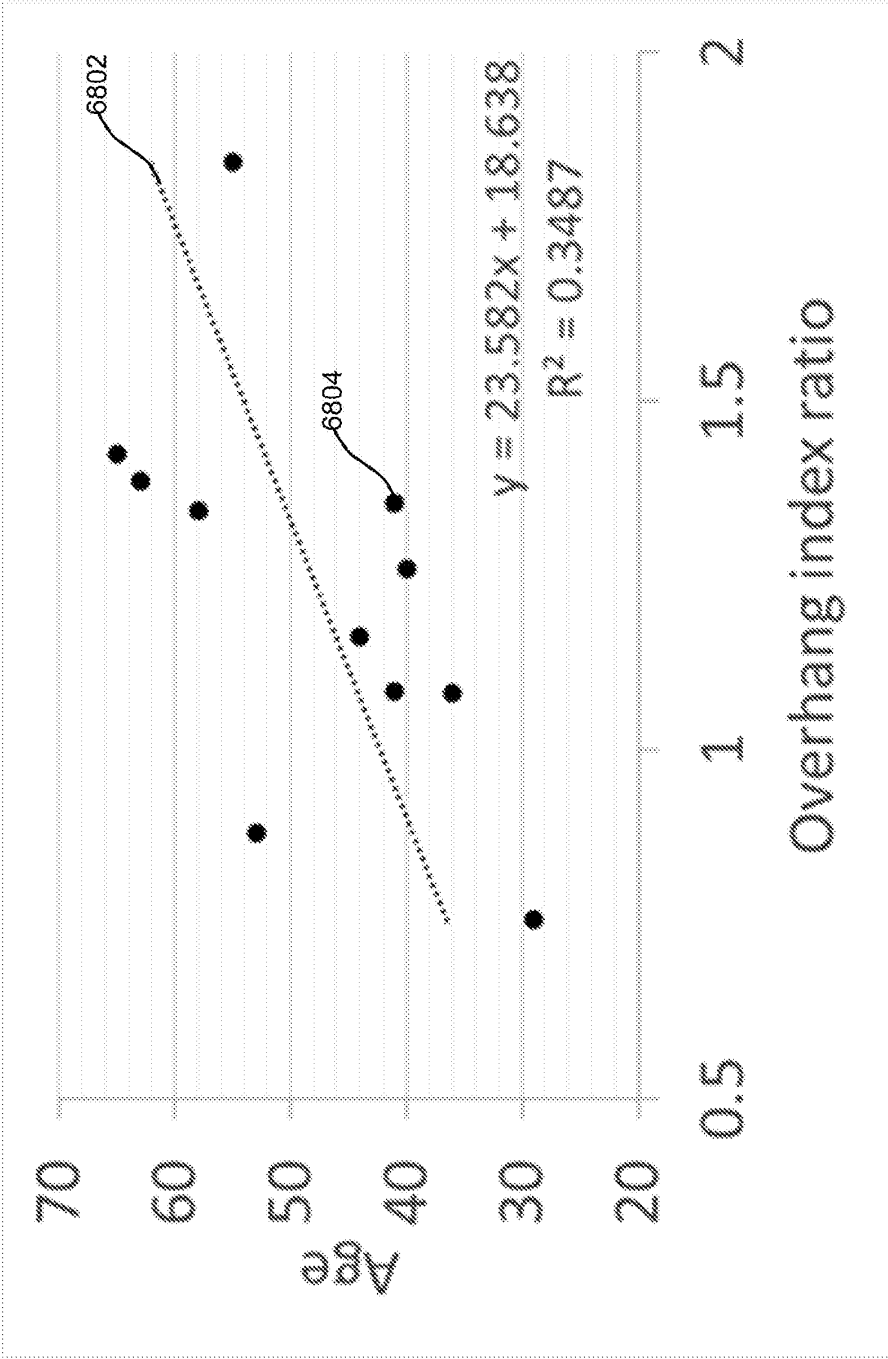


FIG. 68

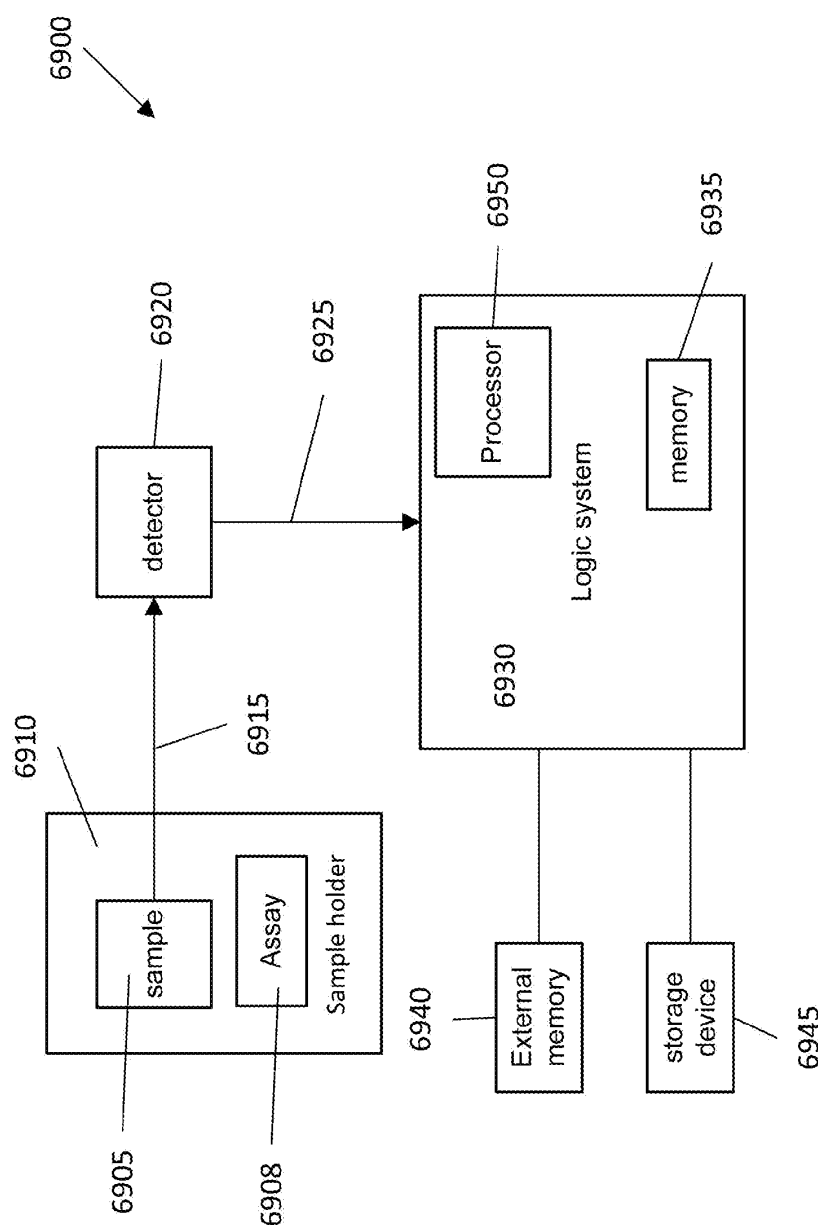


FIG. 69

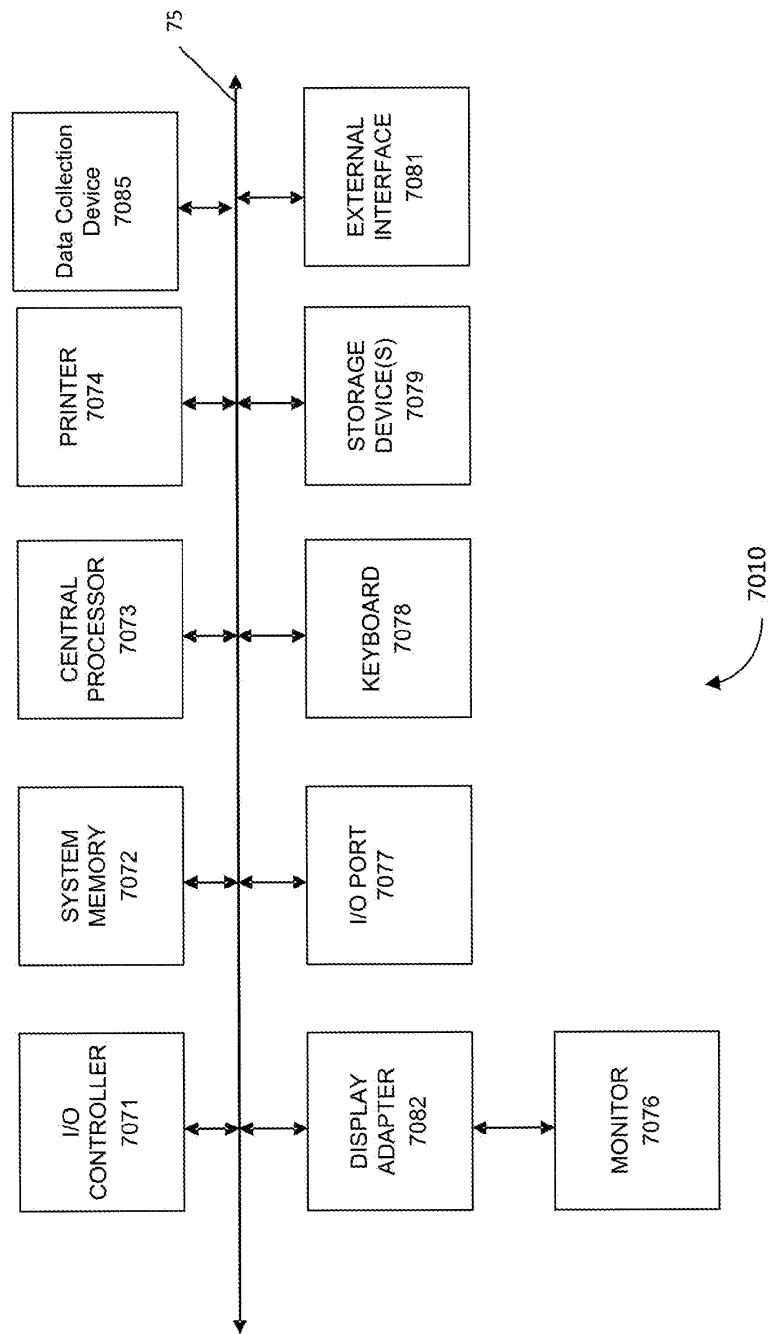


FIG. 70