

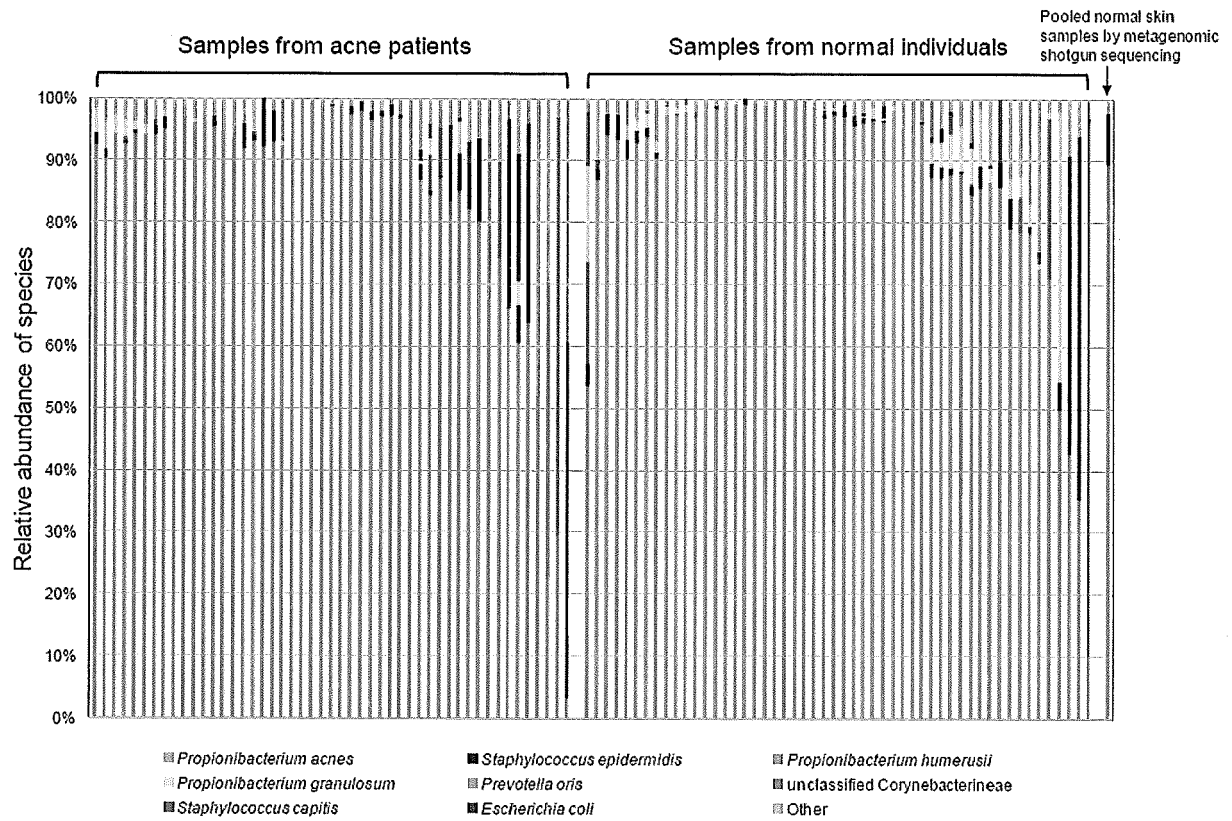
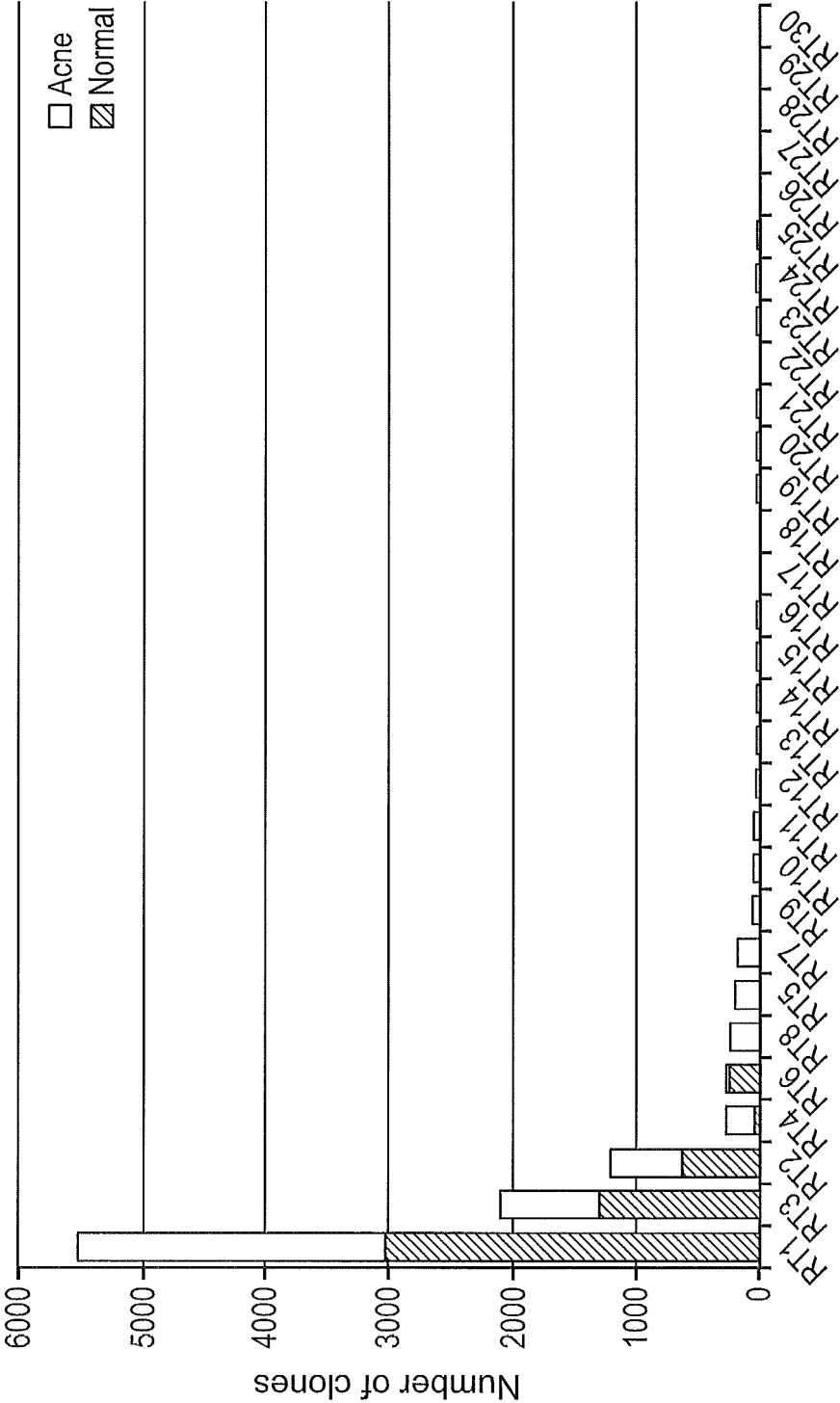
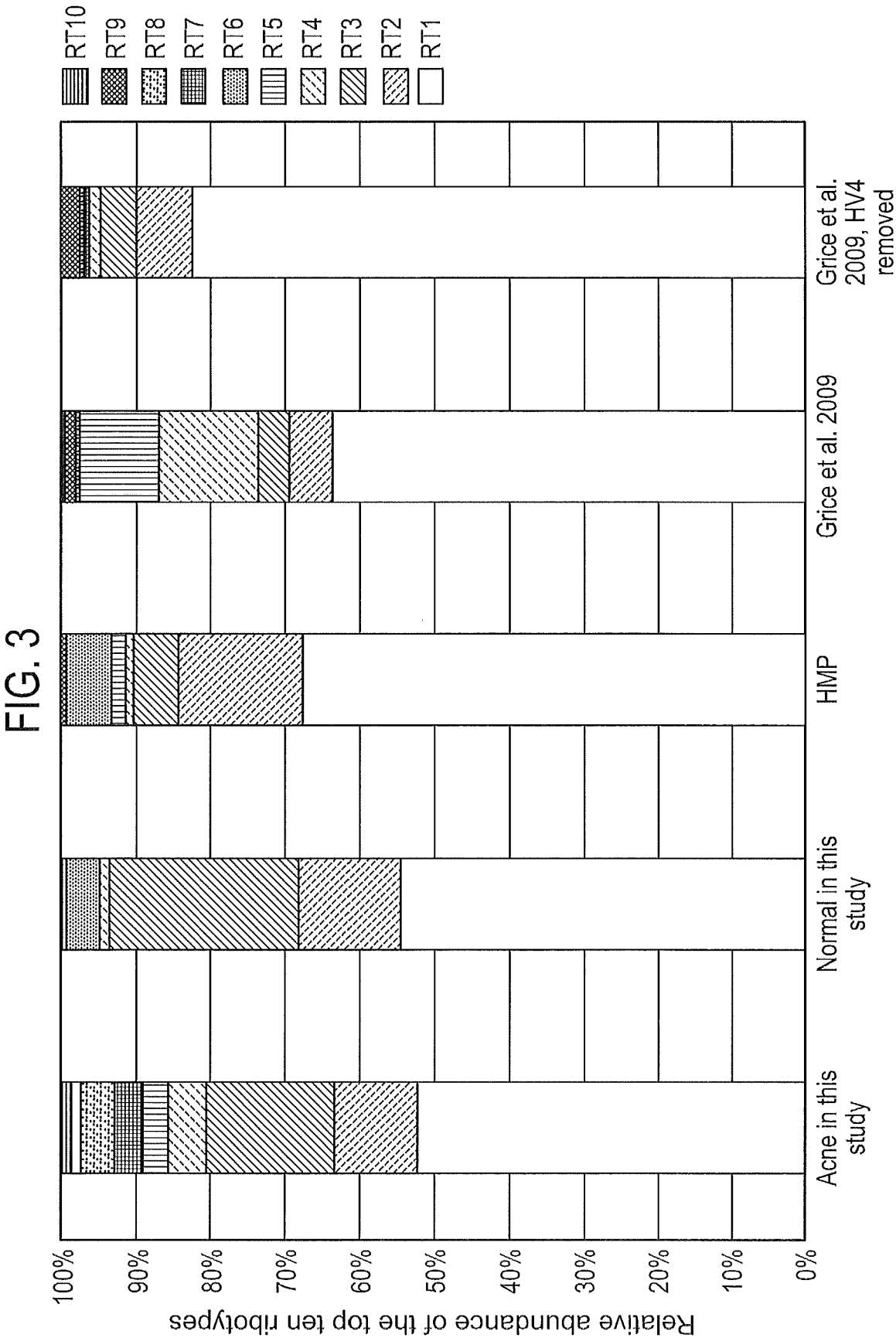


FIGURE 1



Top 30 ribotypes ordered by abundance

FIG. 2



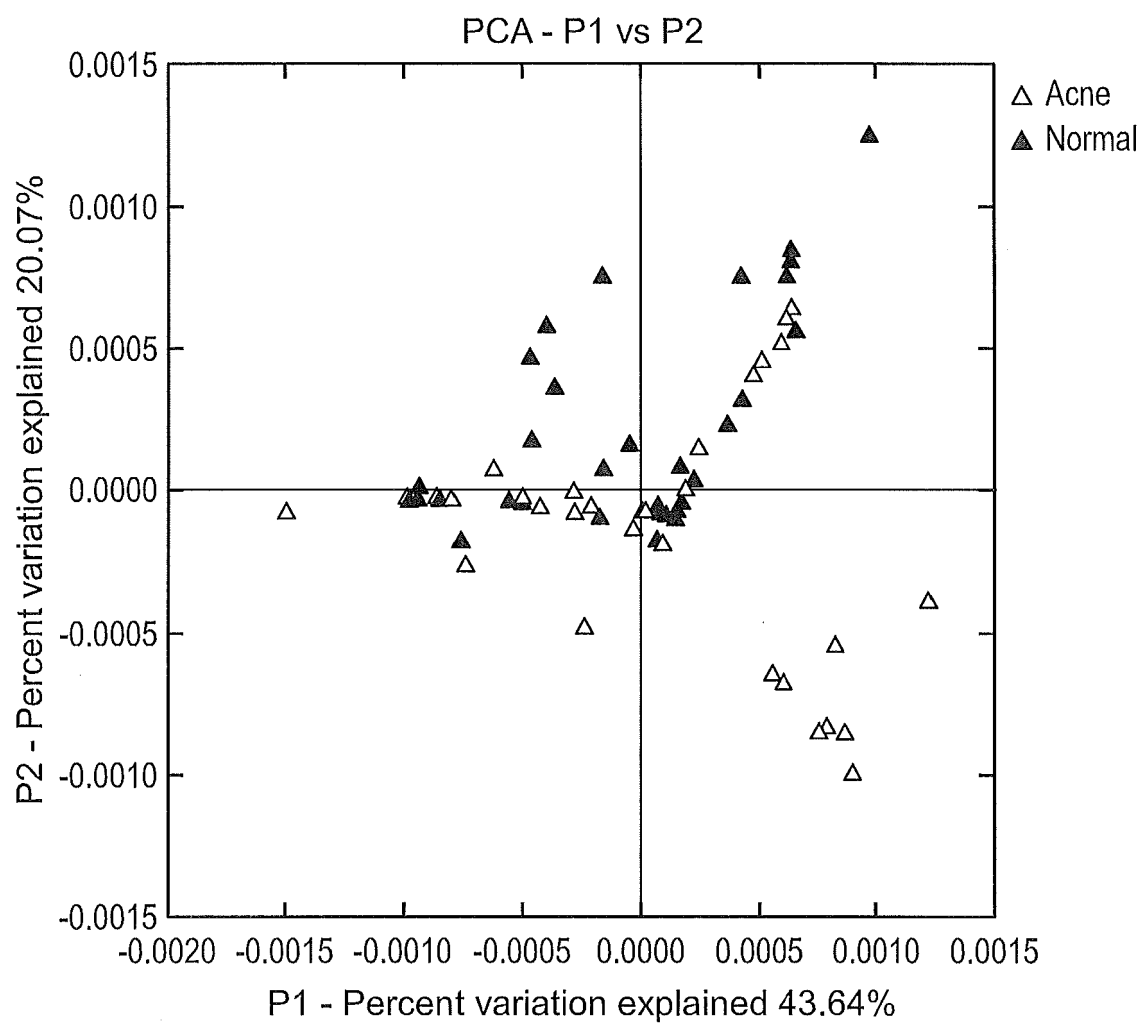


FIG. 4

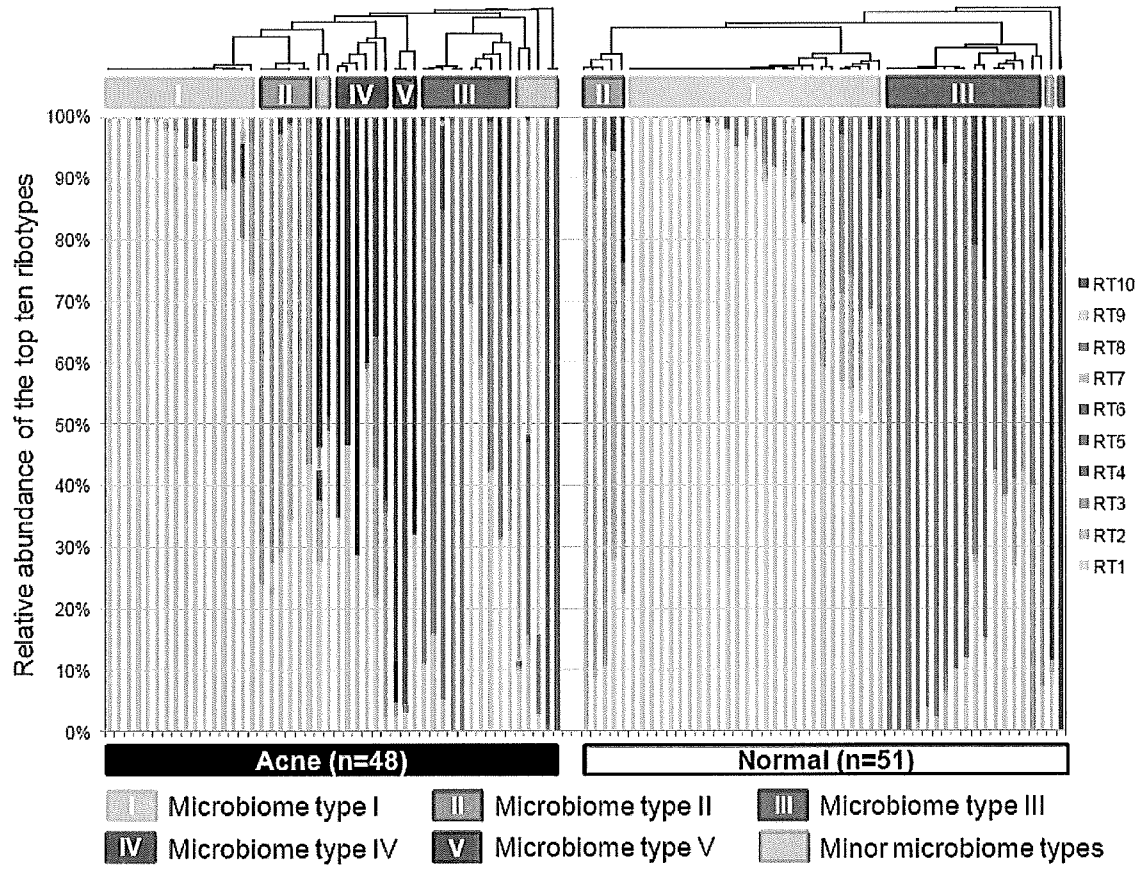


FIGURE 5

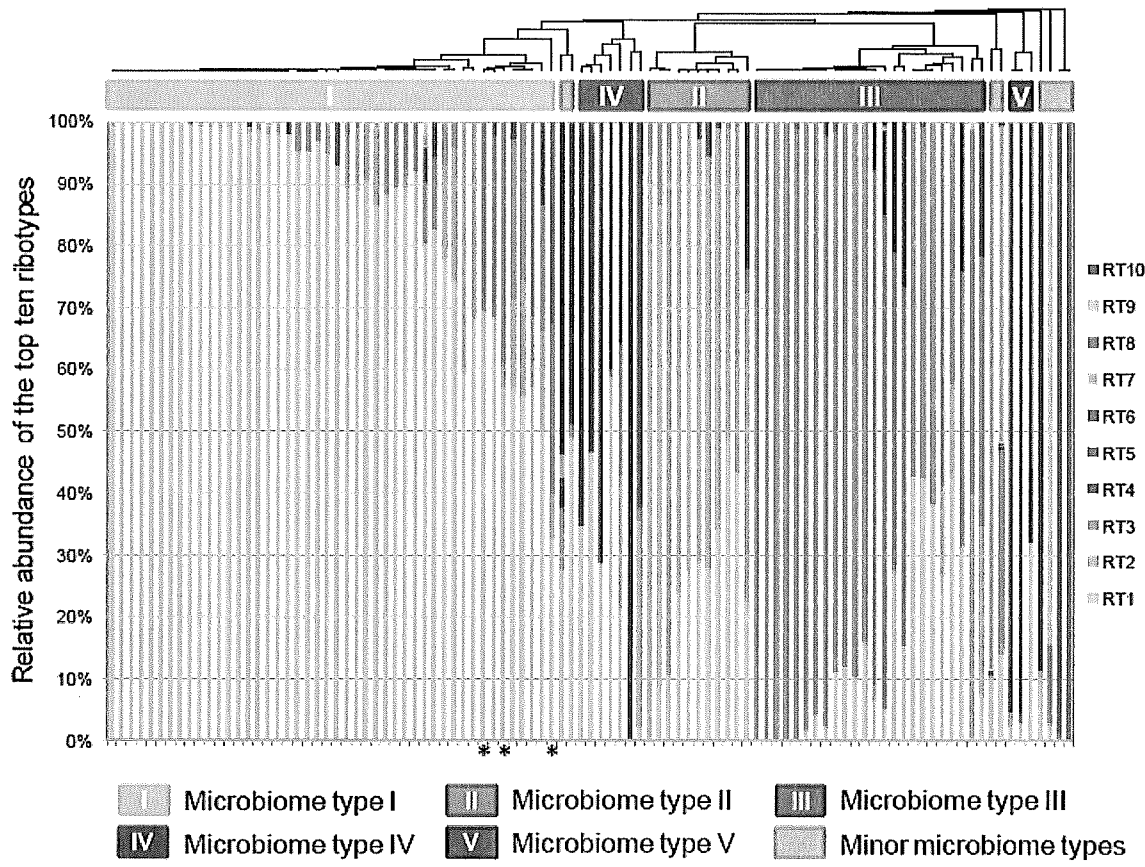


FIGURE 6

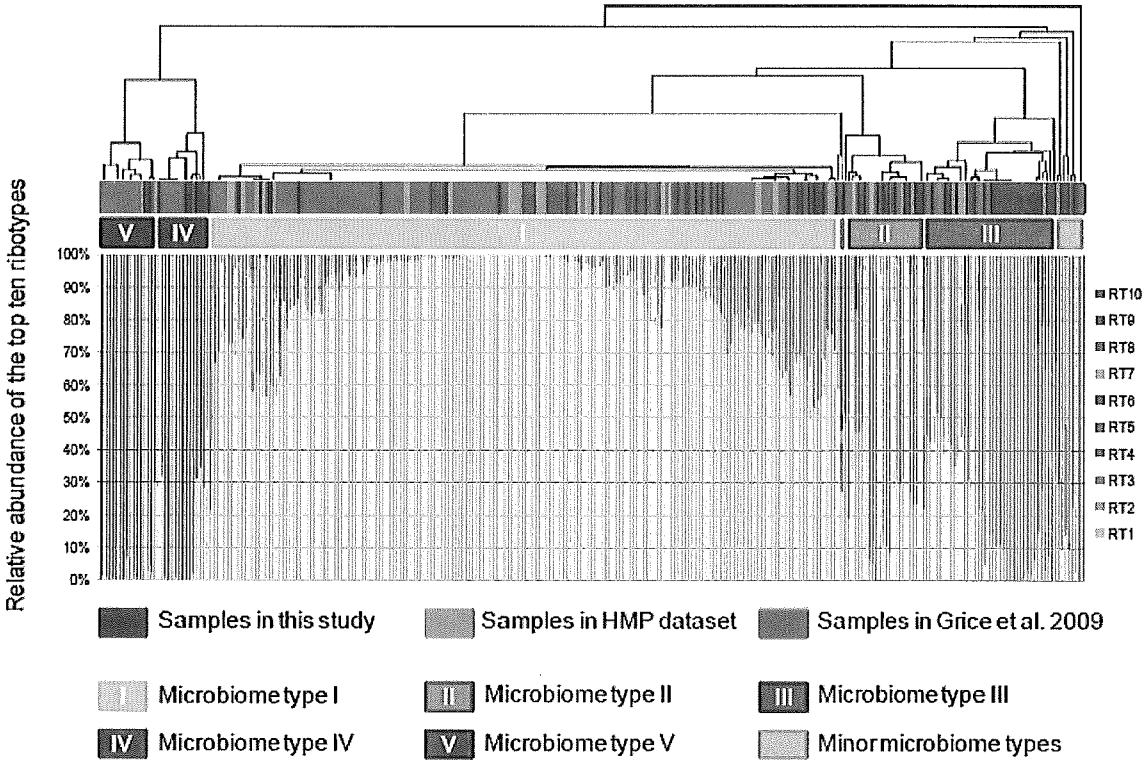


FIGURE 7

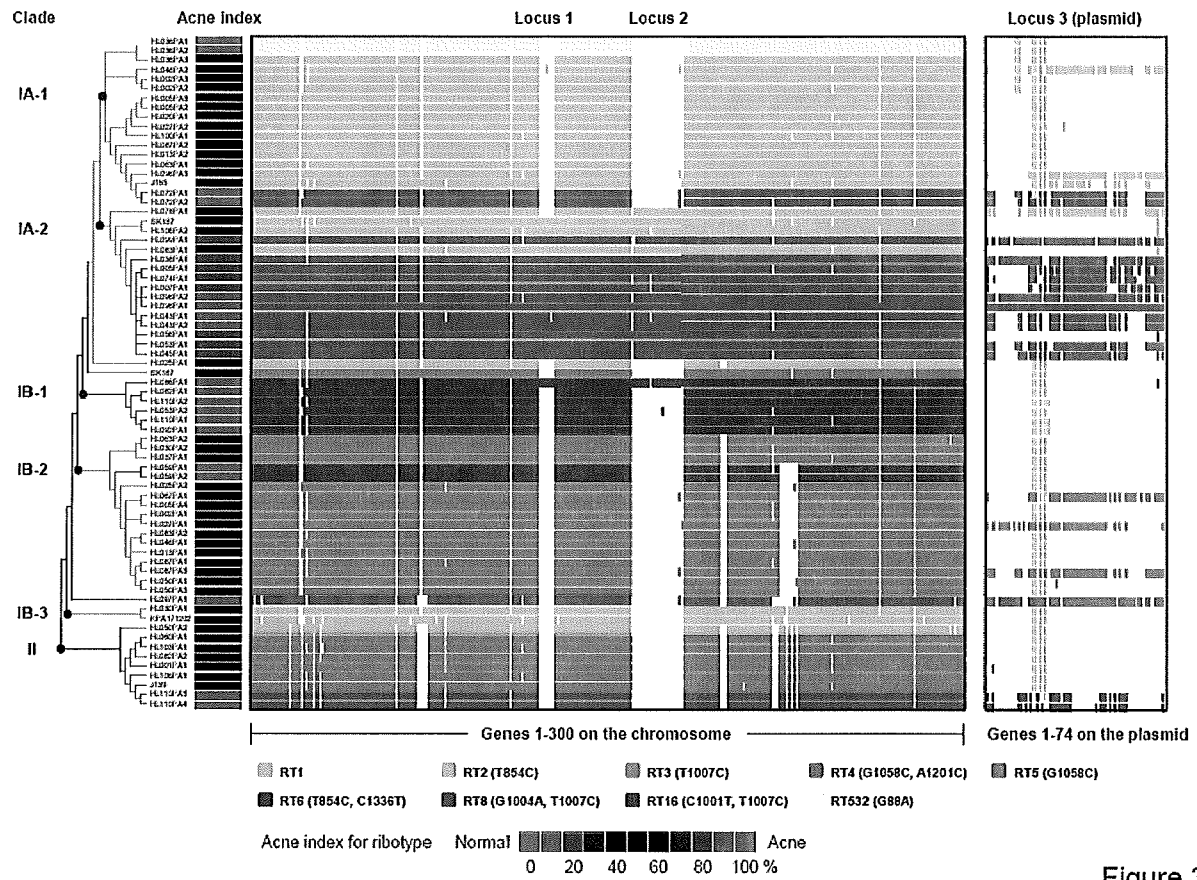
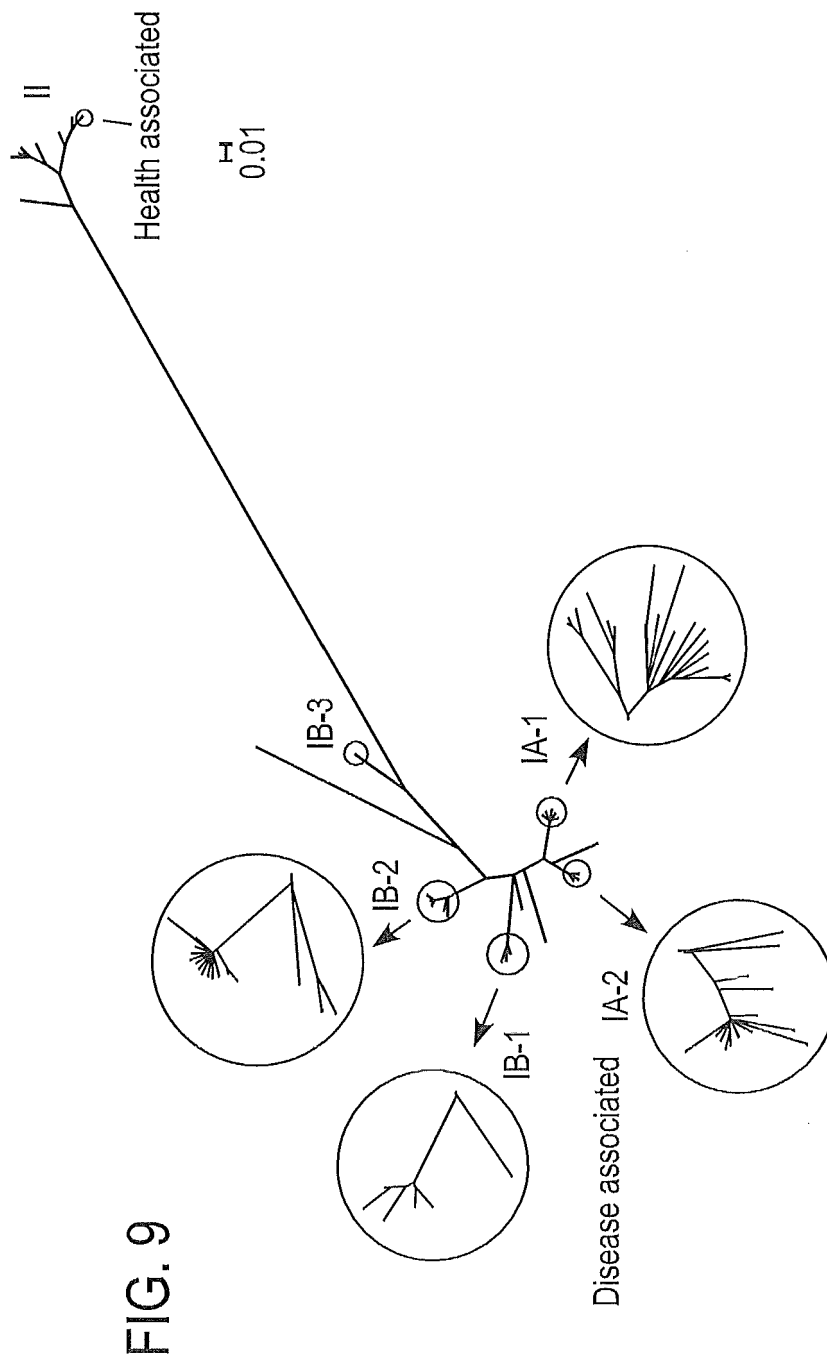


Figure 3

FIGURE 8



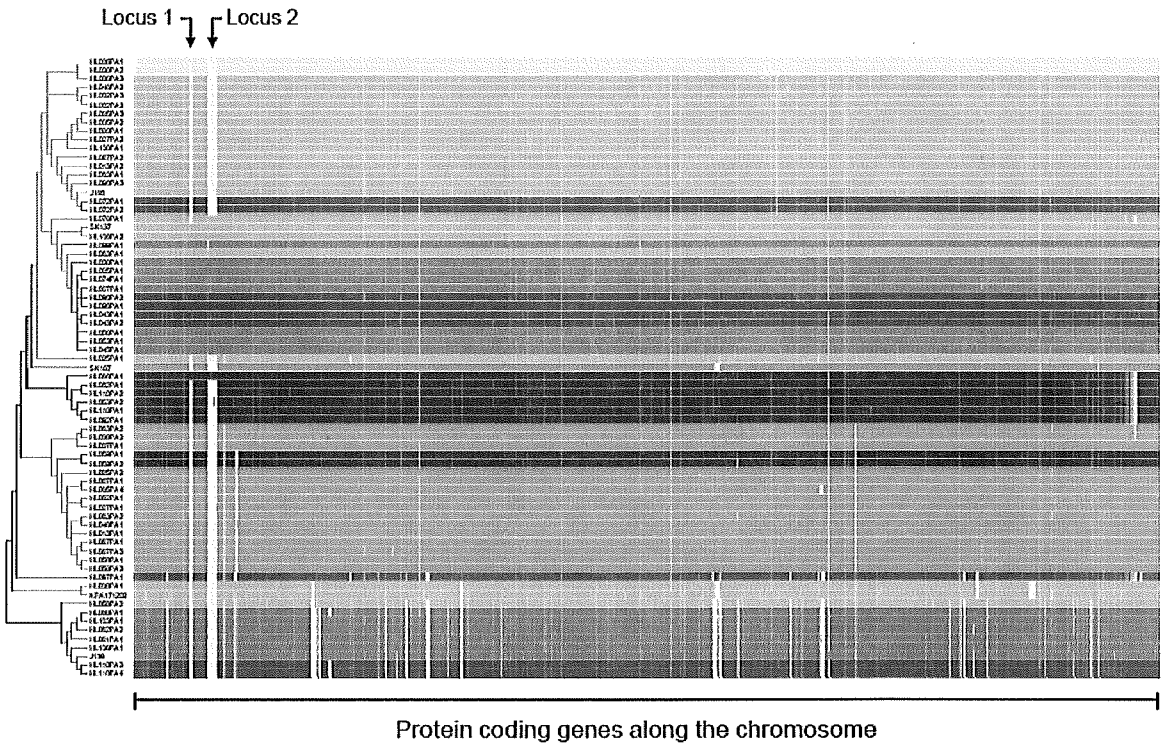
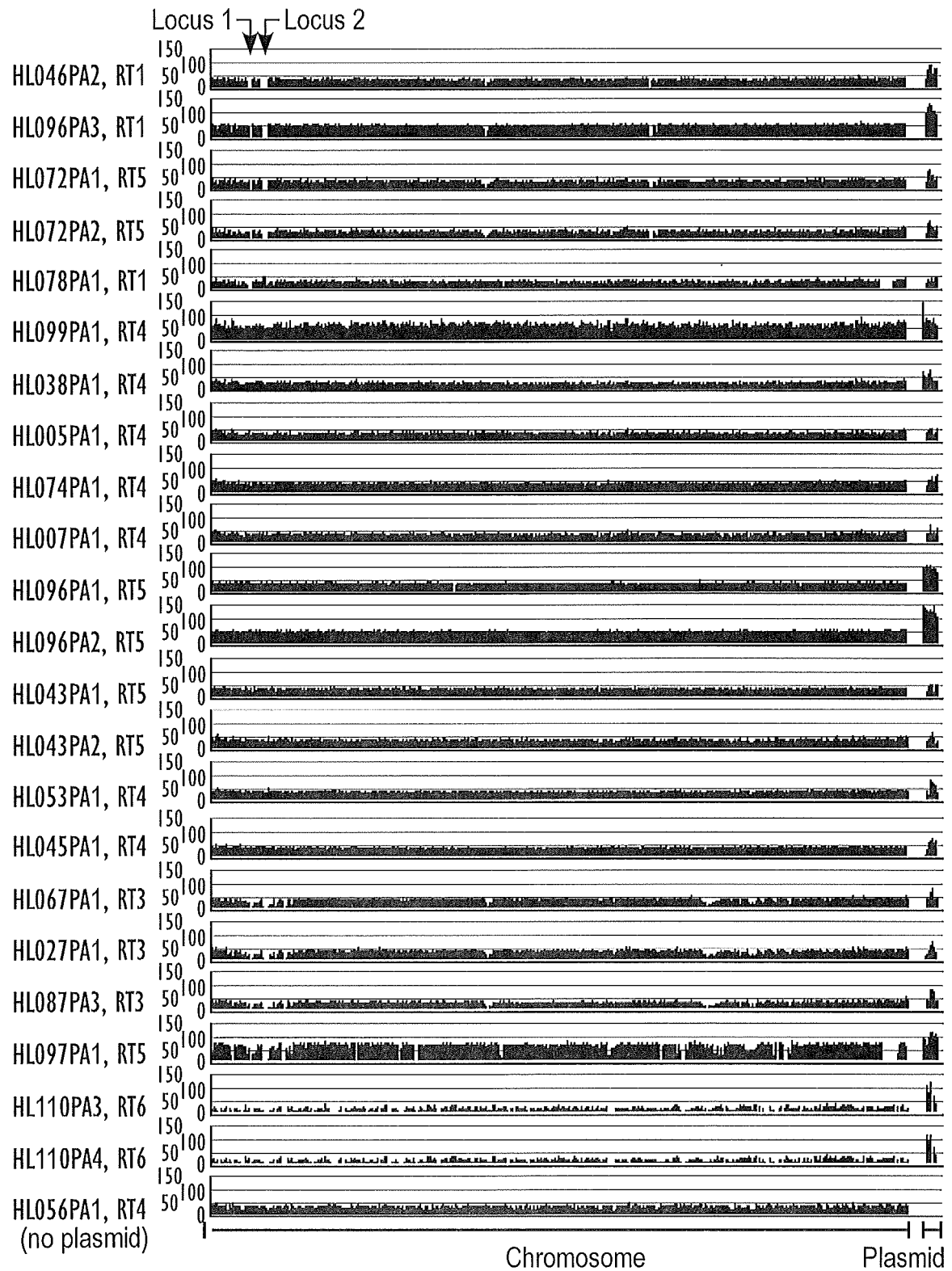


FIGURE 10

FIG. 11



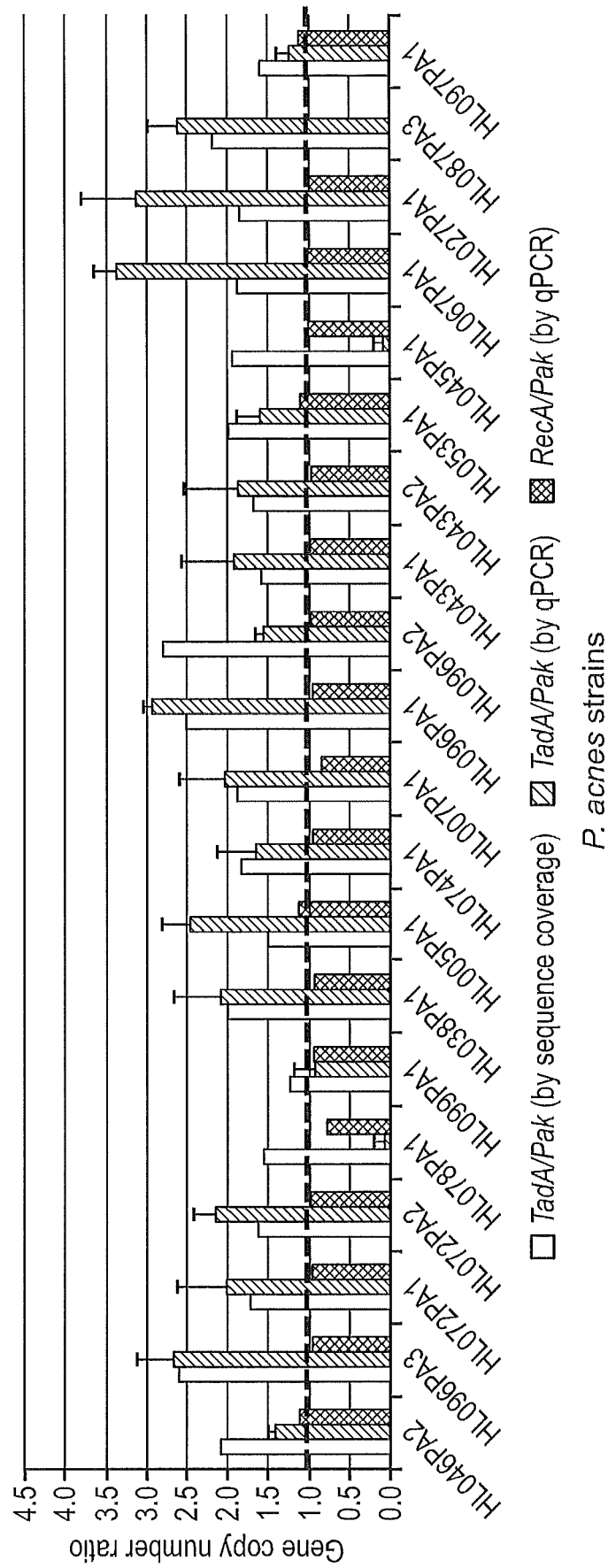


FIG. 12

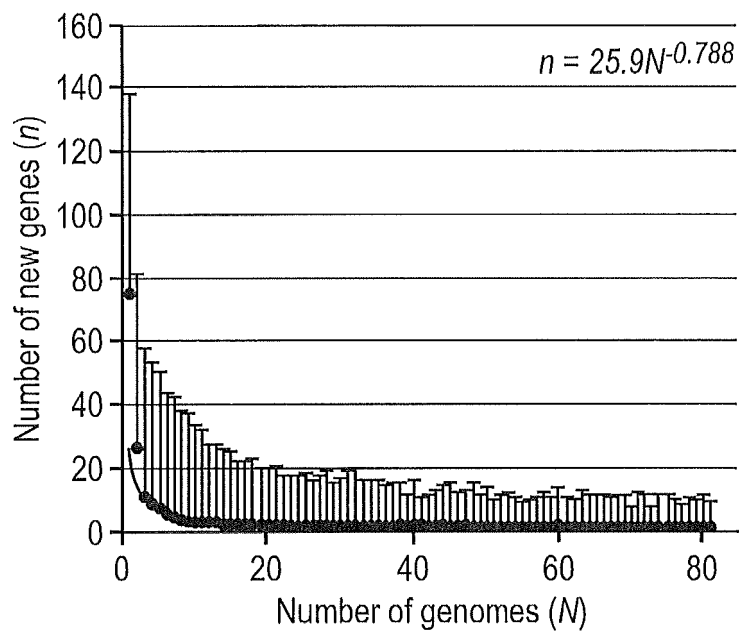


FIG. 13

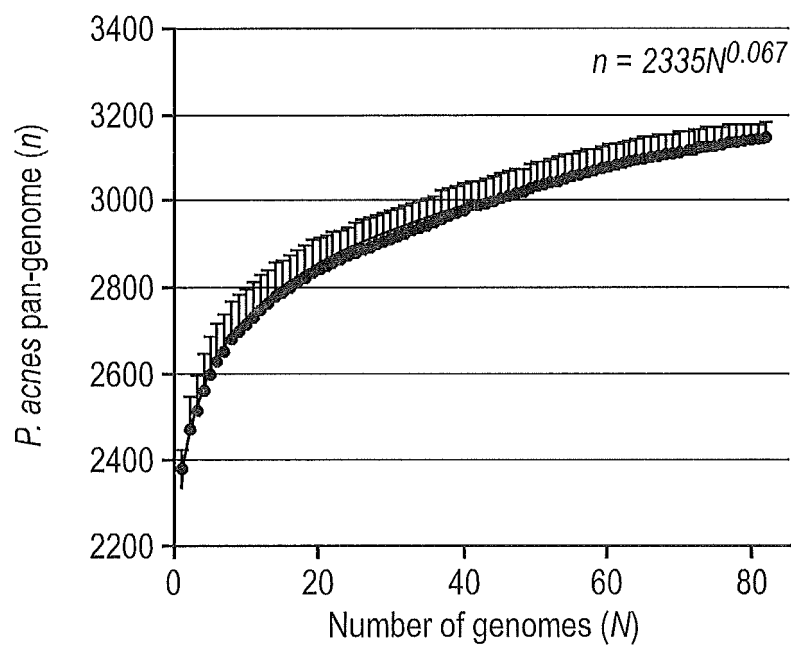


FIG. 14

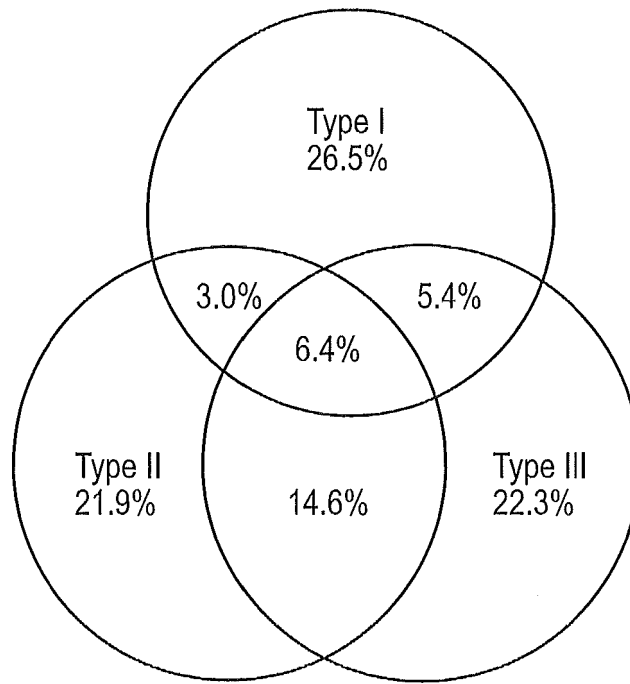


FIG. 15

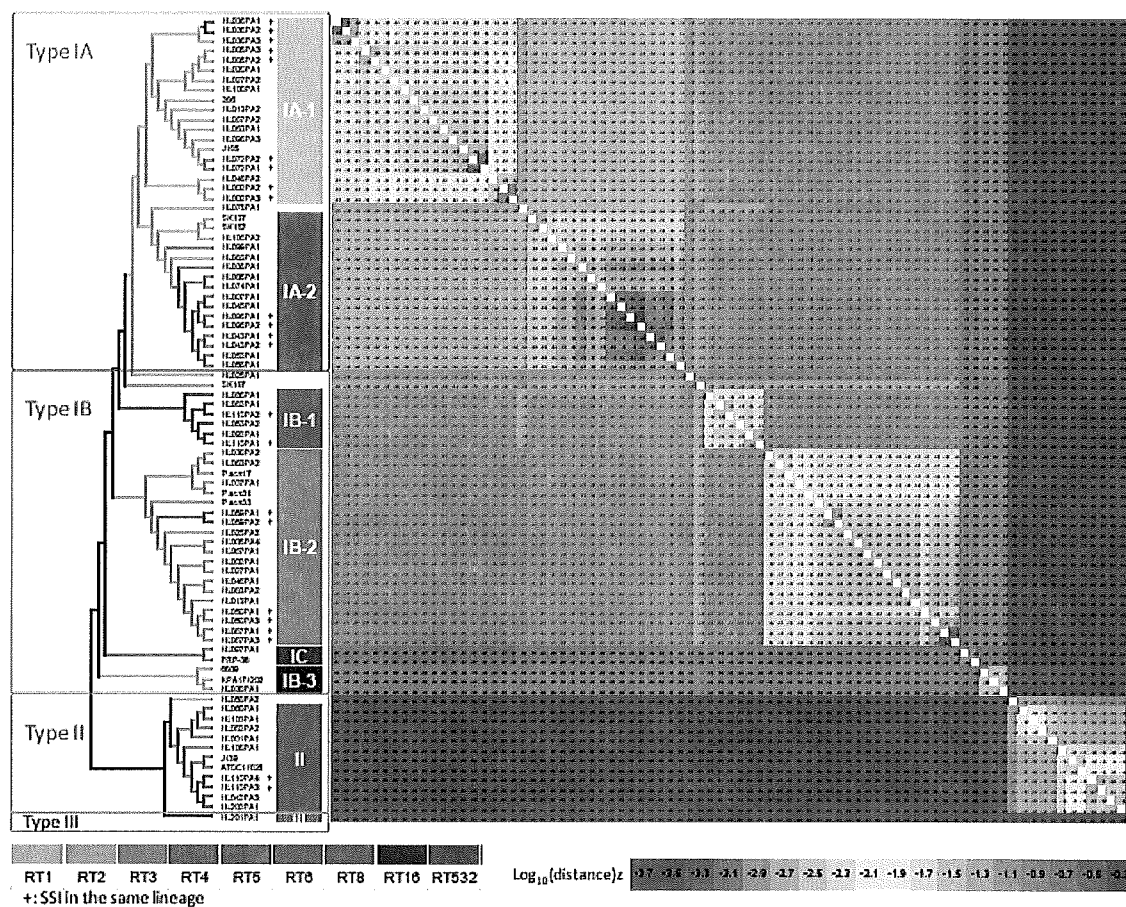


FIGURE 16

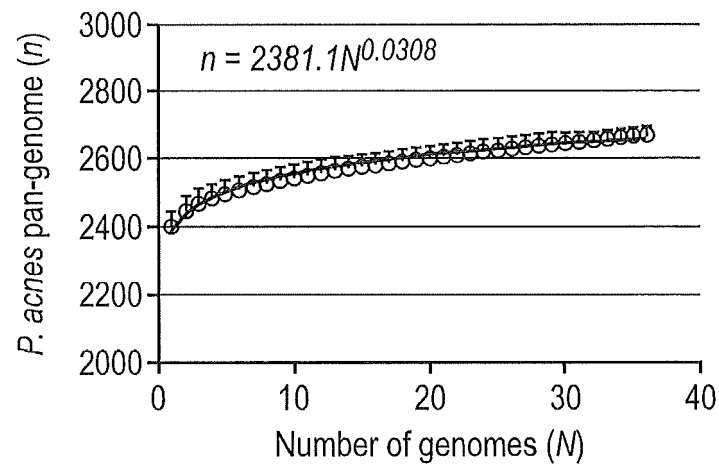


FIG. 17A

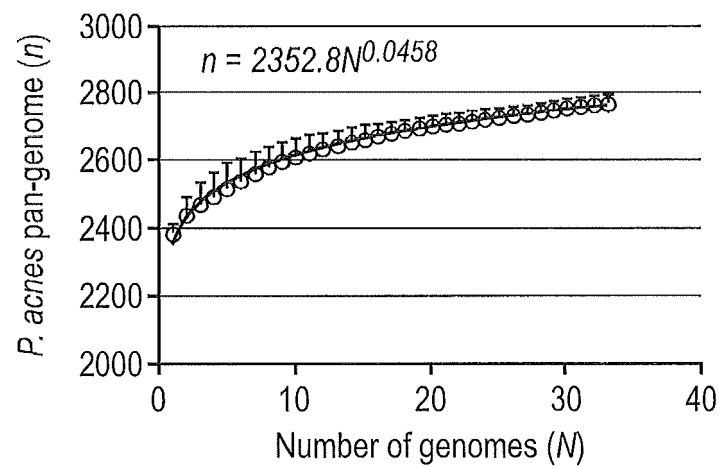


FIG. 17B

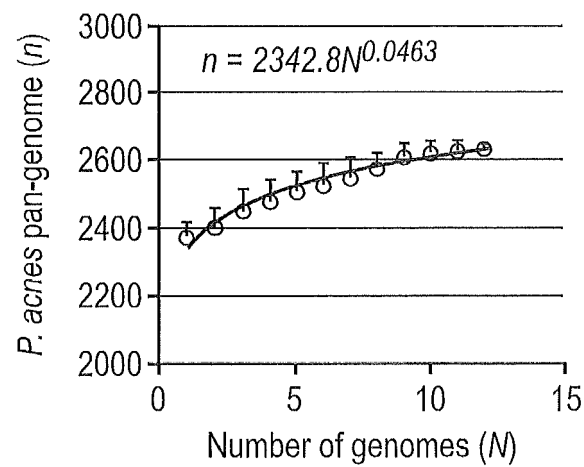


FIG. 17C

FIG. 18A

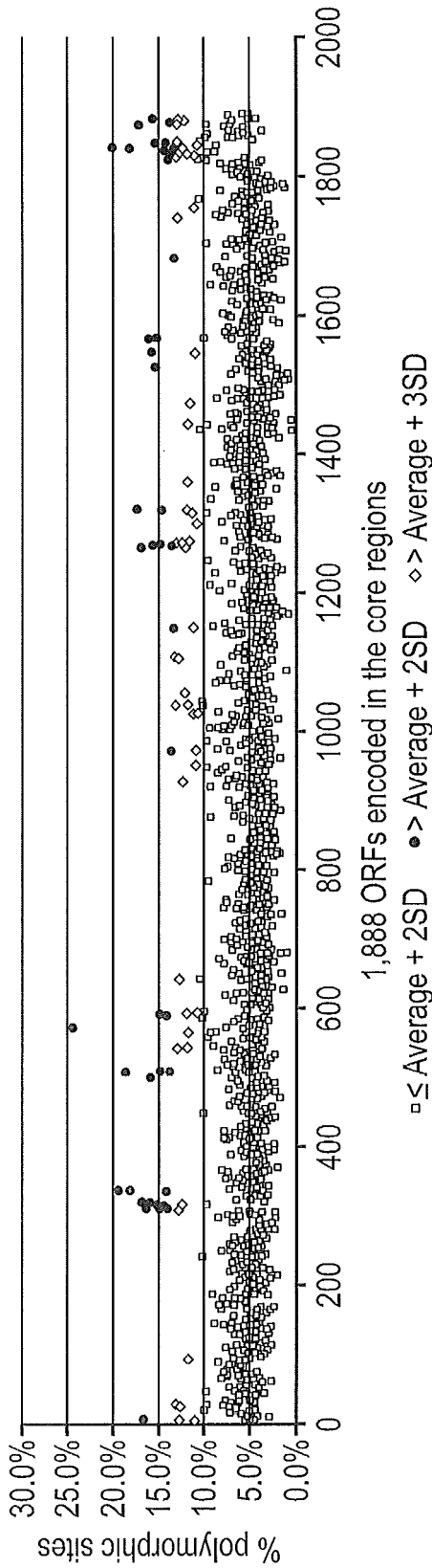
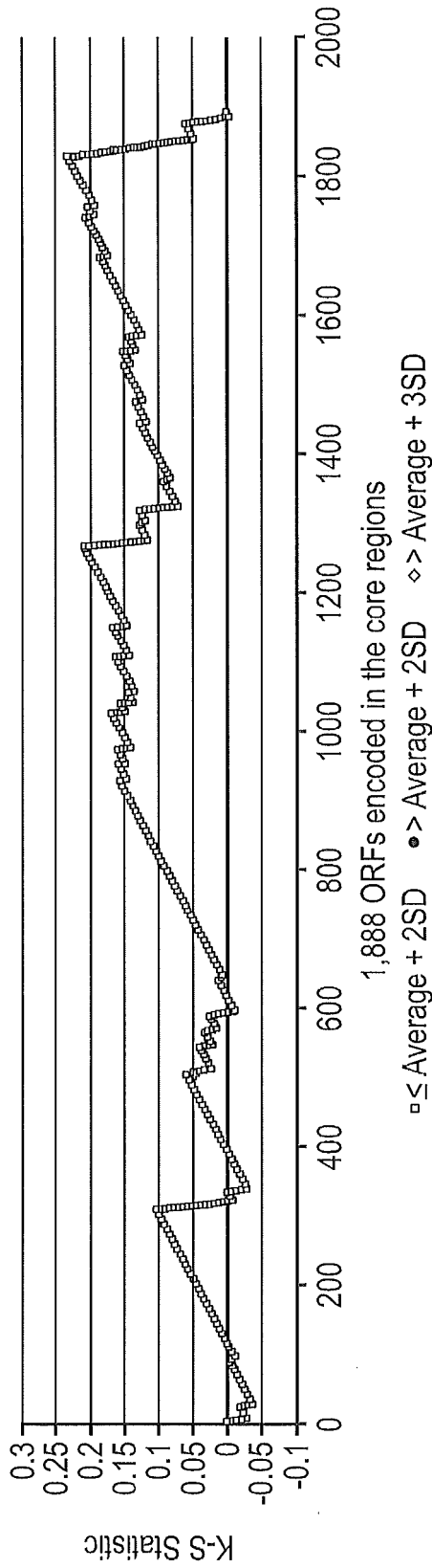
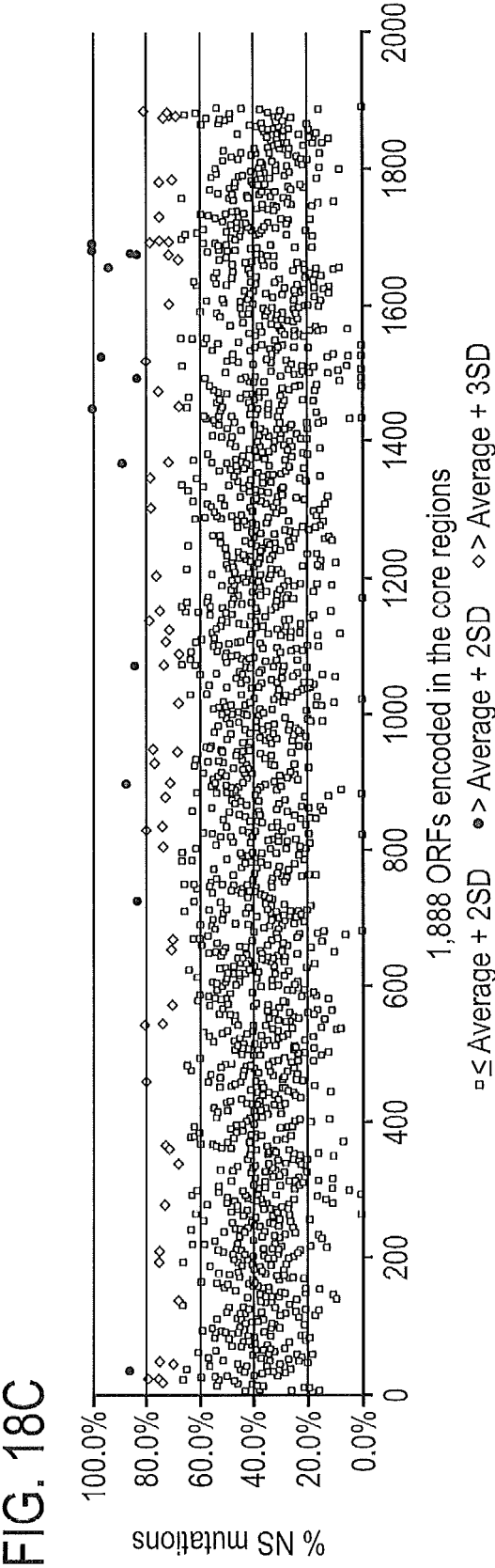
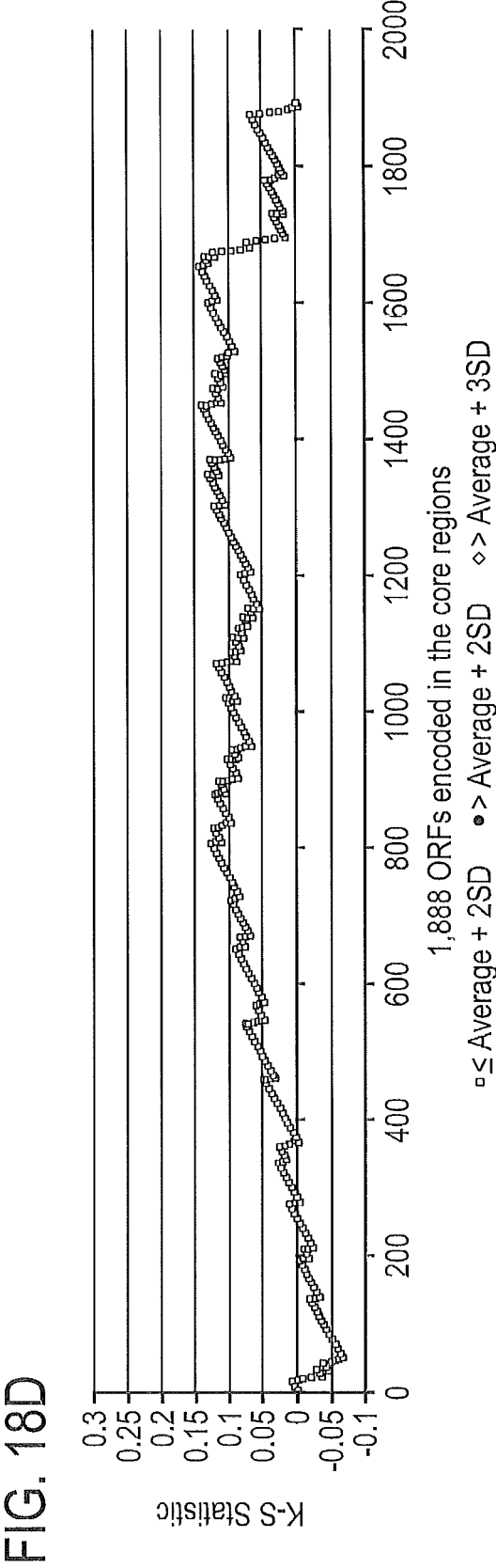


FIG. 18B





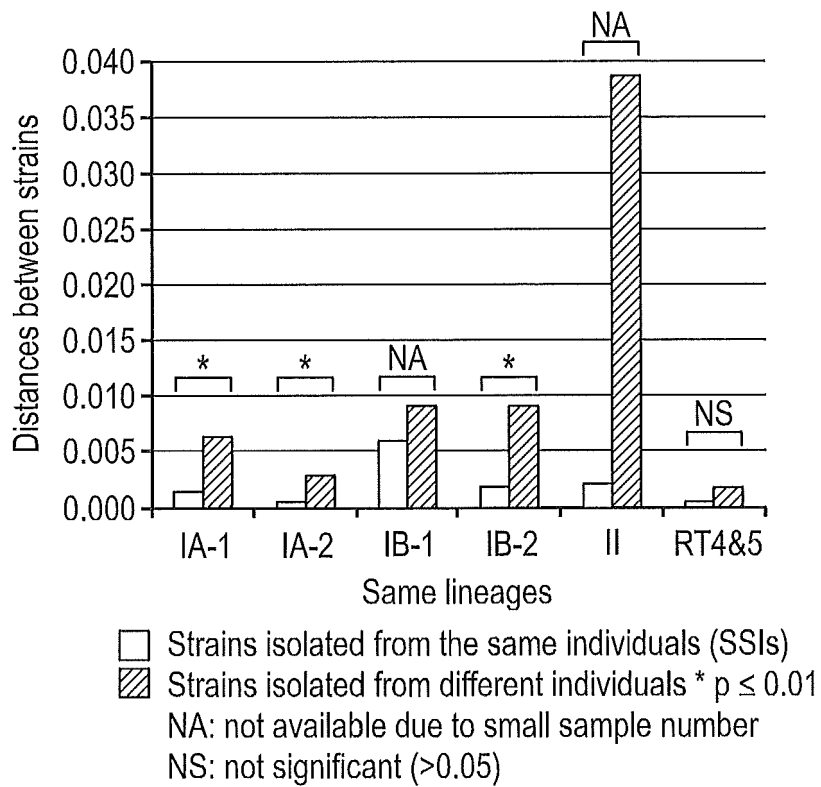


FIG. 19A

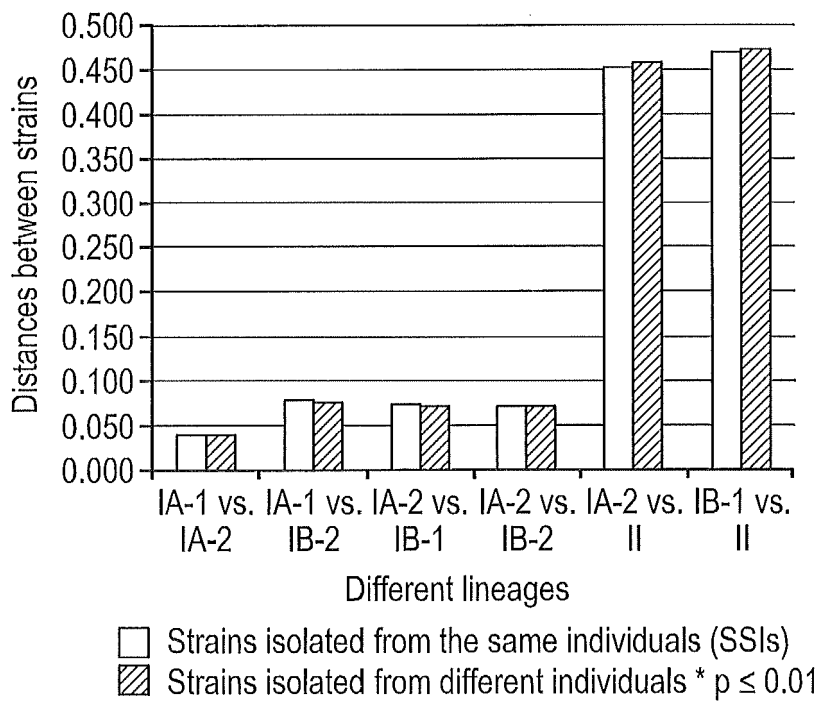


FIG. 19B

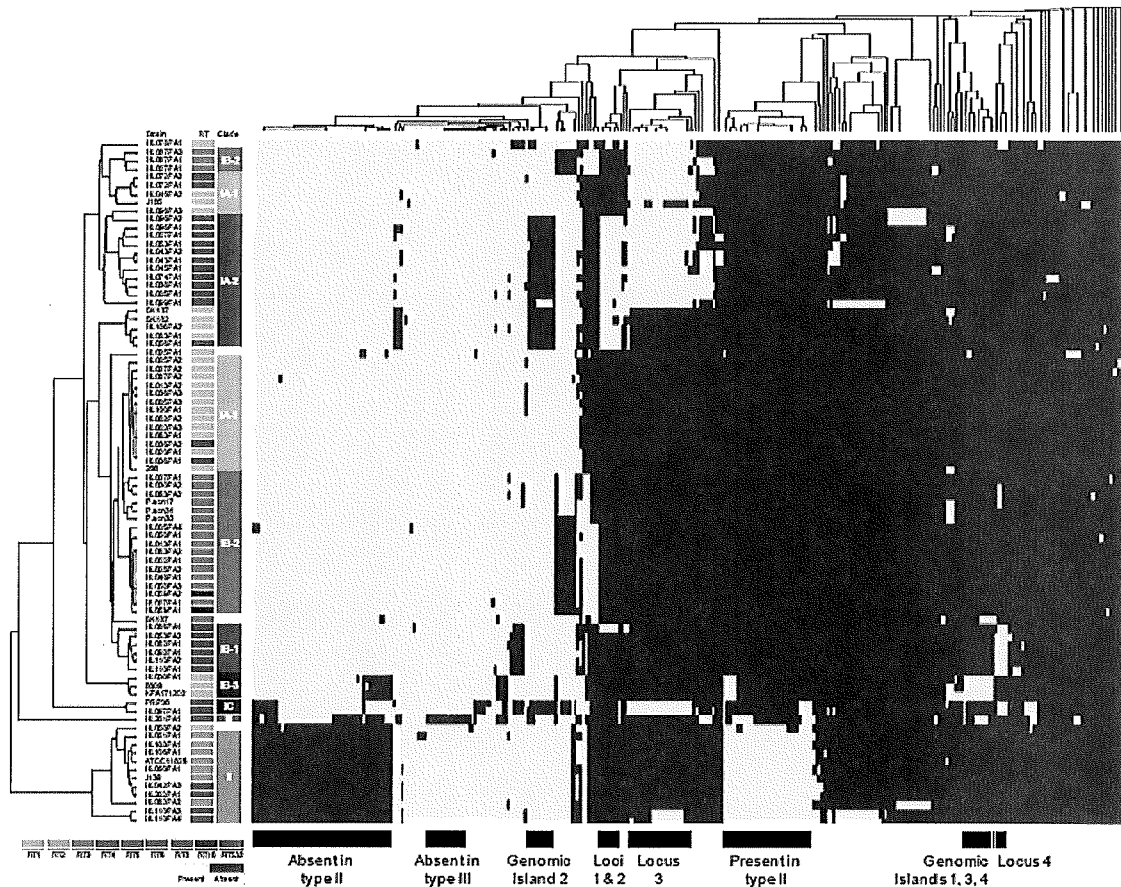
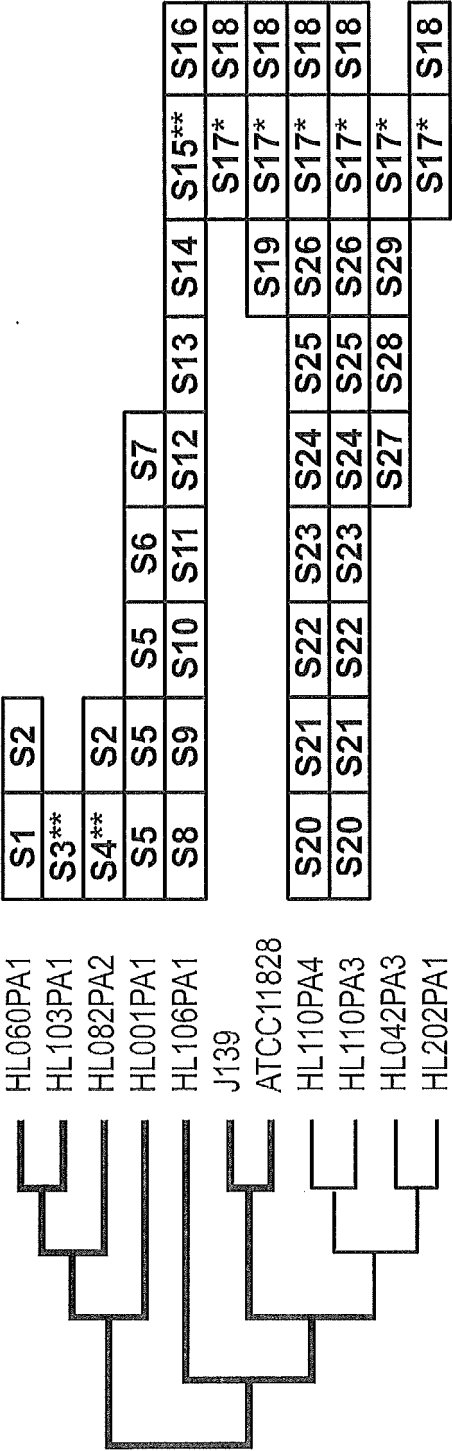


FIGURE 20

FIG. 21



* CRISPR spacers that match to the sequence in locus 2, which is highly homologous to the sequence in *Clostridium leptum*.
** CRISPR spacers that match to the sequence in locus 3, which is highly homologous to the sequence in *Clostridium leptum*.

FIG. 22A

Genetic Alteration	KPAI71202 Locus_tag	Product Name	Length (bp)	SK137 Locus_tag	Product Name	Length (bp)
TAGATA deletion in type II lbase deletion at 124th nt	PPAI796'	triacylglycerol lipase precursor	1,020	HMPREF0675_4855'	triacylglycerol lipase	888
	NA	NA	NA	HMPREF0675_4856'	triacylglycerol lipase	1,014
TACA insertion in type IA/IB at 505th nt	PPAI425'	putative lysophospholipase	1,134	HMPREF0675_4479'	putative Lysophospholipase L2	498
				HMPREF0675_4480'	putative Lysophospholipase L2	168
				HMPREF0675_4481'	putative Lysophospholipase L2	426
13bp insertion in IB-3/type II	PPA0594'	putative lysophospholipase	939	HMPREF0675_3655/3657	hypothetical protein	926
10C in SK137, normally 6C	PPAI761	cardiolipin synthetase	1,269	HMPREF0675_4816'	phospholipase D domain protein	1,188
				HMPREF0675_4817	hypothetical protein	
Premature stop codon at 170th nt	PPA2142'	putative lysophospholipase	1,122	HMPREF0675_5205'	lysophospholipase L2 domain protein	1,122
				HMPREF0675_5206'	lysophospholipase L2	
Conserved	PPAI953'	patatin-like phospholipase	1,503	HMPREF0675_5014'	phospholipase, patatin family	1,503
Conserved	PPA2038'	lipase/acylhydrolase	909	HMPREF0675_5101	GDSL-like protein	909
Conserved	PPA2105'	triacylglycerol lipase precursor	1,020	HMPREF0675_5159'	triacylglycerol lipase	1,020
Conserved	PPAI035'	putative lipase	1,287	HMPREF0675_4093/4094	hypothetical protein	1,287
Conserved	PPAI101'	putative esterase/lipase YbF	819	HMPREF0675_4163	hydrolase, alpha/beta domain protein	819
Conserved	PPAI987'	putative lysophospholipase	957	HMPREF0675_5031	hydrolase, alpha/beta domain protein	957
Conserved	PPA2312'	lipase/esterase	930	HMPREF0675_5390	hydrolase, alpha/beta domain protein	930
Conserved	NA	NA	NA	HMPREF0675_3037'	phospholipase, patatin family	1,032

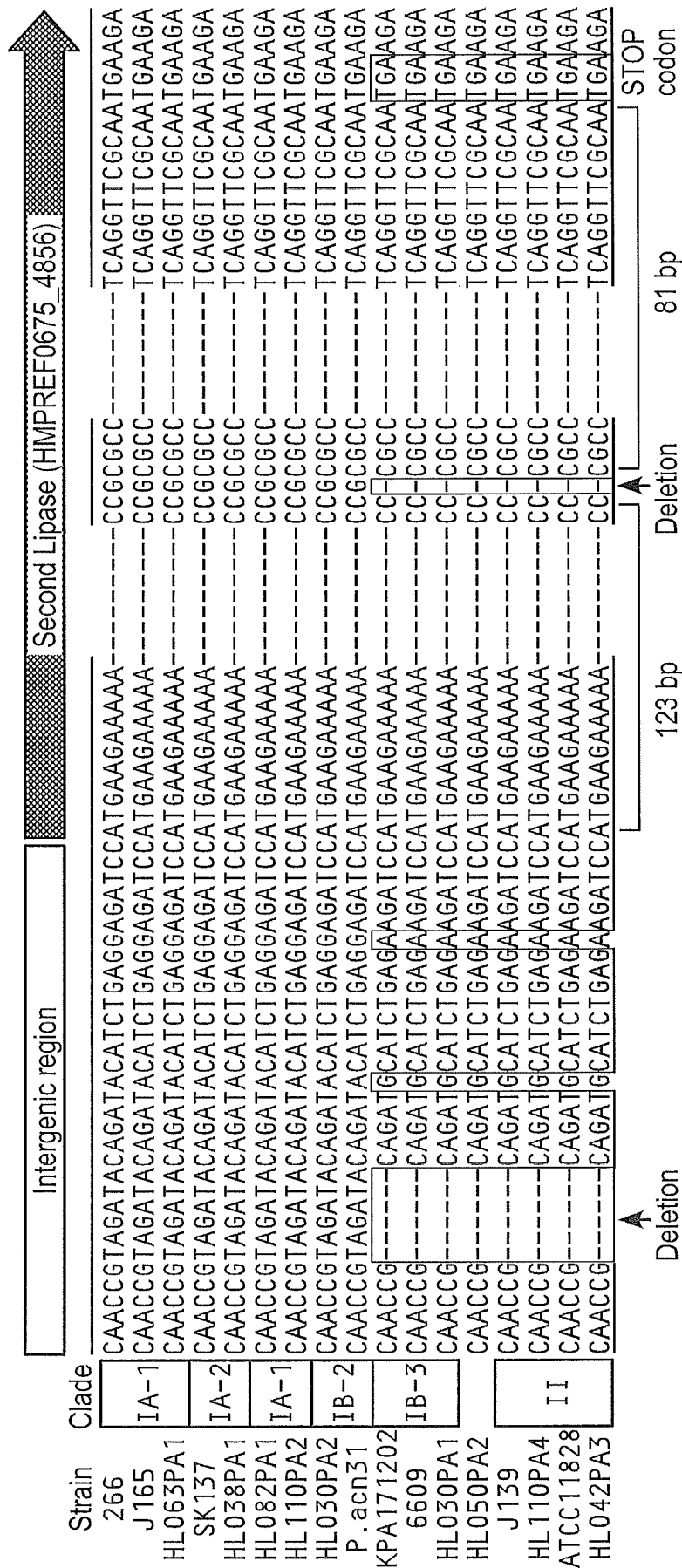


FIG. 22B

FIG. 23A

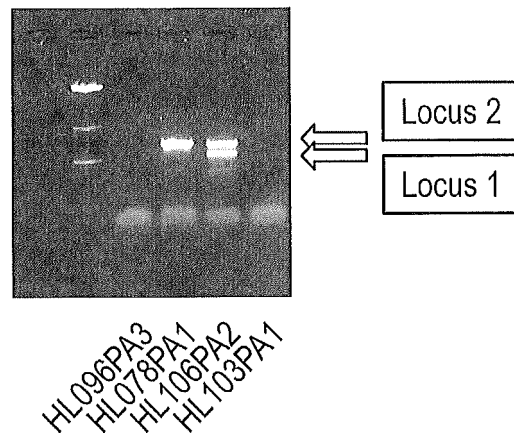
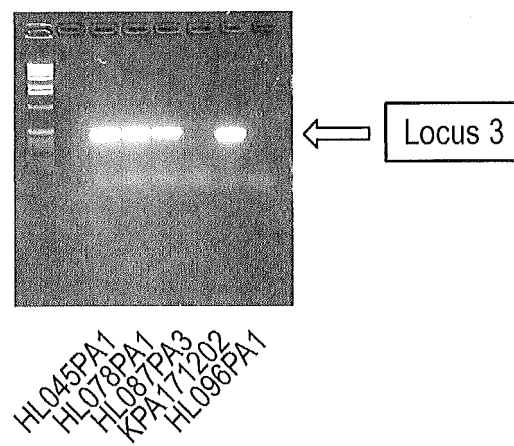


FIG. 23B



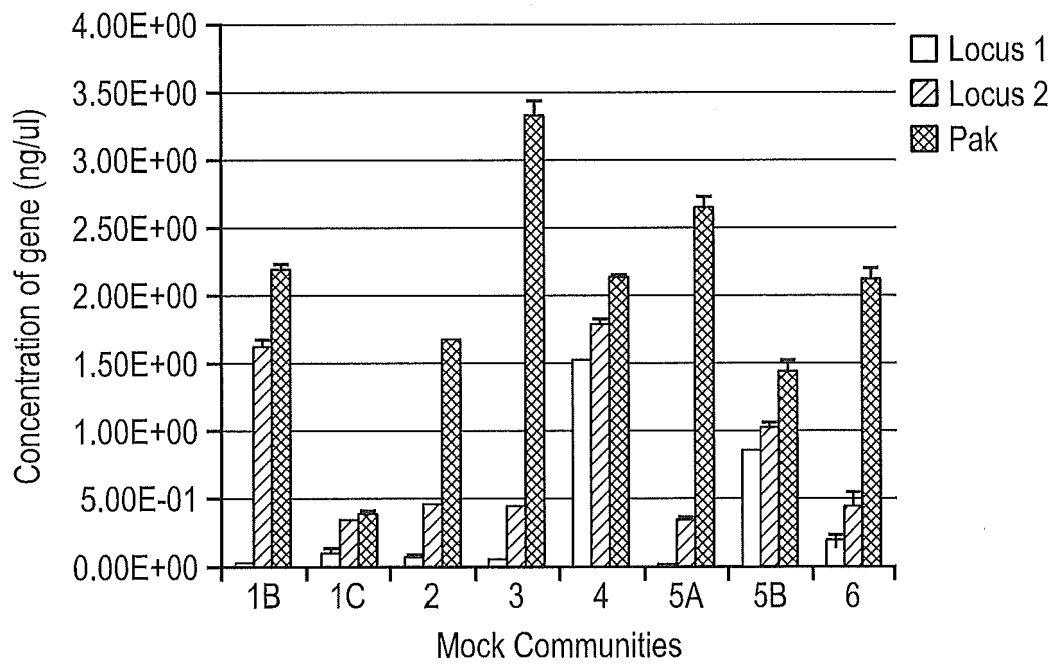


FIG. 24

FIG. 25A

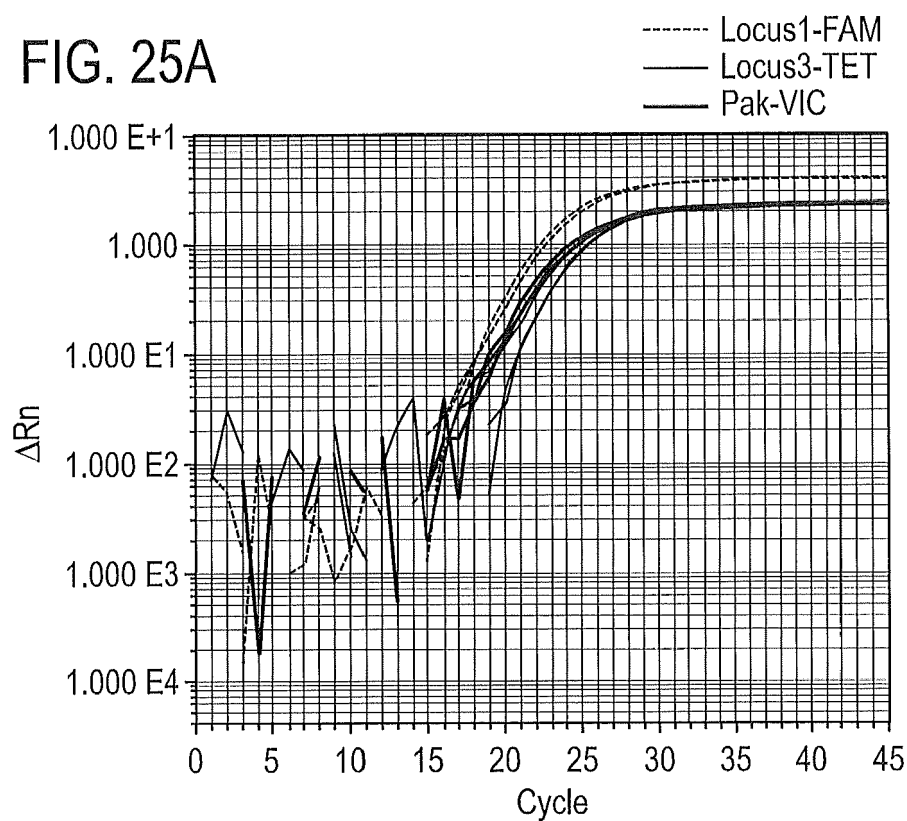
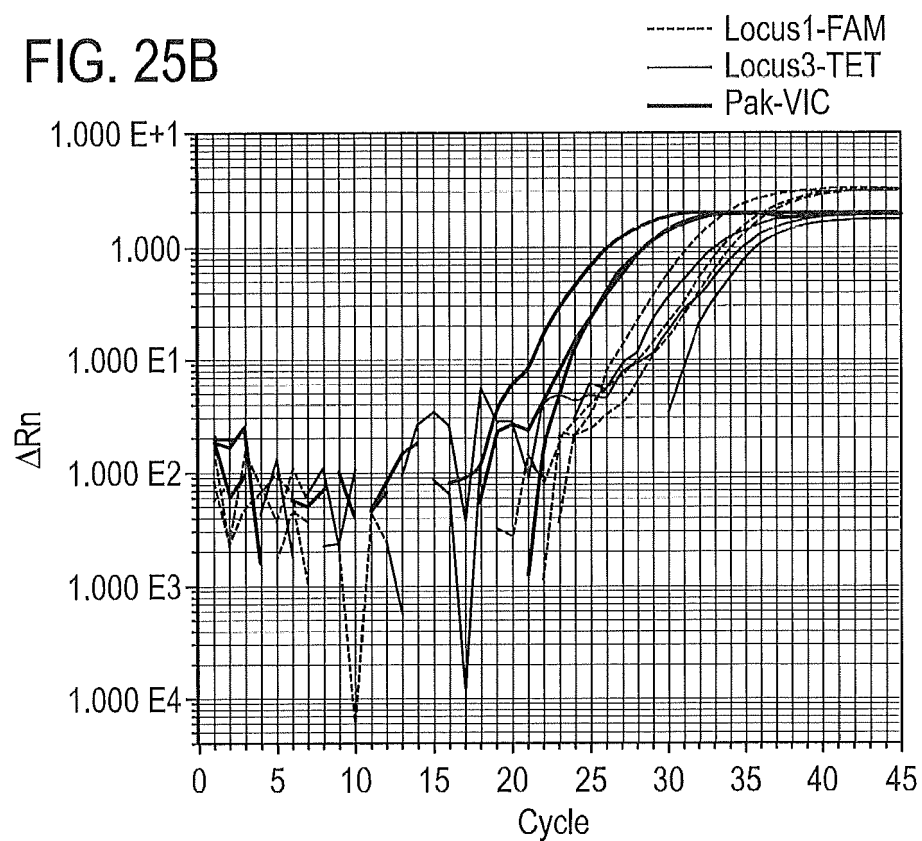


FIG. 25B



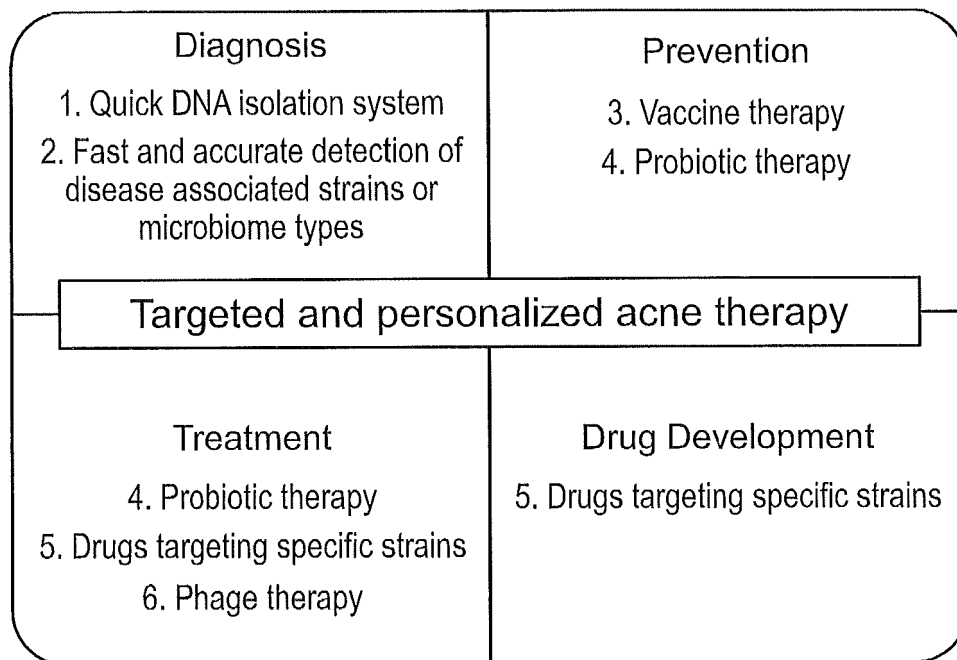


FIG. 27

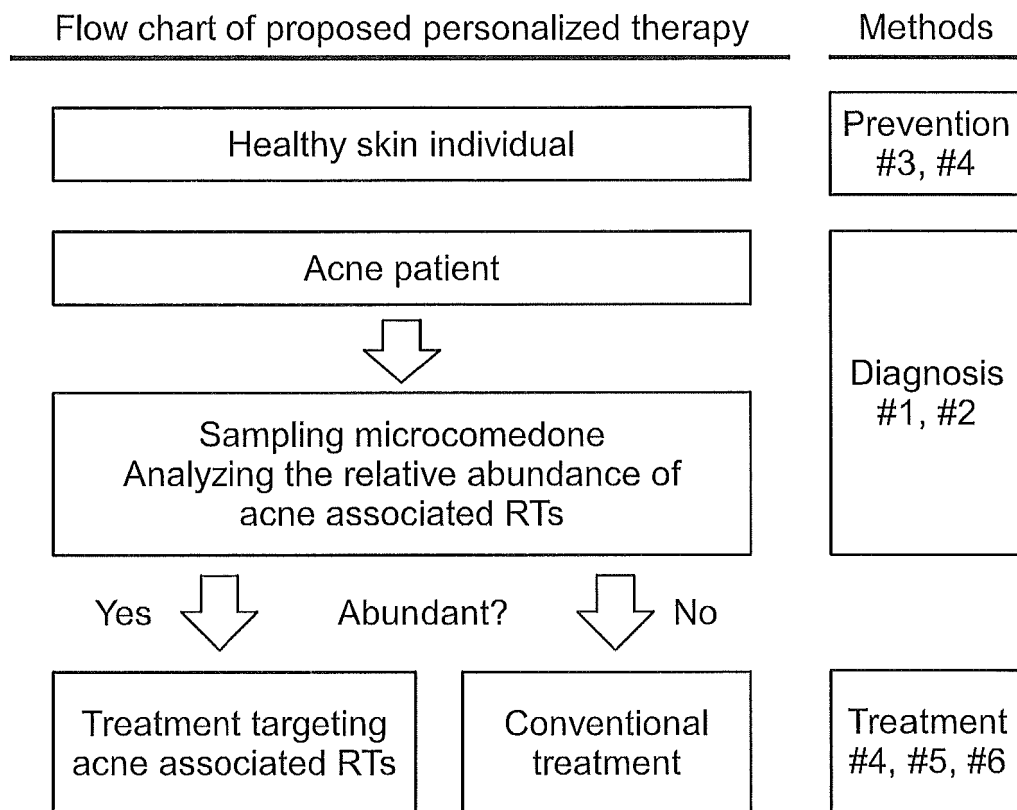
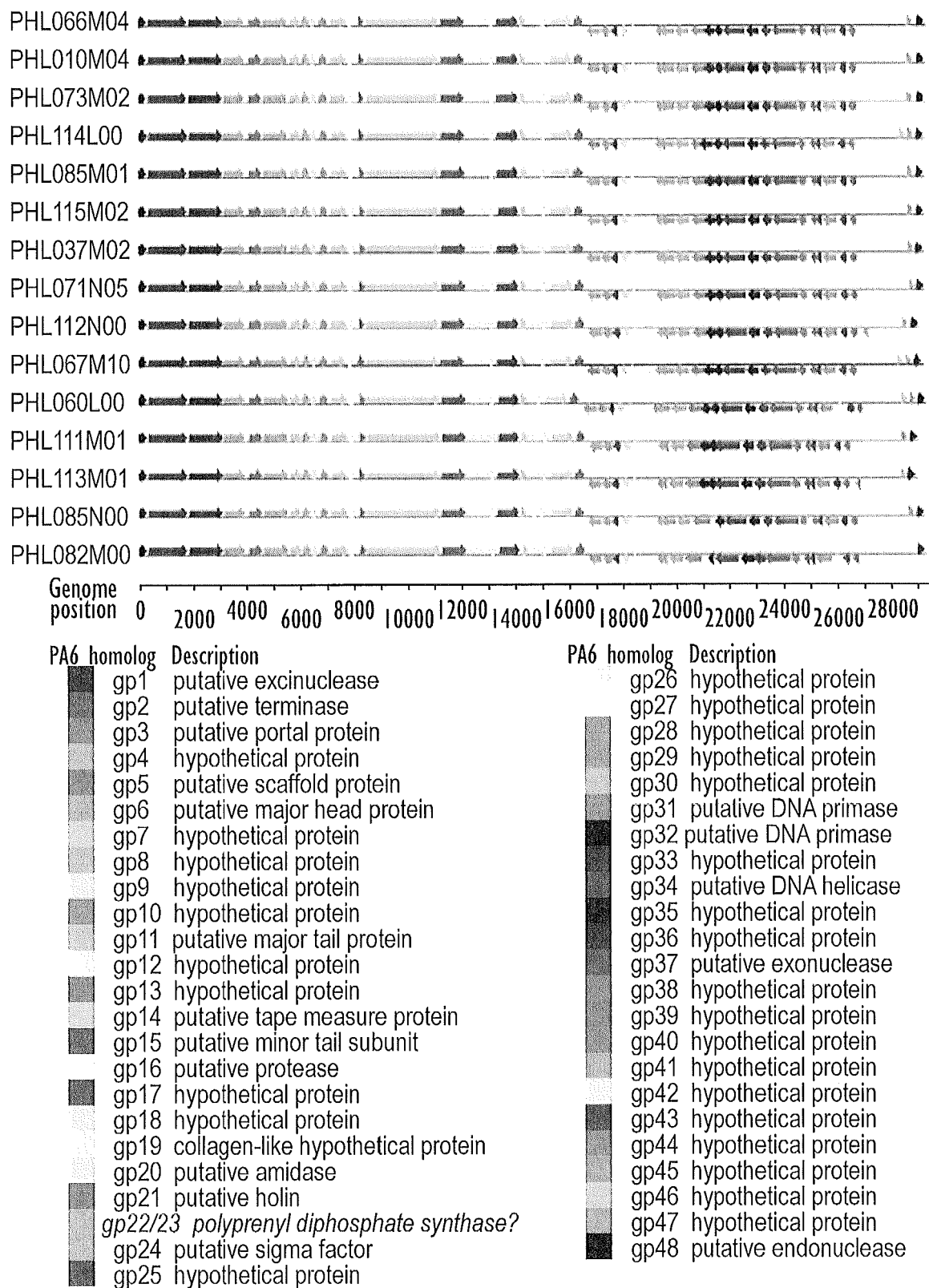


FIG. 28

FIG. 29



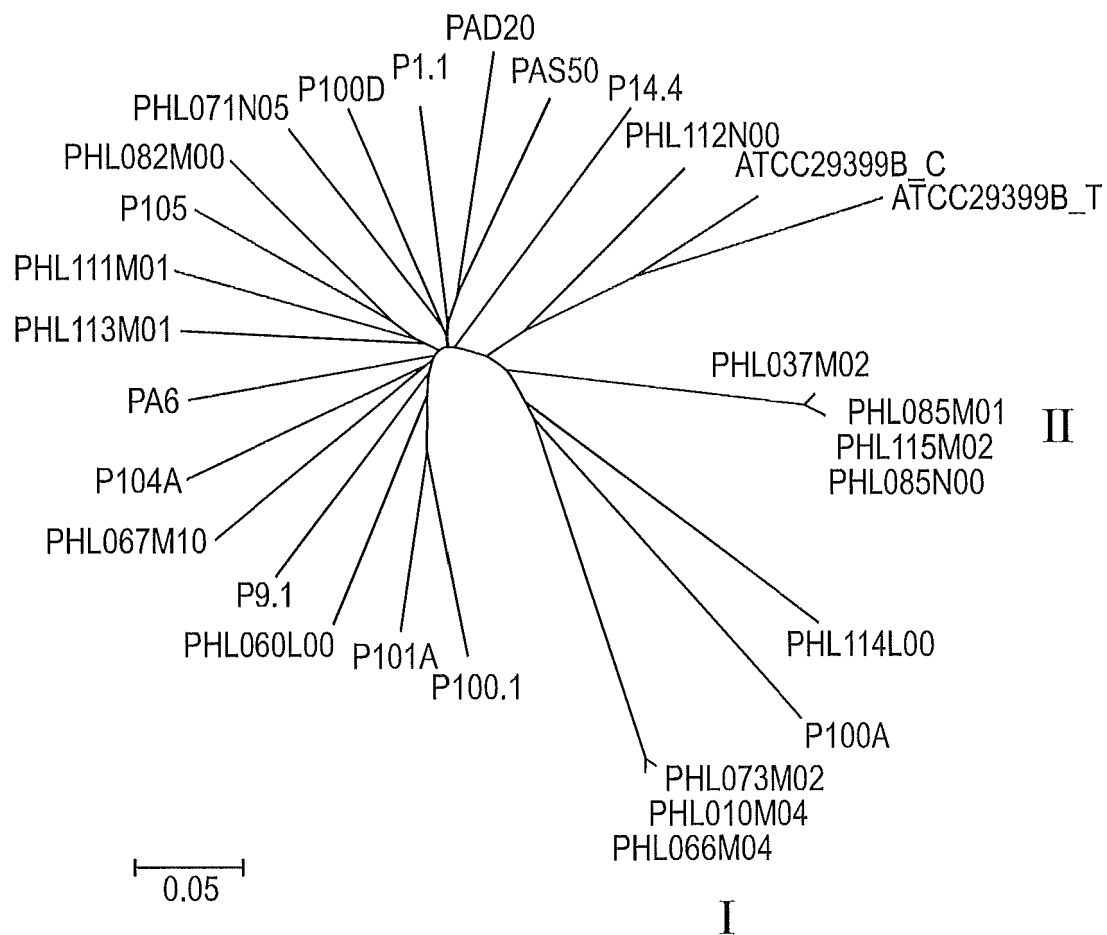


FIG. 30

FIG. 31A

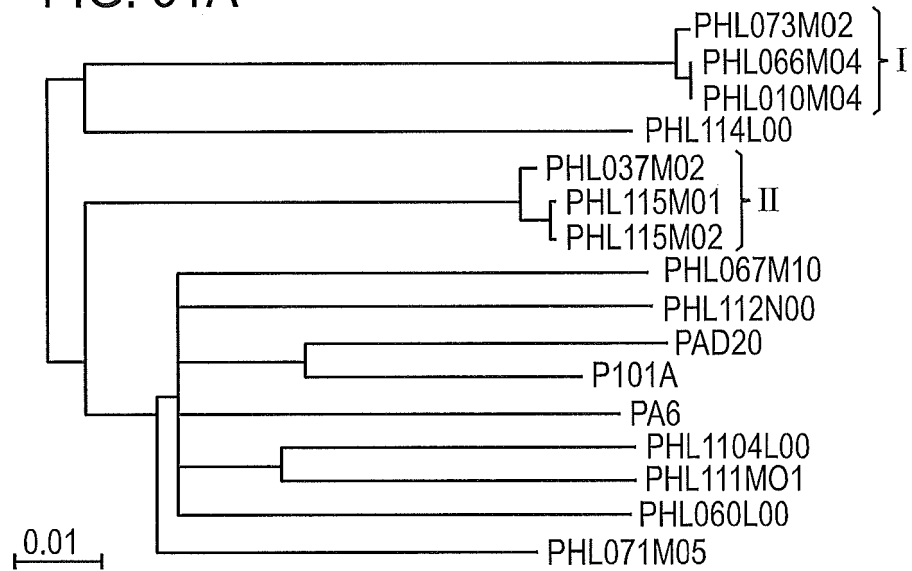


FIG. 31B

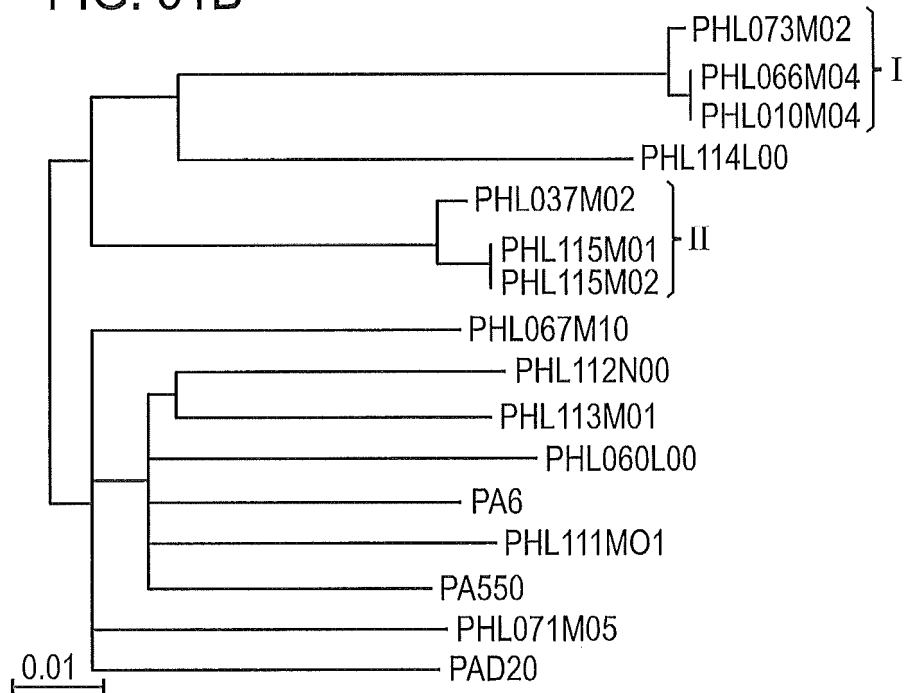
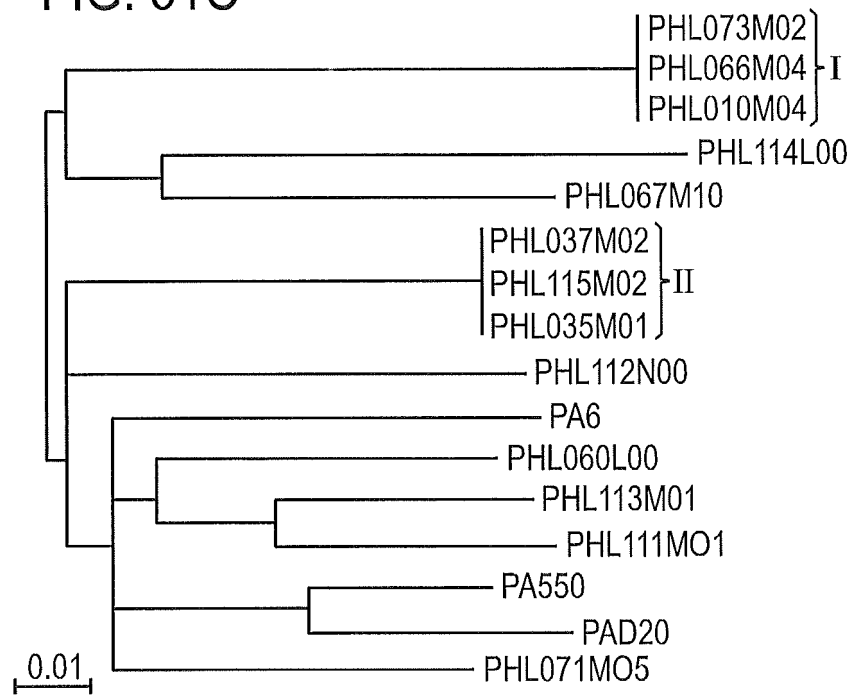


FIG. 31C



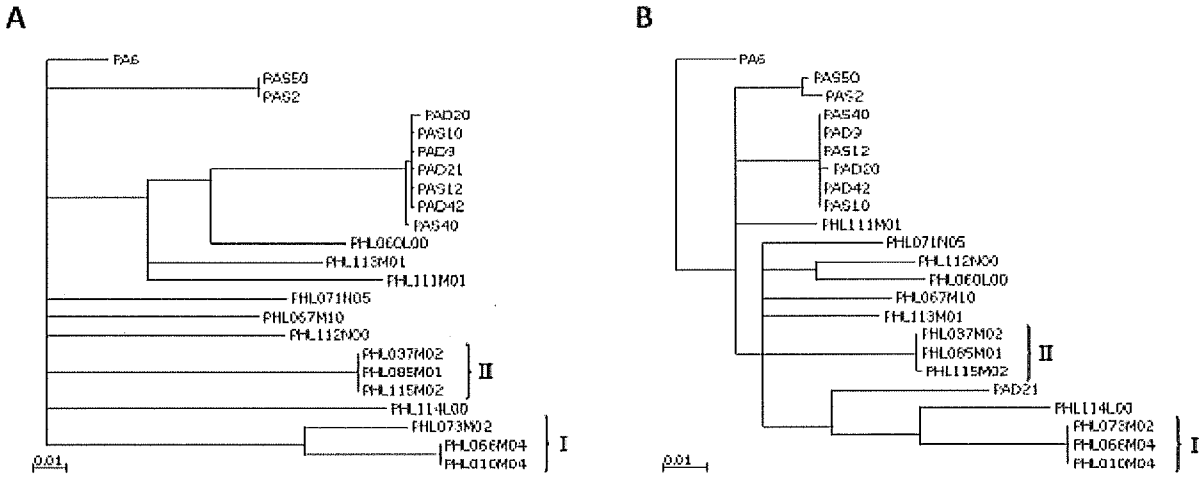


FIGURE 32

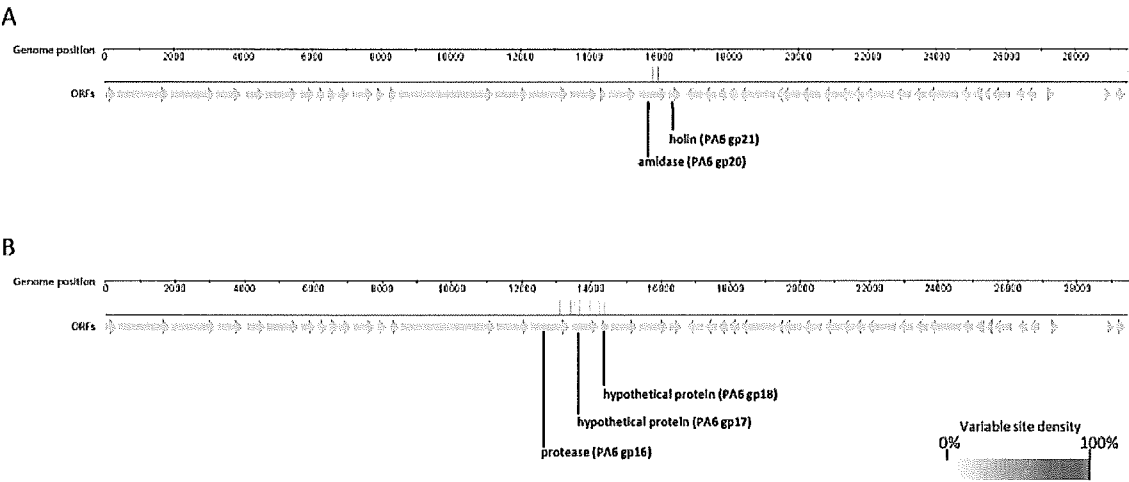


FIGURE 33



P.-acnes strains		Phage strains													
		PHL 173M01	PHL 171M01	PHL 082M00	PHL 067M10	PHL 071N05	PHL 112N00	PHL 037M02	PHL 085M01	PHL 115M02	PHL 085N00	PHL 114L00	PHL 073M02	PHL 010LM04	PHL 066M04
HL060PA1	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
HL082PA2	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■	■ ■
HL001PA1	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
HL106PA1	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■
ATCC11828	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■
HL110PA3	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■
HL110PA4	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■	■ ■ ■ ■ ■ ■ ■ ■
HL042PA3	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■	■ ■ ■ ■

☒ Spacer matching exactly
 ☐ Spacer matching with up to 2 mismatches
 ☒ Not matched

FIG. 35

