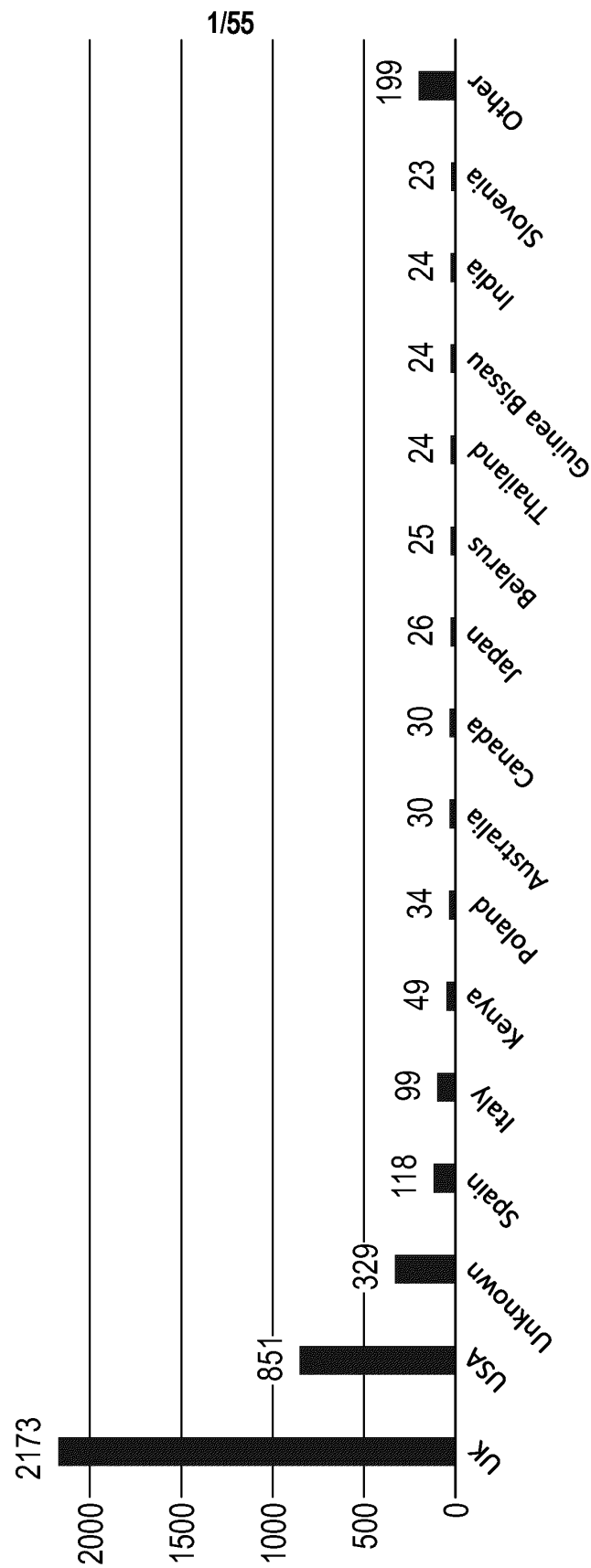
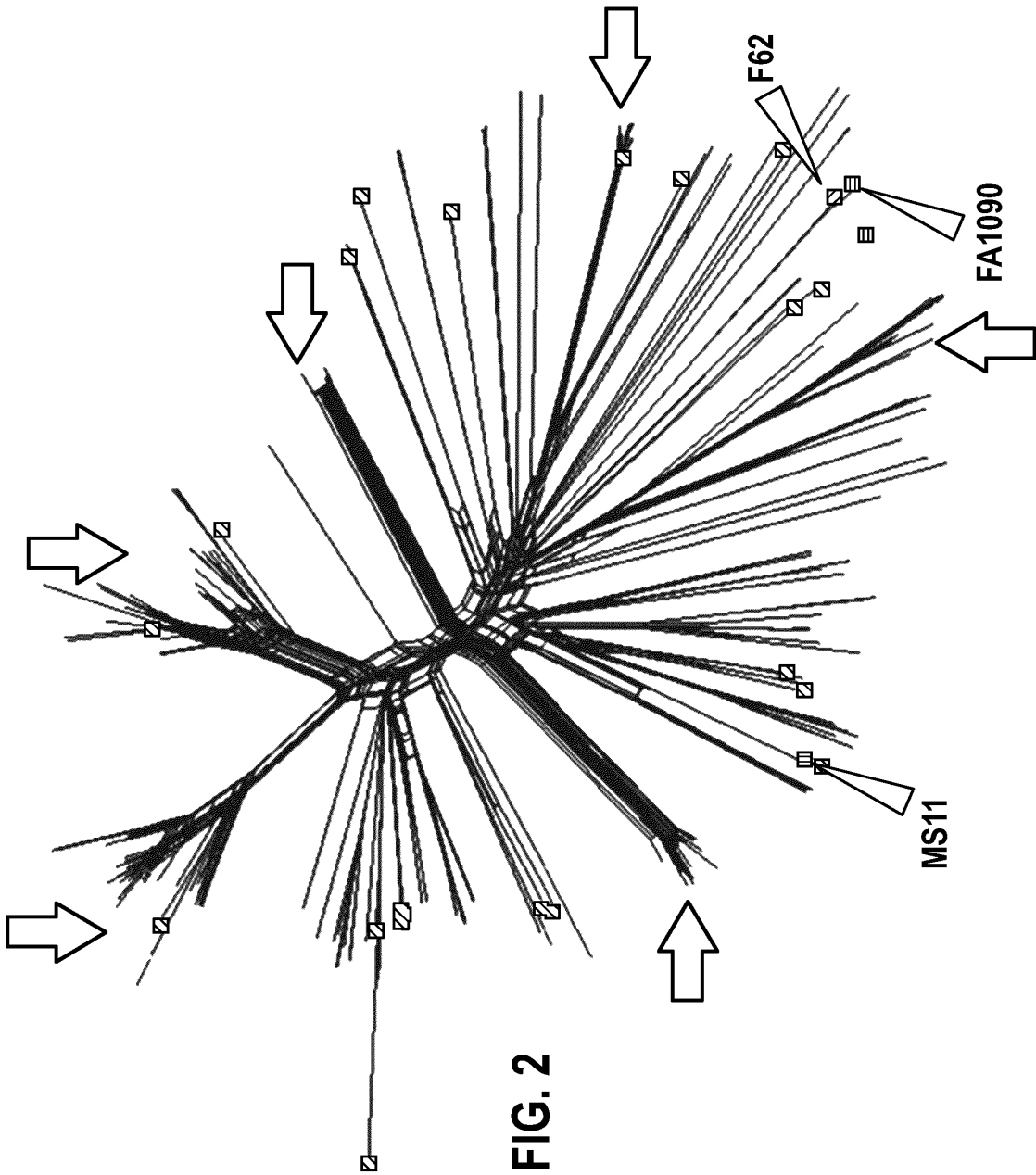


FIG. 1
Distribution by Country





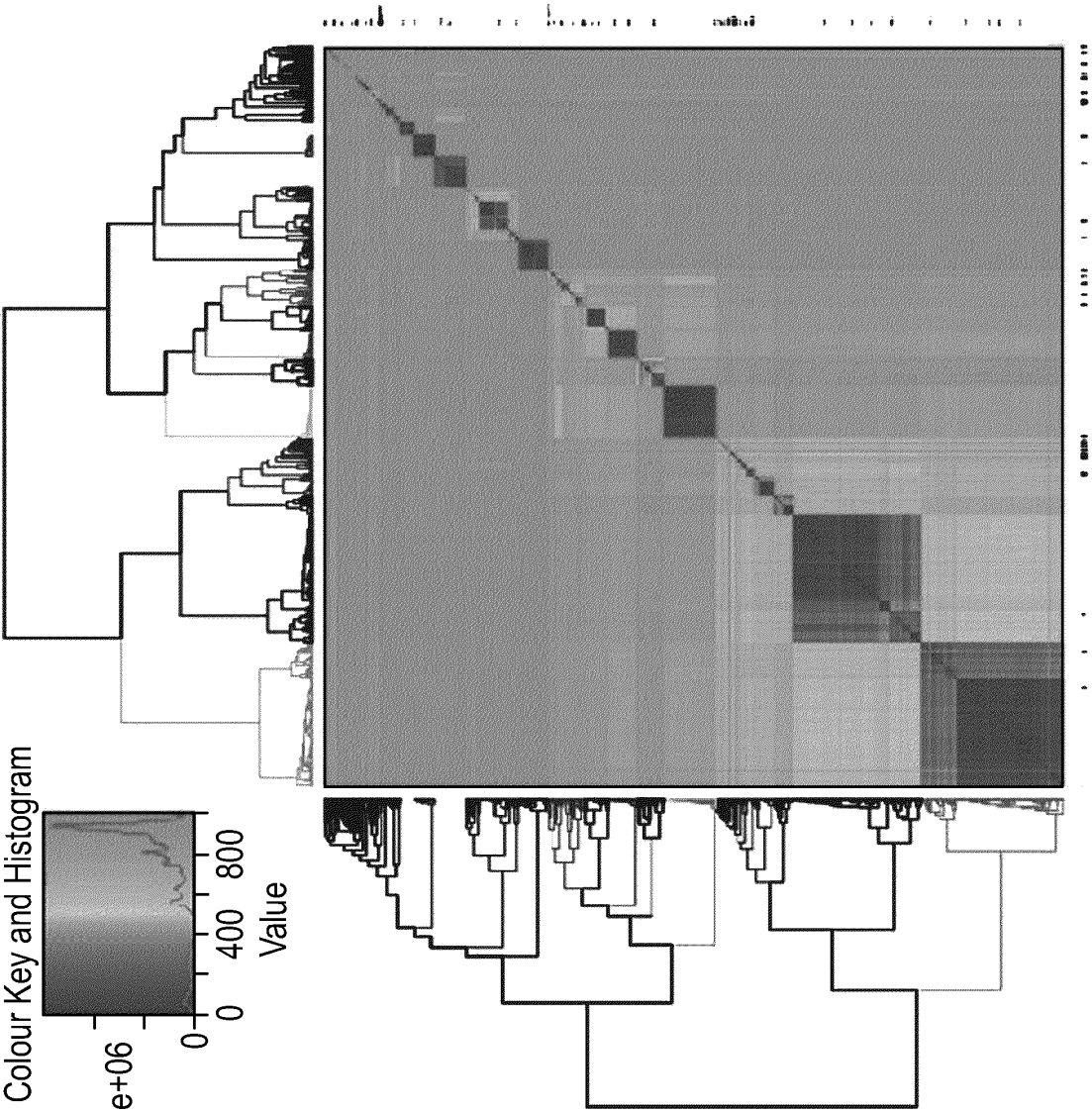
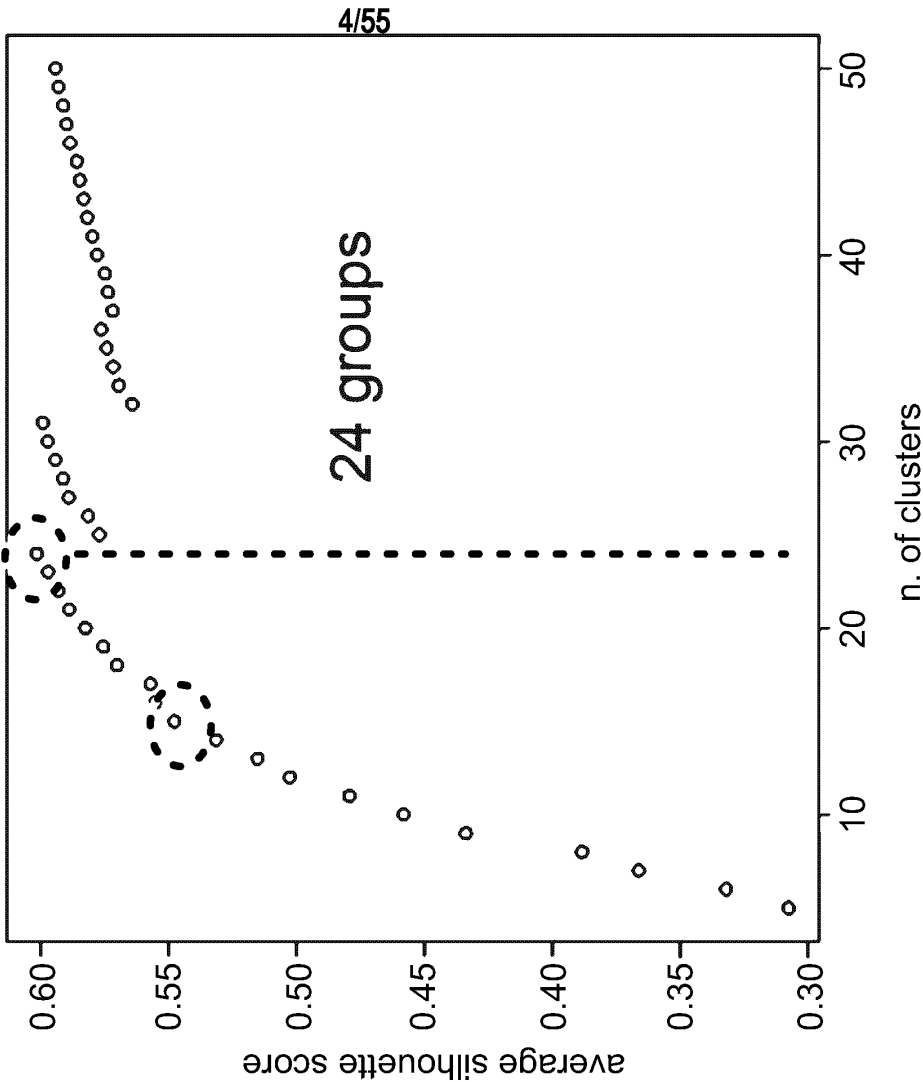


FIG. 3

FIG. 4



Distance between groups Distance within groups

$$s(i) = \frac{b(i) - a(i)}{\max\{a(i), b(i)\}}$$

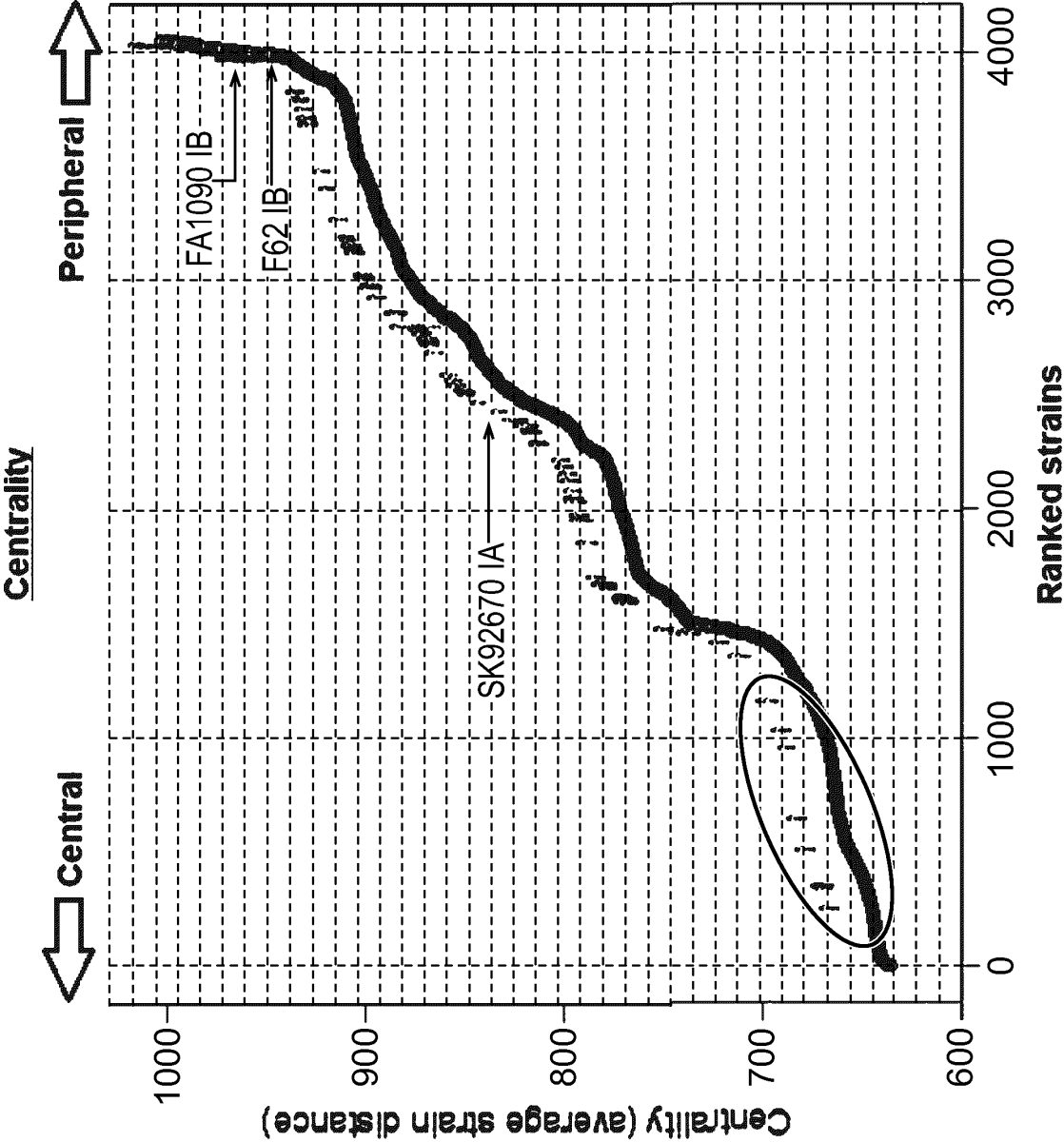
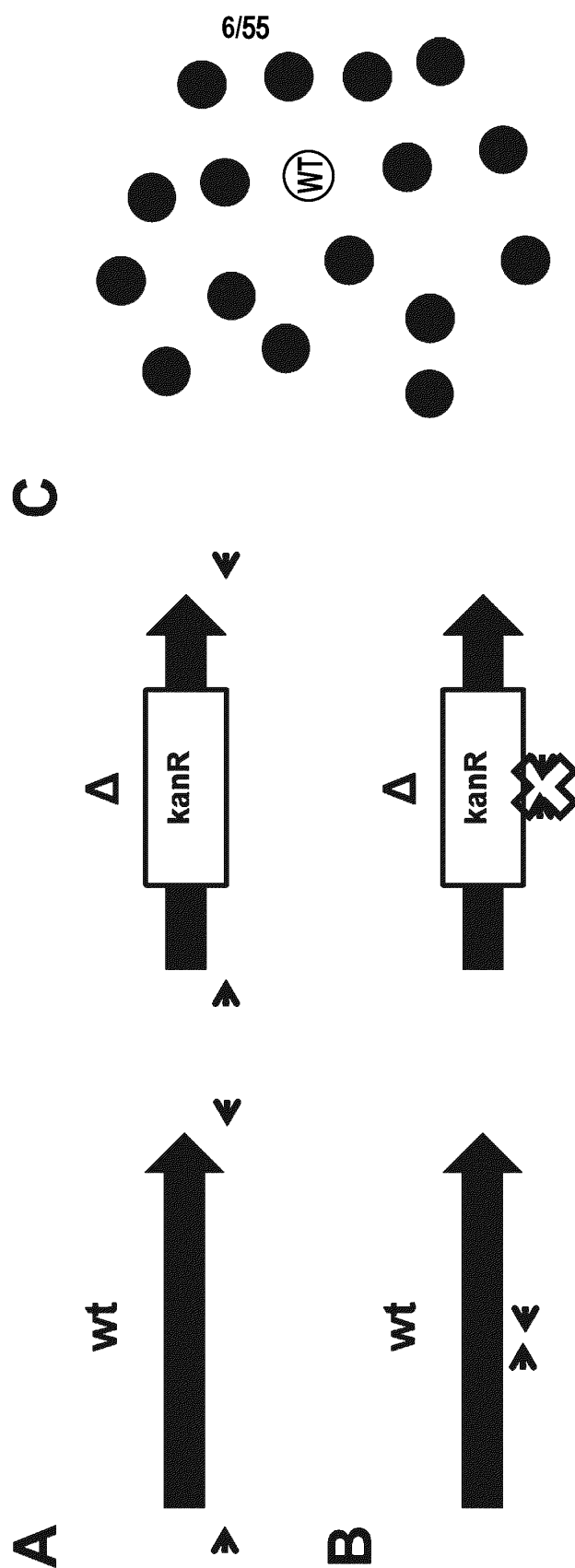
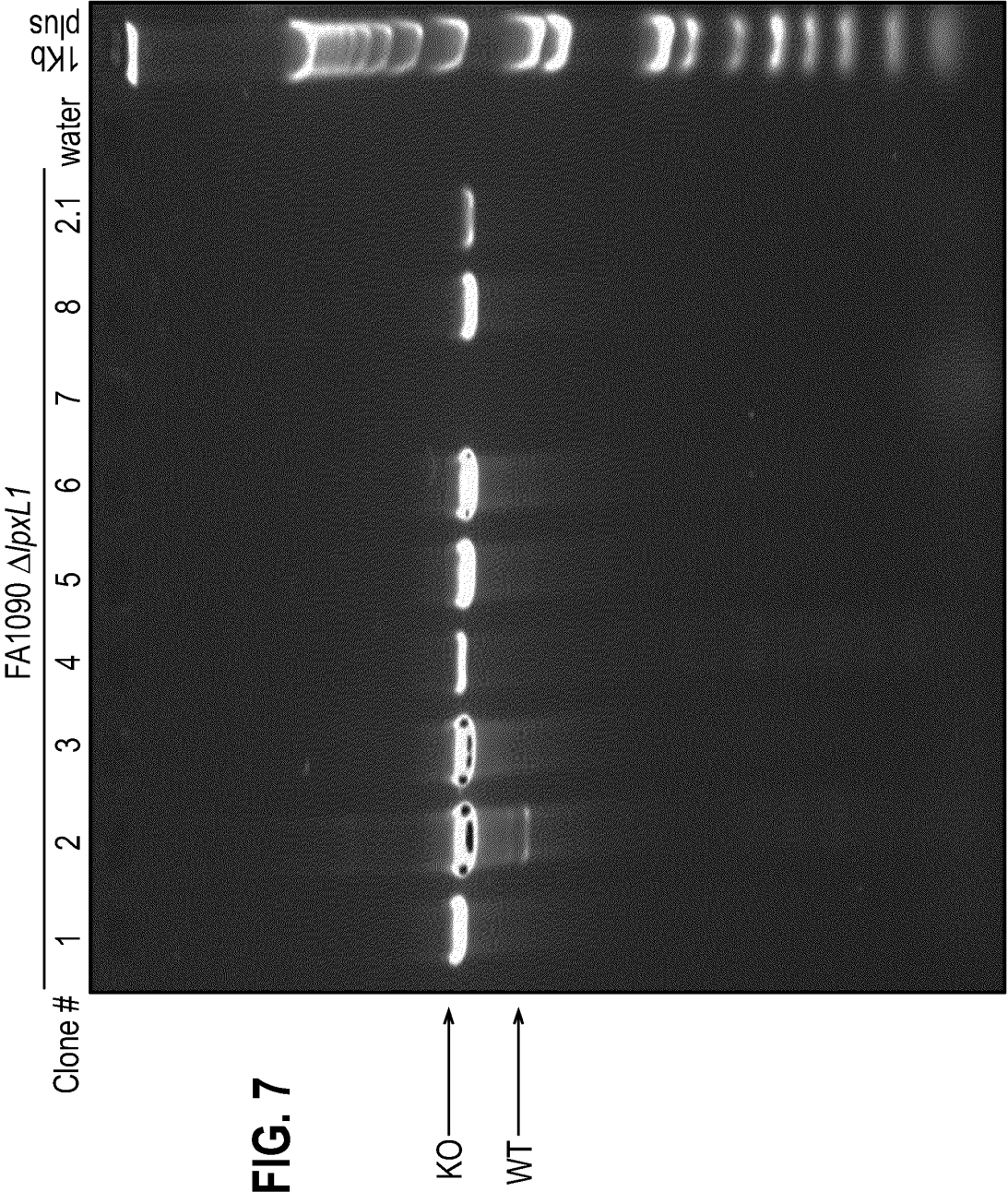


FIG. 5

FIG. 6





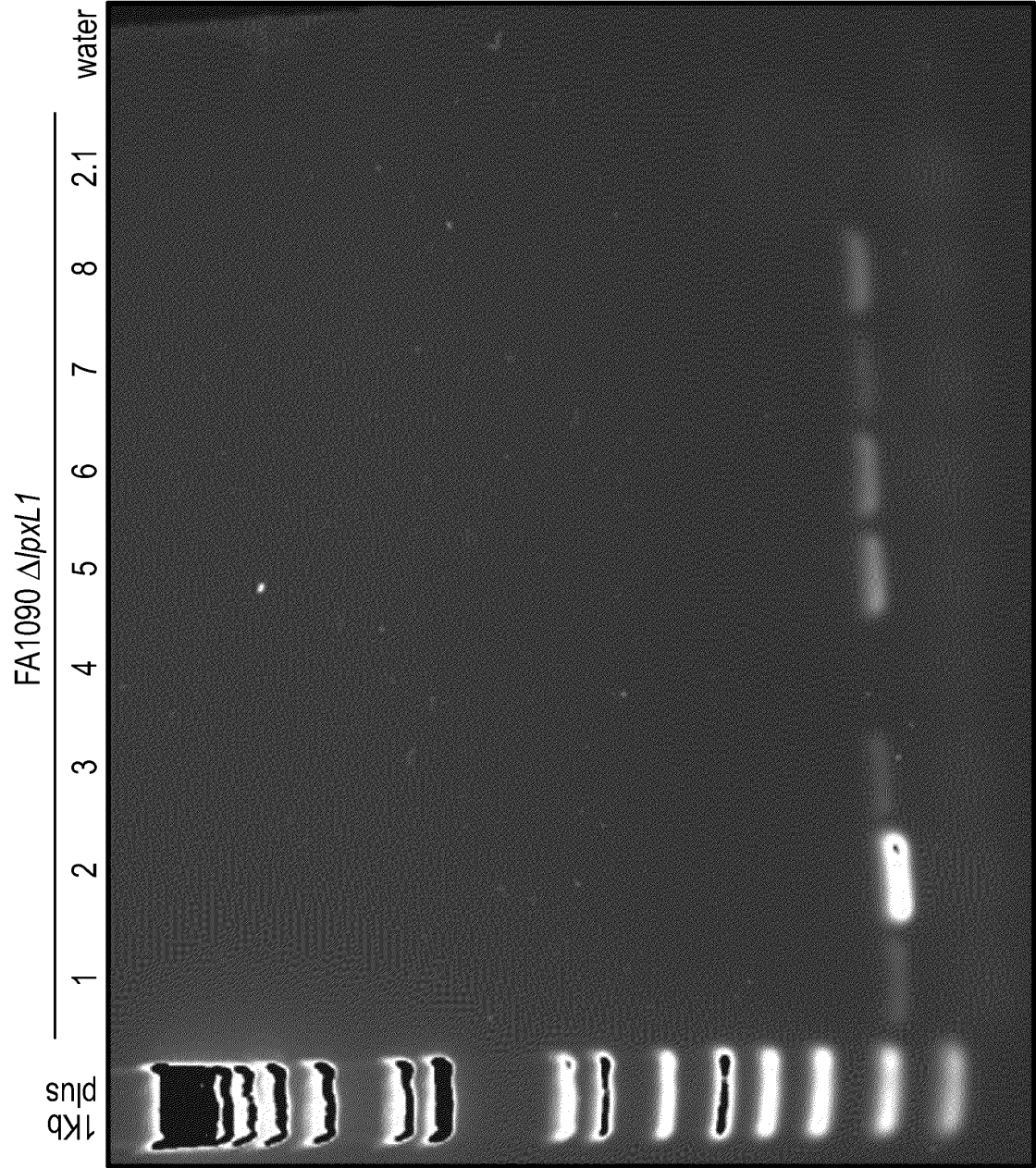
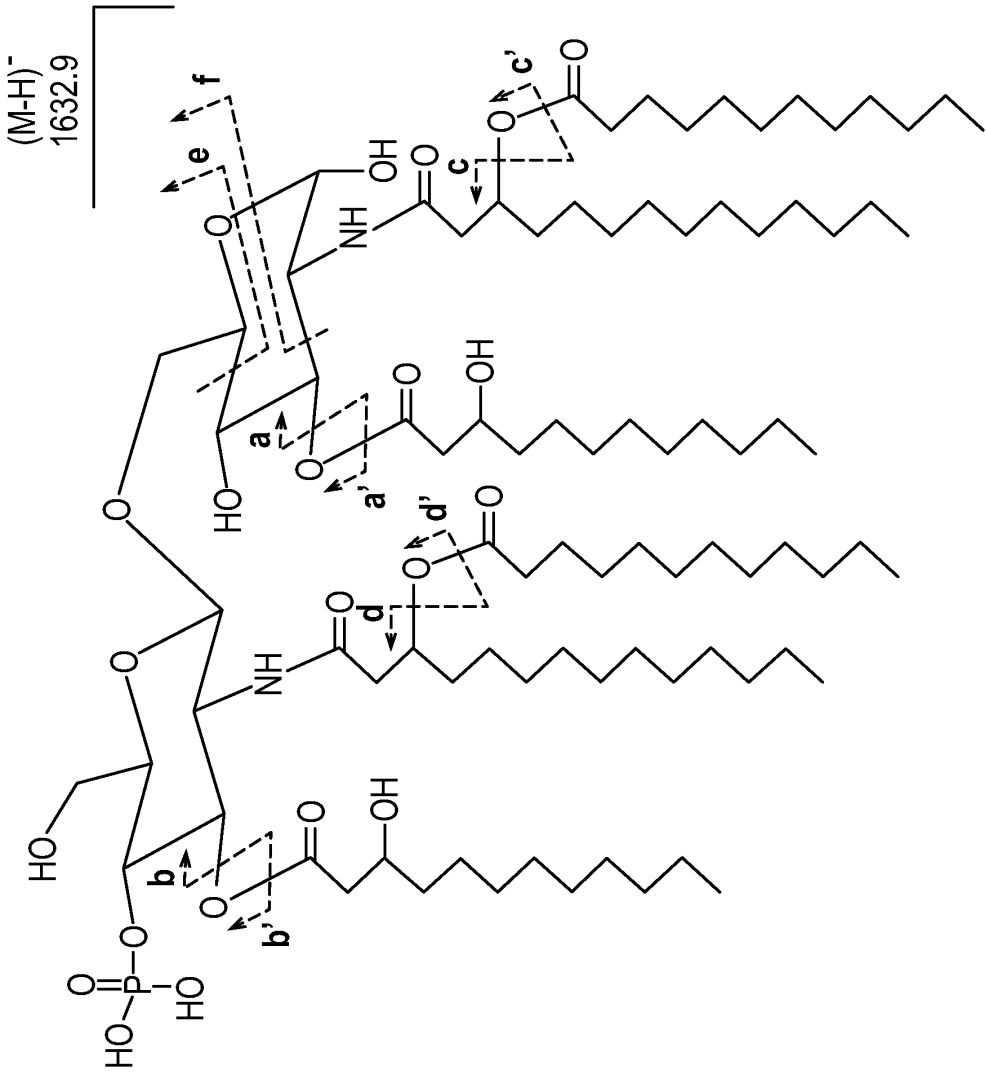


FIG. 8

FIG. 9A



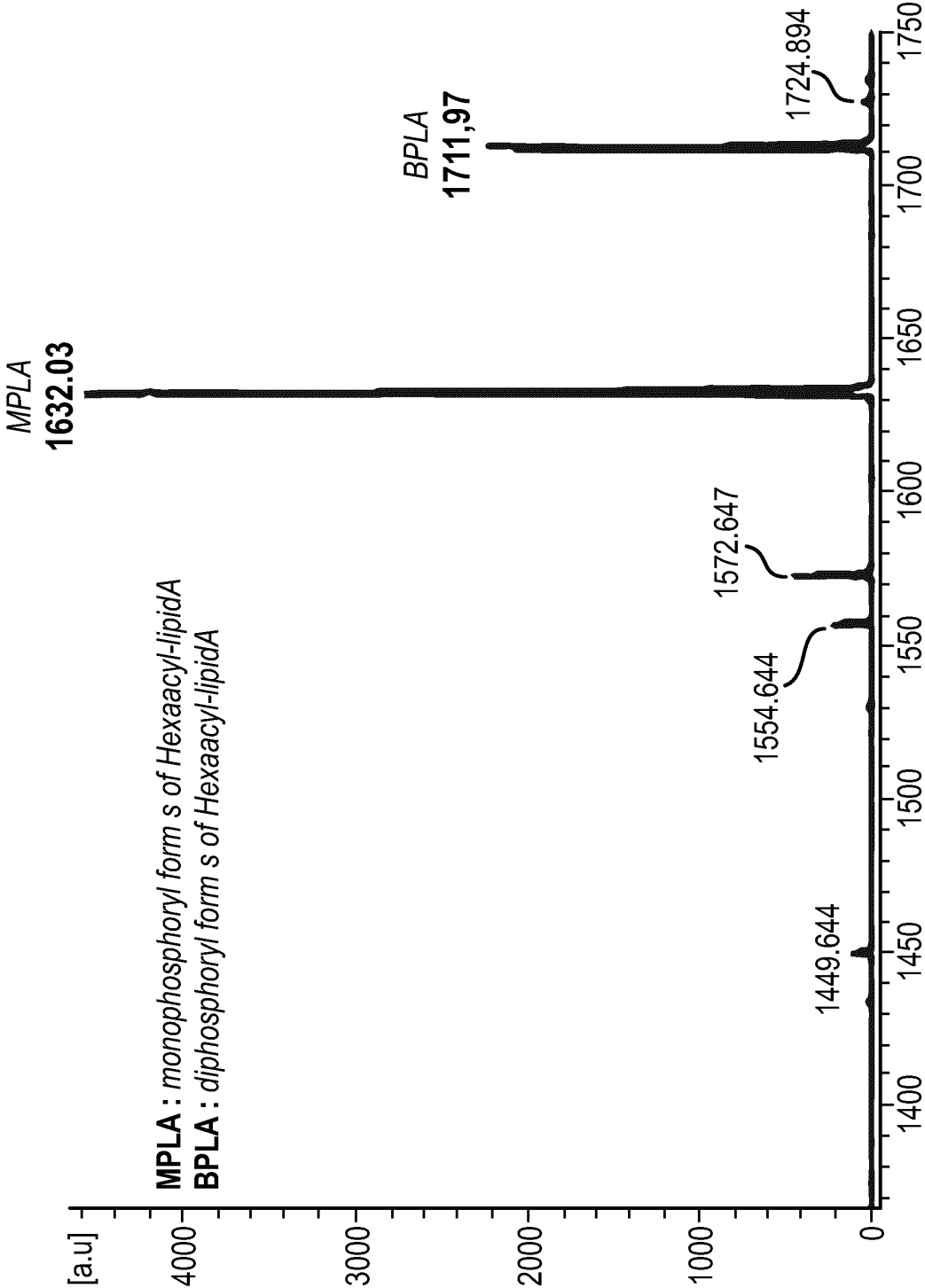
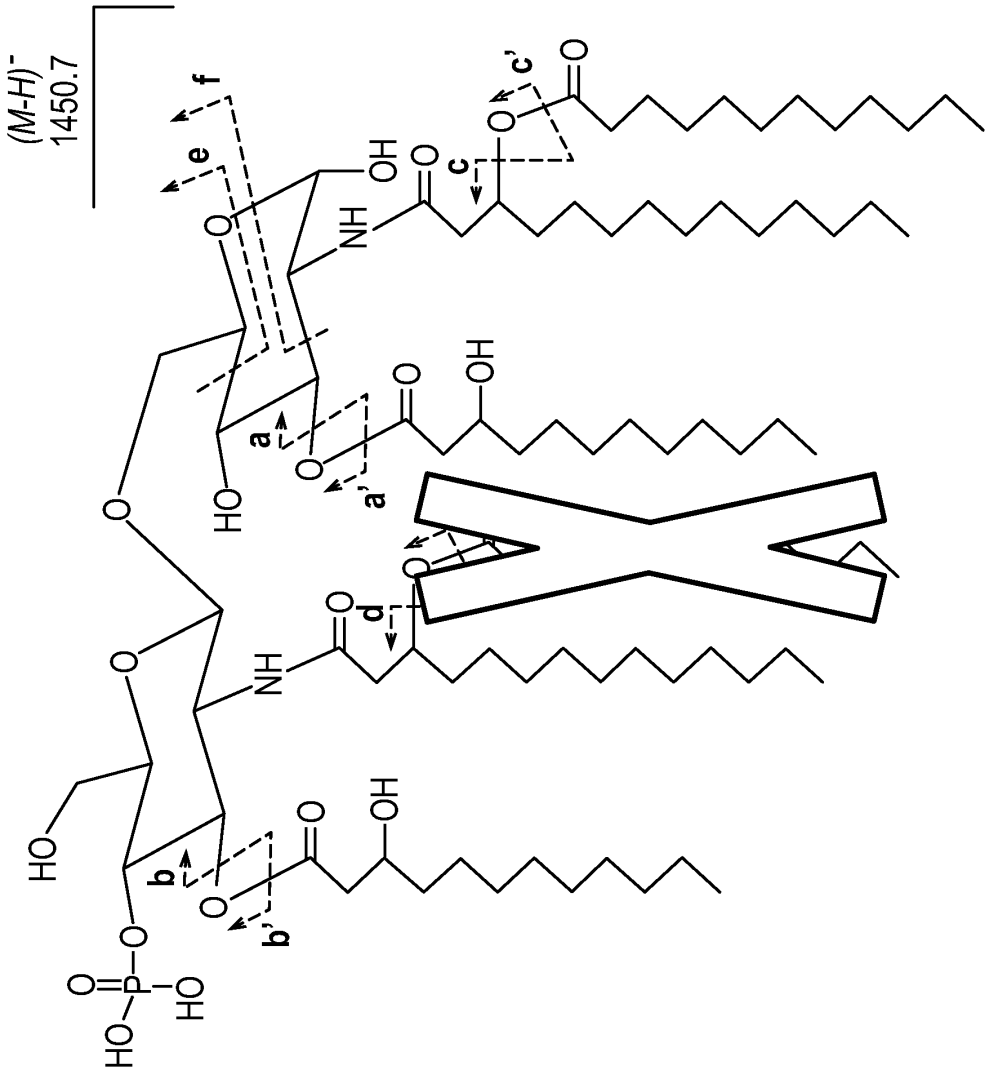


FIG. 9A(contd)

FIG. 9B



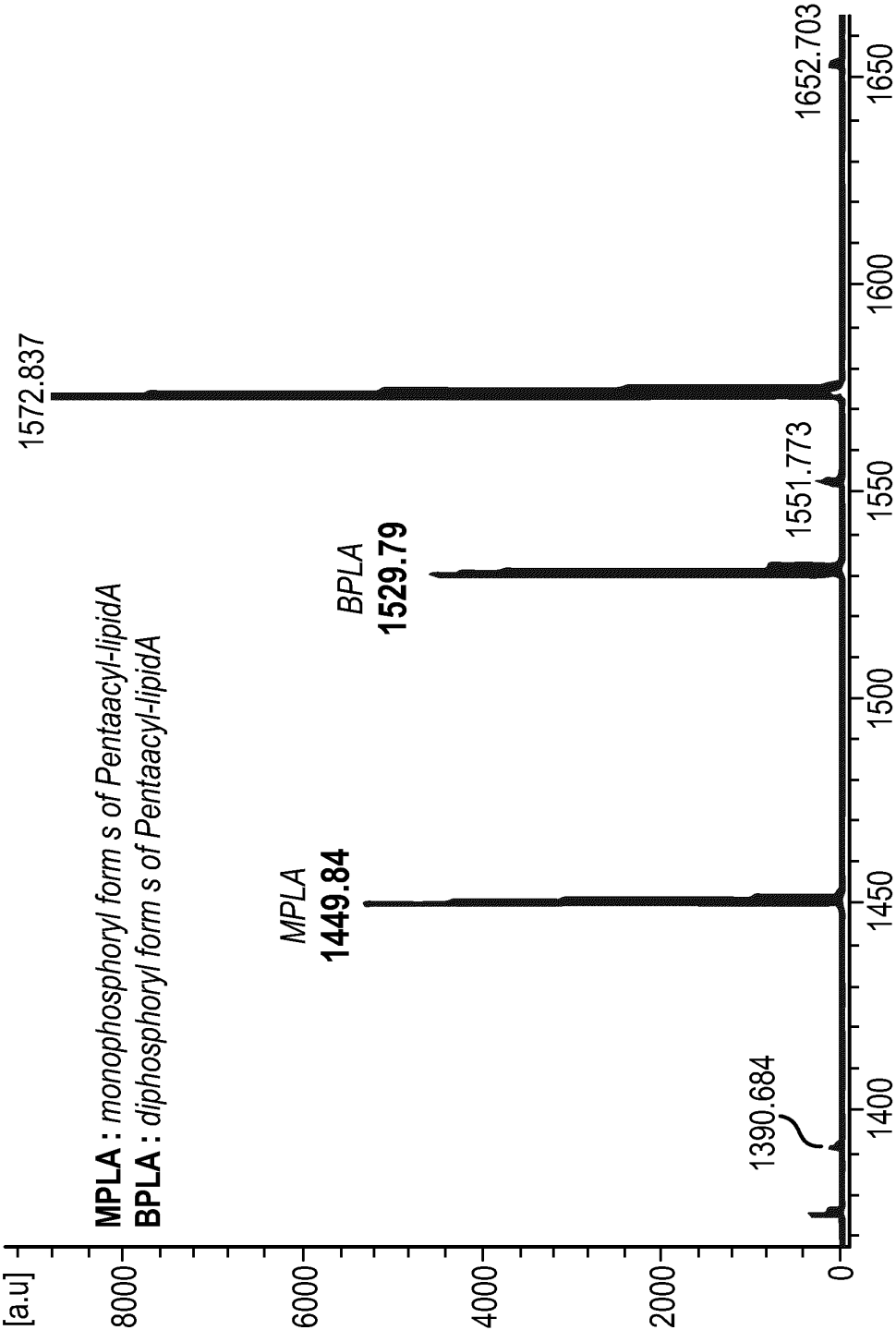


FIG. 9B(contd)

FIG. 10

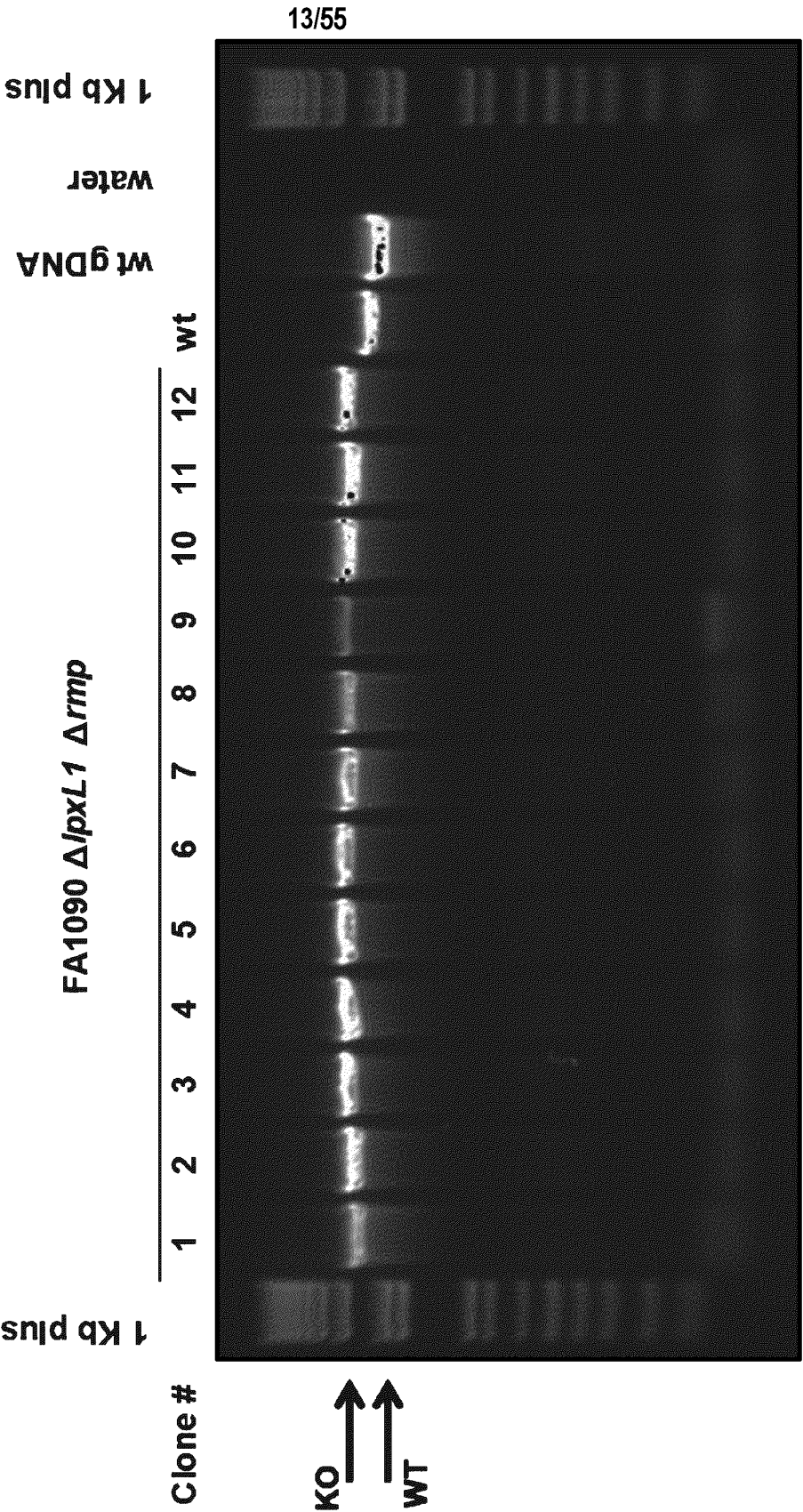


FIG. 11

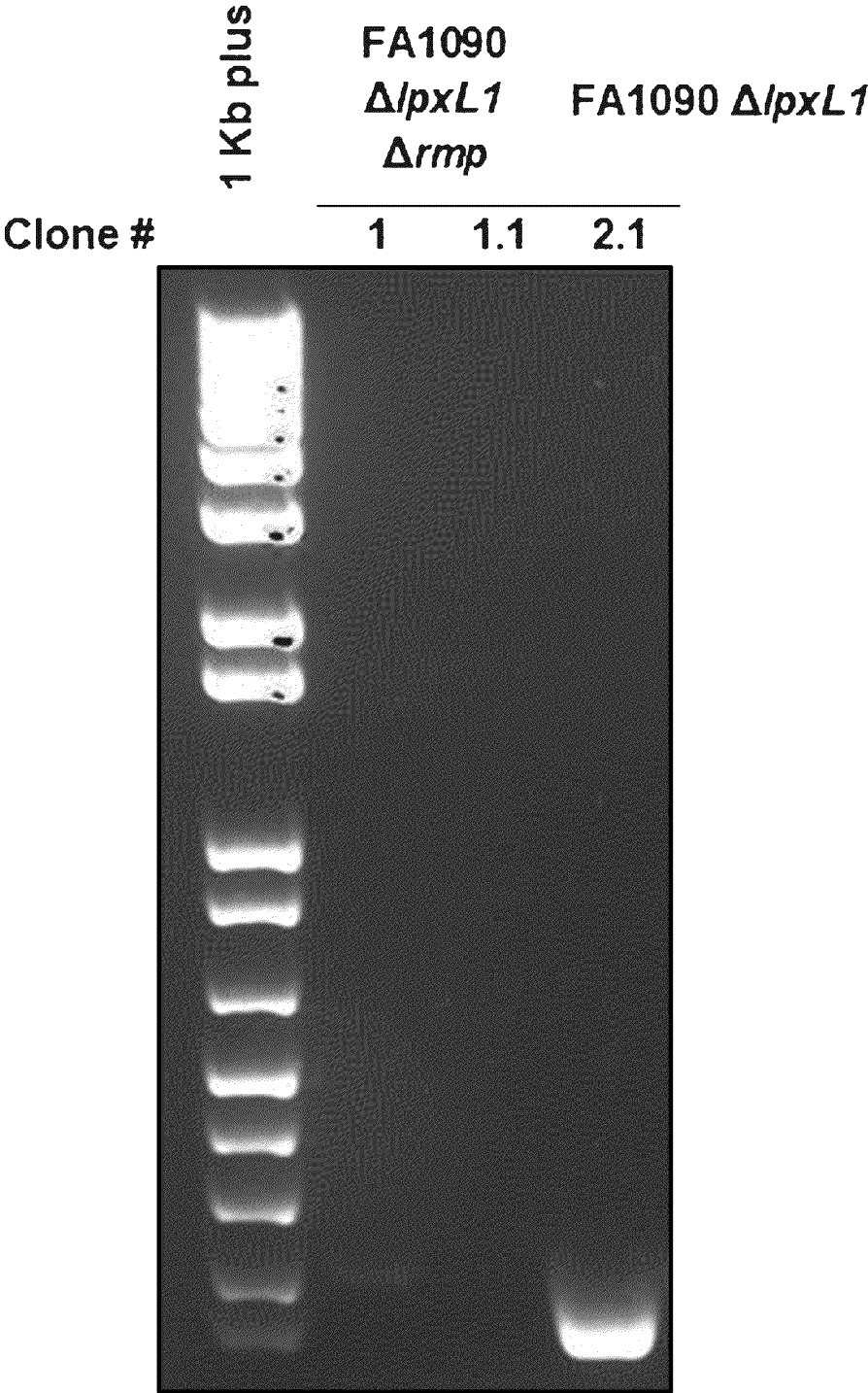


FIG. 12

CCGGCATCGACGCTGATGCTCGGTCAAGCGCGGAGCGGCATTTGGCGGCTTTGGTCAGCCATAAAGCTGCCCGTTTCGGAATA
CACGGCCTTGACAGTCAACAGCGGTGGTCCGCAAGCAAGCGCGGCAAGAGTGCAGCATATGGTGGTGCATAATGC
TGGGACTTTTCGGGAACGCCGACGGCGGATGCGCGGACGGTCTTTGCCGTCCGCTGACCCACGCCCTTACGCCAACACAGGGCTT
GCCGCCAAACTCAATCCTTCGGGGATGCAGGTCAAGCGCGGAAGTTTCAATAGTTTCAGACGGCATTTGTATTTTGCCGCCT
GAAAGAAAAATGTACCGAG**ATG**AAATTTATATTTTGTACTGTATGTTTGCAGTTTCTGCCGTTTGCCTGCTGCACAA
GATTGCCGGCCTGATCGGTTCCCTACCTTCTGGTCAAAACCGCGCCCGGTATCGGCGAAATCAATTTGGCAAAATGTT
TTCCCGAATGGGACGAAAGAAAGCGTAAACCGTGTGAAACACAGCATTTCAAAACACATGGCAAAACTGATGCTCGAATACGGC
TTATATTGGTACGCTCTGCCAAATGCCCTGAAATCGCTGGTGCCTACCGCAATAAGCATTATTTGGACGACGCGCTGCCGCG
GGGGAAAAAGTCATCATCCTG**TTACCCCGCAC**TTT**TAC**CGCGTTTCGAGATGGCGGTGTACGCGCTTAATCAGGATGTCCCGCTGA
TCAGTATGTATTTCCACCAAAAAAACAAGATATTGGACGAACAGATTTTGAAAGGCCGCAACCGCTATCACAACTCTTCCTT
ATCGGGCGCACCCGAAGGCTGCGCGCCCTCGTCAAAACAGTTCGCAAAAGCAGTGCGCCGTTCTGTATCTGCCCGAT**CAGGA**
TTTTCGGACGCAAACAATTCCGTTTGTGGATTTTTCGGCATTCAGACGGCAACGATTACCGGCTTGAGCCGCATTTGCCGCGC
TTGCAAAATGCAAAAGTGATACCCGCCATTCCCGTCCGCGAGCGGACAAATACGGTTACATTGCAATTCTATCCCGCTTGGA
TCCCTTCCGAGTGAAGACGCGCAAGCCGACGCGCAACGTATGAACCGCTTATCGAAGAACGCGTGCGCGAACACCCCGGAACA
ATATTCTGGCTGCACAAAGCTTTCAAAACCCGTCCGGAAGGCAAGCCCGATTTT**ACTGA**CTACATAAAATTACAAAAACAAA
TCAGGCGTTTCAGATCAAAACCCCGATTGTTTTTGGGAATTTGAAACCCGGTTGTACAAACAGGATTTGCCGGACGGTTTT
AACGGTTCAGTTGTTGTAAAAACAATGCTTTTTTAAAAATTGACAAAAAACGAAATCGGTTTAAAGGCTTATTCGAGAAACA
AAGGGAGTGGATGCCGAAACCCGGTTAATATATATAGTGGATTAAACAAAAACCAATACGGCGTTGCTTCGCTTAGCTCA
AAGAGAACGATTCCCTAAGGTGCTGAAGCACCAAGCAATCGGTTCCGTACTATTTGTACTGTCTGCGGCTTCGCGCCCTTGT
CCTGATTTTGTTAATCCACTATAAAATTAAATTTGTTTAAAAACATAAAGTTGTAAACAAAGTATCTCATATAAGCCTTTTTC
ATTAAACAGATAGTCAGATATTTGTGCTAAAAATTTATATAATTTTAAATTAATATCAAGTTATAAAAAATATATGGAATT
TTATTTTGTATTATTAATTTTAAAGCA

lpxL1 gene **ATG** – start codon *lpxL1* **TGA** – stop codon *lpxL1*
Borders of the UP and DOWN cassettes of recombination

CCGGCATCGACGCTGATGCTCGGTACGGCGCGGACGGCATTTGGCGGCTTTGGTCAGCCATAAAGCTGCCCGTTTCGGAATA
CACGGCCTTGCAGGTCAAAACAGGCGGTGGTCGCAAGGCAAGCGGCGAAAGAACAGGTGCAGCATATGGTGTGCAAAATGC
TGGACTTTCGGGAACCCGACGGGATCGGGCGGACGGTCTTGGCGTCGGCTGACCCACGCCTTACGCAACCCACGGGCTT
GCCGCCAAACTCAATCCTTCGGGGATGCAGGTCAAGCGCGGAAGTTTCAATAGTTTCAGACGGCATTTGTATTTTCCCGTCT
GAAAAGAAAAATGTGTATCGAGATGAAAATTTATATTTTGTACTGTATGTTTTCAGTTTCTGCCGTTTTCGCGTGTGCACAA
GATTGCCGACCTGACGGGTTTGCTTGCTACCTTCTGGTCAAAACCGCGCGCGGTATCGGCGAAATCAATTTGGCAAAATGTT
TTTCCGAATGGAGTGAGGAAAAGCGTAAACCGTGTGAAACACAGCATTTCAAAACACATGGCGAAACTGATGTTGGAATACGGT
TTATATTTGGTACGCGCCTGCCGGACGTTTGAAATCGCTGTGCTACGCAATAAGCATTATTTGGACGACGCGCTGGCGGC
GGGGGAAAAAGTCAATCTGTATCCGCACTTACCCGTTGCAGTTGCAGTGACTAATACTAGAGGAAATAATGGGCTAAAAATGA
GAATATCACCGGAAATTGAAAAAACTGATCGAAAAATACCGCTGCGTAAAGATACGGAAGGAATGTCTCCTGCTAAGGTATAT
AAGCTGGTGGGAGAAAAATGAAAACTATATTTAAAAATGACGGACAGCCGGTATAAAGGACCACCTATGATGTGGAACGGGA
AAAGGACATGATGCTATGGCTGGAAGGAAGCTGCCGTGCCAAGGTCCTGCACTTTGAAACGGCATGATGGCTGGAGCAATC
TGCTCATGAGTGAGGCCGATGGCGTCTTTTGCTCGGAAGAGTATGAAGATGAACAAAGCCCTGAAAGATTATCGAGCTGTAT
GCGGAGTGCAATCAGGCTCTTTTCACTCCATCGACATATCGGATTTGTCCCTATACGAAATAGCTTAGACAGCCGCTTAGCCGAAAT
GGATTACTTACTGAATAACGATCTGGCCGATGTGGATTGCGAAAACCTGGGAAAGAACACATCCATTTAAAGATCCGCGCGAGC
TGATATGATTTTTTAAGACGGAAAAGCCCGAAGAGGAACTTGTCTTTTTCCACGCGGACCTGGGGGACAGCAACATCTTTGTG
AAAGATGGCAAAGTAAGTGGCTTTATTGATCTTTGGGAGAACGCGCAGGGCGGACAAAGTGGTATGACATTGGCTTCTGCGTCCG
GTGATCAGGGAGGATATCGGGGAAGAACAGTATGTCGAGCTATTTTTTGACTTACTGGGGATCAAGCCTGATGGGAGAAAA
TAAAAATACTATAATTTACTGGATGAATGTTTTAGTACCTGGAAAGGAAATAATGAGTCTGACAGGATTTCCGACCAACGATTCTG
GTTTTTGTGGATTTTTTCGGTATTCAGACGGCAACGATTACCGGATTTAGCCGCAATGCCCCGCTTGCAAAATGCAAAAGTGAT
ACCCGCCATTCCCGTCCCGGAGGCAGACAAATACGGTTACATTGCAATTTCTATCCCGCTTGAAAATCCTTTCCGGGTGAAGACG
CGAAAGCCGACGCGCATGAACCGTTTTATCGAAGACAGGGTGCAGCAACATCCGGAACAAATATTTTGGCTGCACAAAG
CGTTTTTAAAAACCGTCCGGAAGGCAGCCCGATTTTACTGCACTACATAAAAAATACAAAAACAAATCAGCGGTTTCAGATCAAA

AACCCCGATTGTTTGGGAATTTGAAACCCGGGTTGTACAAACAGGATTTGCCGGACGGTTTAAACGGTTCAGTTGTTTGTA
AAAACAATGCTTTTATAAATTGACAAAAAACGAAATCGGTTTTAAAGGCTTATTCGAGAAACAAAGGGGAGTGGATGCCGAA
AACCCGGTTAATATATATAGTGGATTAAACAAAAACCAATACGGGTTGCTTCGCCCTTAGCTCAAAGAGAACGATTCCCTAAG
GTGCTGAAGCACCAAGCGAATCGGTTCCGTACTATTTTGTACTGTCTGCGGCTTCGCCGCCCTTGTCCCTGATTTTGTAAATCCA
CTATAAAATTAAATTGTTTAAAAACATAAAGTTGTAAACAAGTATCTCATATAAGCCCTTTTTCATTAAACAGATAGTCAGAT
ATTTTGTGCTAAAAATTATATAATTTTAAATTAATATCAAGTTATAAAAAATATATGGAATTTTATTTTGTATTATATAA
TTTTAAGCA

lpxL1 gene

ATG - start codon *lpxL1*

TGA - stop codon *lpxL1*

Borders of the UP and DOWN cassettes of recombination

kanR cassette - antibiotic (kanamycin) resistance cassette

FIG. 13(contd)

FIG. 14

CAACGGCAATCGTGGATATGGAATAATCCCCATAAGTAATGACACGGAATTGATTTTTCGGCATGATAGACTATCAGGAA
ACAGGCTGTTTTACGGTGT**T****TTT****CAGCGGTTGAG**FATTGACAGTCCGCCCTGTTTCTTTATAGTGGAGACTGAAATATCCG
ATTTGCCGCCATGTTTCTACAGGGCTGTATGTTGGCAATTCAGCAGTTGCTTCTGTATCTGCTGTACAAATCTAATGAGGG
AATAAA**ATG**ACCAACAGCTGAAATTAAAGCGCATTAATTCGTTGCAATTGCTCGCTTCCGGCACTGCTGTTGCGGGCGAGGCGTC
CGTTCAGGGTTACACCGTAAGCGGCCAATCGAACGAAATCGTACGCAACAACATATGGAGAAATGCTGGAAAAACGCCTACTTTG
ATAAAGCAAGCCAGGTGCGGTAGAAATGCGCGATGCGGTTGCCGTCCCGAGCCCCGAAACCCGCGCTGTGCGCGTTGTGGAG
CAGGCTCCCTCAATATGTTGATGAAACCATTTTCCCTGTCTGCCAAAACCCCTGTTCCGTTTCGATAAGGATTTCATTTGCGCGCCGA
AGCTCAAGACAAACCTGAAAGTATTGGCGCAACGCCCTGAGTCGAACCAATGTCCAATCTGTCCGCGTCGAAAGGCCATACCGACT
TTATGGGTCTGTGAAAAATACAAATCAGGCTCTGTCCGAACGCCGCGCATACGTAGTGCAAAACAAACCTGGTCAGCAACGCGCGTA
CCTGCTTCTAGAAATTTCTGCTGCTGGCTTGGCGGAATC**TCAAGCGCAAAATGACTCAAGTT**TGTCAAAGCCGAAAGTTGCCAAACT
GGTGCGAAAGCCTCTAAAGCCAAAACGTCGAGGCTCTGATTGCATGTATCGAACCTGACCGCCGCGTAGATGTGAAAAATCC
GCAGCATCGTAACCCGTCAGGTTGTGCCGGCACGCAATCATCACCAACAC**TAA**AGGCTAGGTAATATCTTCCGATGCATGAGG
TTAGCGGATTTTGTACCGGTAATGTTGCAATATTCTGTGAAACGTCGGCCGGTATCGATGATGTGAAACAAACCCCGCTTTTG
CGGGGTTTGTTTTTTTGGGTGGTTTTCTGAAACGGCTATCGTCAGAAATCGGGGTGCAGGTTTCGGATTTCGATTTCATG
TTTGTGTCCCATTGCCGCGCTTTATAGTGGATTAAACAAAATCAGGACAAGCGCACGAAGCCGACAGTACAATAGTACGG
CAAGCGAGGCAACGCCGTACCGGTTTAAATTTAATCCACTATATCGGTTGAAACTCTGATTTTAAAGCGGTAGGATGTGGGT
TTGCCCATAGCAAGGGAATCCTTTCTGTATCAAGCCCCGAAAGGATAATTTCATACAAATTACAGCCTTTCCCCCTCATTTGGG
AAATGGATGGAAATCGTGCCCGATGTGTGCGGCACGTATGCCGGATATGGTTTATCATCATCCCC

rpm gene

ATG - start codon *rpm*

TAA - stop codon *rpm*

Borders of the UP and DOWN cassettes of recombination

FIG. 15

CAACGGCAATCGTGCATATGGAAAAATCCCCCTAAAGTAATGACACGGAAATGATTTTTCGGCATGATAGACTATCAGGAA
ACAGGCTGTTTACGGTTGTTTACAGCGTTGAGCCCGGGACCTCTTAGCTTCTGGAAAGCTGTGAGTAGTATATCTAAATAA
TTTATCTCCATTCCCTTTAGTAAAGTGTAACTTTCCTCAATTTAAAAAAGCGACTCATAGAAATATTTCCCTCCCGTTAAAAAAT
AGATAACTATTAATAATAGACAATACTTGCTCATAAAGTAATGGTACTTAAATTTGTTACTTTGGCGTGTTCATTGCTTGATG
AACTGATTTTGTAGTAAACAGTTGACGATATTCTCGATTGACCCATTTTGAAAAAAGTACGTATATAGCTTCCAATATTTAT
CTGGAACATCTGTGGTATGGCGGTAAGTTTATTAAAGACACTGTTTACTTTTGGTTTAGGATGAAAAGCATTCGCGCTGGCAGC
TTAAGCAATTGCTGAATCGAGACTTGAGTGTGCAAGAGCAACCTTAGTGTTCGGTGAATATCCAAGGTACGCTTGTAAGATCC
TTCTTCAACAATCAGATAGATGTCAGACGCAATGGCTTTCAAAAACCACTTTTAAATAATTTGTGTGCTTAAATGGTAAGGAA
TACTCCCAACAATTTTATACCTCTGTTTGTAGGGAATTGAAACTGTAGAAATATCTTGGTGAATTAAAGTGACACGAATGTTT
AGTTTAAATTTTCTGACGATAAGTTGAATAGATGACTGTCTAAATTCAAATAGACGTTACCTGTTTACTTTTATAGCCAGTTT
CGTCGTTAAATGCCCTTTACCTGTCCCAATTTTCGTAAACGGTATCGGTTTCTTTAAATTCAAATTTGTTTATTTATTTGGTTGA
GTACTTTTTCACCTCGTTAAAAAGTTTGTAGAAATTTTATATTTTGTTCATGTAATTACTCTGAAAGTGATTACATCTGTAA
ATAAATACAGAAAGTTAAACGATTTGTGTTGTAAATTTTAGTTATCTGTTTAAAGTCATAAGATTAGTCACTGGTAGGAATTAA
TCTAACGTAATTTATCTGCGTAATCACTGTTTGTAGTCTGTTTCAAAACAGTAGATGTTTATCTACATTTACGCATTTGG
AATACCAACATGACGAATCCCTCCTTCTTAAATTACAAATTTTGTAGCATCTAAATTTAACTTCAATTTCCCTATTATACACAAATTT
TTAAGATACTGCACATATCAACACACTCTTAAAGTTTCCCGGGTCAAGCGCAATGACTCAAGTTGTCAAGCCGAAGTTGCCAA
ACTGGTGTGGAAGCCTCTAAAGCCAAAAAACGTGAGGCTCTGATTGCATGTATCGAACCTGACCGCGGTAGATGTGAAAA
TCCGCAGCATCGTAACCCGTCAGGTTGTGCGGCACGCAATCATACCAACACTAAGGCTAGGTAATATCTTGCCGATGCATG
AGTTAGCGGATTTGTACCGGTAAGTTGCAATATTCGTGAAACGTCGGCCGGTATCGATGATGTGAAACAAACCCCGCTT
TTGCGGGGTTTGTGTTTGTGGTGGTTTCTGAAACGGCTATCGTCAGAAATCGGGGTGCAGGTTTCGGATTCGAGATTC
ATGTTTGTGTCCTCATGTCGCGCTTTTATAGTGGATTAAACAAAAATCAGGACAAGCGCACGAAGCCGACAGTACAAATAGTA
CGCAAGGCGAGGCAACGCGTACCGGTTTAAATTTAATCCACTATATCGGTTGAAACTCTGATTTTAAGCGGTAGGATGTG
GGTTTGCCCATAGCAAGGAATCCTTTCTGTATCAAGCCCCGAAAGGATAATTATACAAATTCACGCCTTTCCCCCTCATT
GGGAAATGGATGGAATCGTGCCCGATGTGTGCGGCACTGTATGCCGGATATGGTTTATCATCATCCCT

omp gene TAA - stop codon *omp* CCGGG - SmaI site
Borders of the UP and DOWN cassettes of recombination
eryR cassette - antibiotic resistance cassette

	wt	Δ LpxL	Δ LpxL Δ Rmp
RmpM	Identified	Identified	No present

FIG. 16

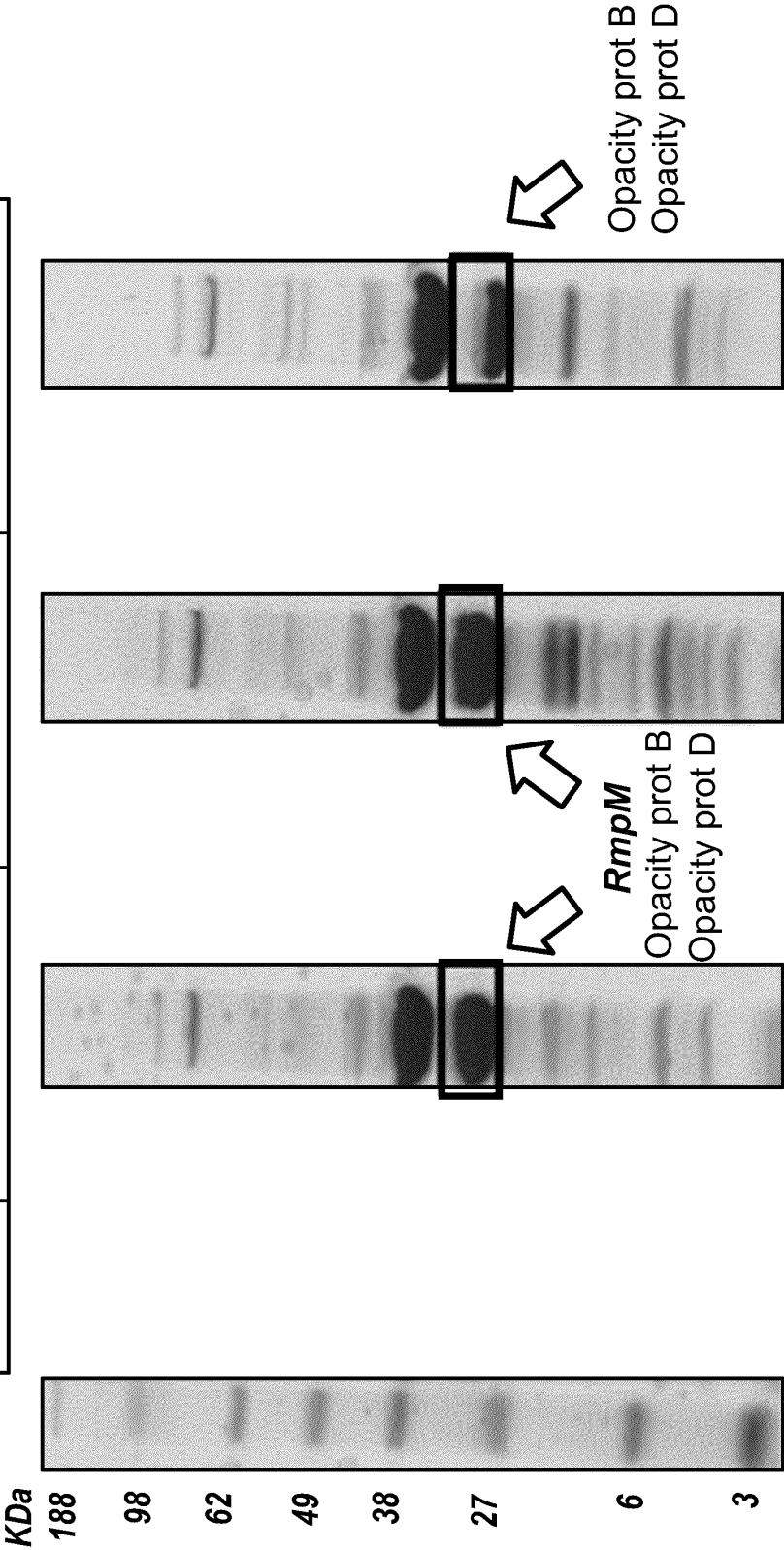


FIG. 17
Centrality

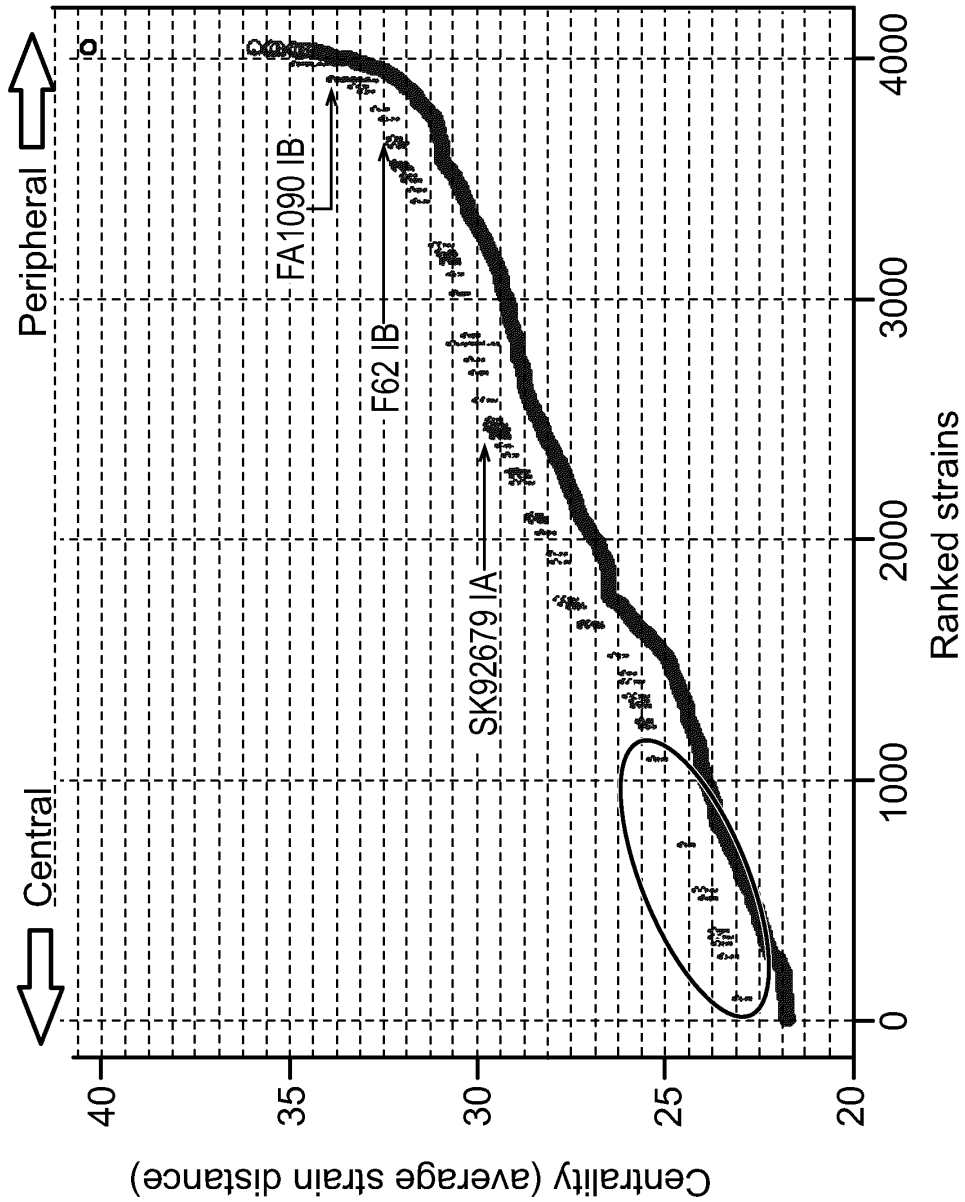


FIG. 18
hTLR4 activation

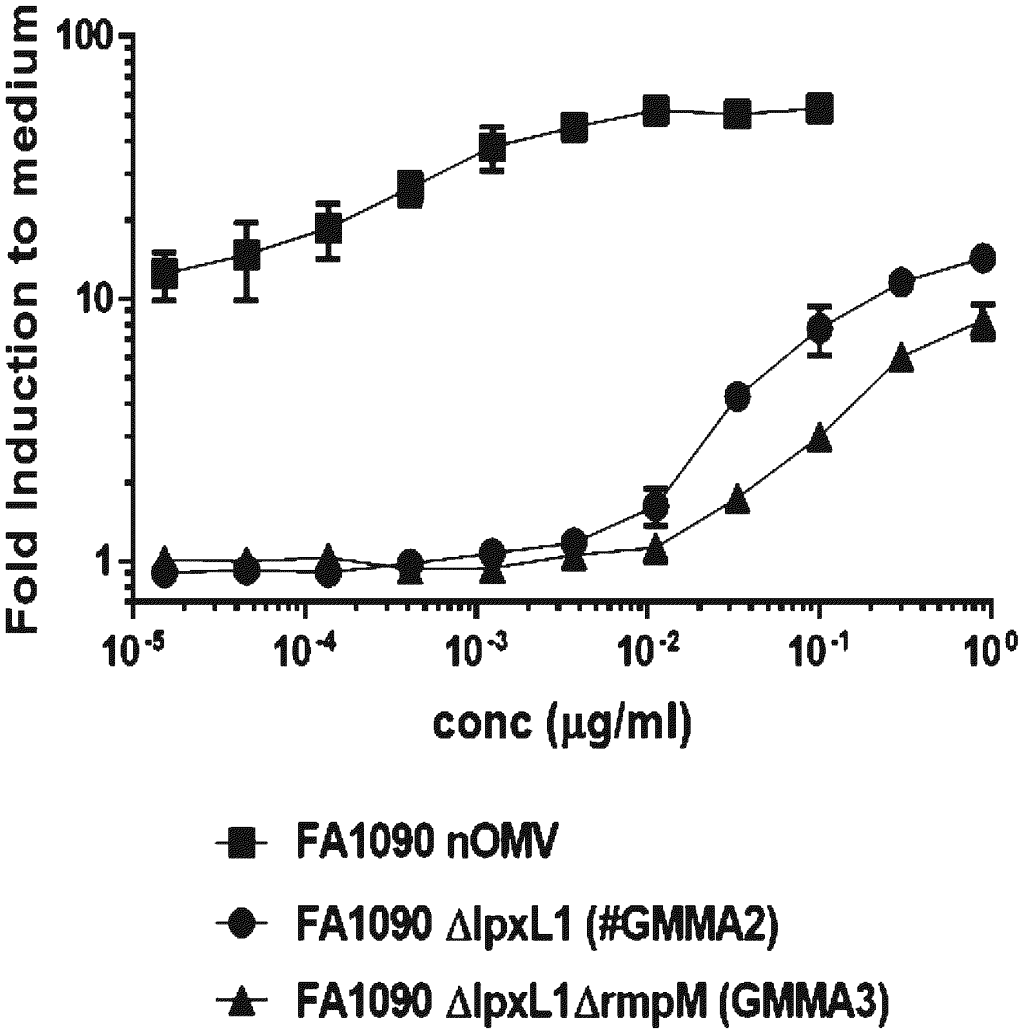


FIG. 19

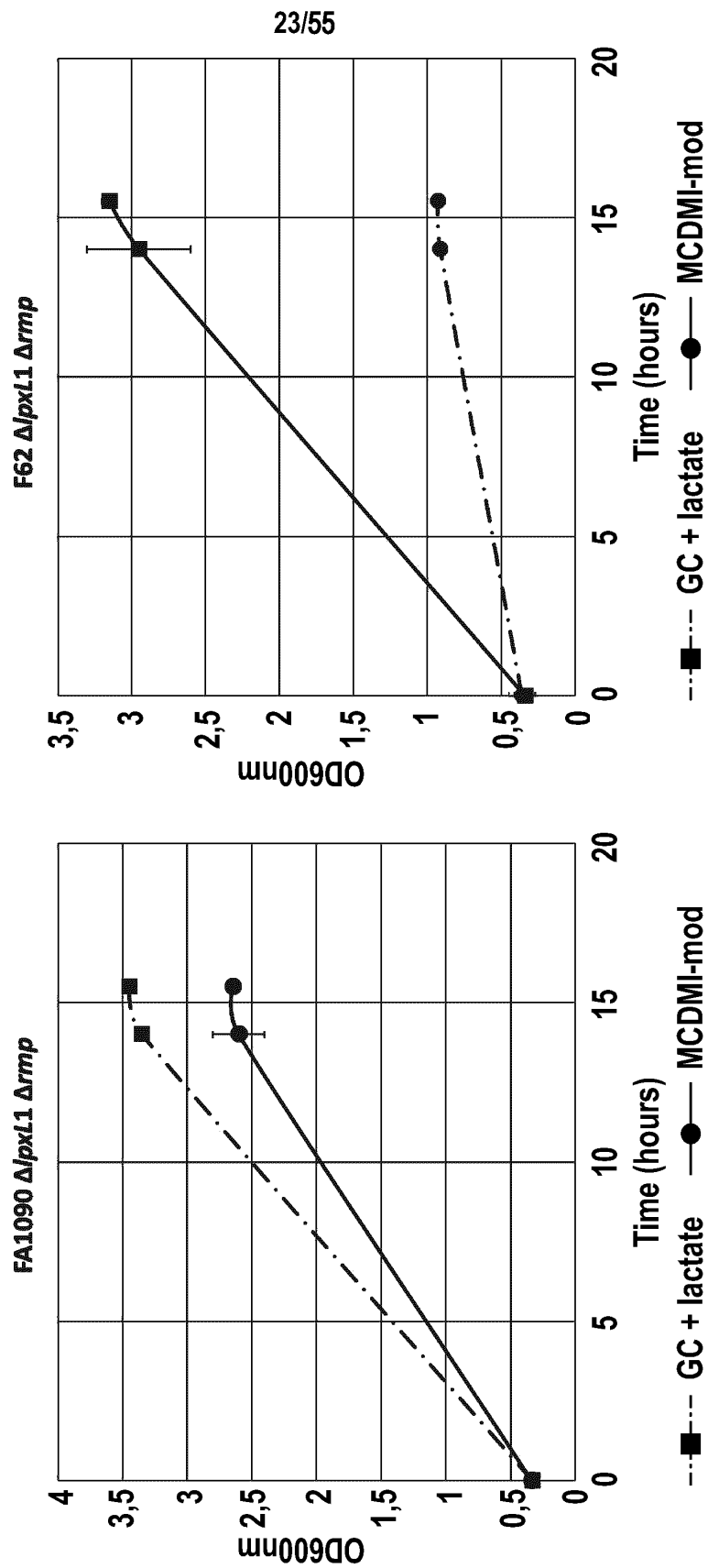


FIG. 19(contd)

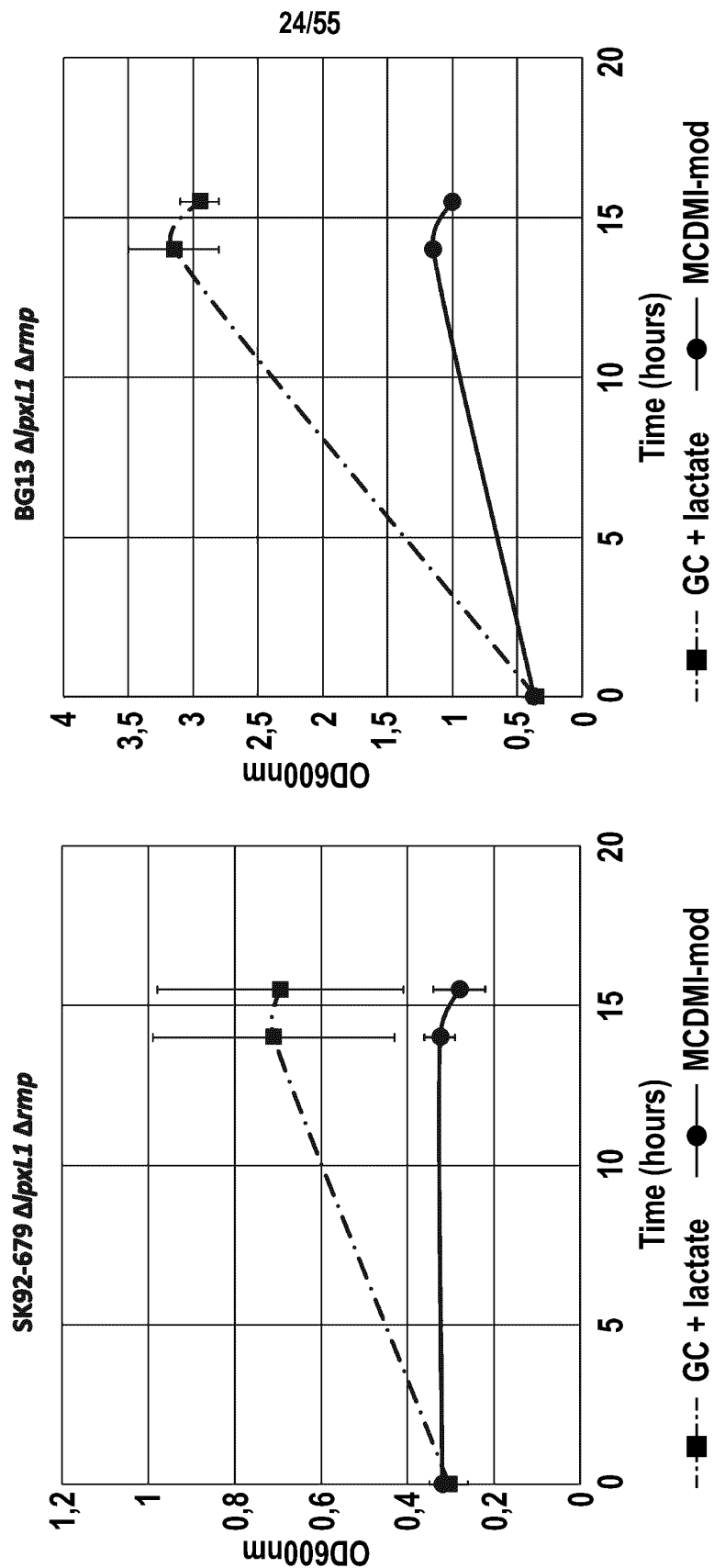
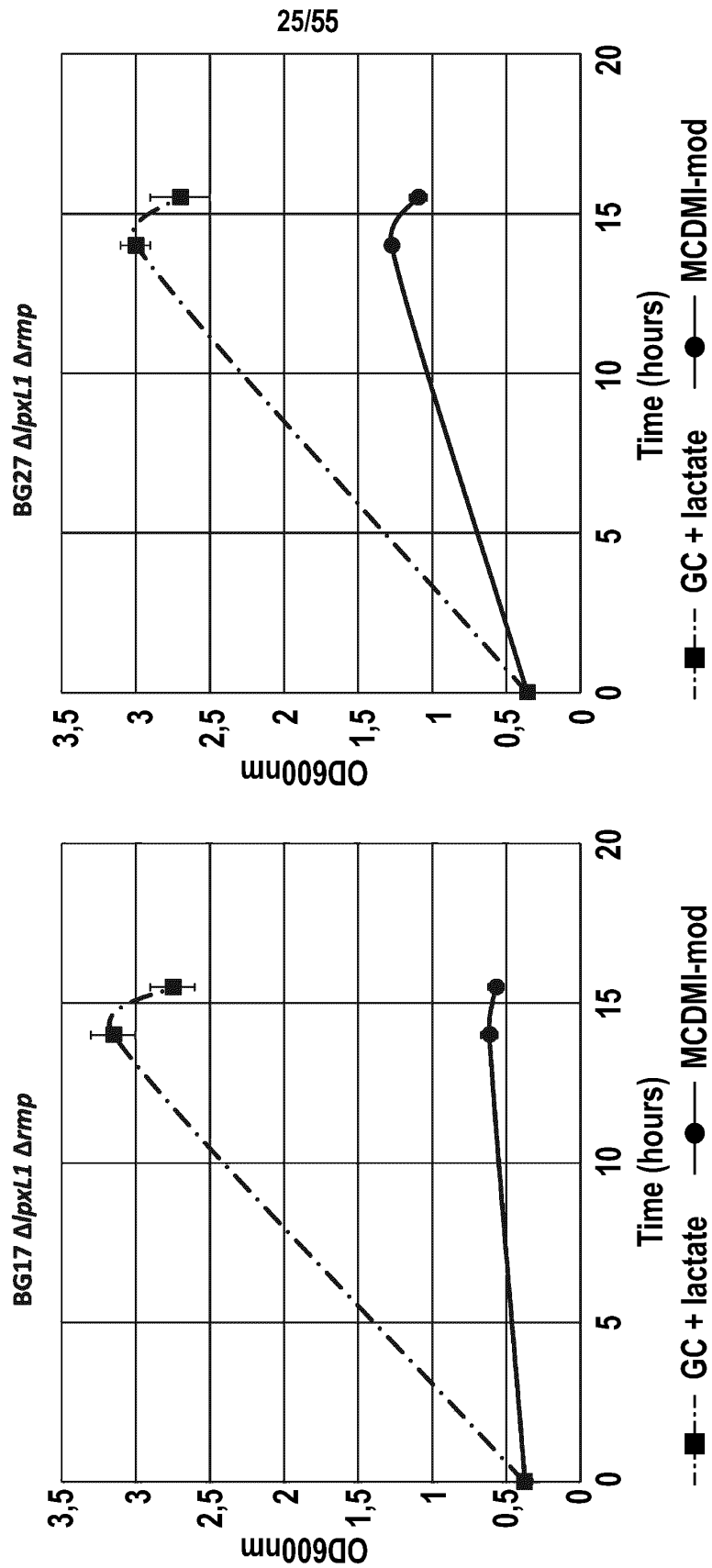
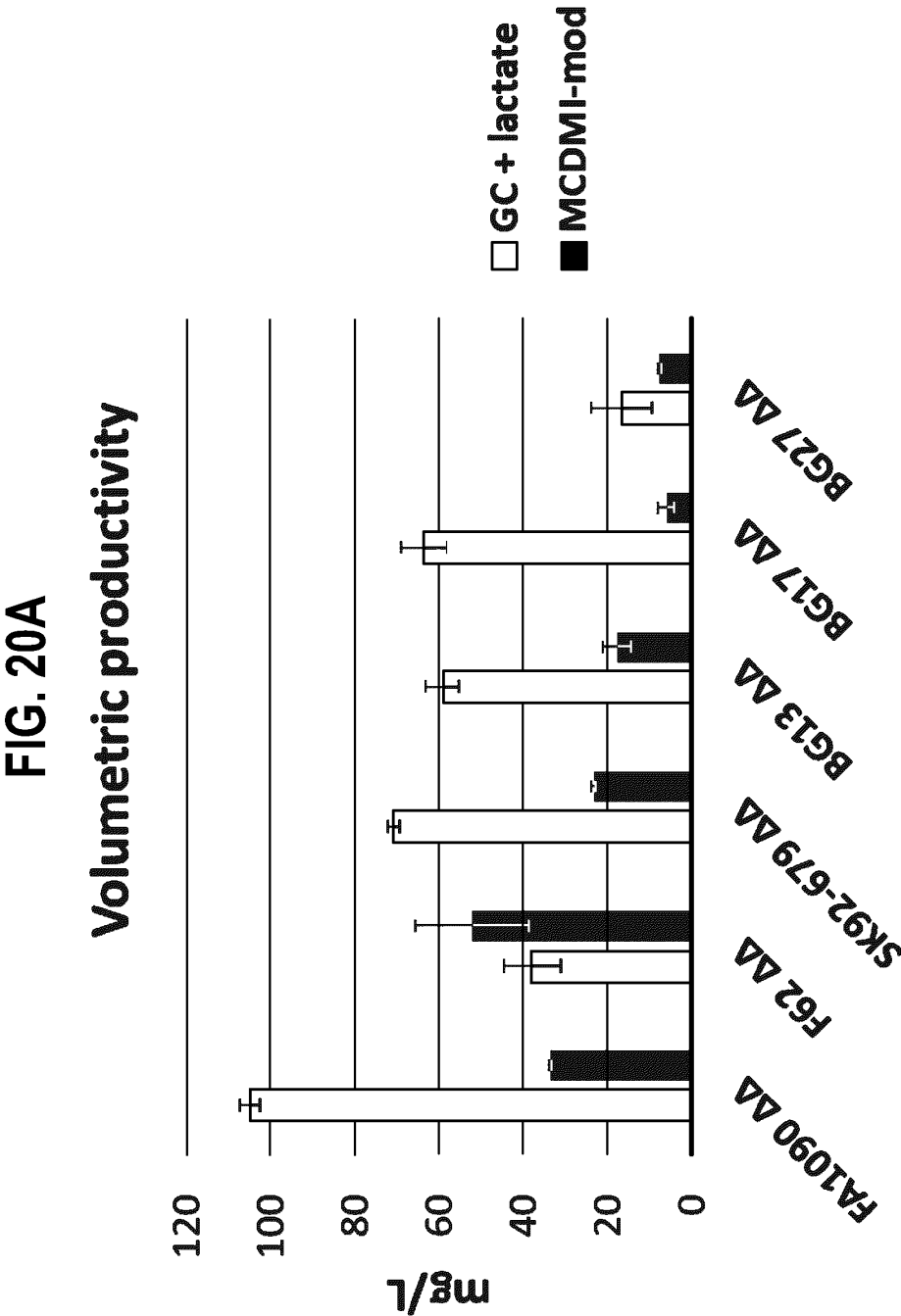
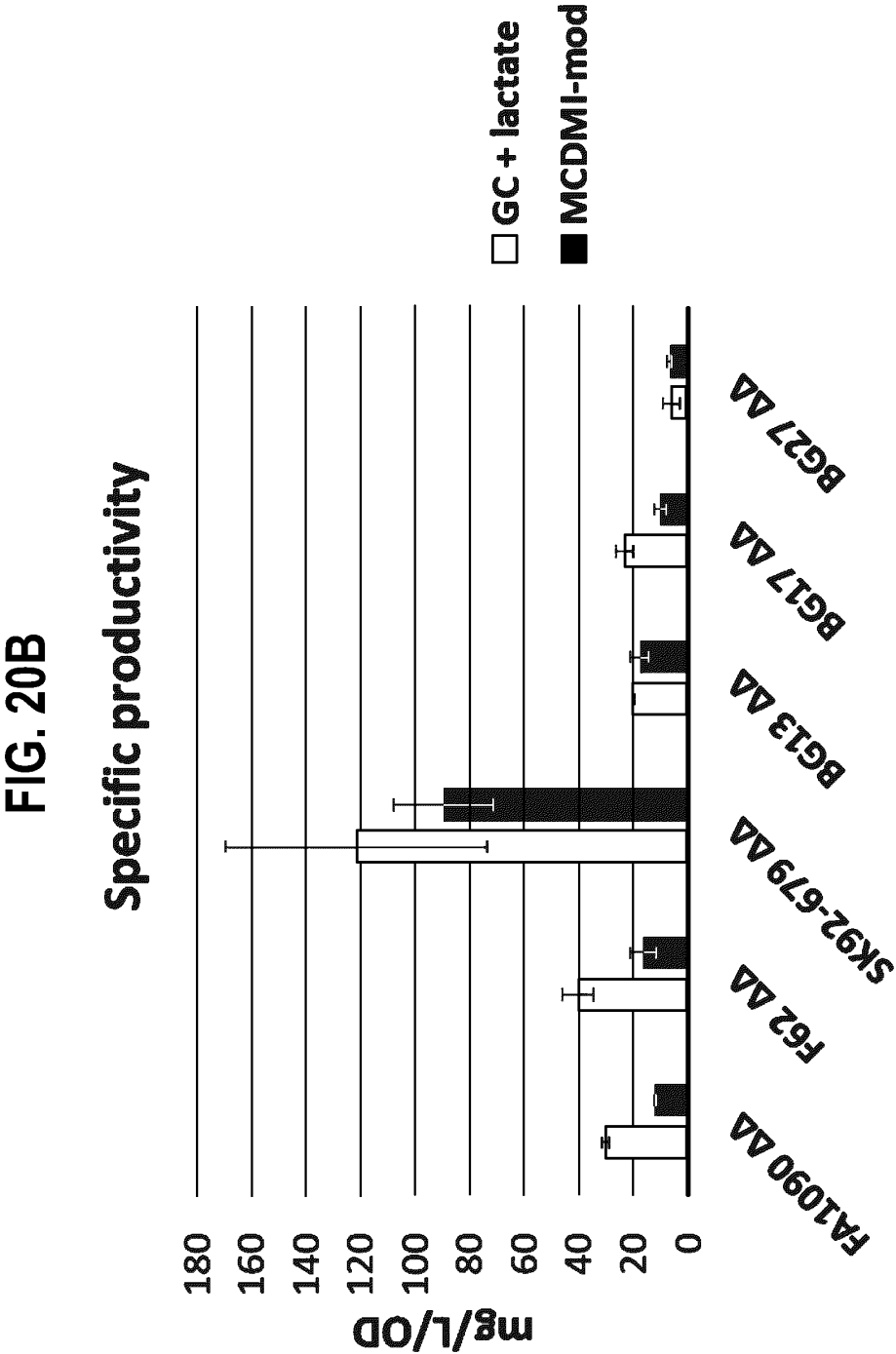


FIG. 19(contd)







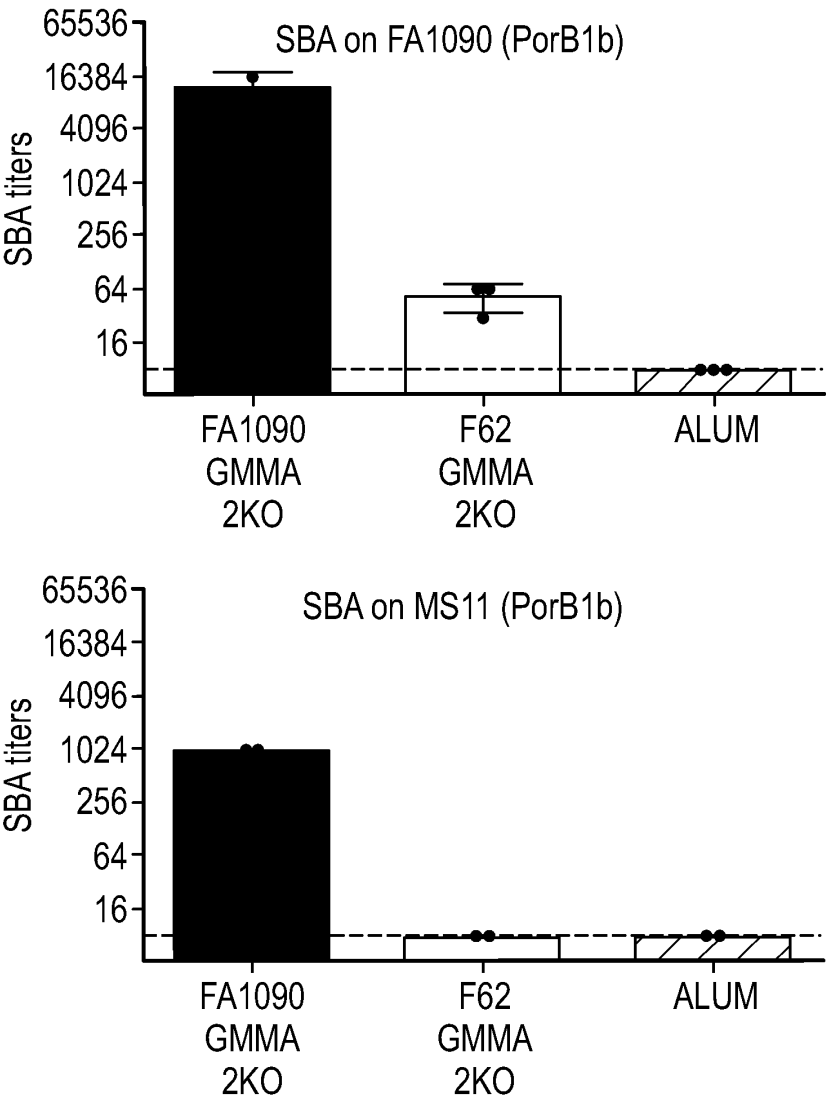


FIG. 21

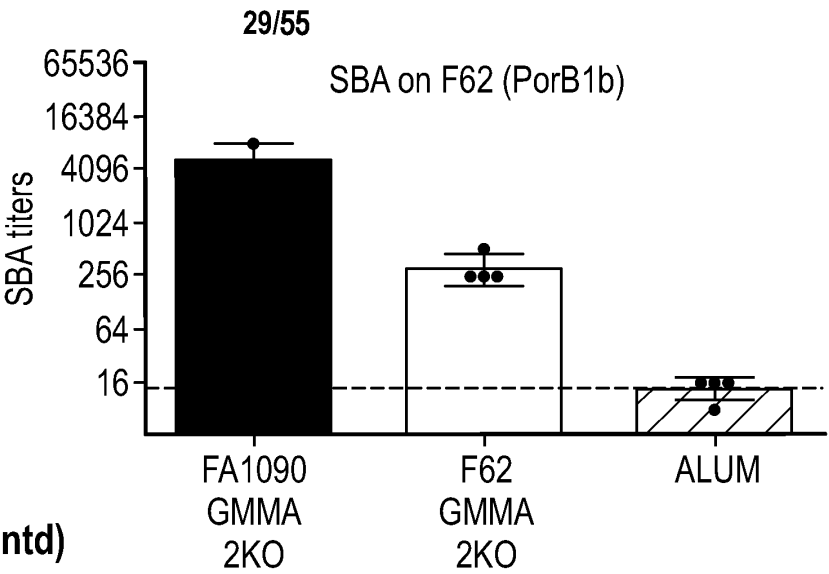
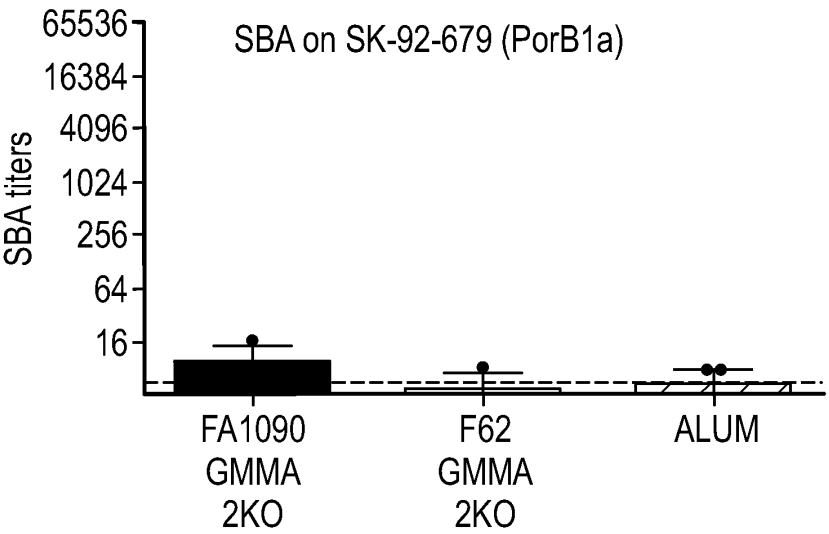
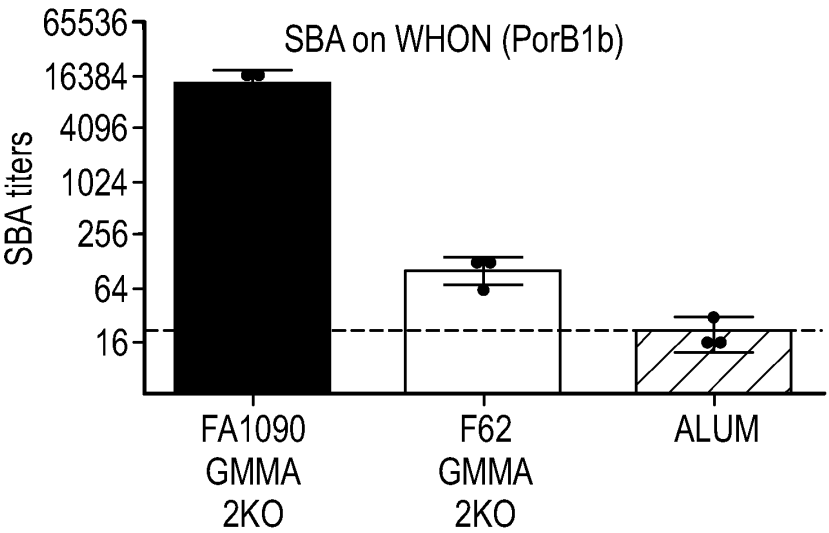


FIG. 21(contd)



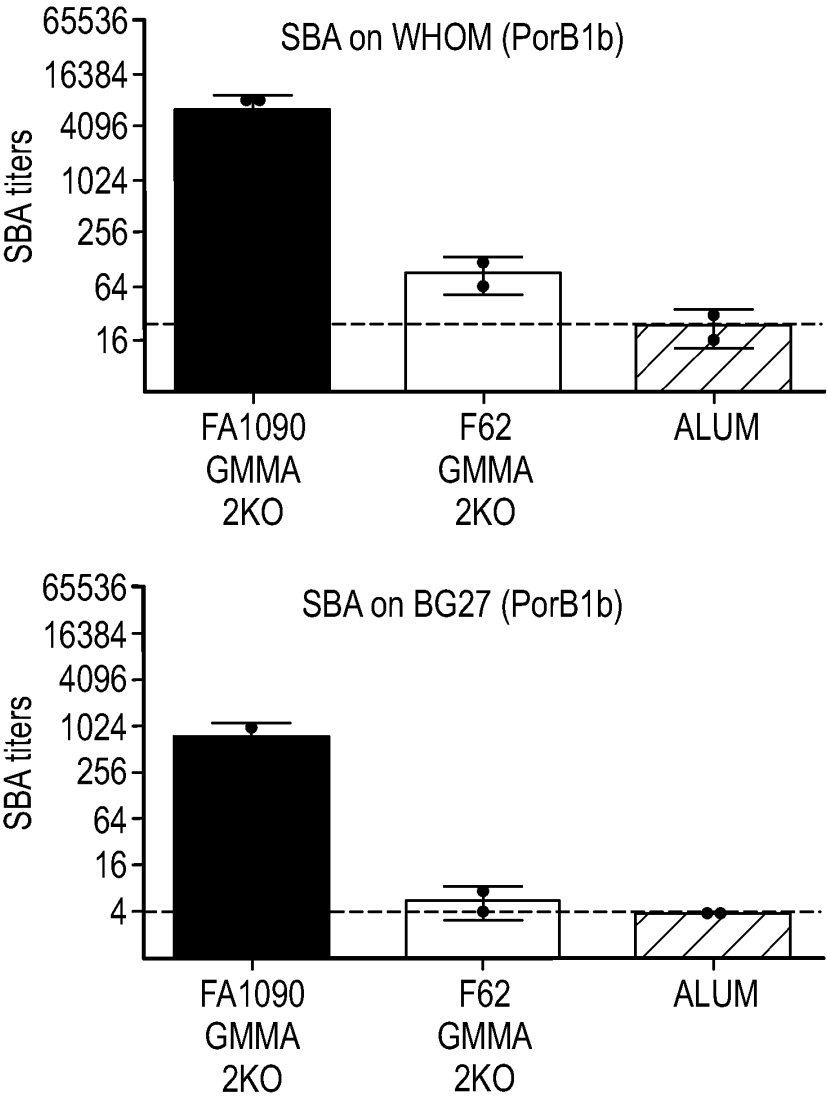
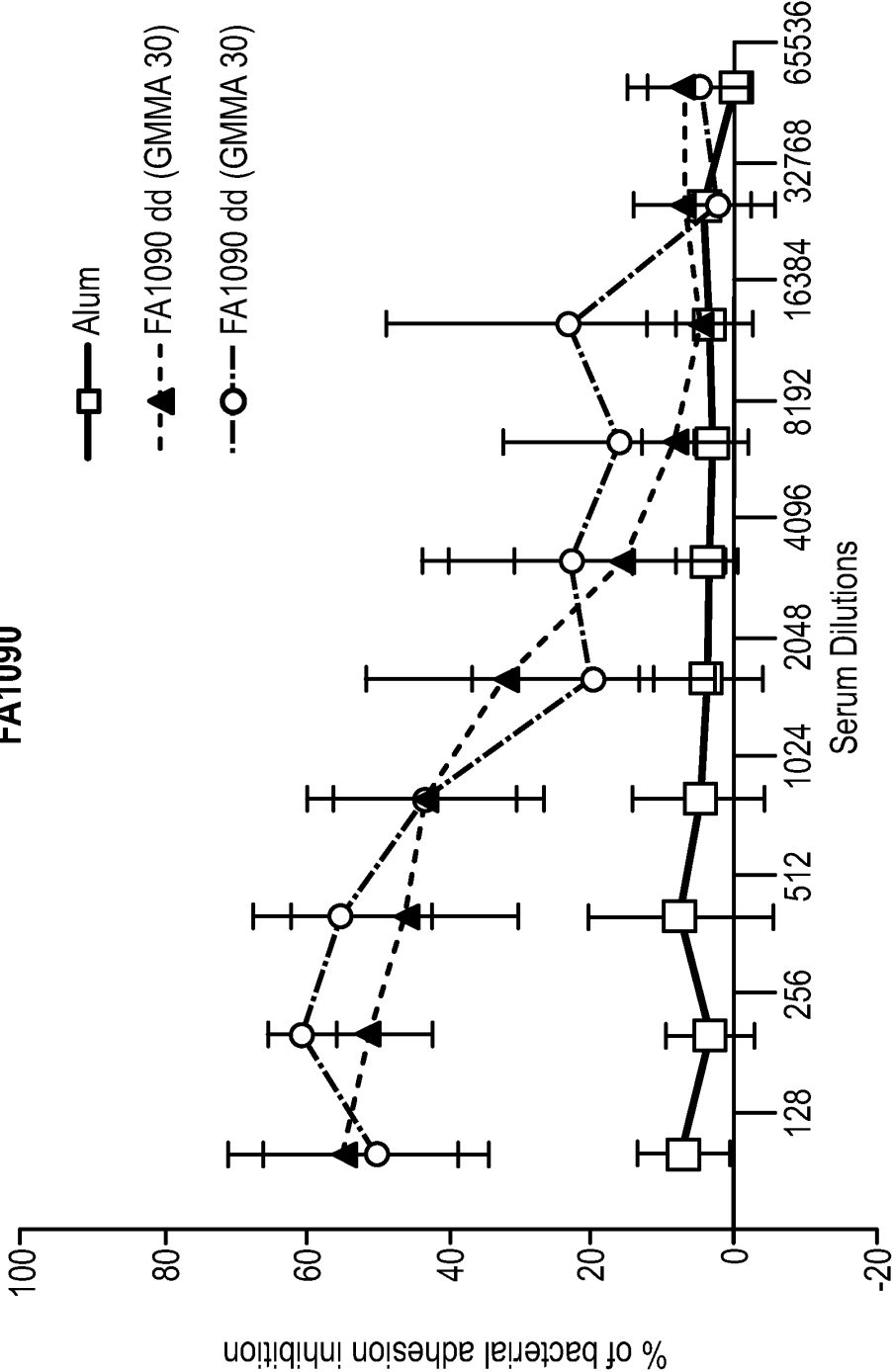


FIG. 21(contd)

FIG. 22A
FA1090



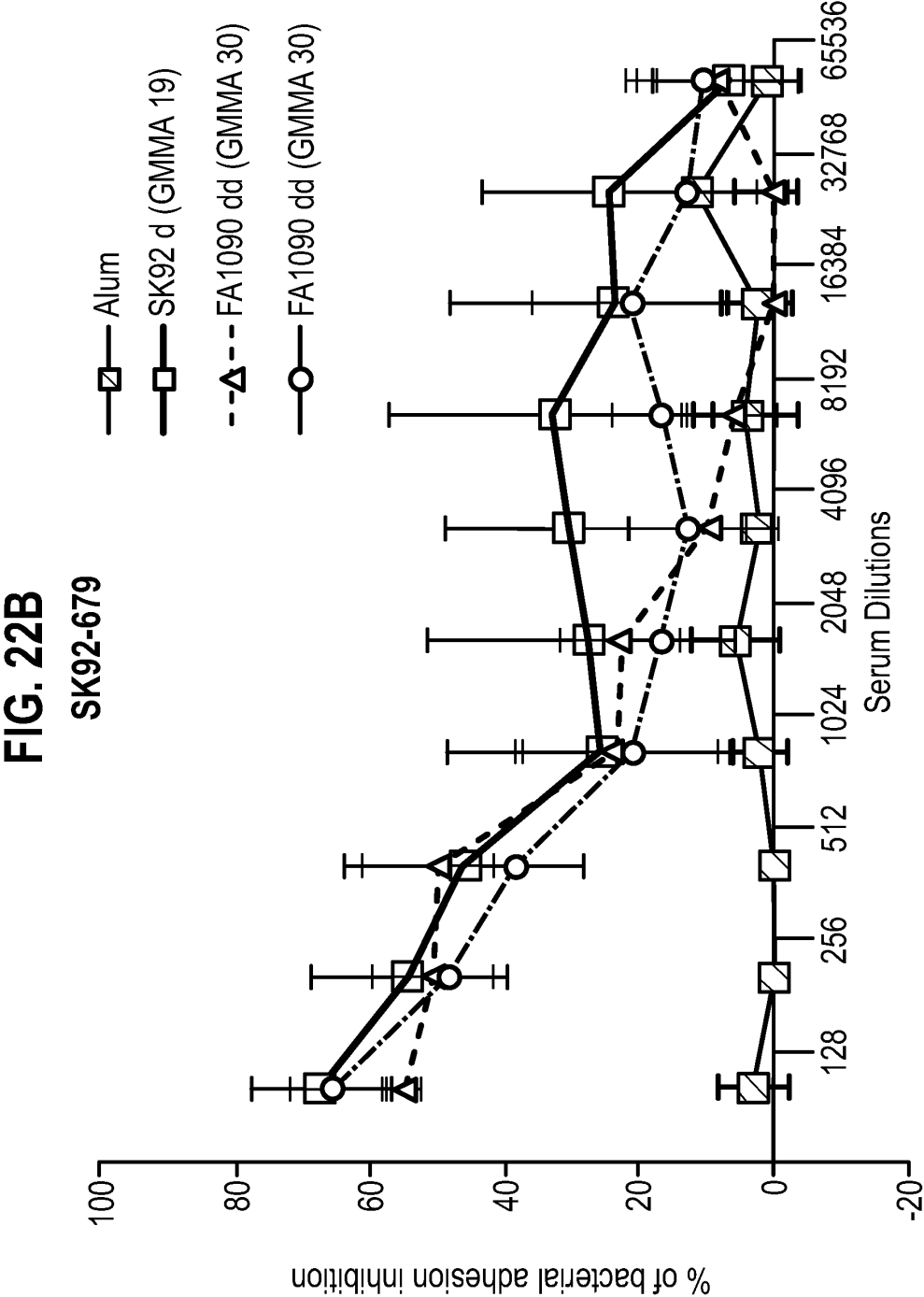


FIG. 22C
WHO-M

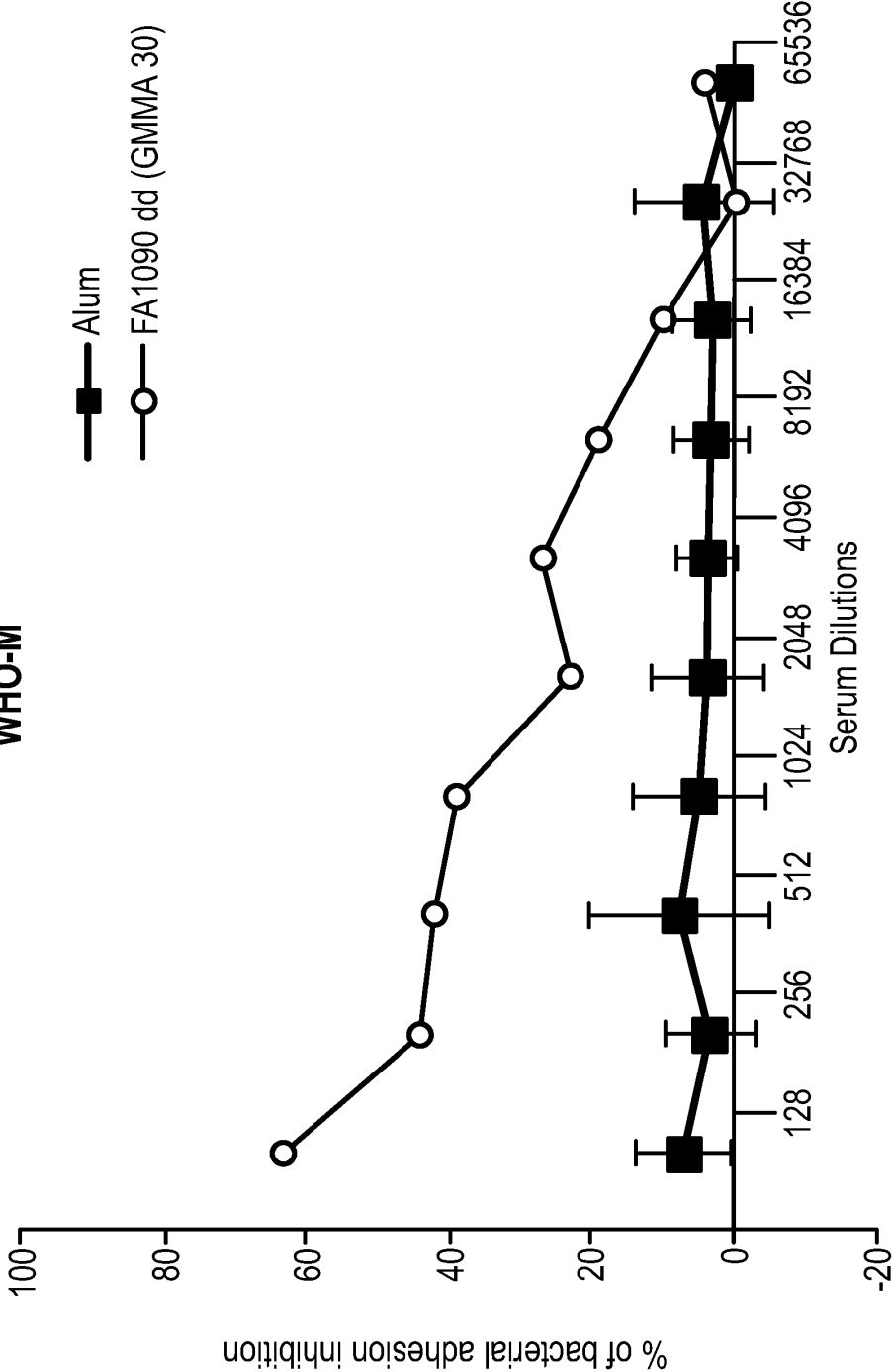


FIG. 23
Luminex assay with RMP coated beads

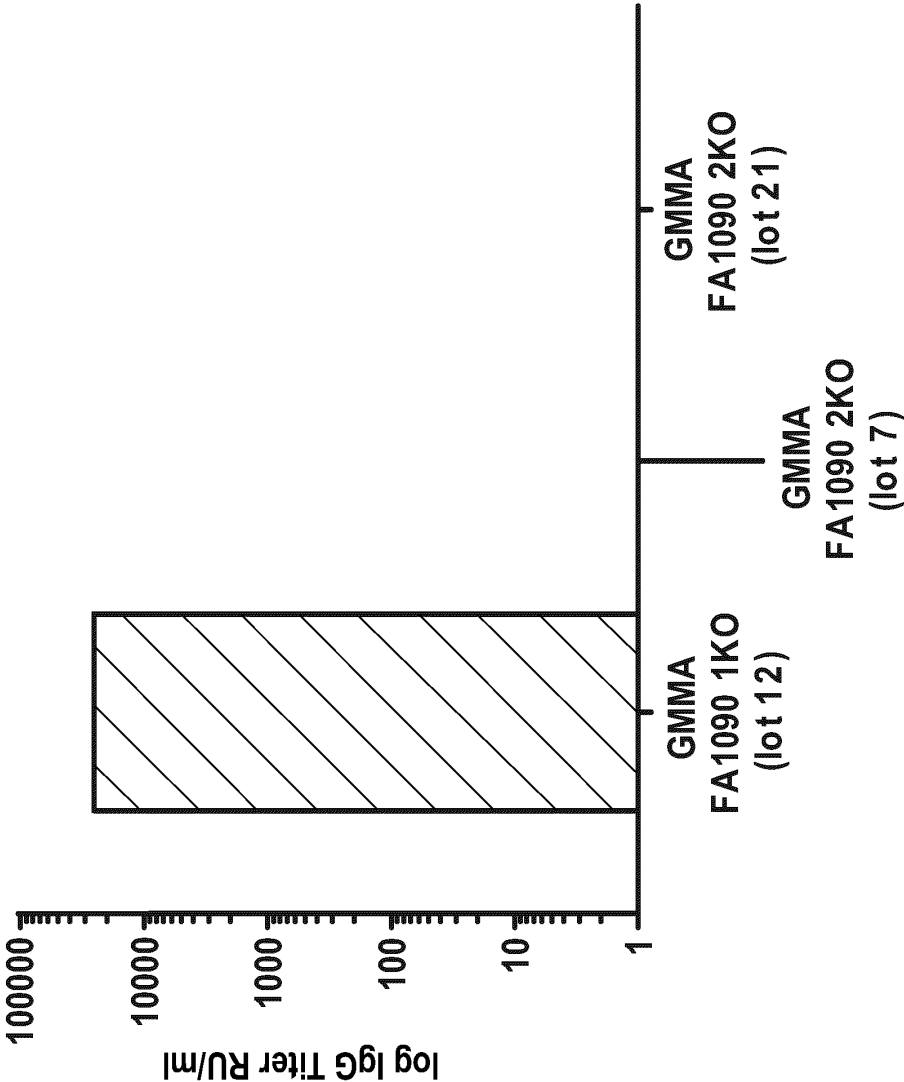


FIG. 24
hSBA titers of pooled sera at 4wp2 and 2wp3 against the homologous FA1090 strain

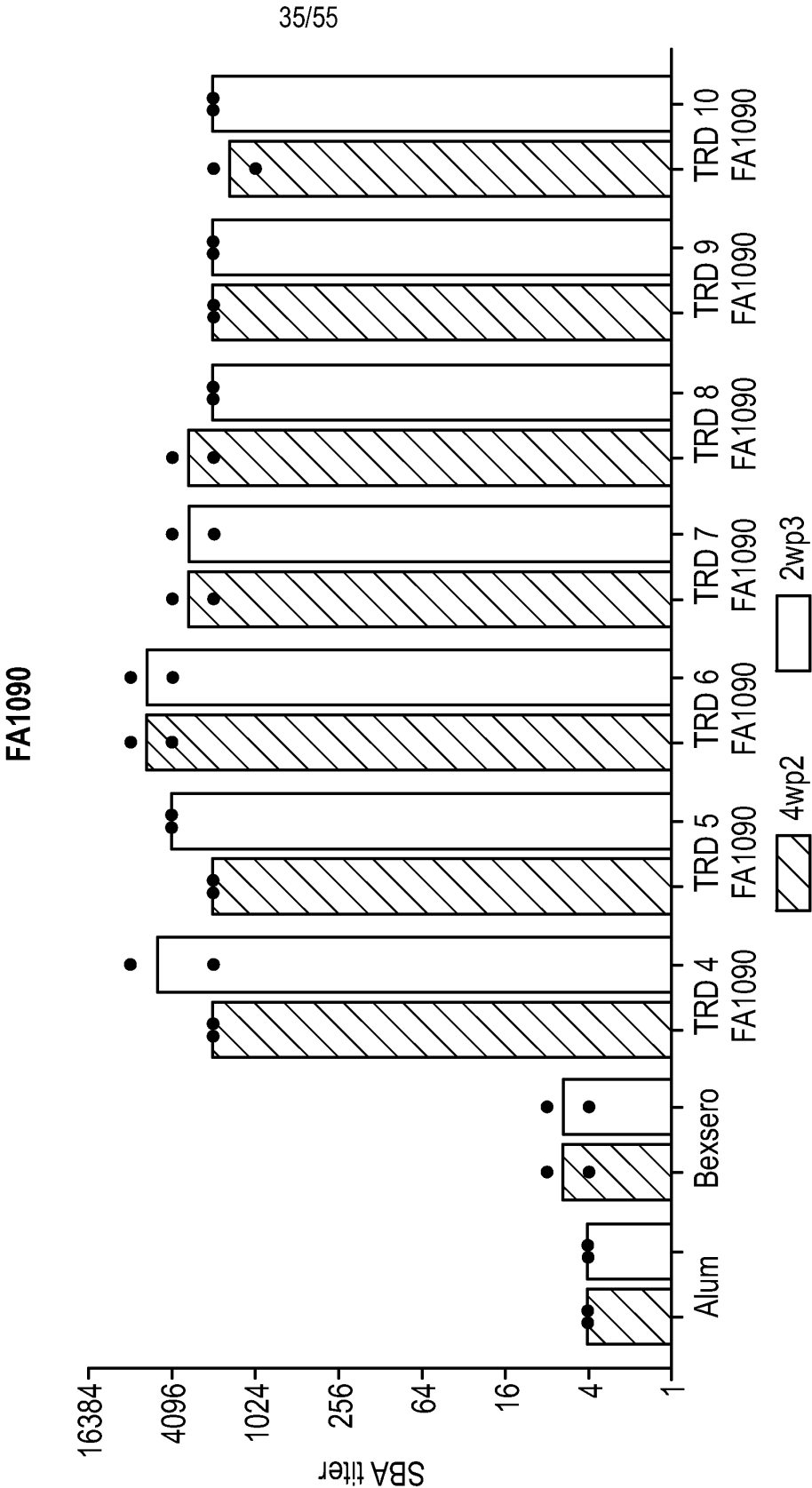


FIG. 25A

Individual hSBA titers at 2wp3 against the homologous and the heterologous Ng strains

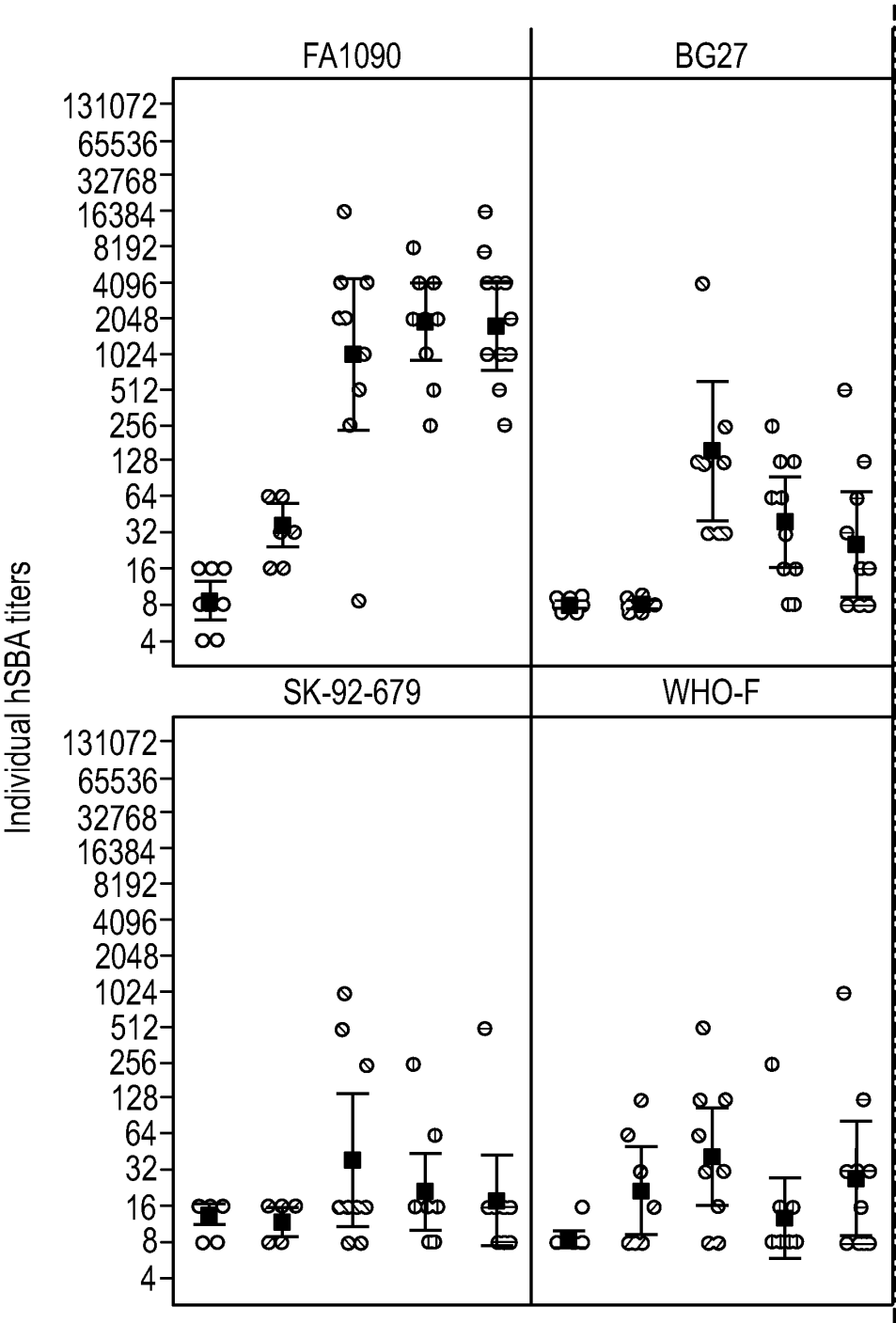
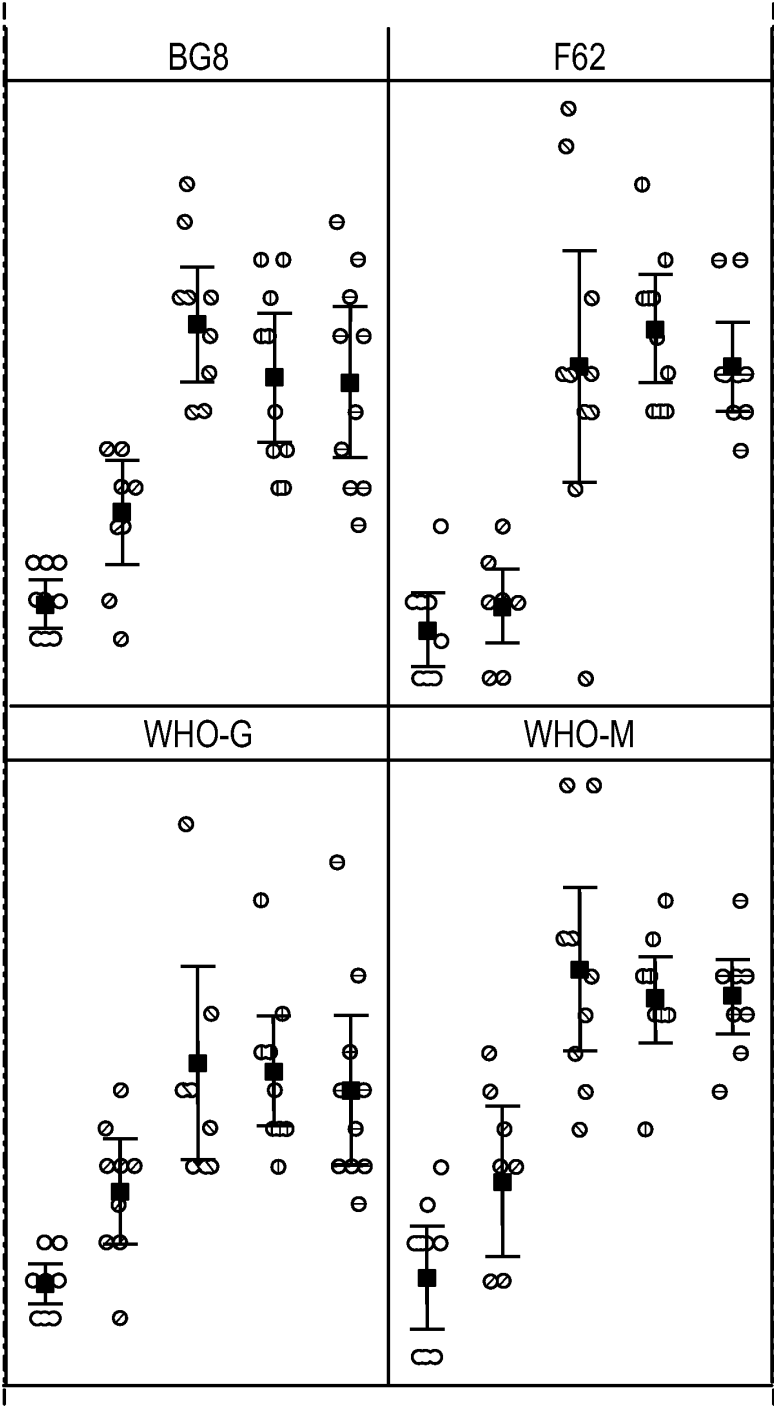


FIG. 25A(contd)
Individual hSBA titers at 2wp3 against the homologous and the heterologous Ng strains



○ Alum ⊙ Bexsero ⊗ GMMA TRD 4 ⊕ GMMA TRD 5 ⊖ GMMA TRD 9

FIG. 25A(contd)
Individual hSBA titers at 2wp3 against the homologous and the heterologous Ng strains

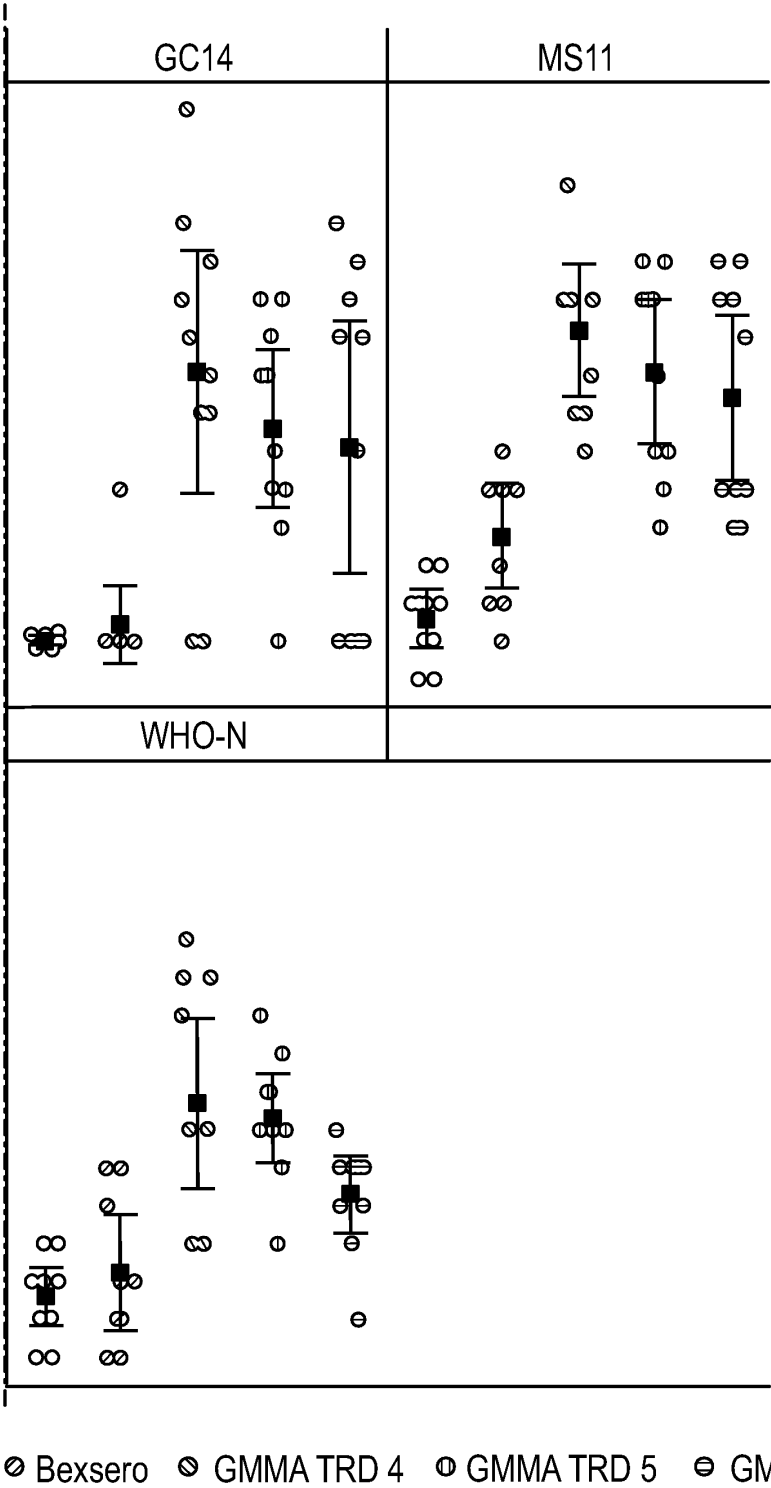


FIG. 25B Geometric Mean Ratio of hSBA individual sera titers at 2wp3: comparison vs Alum
hSBA GMR comparison vs Alum

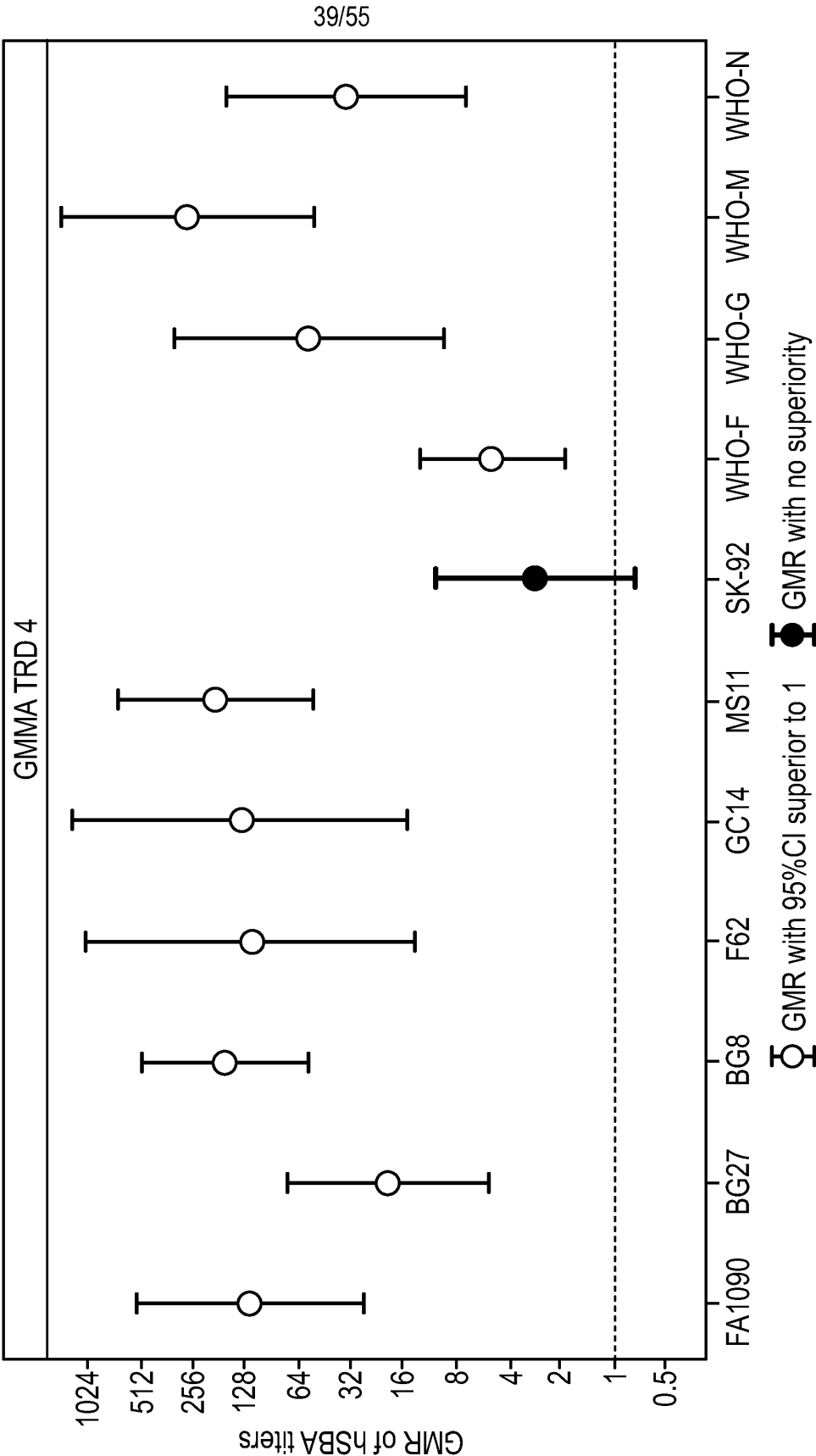


FIG. 25B(contd) Geometric Mean Ratio of hSBA individual sera titers at 2wp3: comparison vs Alum
hSBA GMR comparison vs Alum

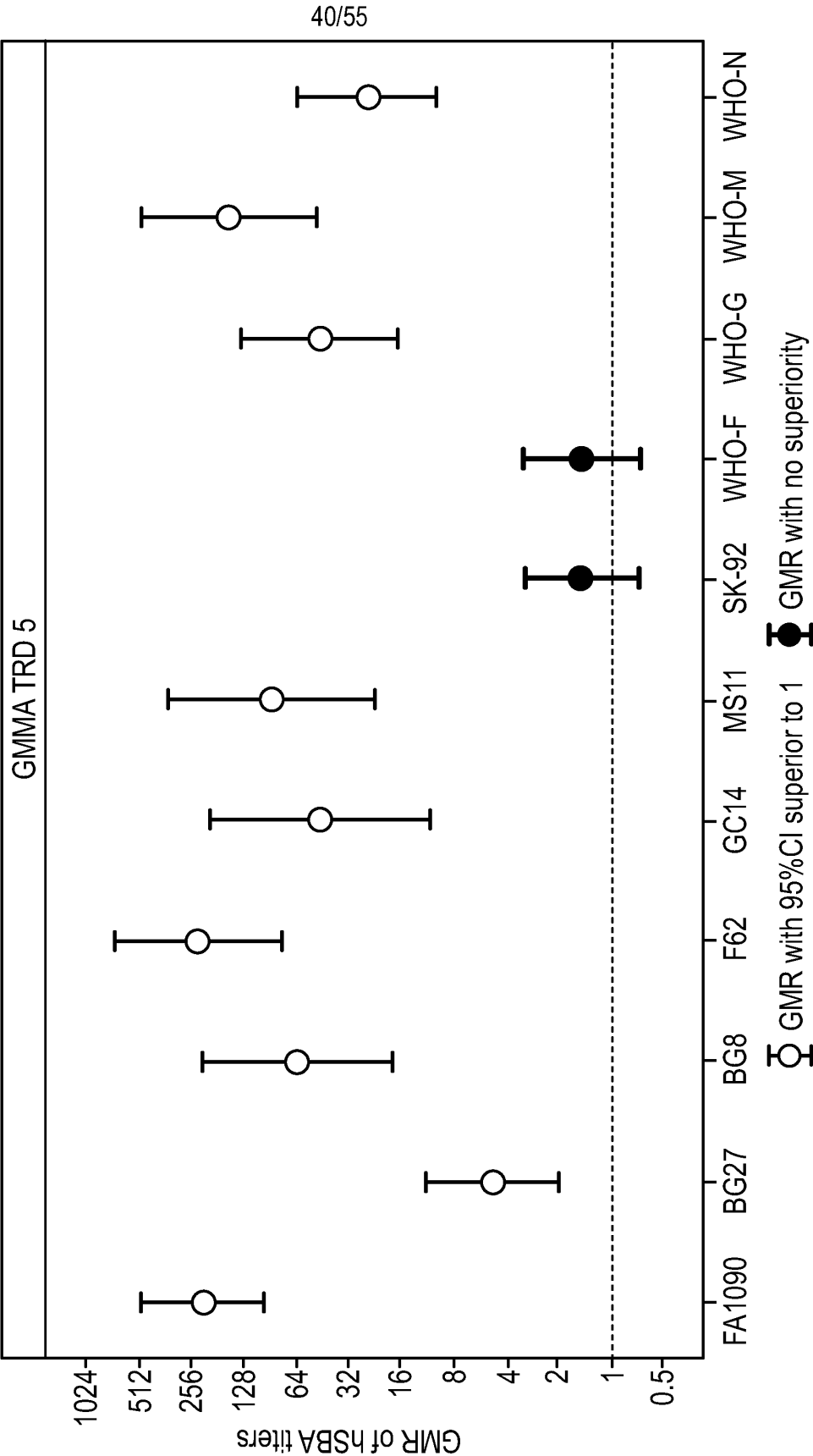


FIG. 25B(contd) Geometric Mean Ratio of hSBA individual sera titers at 2wp3: comparison vs Alum
hSBA GMR comparison vs Alum

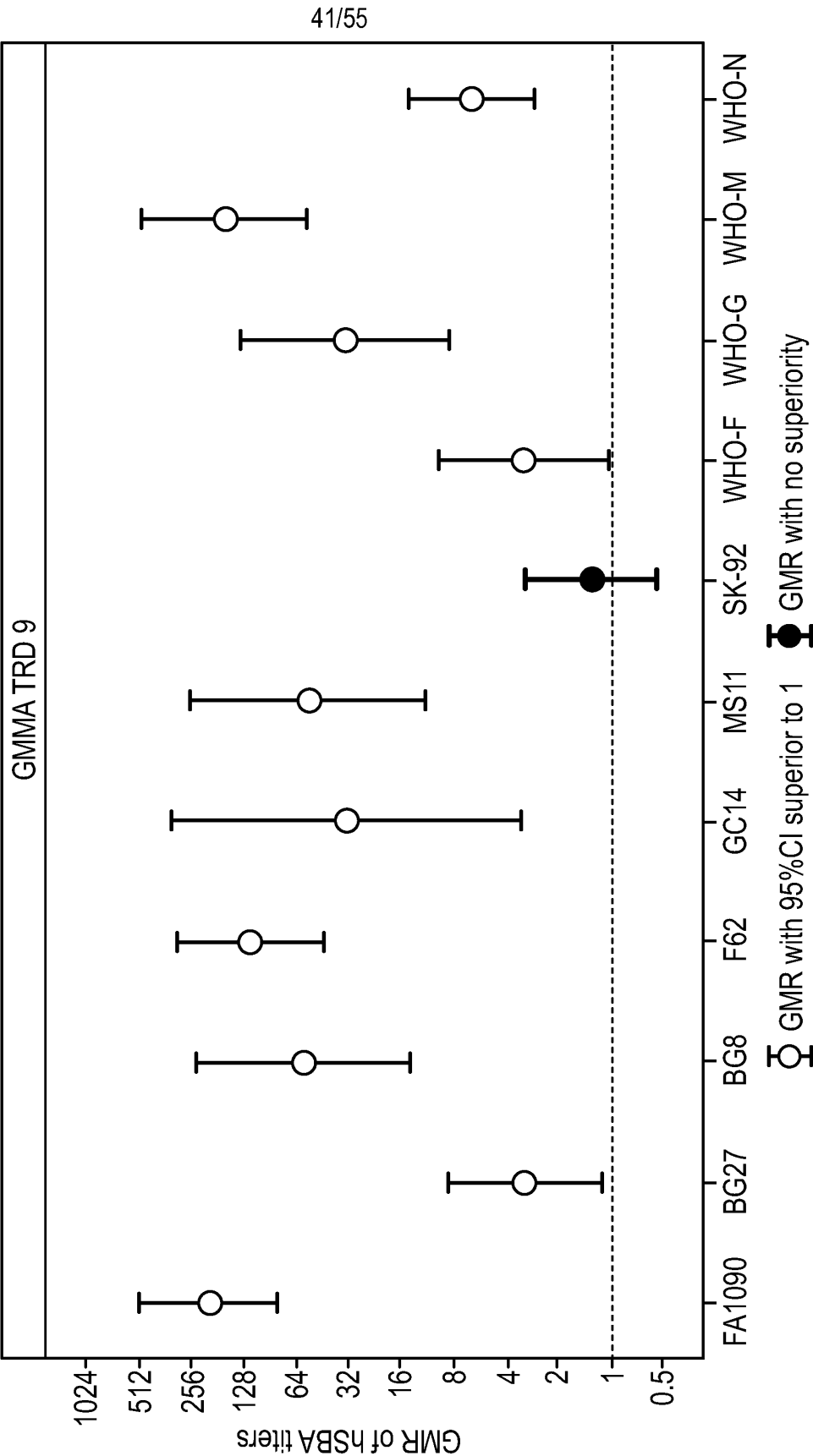


FIG. 25C Geometric Mean Ratio of hSBA individual sera titers at 2wp3: comparison vs Bexsero
hSBA GMR comparison vs Bexsero

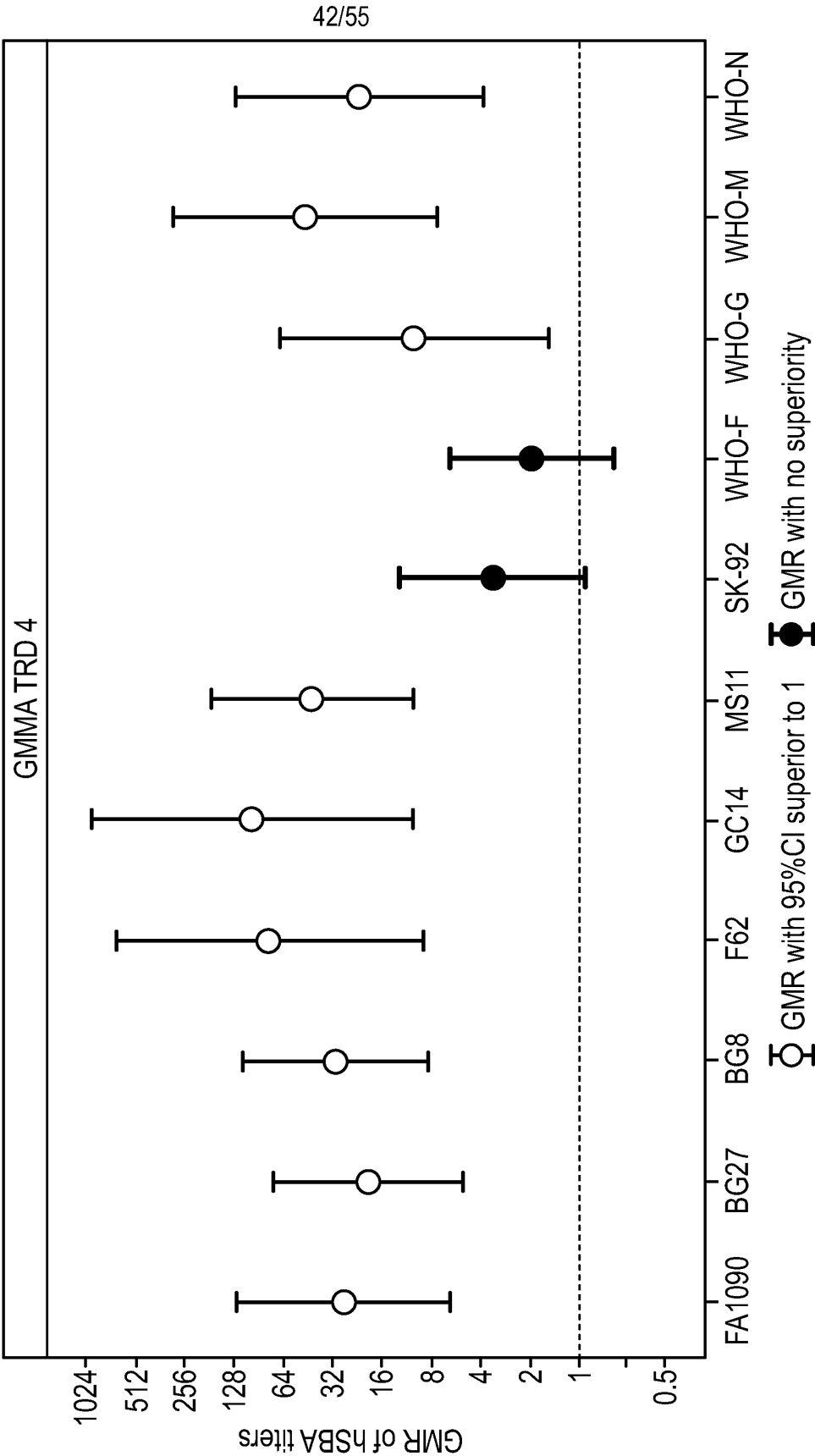


FIG. 25C(contd) Geometric Mean Ratio of hSBA individual sera titers at 2wp3: comparison vs Bexsero
hSBA GMR comparison vs Bexsero

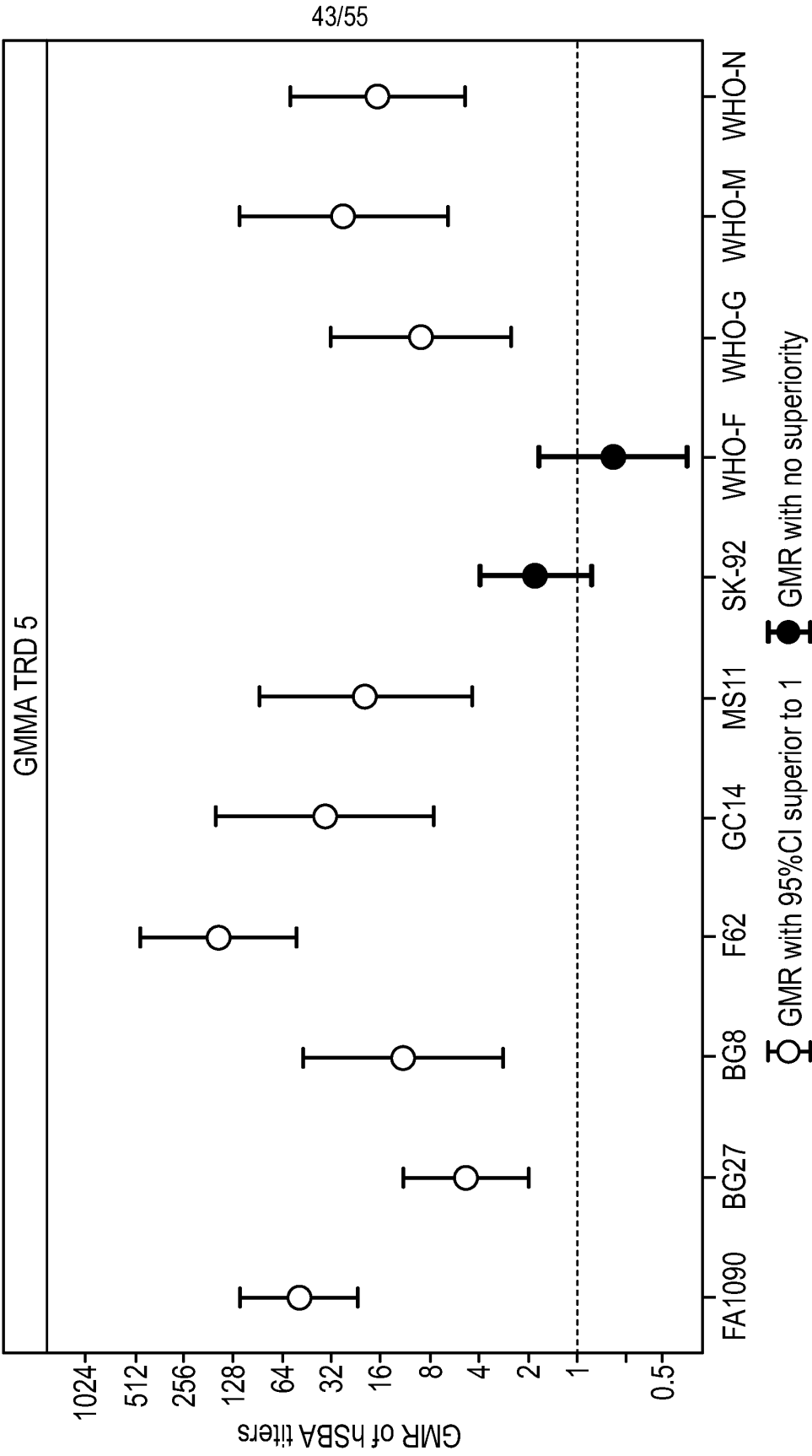


FIG. 25C(contd) Geometric Mean Ratio of hSBA individual sera titers at 2wp3: comparison vs Bexsero
hSBA GMR comparison vs Bexsero

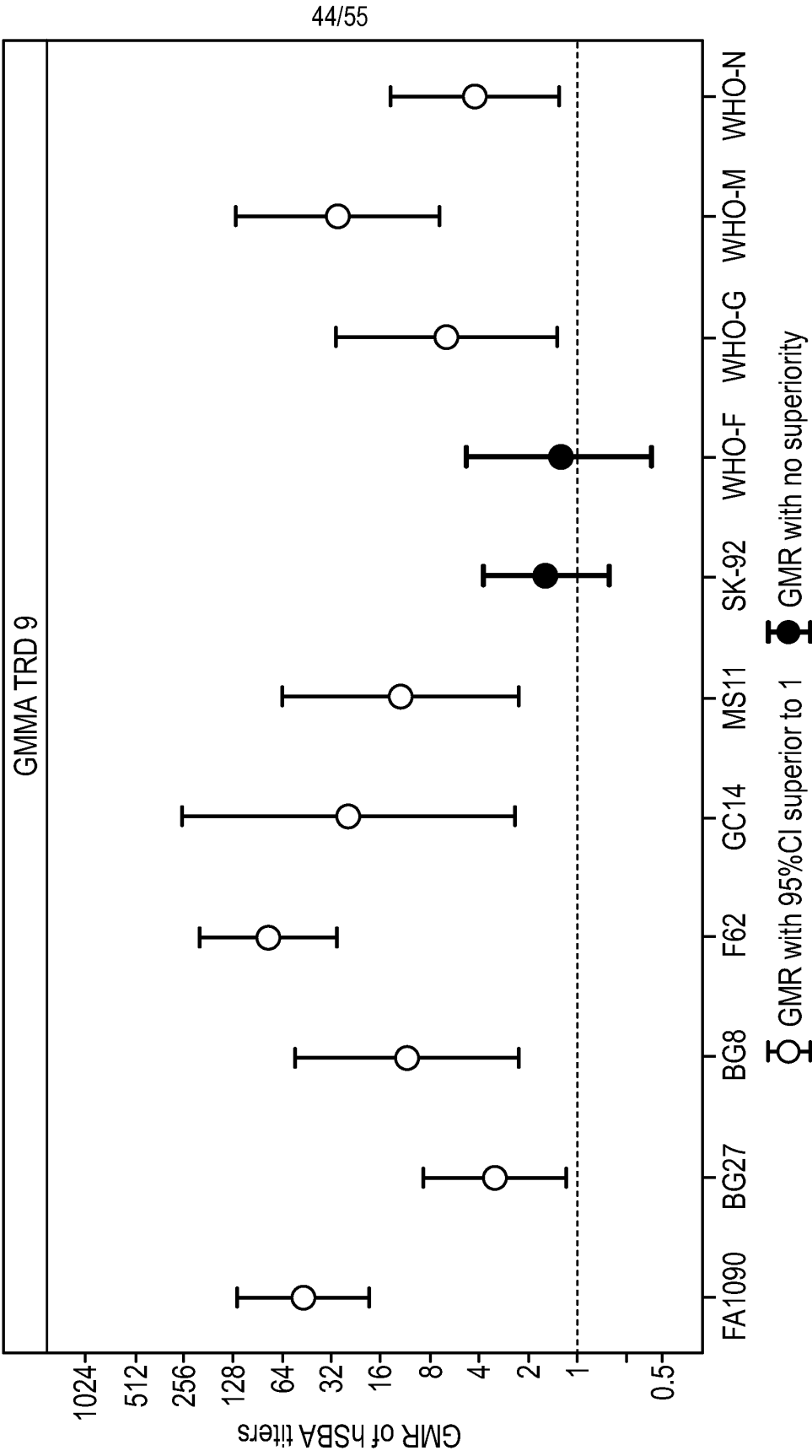


FIG. 26
Anti-Ng GMMA IgG titers of pooled sera at 4wp2 and 2wp3

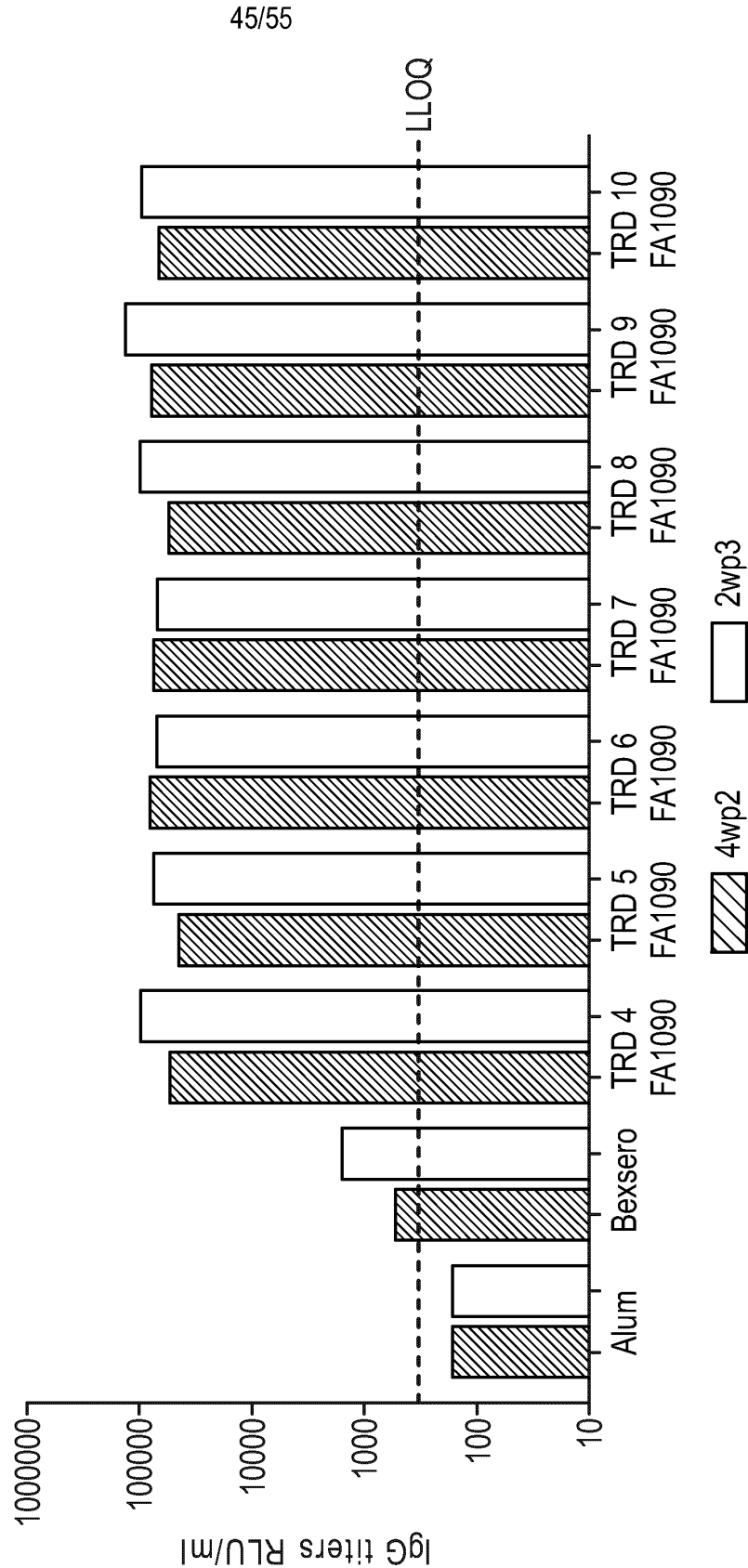
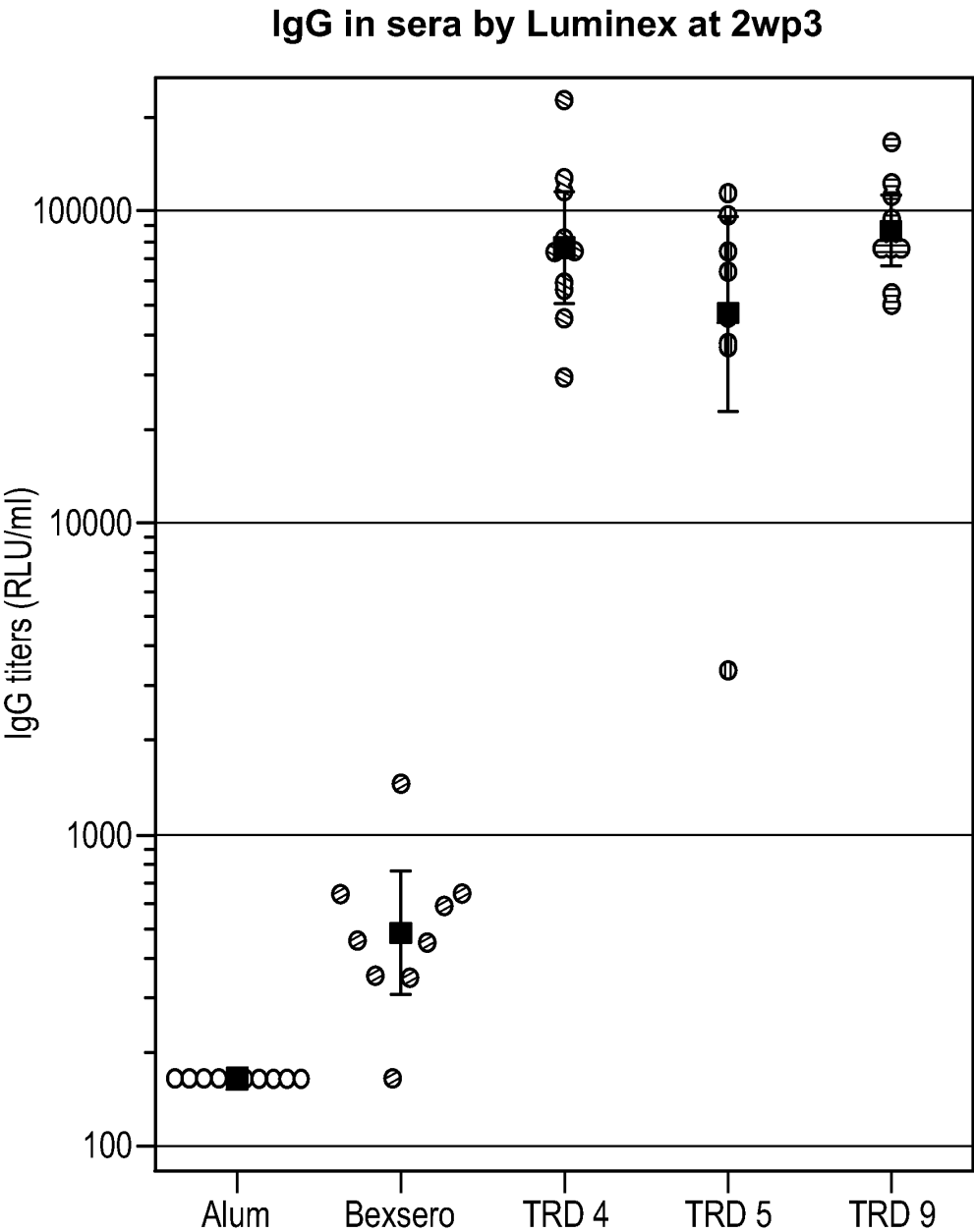


FIG. 27A
Anti-Ng GMMA IgG titers of individual sera at 2wp3
with 95% Confidence Interval



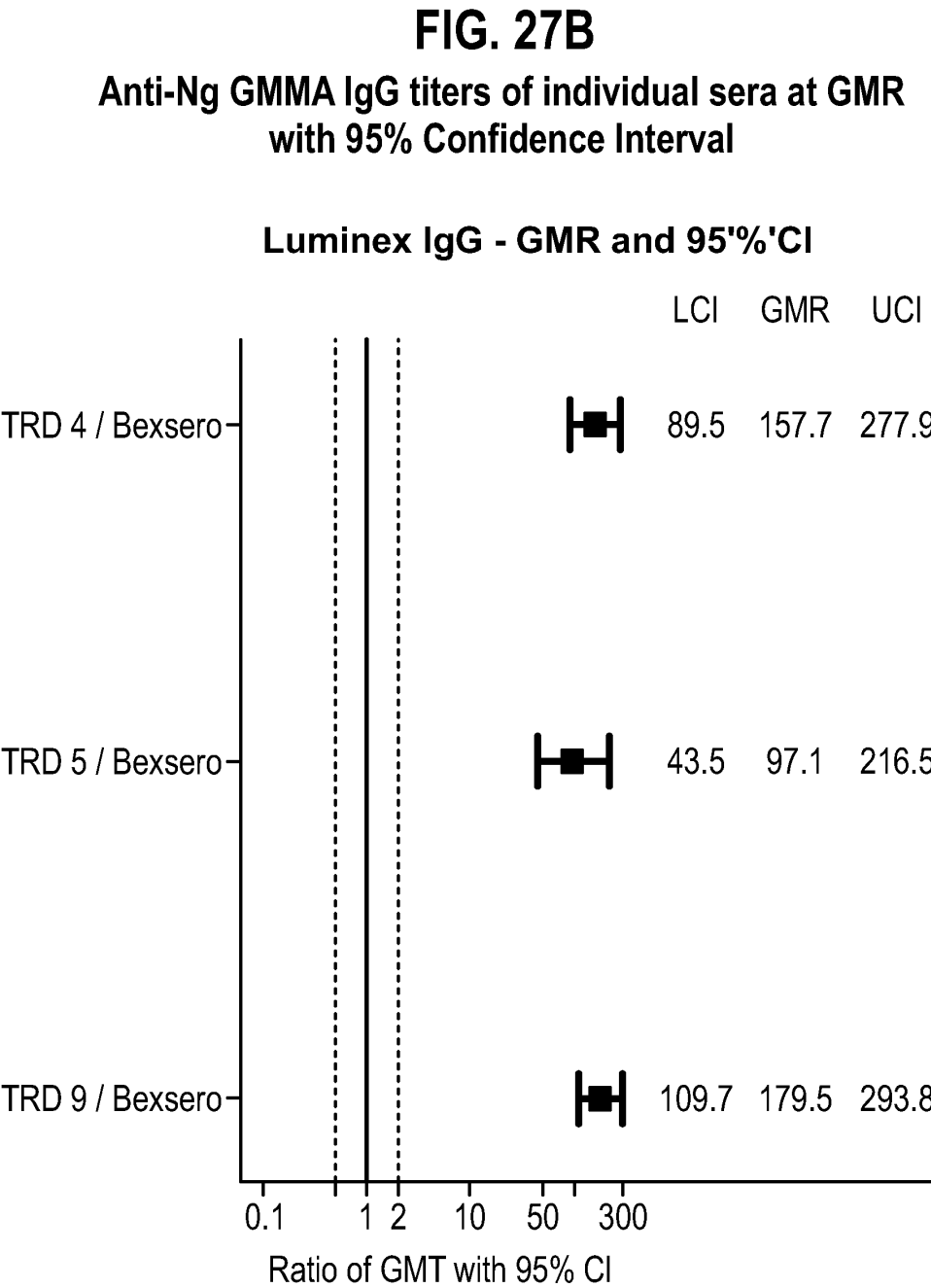


FIG. 28A

**Anti-Ng GMMA IgG titers of individual vaginal washes
at 2wp3 with 95% Confidence Interval**

IgG in vaginal washes by Luminex at 2wp3

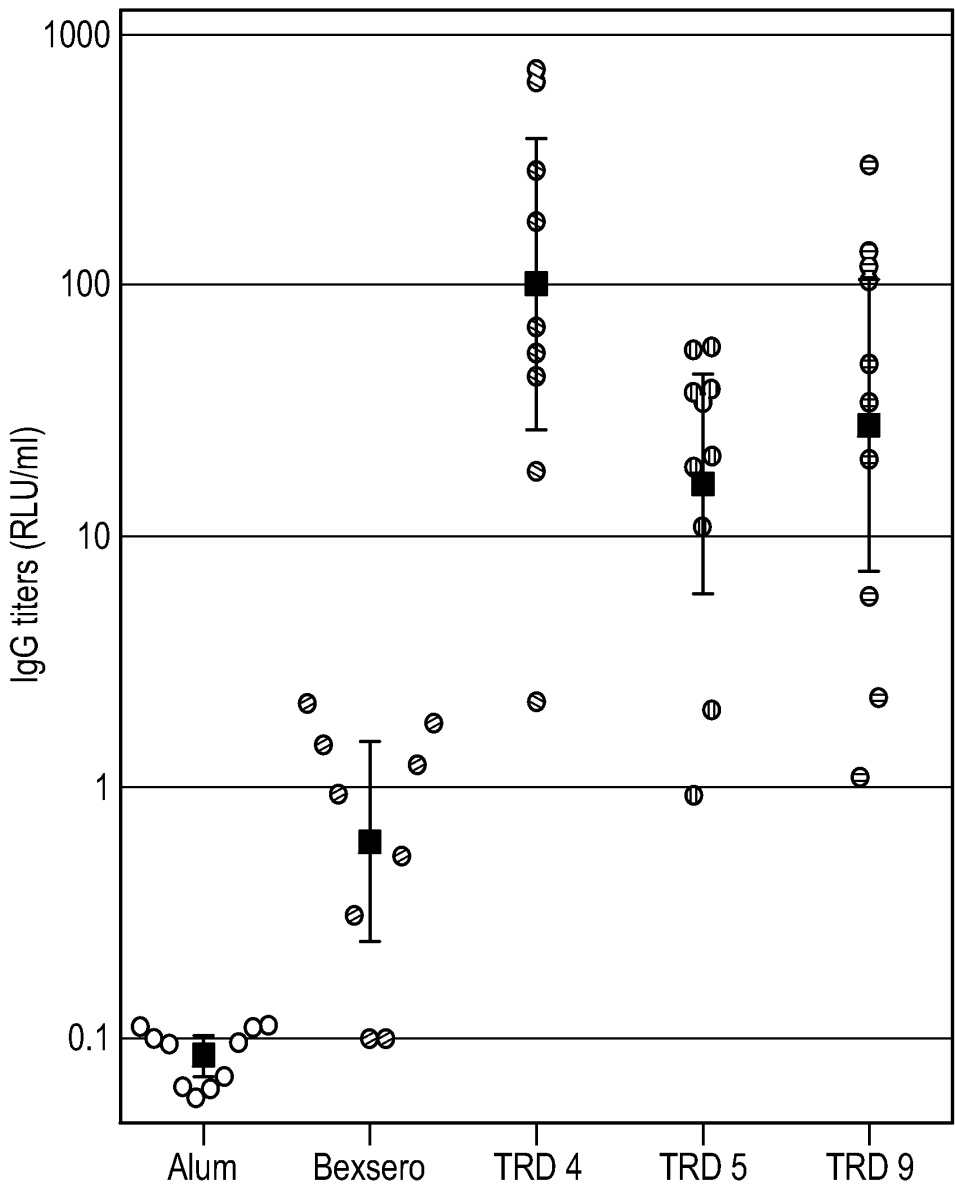


FIG. 28B

**Anti-Ng GMMA IgG titers of individual vaginal washes
at GMR with 95% Confidence Interval**

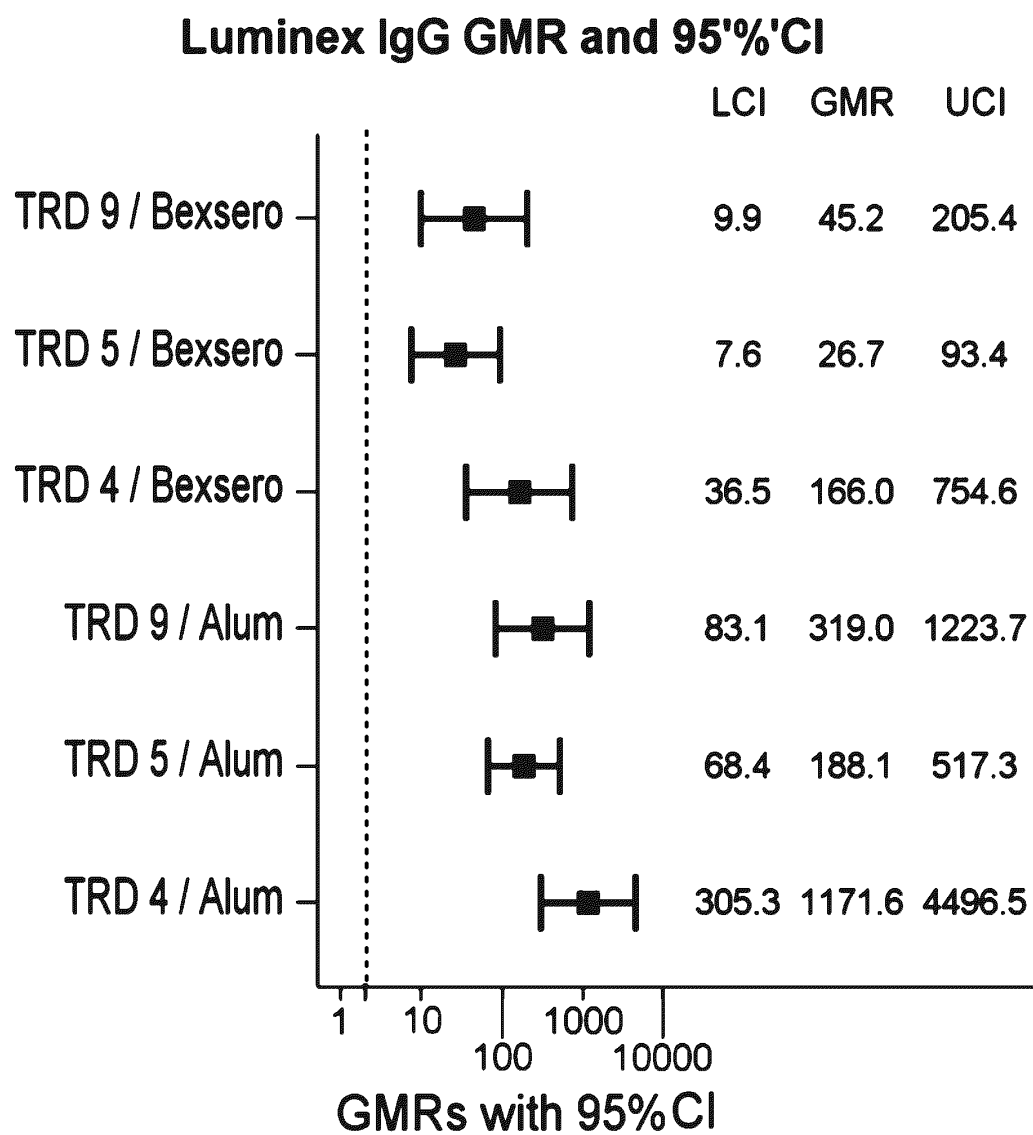


FIG. 29A
Anti-Ng GMMA IgA titers of individual vaginal washes
at 2wp3 with 95% Confidence Interval

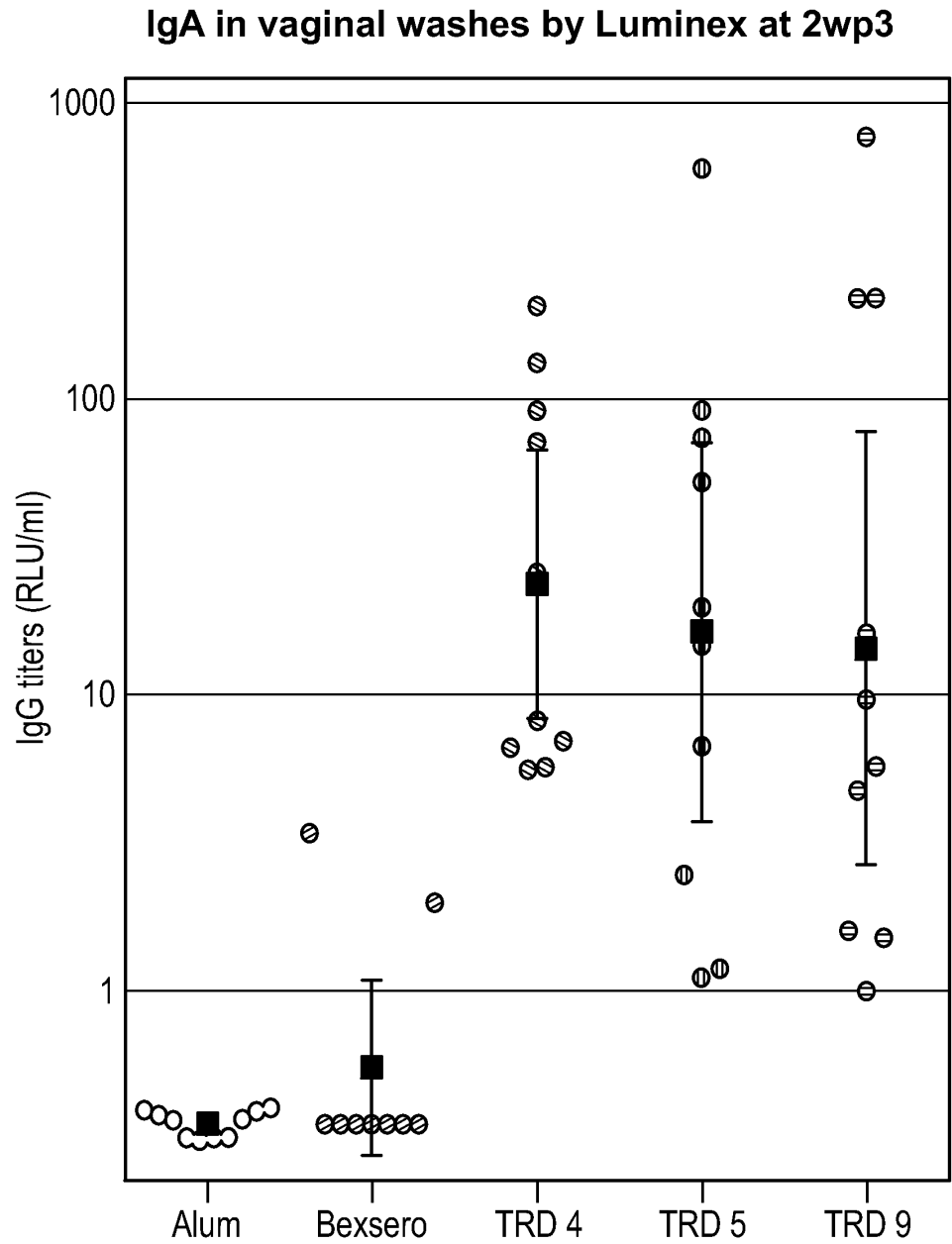


FIG. 29B

**Anti-Ng GMMA IgA titers of individual vaginal washes
at GMR with 95% Confidence Interval**

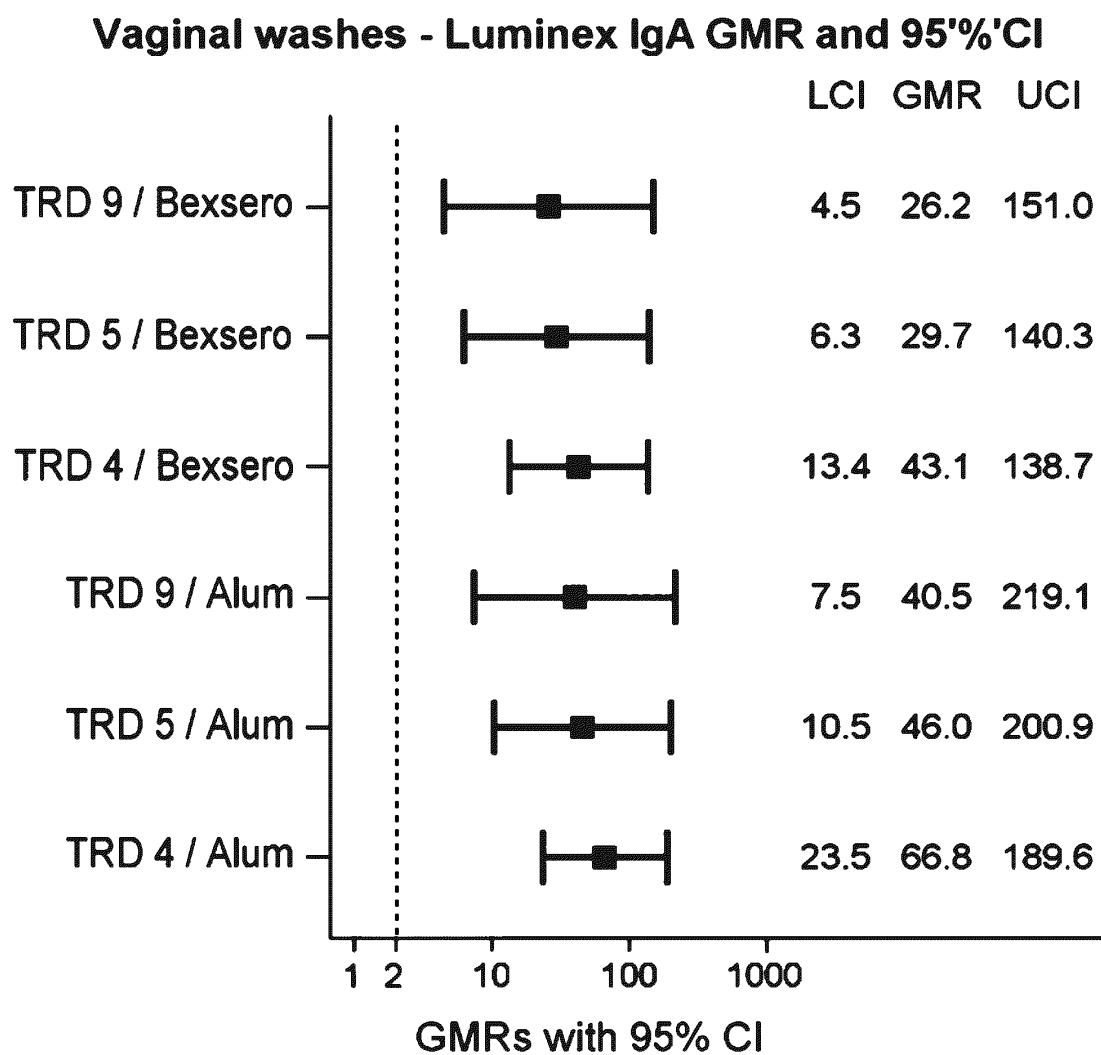
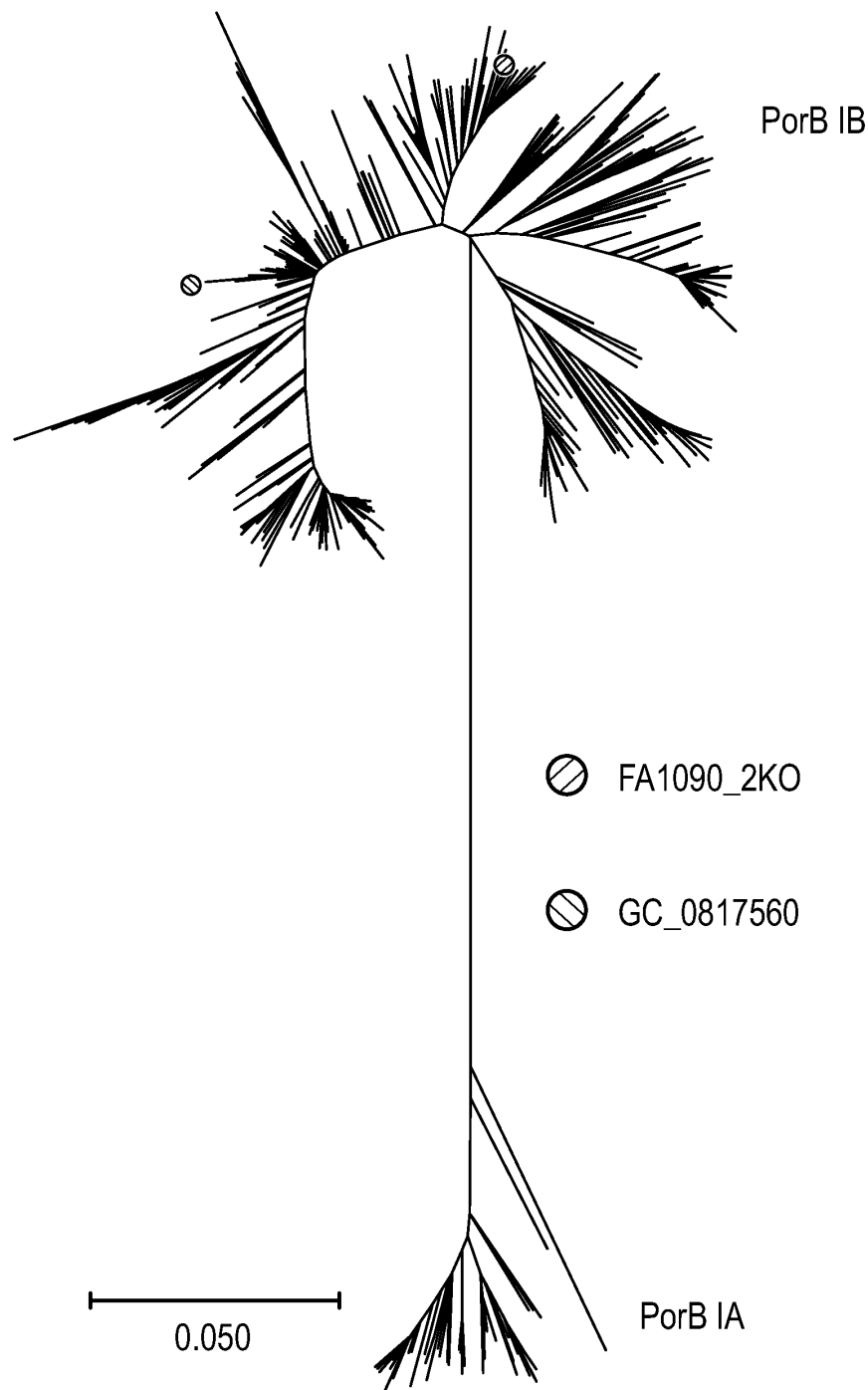


FIG. 30
Global PorB phylogeny in Ng



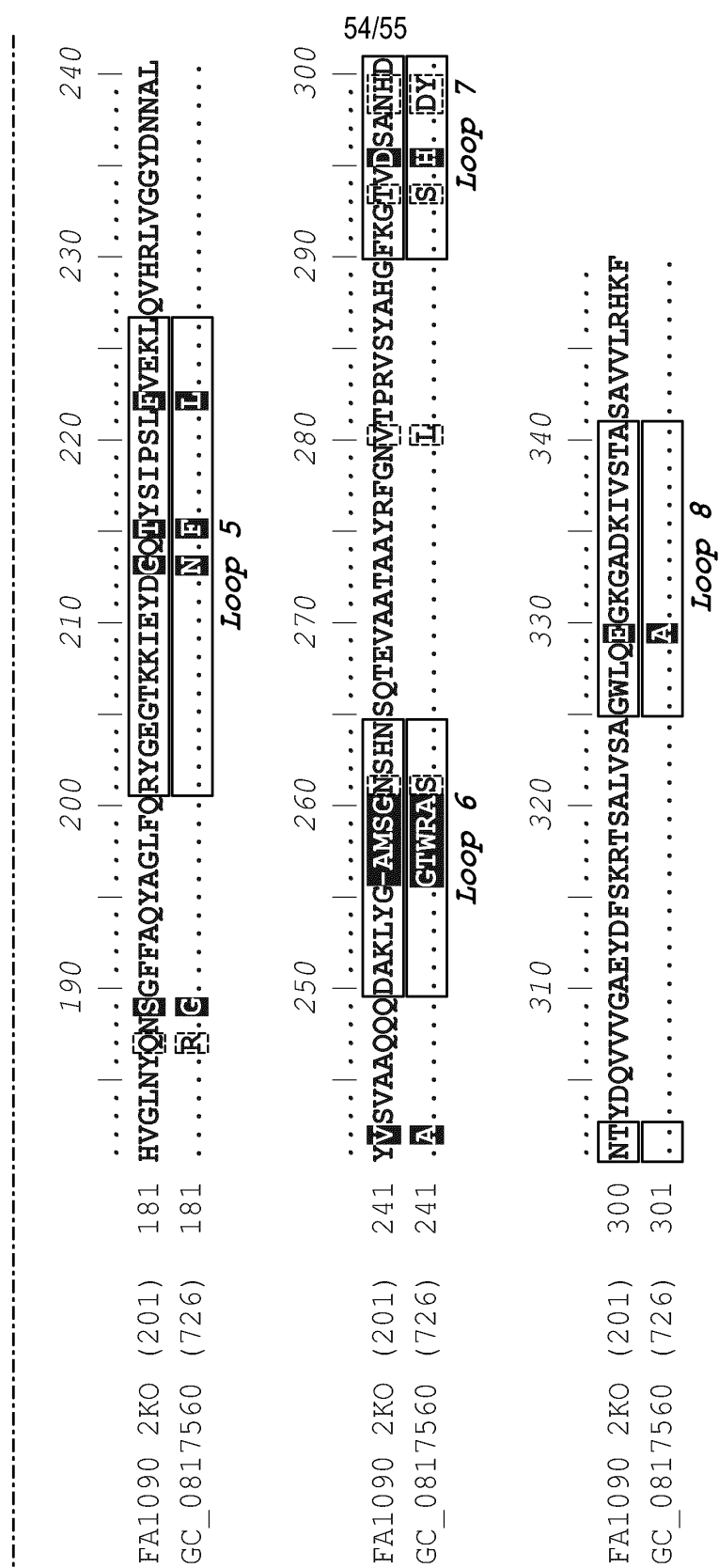


FIG. 31 (contd)

FIG. 32
Proportion of bacteria presenting a phase variable ON opaB genetic sequence in different strains

