

FIG. 1

H1N1 – COBRA Method X-1

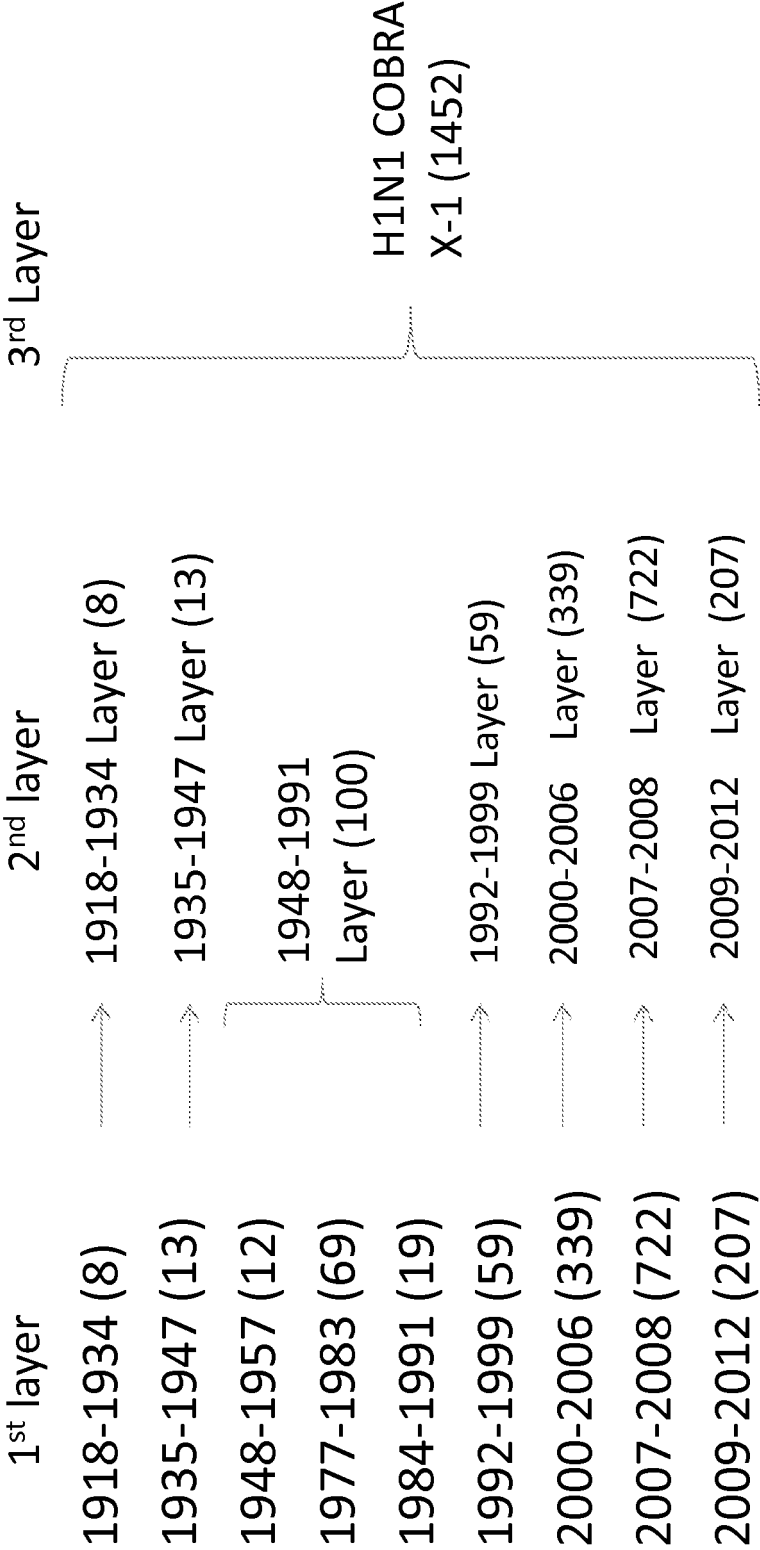
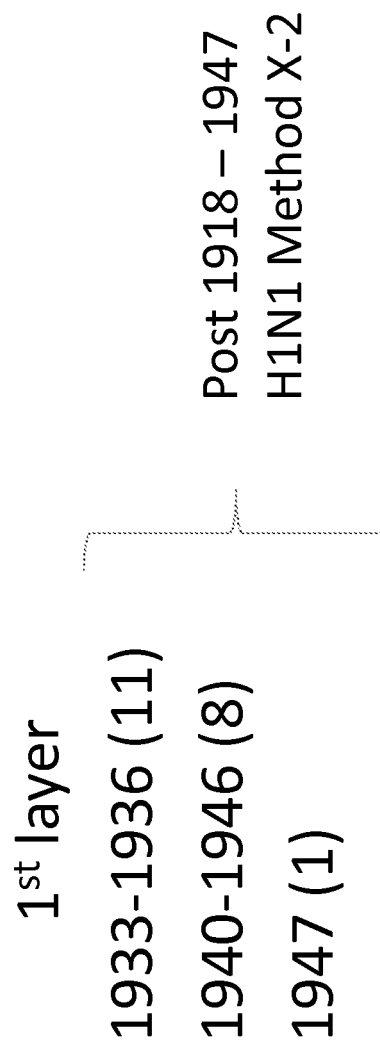


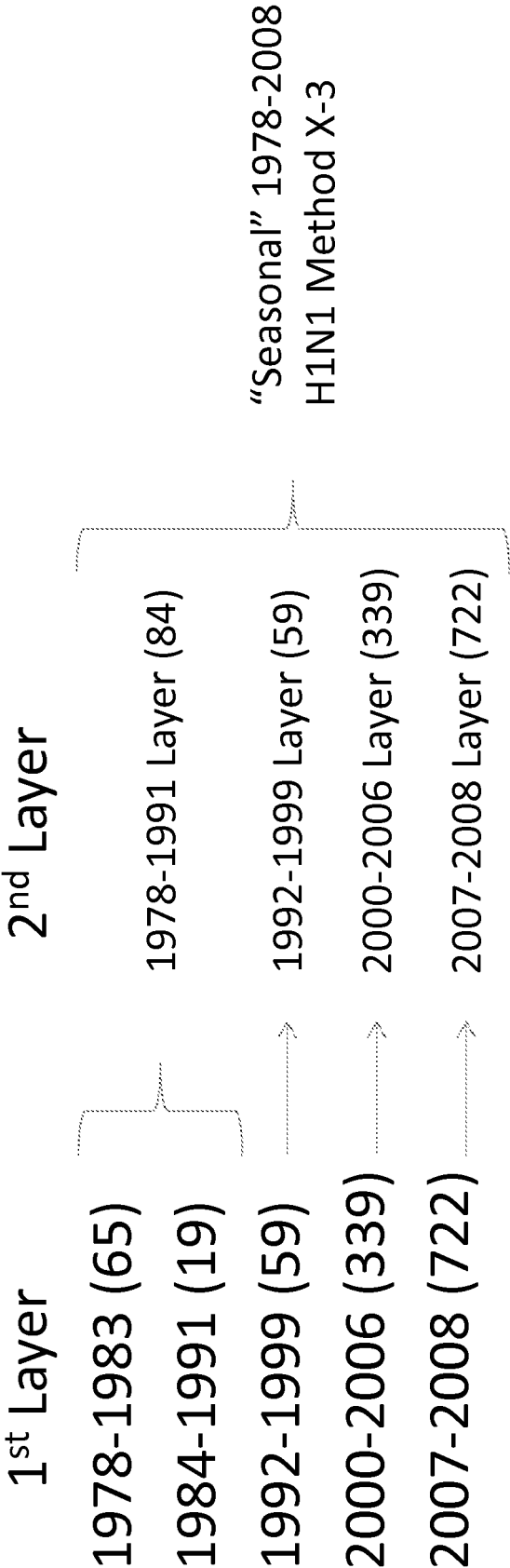
FIG. 2

H1N1- COBRA Method X-2



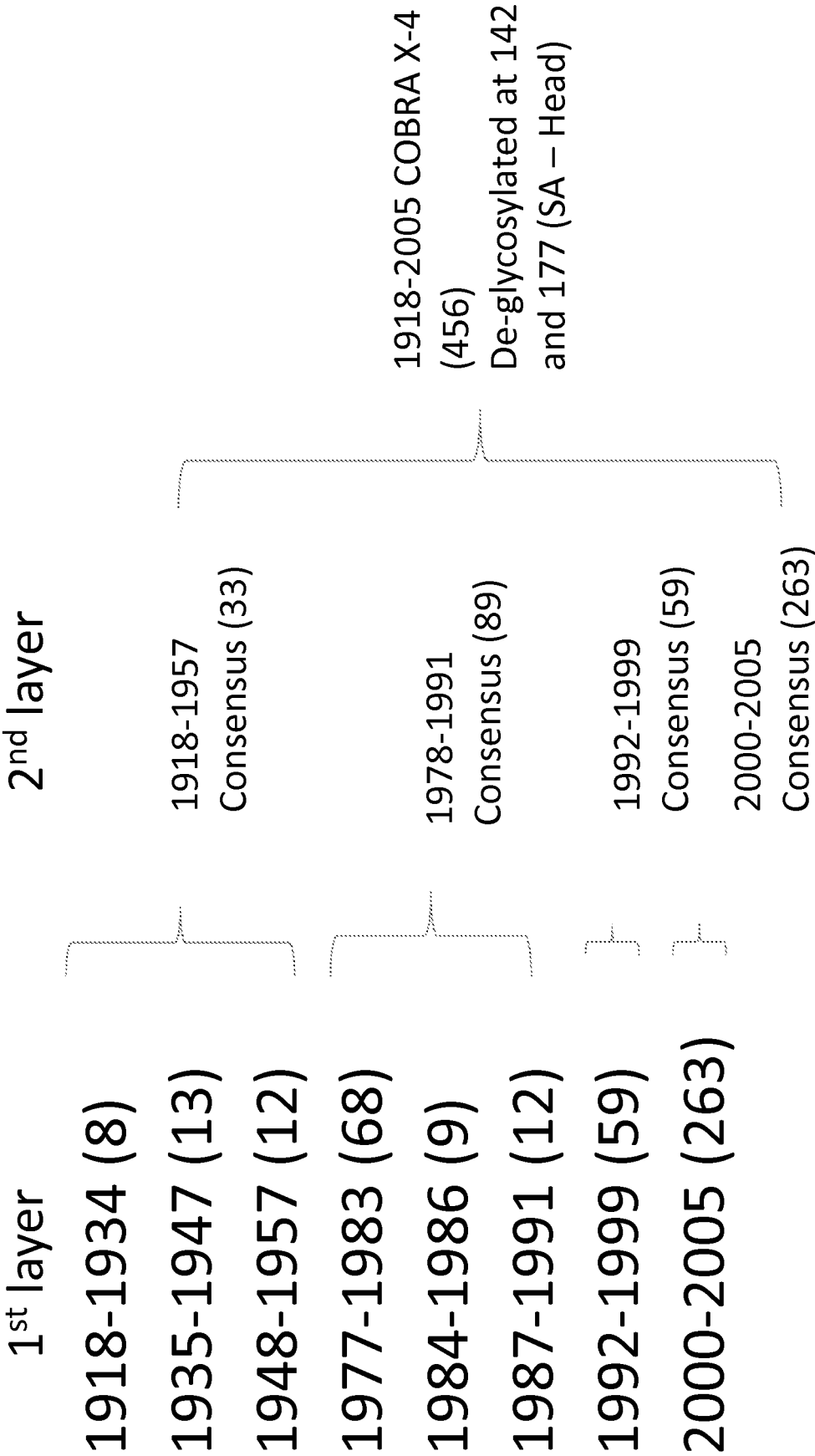
H1N1 - COBRA Method X-3

FIG. 3



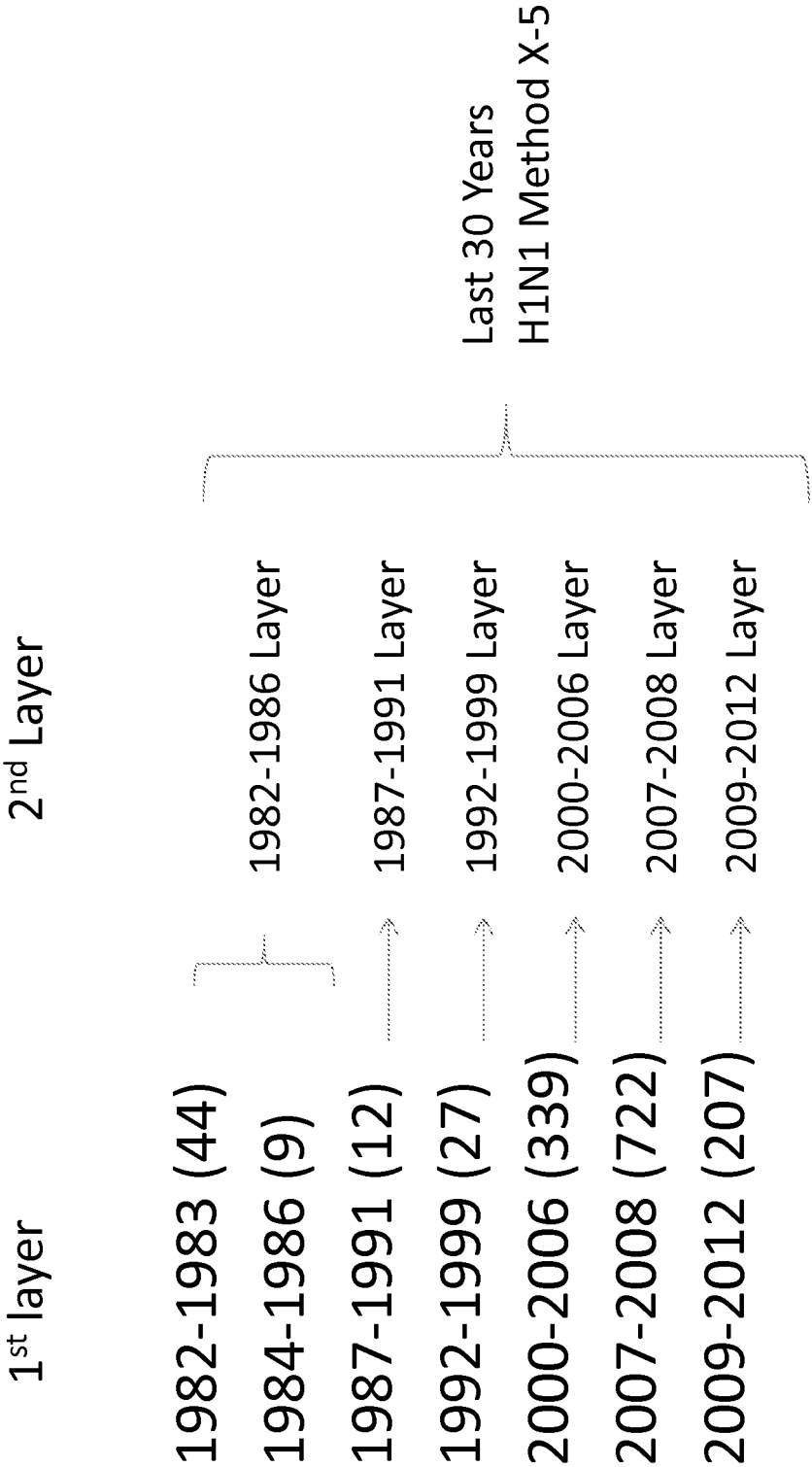
H1N1 - COBRA Method X-4

FIG. 4



H1N1 – COBRA Method X-5

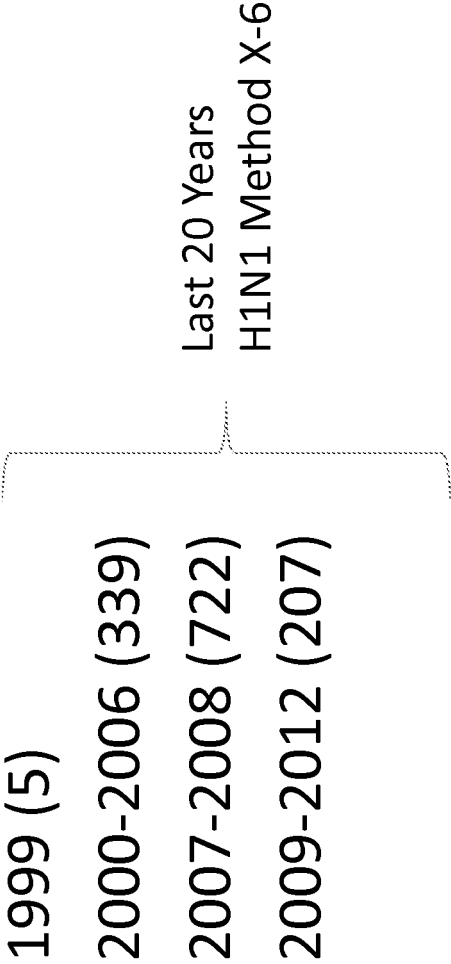
FIG. 5



H1N1 – COBRA Method X-6

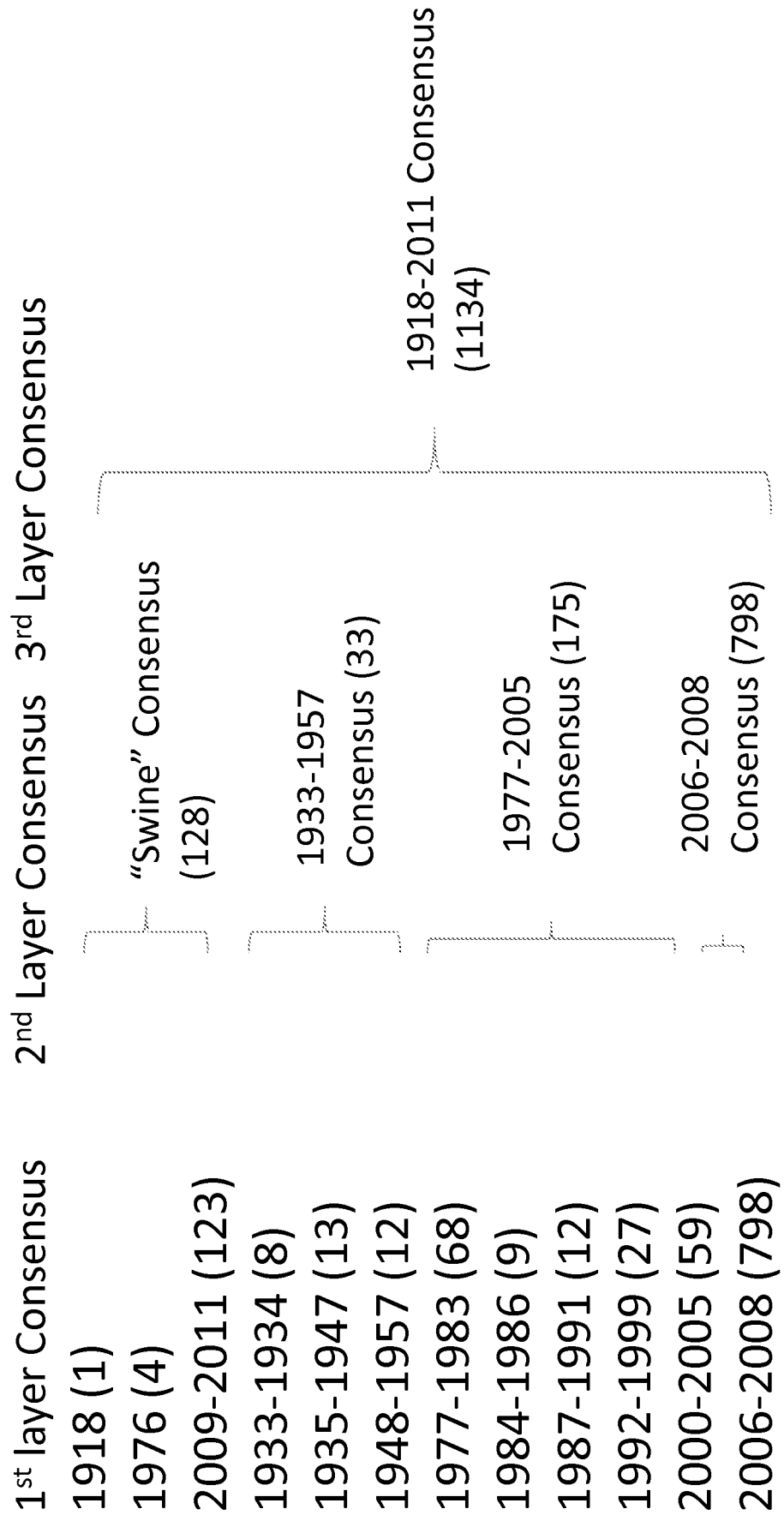
FIG. 6

1st layer



H1N1- COBRA Method A-5

FIG. 7



SEQ ID
NO:**FIG. 8A**

Protein Alignment

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1  MEARLLVLLCAFAATNADTICIGYHANNSTDTVDTFVLEKNVTVTTHSVNLLSDSHNGKLCK
2  MEARLLVLLCAFAATNADTICIGYHANNSTDTVDTFVLEKNVTVTTHSVNLLSDSHNGKLCKR
3  MEARLLVLLCAFAATNADTICIGYHANNSTDTVDTFVLEKNVTVTTHSVNLLSDSHNGKLCKR
4  MKAKLLVLLCAFTATYADTICIGYHANNSTDTVDTFVLEKNVTVTTHSVNLLSDSHNGKLCKR
5  MEARLLVLLCAFAATNADTICIGYHANNSTDTVDTFVLEKNVTVTTHSVNLLSDSHNGKLCK
6  MEARLLVLLCAFAATNADTICIGYHANNSTDTVDTFVLEKNVTVTTHSVNLLSDSHNGKLCL
7  MEARLLVLLCAFAATNADTICIGYHANNSTDTVDTFVLEKNVTVTTHSVNLLSDSHNGKLCKR
   *: *: *****: ** *****

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1  LKGIAPLQLGKCNIAGWILGNPECESLLSKRSWSYIVETPNSENGTCYPGDFIDYEELRE
2  LKGIAPLQLGKCNIAGWILGNPECESLLSKRSWSYIVETPNSENGTCYPGDFIDYEELRE
3  LKGIAPLQLGNCVAGWILGNPECESLFSKESWSYIAETPNPENGTCYPGYFADYEELRE
4  LKGIAPLQLGNCVAGWILGNPECESLFSKESWSYIVETPNSENGTCYPGYFADYEELRE
5  LKGIAPLQLGNCVAGWILGNPECESLFSKESWSYIVETPNSENGTCYPGYFADYEELRE
6  LKGIAPLQLGNCVAGWILGNPECELLISKESWSYIVETPNPENGTCYPGYFADYEELRE
7  LKGIAPLQLGNCVAGWILGNPECESLLSKRSWSYIVETPNSENGTCYPGDFIDYEELRE
   *****: *: *: ***** *: *: *****: ***** * *****

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```

1  QLSSVSSFERFEIFPKESSWPNNHTTKGVTAACSHAGKSSFYRNLLWLTKKNGSYPNLSK
2  QLSSVSSFERFEIFPKESSWPKHNTTRGVTAACSHAGKSSFYRNLLWLTEKDGSYPKLSN
3  QLSSVSSFERFEIFPKESSWPNNHTVTKGVTASCSHNGKSSFYRNLLWLTEKNGLYPNLSK
4  QLSSVSSFERFEIFPKESSWPAHTVTKGVTASCSHNGKSSFYRNLLWLTEKNNGSYPALSK
5  QLSSVSSFERFEIFPKESSWPNNHTVTKGVTASCSHNGKSSFYRNLLWLTEKNNGSYPNLSK
6  QLSSVSSFERFEIFPKESSWPNNHTVT-GVSASCSHNGKSSFYRNLLWLTKGNGLYPNLSK
7  QLSSVSSFERFEIFPKESSWPNNHTVTKGVTAAACSHAGKSSFYRNLLWLTEKNNGSYPNLSK
   *****: *: *: ***** *: *: *****: *****: ***** *

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```

1  SYVNNKGKEVLVLWGVHHPNIEDQQSLYQENAYVSVVSSNYNRRFTPEIAKRPKVRDQ
2  SYVNNKGKEVLVLWGVHHPNIDQQTLYQENAYVSVVSSNYNRRFTPEIAERPKVRGQ
3  SYVNNKEKEVLVLWGVHHPNIGDQRAIYHTENAYVSVVSSHYSRRFTPEIAKRPKVRDQ
4  SYVNNKEKEVLVLWGVHHPNIGDQRAIYHTENAYVSVVSSHYSRRFTPEIAKRPKVRDQ
5  SYVNNKEKEVLVLWGVHHPNIGDQRAIYHTENAYVSVVSSHYSRRFTPEIAKRPKVRDQ
6  SYVNNKEKEVLVLWGVHHPNIGDQRAIYHTENAYVSVVSSHYSRRFTPEIAKRPKVRDQ
7  SYVNNKGKEVLVLWGVHHPNIGDQQALYQENAYVSVVSSHYNRKFTPEIAKRPKVRDQ
   *: *: * ***** ** *: *: *****: *: *: *****: ***** *

```

```

1  EGRMNYWTLLPEPGDTII FEANGNLIAPWYAFALS RGFSGIITSNASMHECDTKCQTPQ
2  AGRMNYWTLLPEPGDTII FEANGNLIAPWYAFALS RGFSGIITSNASMHECDTKCQTPQ
3  EGRINYYWTLLPEPGDTII FEANGNLIAPWYAFALS RGFSGIITSNASMDECDACKQTPQ
4  EGRINYYWTLLPEPGDTII FEANGNLIAPWYAFALS RGFSGIITSNASMDECDACKQTPQ
5  EGRINYYWTLLPEPGDTII FEANGNLIAPWYAFALS RGFSGIITSNASMDECDACKQTPQ
6  EGRINYYWTLLPEPGDTII FEANGNLIAPRYAFALS RGFSGIITSNASMDECDACKQTPQ
7  EGRINYYWTLLPEPGDTII FEANGNLIAPWYAFALS RGFSGIITSNASMHECDTKCQTPQ
   *: *: *****: *****: *****: *****: *****: *****

```

```

1  GAINSSLPFQNIHPVTIGECPKYVRSTKLRMTGLRNIPSIQSRGLFGAIAAGFIEGGWTG
2  GAINSSLPFQNIHPVTIGECPKYVRSTKLRMTGLRNIPSIQSRGLFGAIAAGFIEGGWTG
3  GAINSSLPFQNVHPVTIGECPKYVRSTKLRMTGLRNIPSIQSRGLFGAIAAGFIEGGWTG
4  GAINSSLPFQNVHPVTIGECPKYVRSTKLRMTGLRNIPSIQSRGLFGAIAAGFIEGGWTG
5  GAINSSLPFQNVHPVTIGECPKYVRSTKLRMTGLRNIPSIQSRGLFGAIAAGFIEGGWTG
6  GAINSSLPFQNVHPVTIGECPKYVRSKLRMTGLRNIPSIQSRGLFGAIAAGFIEGGWTG
7  GAINSSLPFQNIHPVTIGECPKYVRSTKLRMTGLRNIPSIQSRGLFGAIAAGFIEGGWTG
   *****: *****: *****: *****: *****: *****

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FIG. 8B

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1  MIDGWYGYHHQNEQGSGYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGKEFNKLEKR
2  MIDGWYGYHHQNEQGSGYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGKEFNKLEKR
3  MIDGWYGYHHQNEQGSGYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGKEFNKLERR
4  MIDGWYGYHHQNEQGSGYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGKEFNKLERR
5  MIDGWYGYHHQNEQGSGYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGKEFNKLEKR
6  MVDGWYGYHHQNEQGSGYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGKEFNKLEPR
7  MIDGWYGYHHQNEQGSGYAADQKSTQNAINGITNKVNSVIEKMNTQFTAVGKEFNKLEKR
    *;*****;*:

1  MENLNKKVDDGFLDIWTYNAELLVLLLENERTLDFHDSNVKNLYEKVKSQKNNNAKEIGNG
2  MENLNKKVDDGFLDIWTYNAELLVLLLENERTLDFHDSNVKNLYEKVKNQLPNNNAKEIGNG
3  MENLNKKVDDGFLDIWTYNAELLVLLLENERTLDFHDSNVKNLYEKVKSQKNNNAKEIGNG
4  MENLNKKVDDGFLDIWTYNAELLVLLLENERTLDFHDSNVKNLYEKVKSQKNNNAKEIGNG
5  MENLNKKVDDGFLDIWTYNAELLVLLLENERTLDFHDSNVKNLYEKVKSQKNNNAKEIGNG
6  MENLNKKVDDGFLDIWTYNAELLVLLLENERTLDFHDSNVKNLYEKVKSQKNNNAKEIGNG
7  MENLNKKVDDGFLDIWTYNAELLVLLLENERTLDFHDSNVKNLYEKVKSQKNNNAKEIGNG
    *****. *:*****

1  CFEFYHKCNNECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMDGVYQILAIYSTVASS
2  CFEFYHKCNNECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMDGVYQILAIYSTVASS
3  CFEFYHKCNNECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMDGVYQILAIYSTVASS
4  CFEFYHKCNNECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMDGVYQILAIYSTVASS
5  CFEFYHKCNNECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMDGVYQILAIYSTVASS
6  CFEFYHKCNNECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMDGVYQILAIYSTVASS
7  CFEFYHKCNNECMESVKNGTYDYPKYSEESKLNREKIDGVKLESMDGVYQILAIYSTVASS
    *****

1  LVLLVSLGAISFWMCNNGSLQCRICI
2  LVLLVSLGAISFWMCNNGSLQCRICI
3  LVLLVSLGAISFWMCNNGSLQCRICI
4  LVLLVSLGAISFWMCNNGSLQCRICI
5  LVLLVSLGAISFWMCNNGSLQCRICI
6  LVLLVSLGAISFWMCNNGSLQCRICI
7  LVLLVSLGAISFWMCNNGSLQCRICI
    *****

```

FIG. 9A

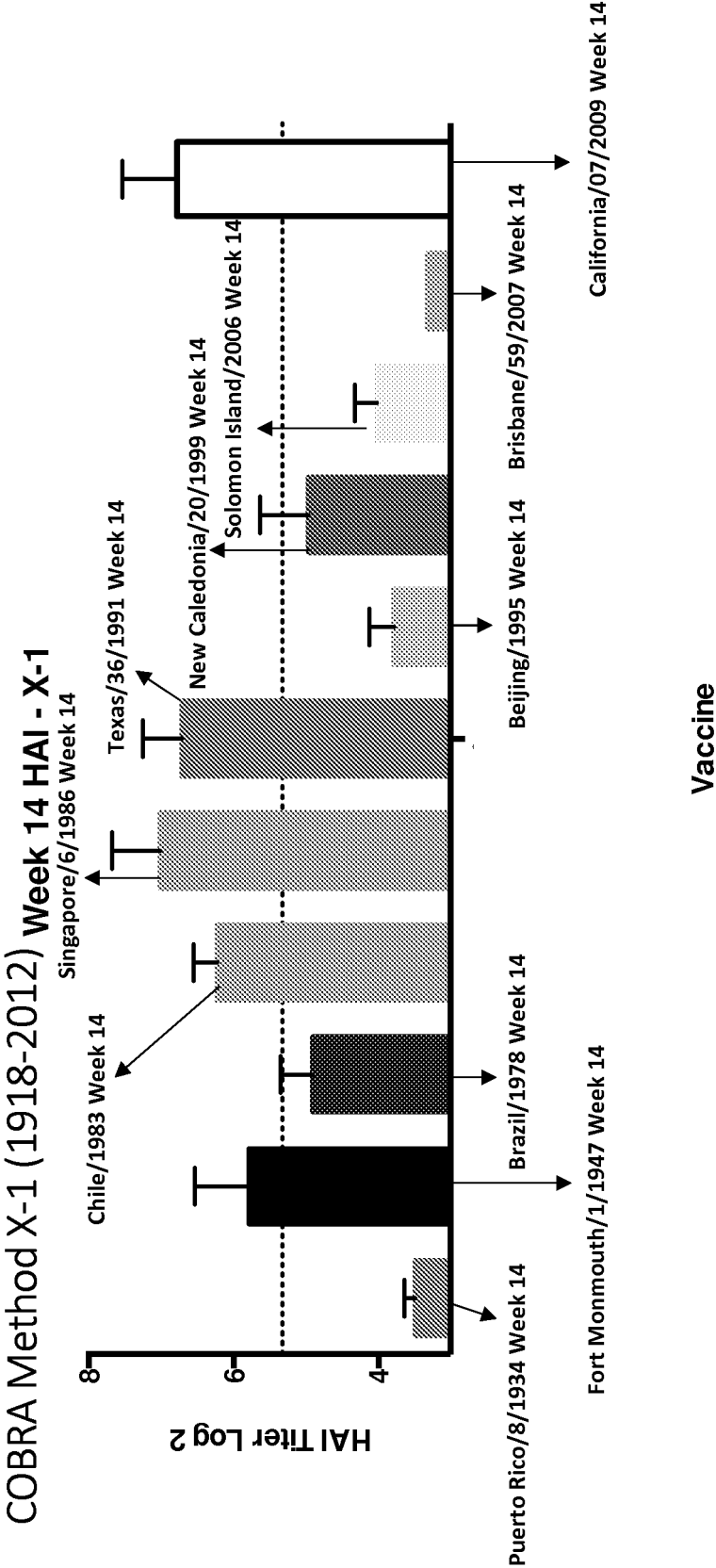


FIG. 9B

COBRA Method X-2 (1933-1947)

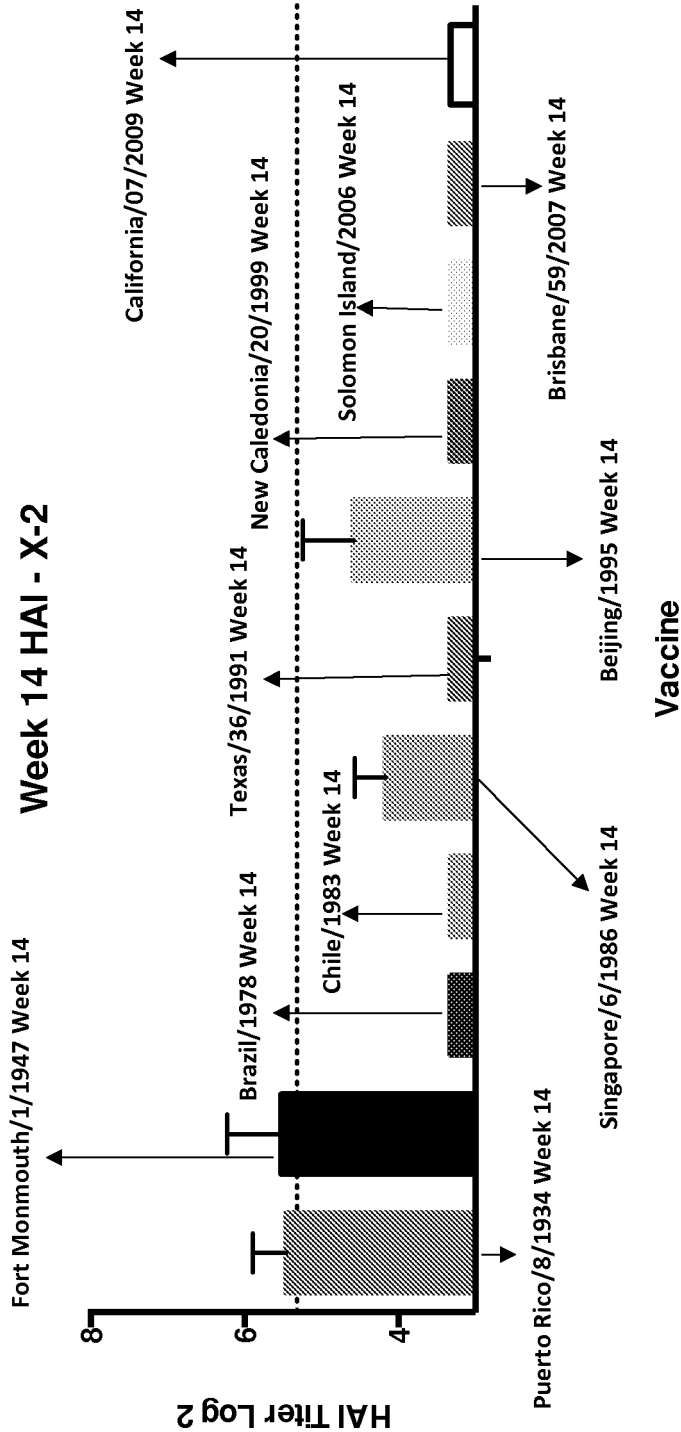


FIG. 9C

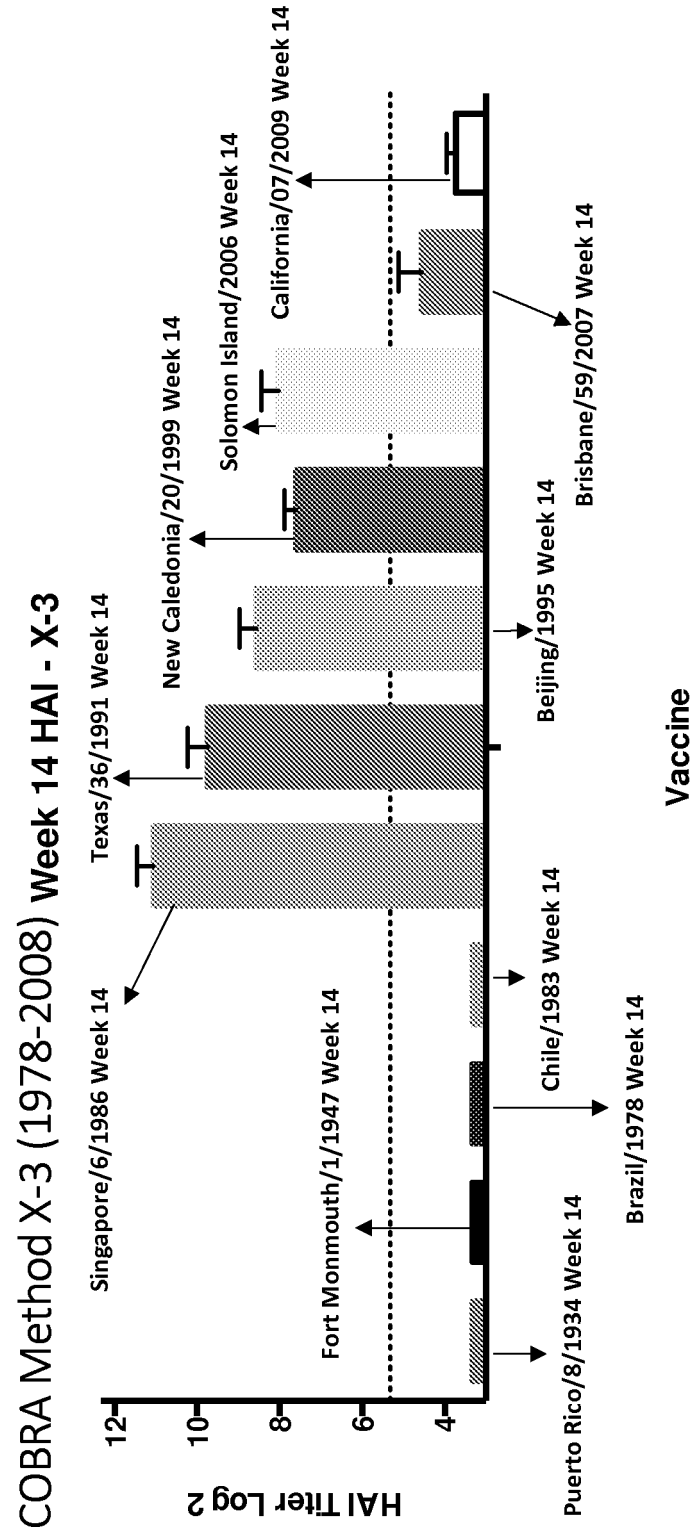


FIG. 9D

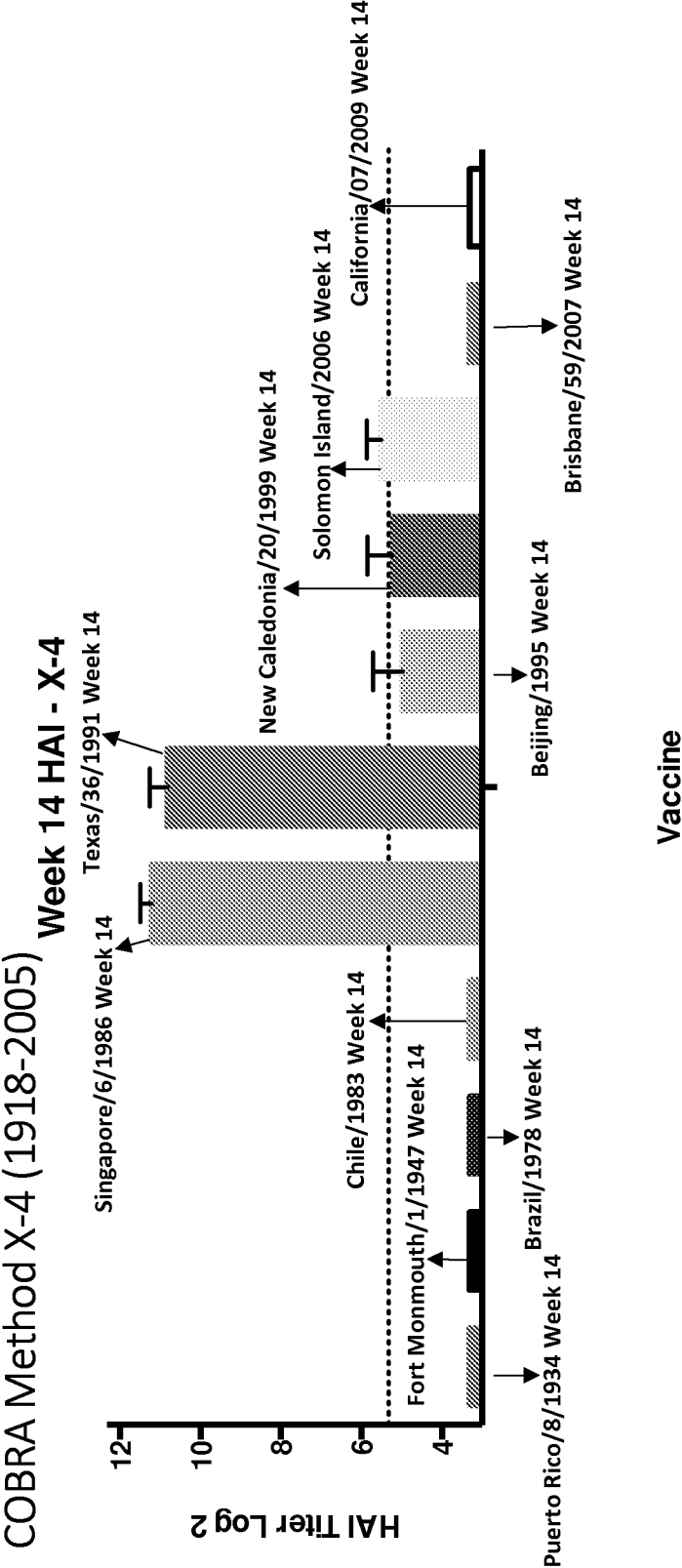


FIG. 9E

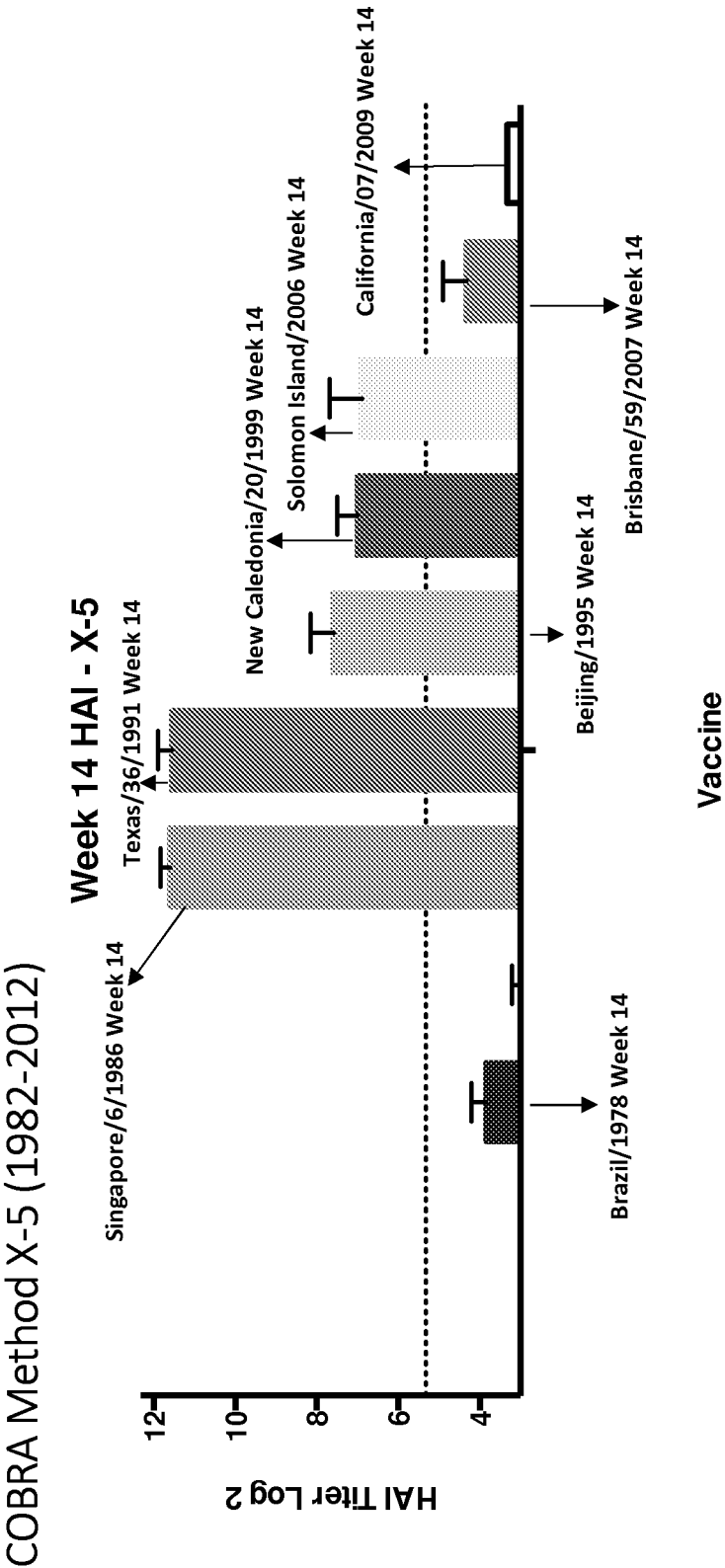


FIG. 9F

COBRA Method X-6 (1999-2012)

