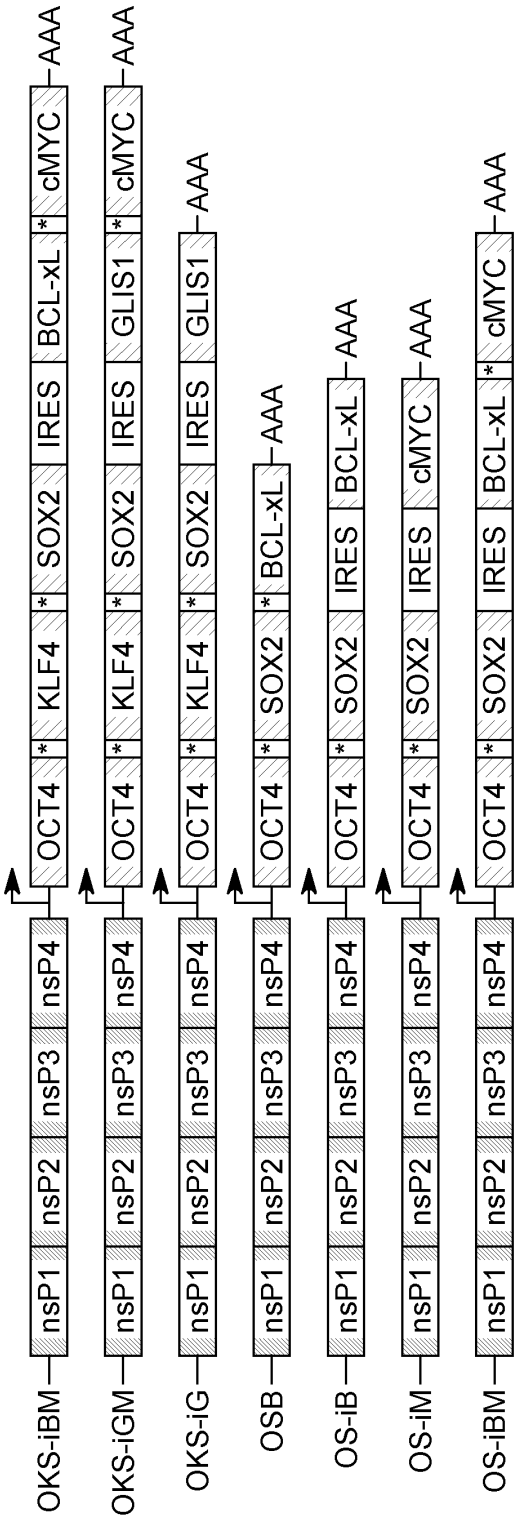
OKS-iBM
nsP1
nsP2
nsP3
nsP4
OCT4
*
KLF4
*
SOX2
IRES
BCL-xL
*
cMYC
AAA
OKS-iGM
nsP1
nsP2
nsP3
nsP4
OCT4
*
KLF4
*
SOX2
IRES
GLIS1
*
cMYC
AAA
OKS-iG
nsP1
nsP2
nsP3
nsP4
OCT4
*
KLF4
*
SOX2
IRES
GLIS1
AAA
OSB
nsP1
nsP2
nsP3
nsP4
OCT4
*
SOX2
*
BCL-xL
AAA
OS-iB
nsP1
nsP2
nsP3
nsP4
OCT4
*
SOX2
IRES
BCL-xL
AAA
OS-iM
nsP1
nsP2
nsP3
nsP4
OCT4
*
SOX2
IRES
cMYC
AAA
OS-iBM
nsP1
nsP2
nsP3
nsP4
OCT4
*
SOX2
IRES
BCL-xL
*
cMYC
AAA

FIG. 1

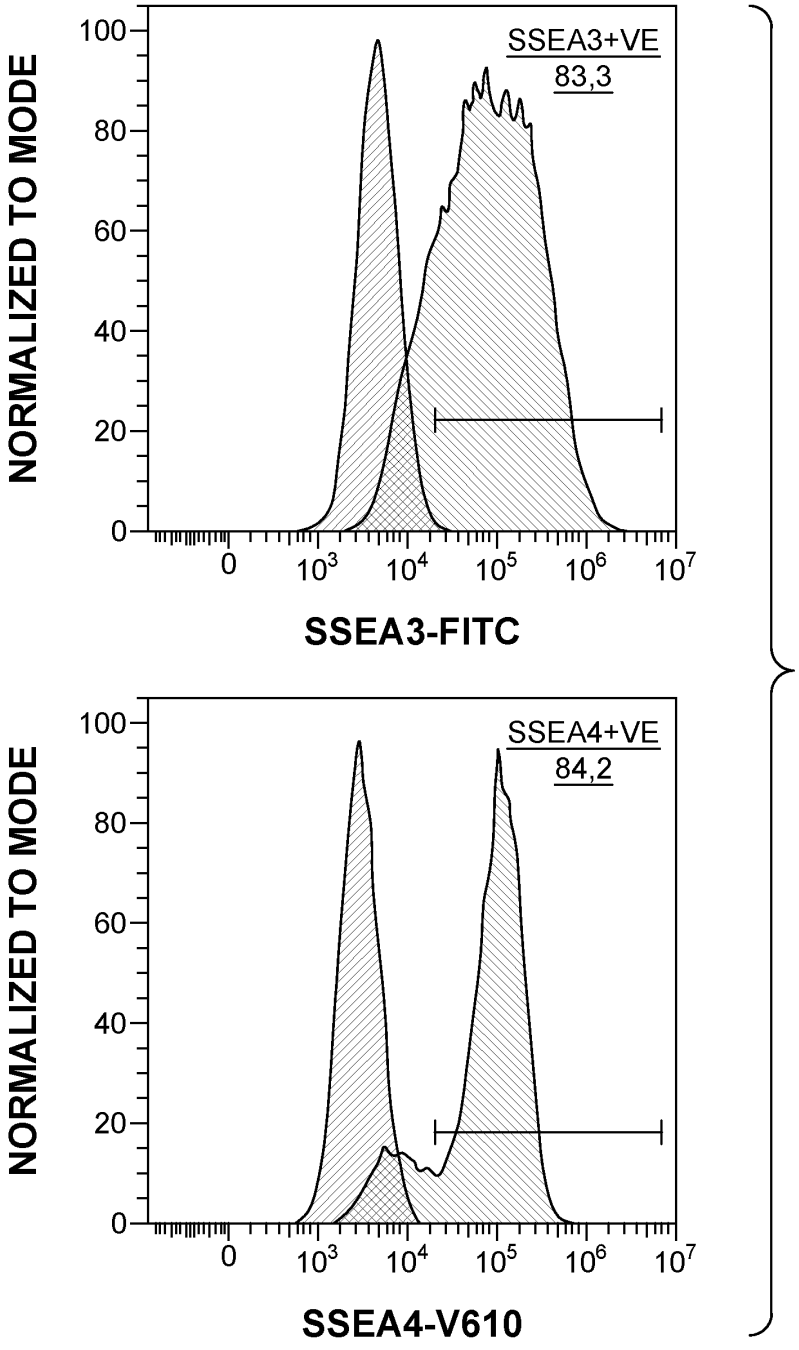
NORMALIZED TO MODE
100
80
60
40
20
0
SSEA3+VE
83,3
0
10^3
10^4
10^5
10^6
10^7
SSEA3-FITC
NORMALIZED TO MODE
100
80
60
40
20
0
SSEA4+VE
84,2
0
10^3
10^4
10^5
10^6
10^7
SSEA4-V610

FIG. 2A

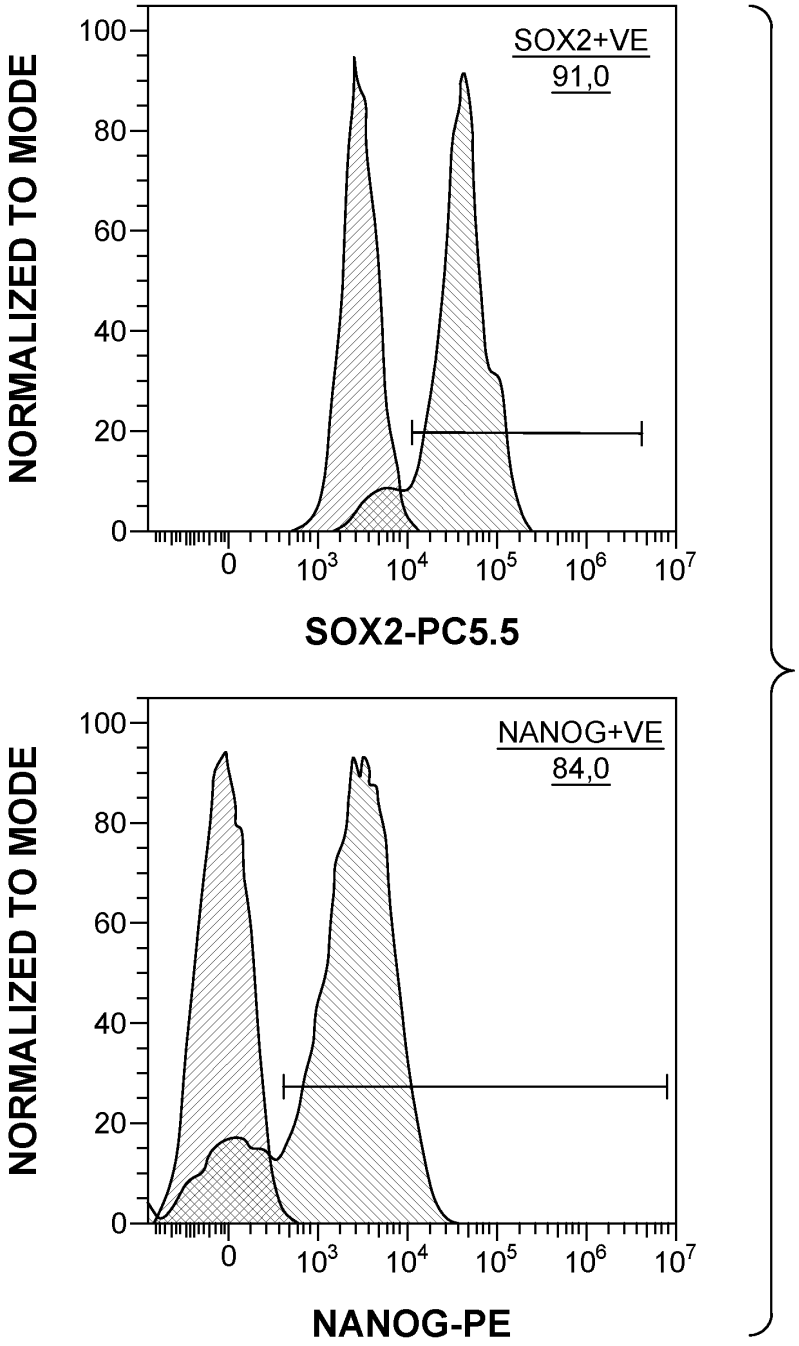
NORMALIZED TO MODE
SOX2+VE
91,0
SOX2-PC5.5
NANOG+VE
84,0
NANOG-PE

FIG. 2A cont'd

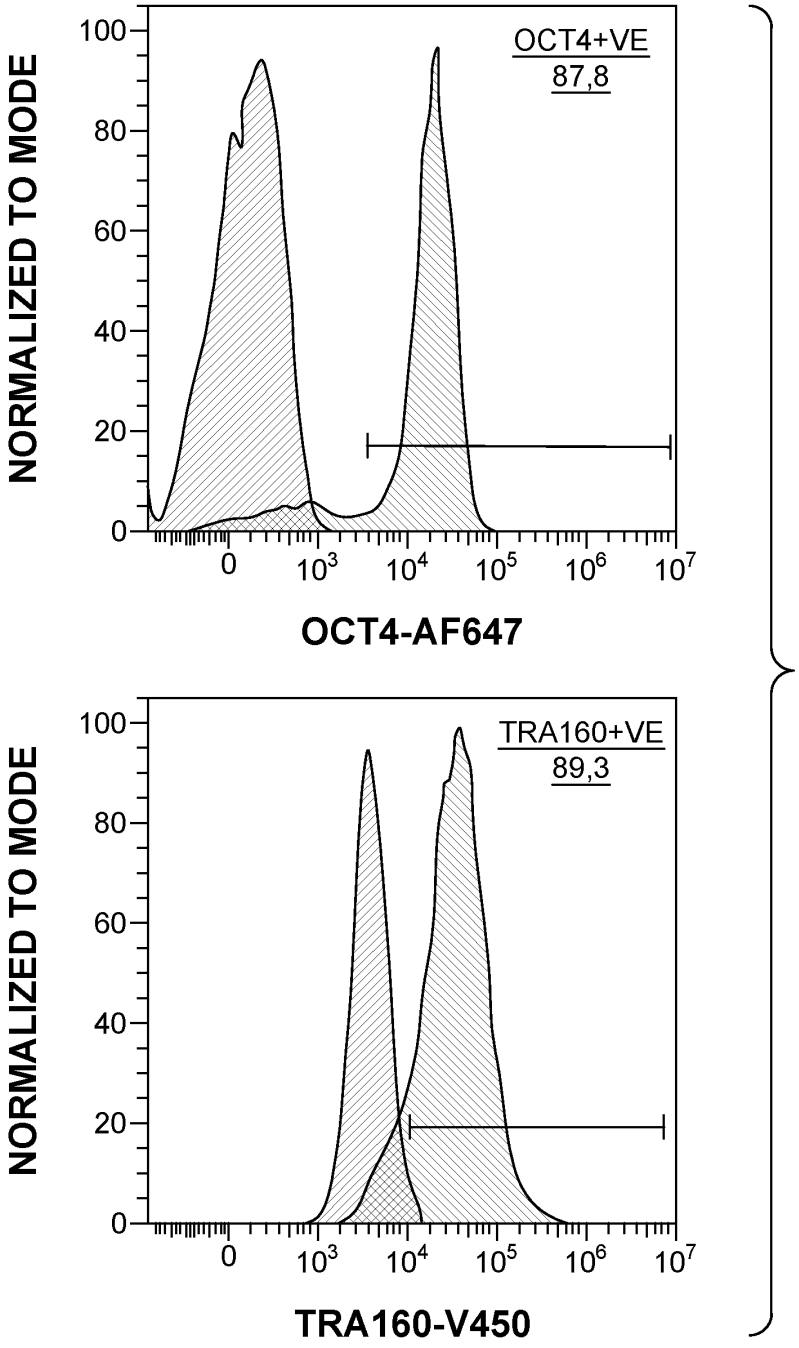
NORMALIZED TO MODE
100
80
60
40
20
0
OCT4+VE
87,8
0
10^3
10^4
10^5
10^6
10^7
OCT4-AF647
NORMALIZED TO MODE
100
80
60
40
20
0
TRA160+VE
89,3
0
10^3
10^4
10^5
10^6
10^7
TRA160-V450

FIG. 2A cont'd

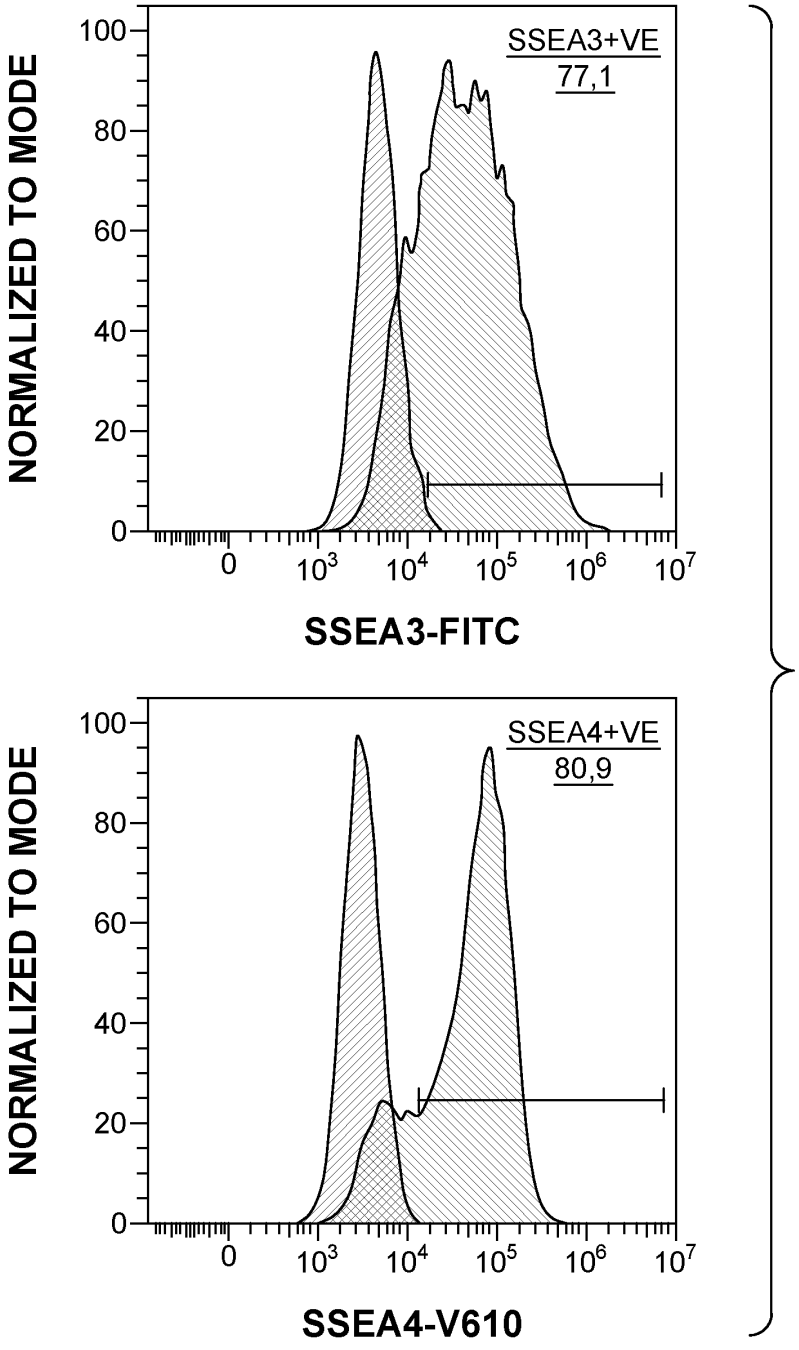
NORMALIZED TO MODE
100
80
60
40
20
0
SSEA3+VE
77,1
0
10^3
10^4
10^5
10^6
10^7
SSEA3-FITC
NORMALIZED TO MODE
100
80
60
40
20
0
SSEA4+VE
80,9
0
10^3
10^4
10^5
10^6
10^7
SSEA4-V610

FIG. 2B

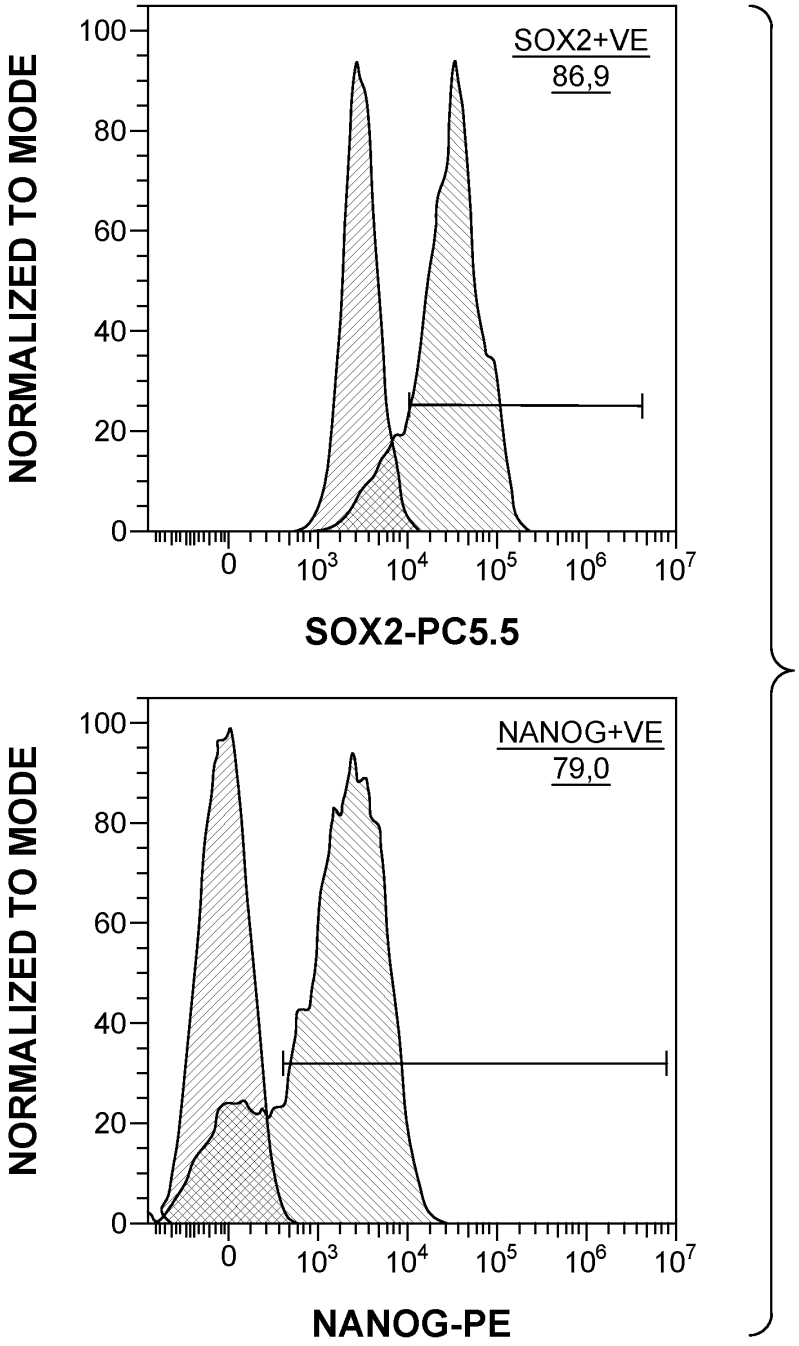
SOX2+VE
86,9
NORMALIZED TO MODE
SOX2-PC5.5
NANOG+VE
79,0
NORMALIZED TO MODE
NANOG-PE

FIG. 2B cont'd

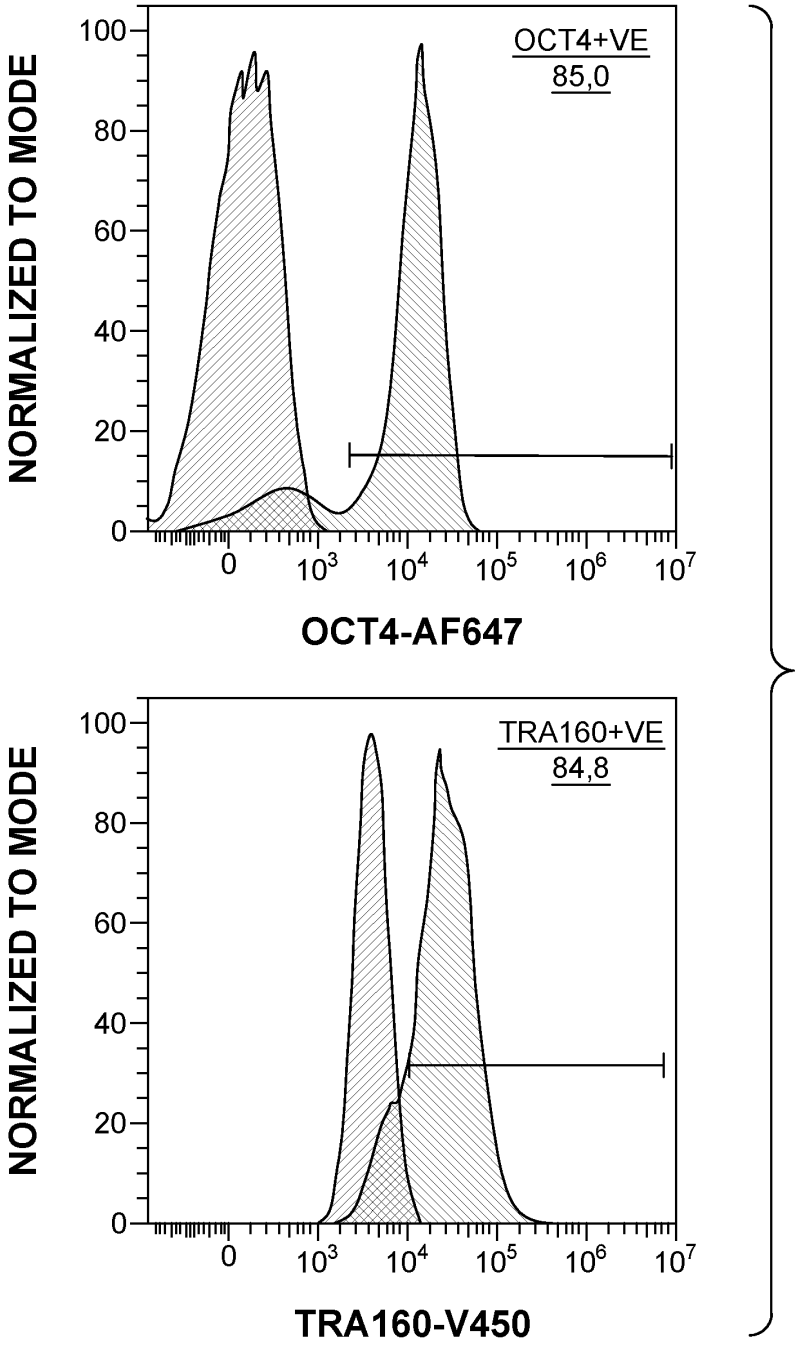
NORMALIZED TO MODE
OCT4+VE
85,0
100
80
60
40
20
0
0
10^3
10^4
10^5
10^6
10^7
OCT4-AF647
NORMALIZED TO MODE
TRA160+VE
84,8
TRA160-V450

FIG. 2B cont'd

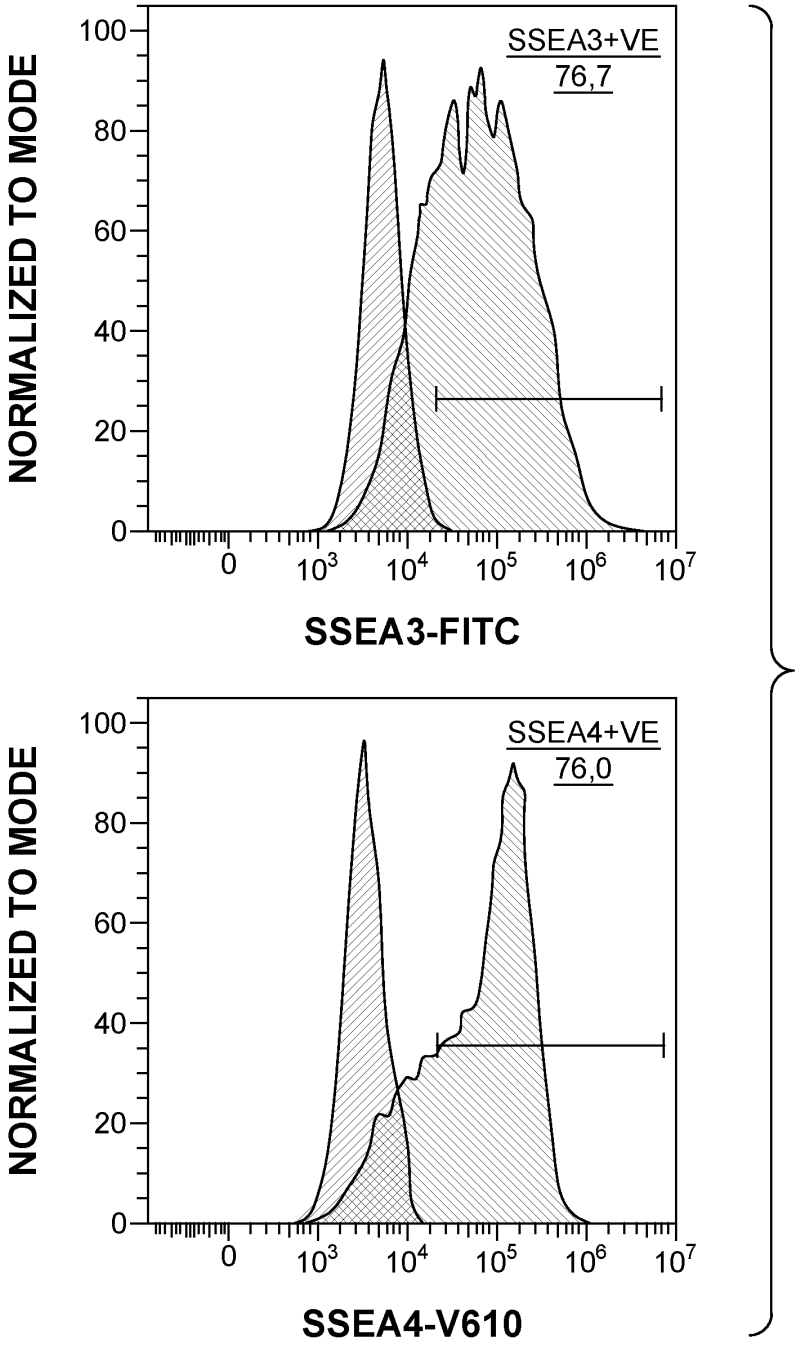
NORMALIZED TO MODE
100
80
60
40
20
0
SSEA3+VE
76,7
0
10^3
10^4
10^5
10^6
10^7
SSEA3-FITC
NORMALIZED TO MODE
100
80
60
40
20
0
SSEA4+VE
76,0
0
10^3
10^4
10^5
10^6
10^7
SSEA4-V610

FIG. 2C

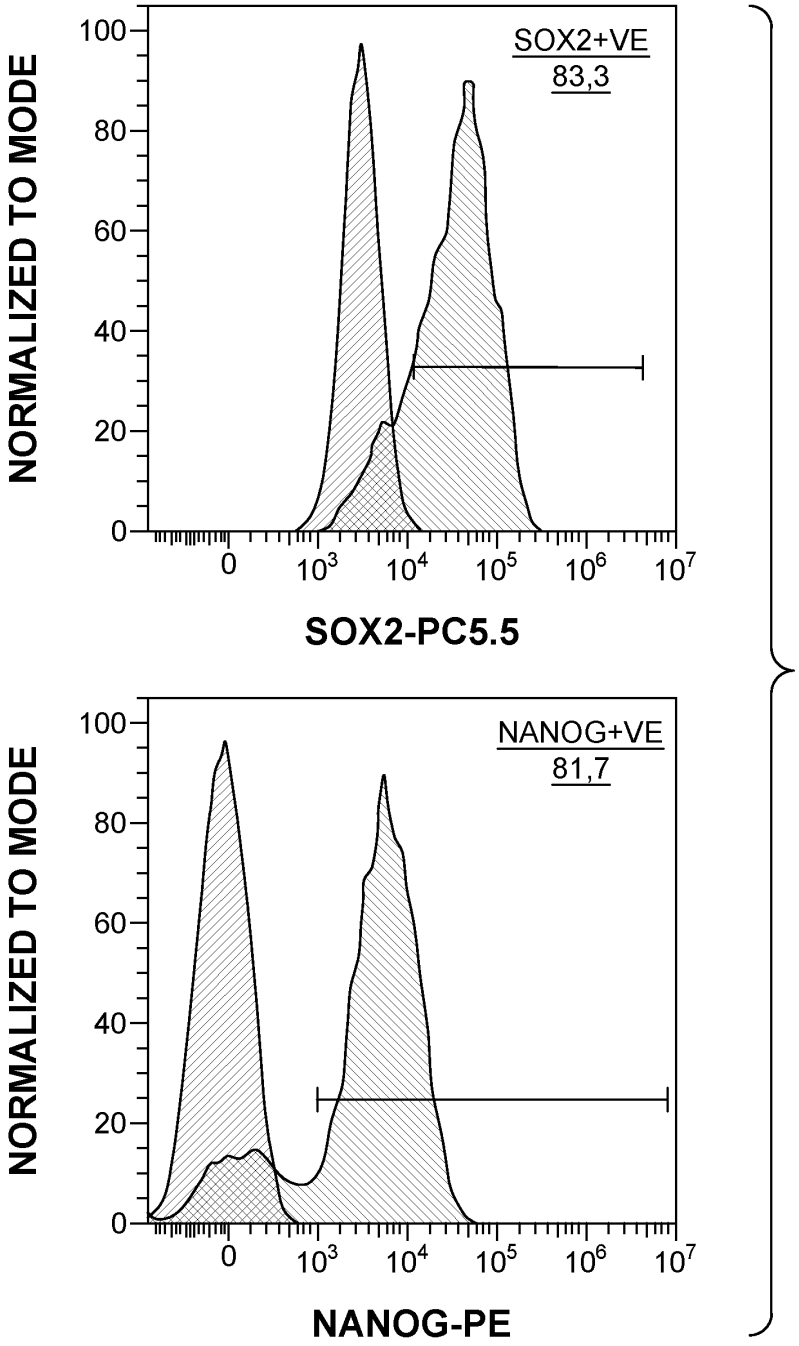
NORMALIZED TO MODE
SOX2+VE
83,3
SOX2-PC5.5
NANOG+VE
81,7
NANOG-PE

FIG. 2C cont'd

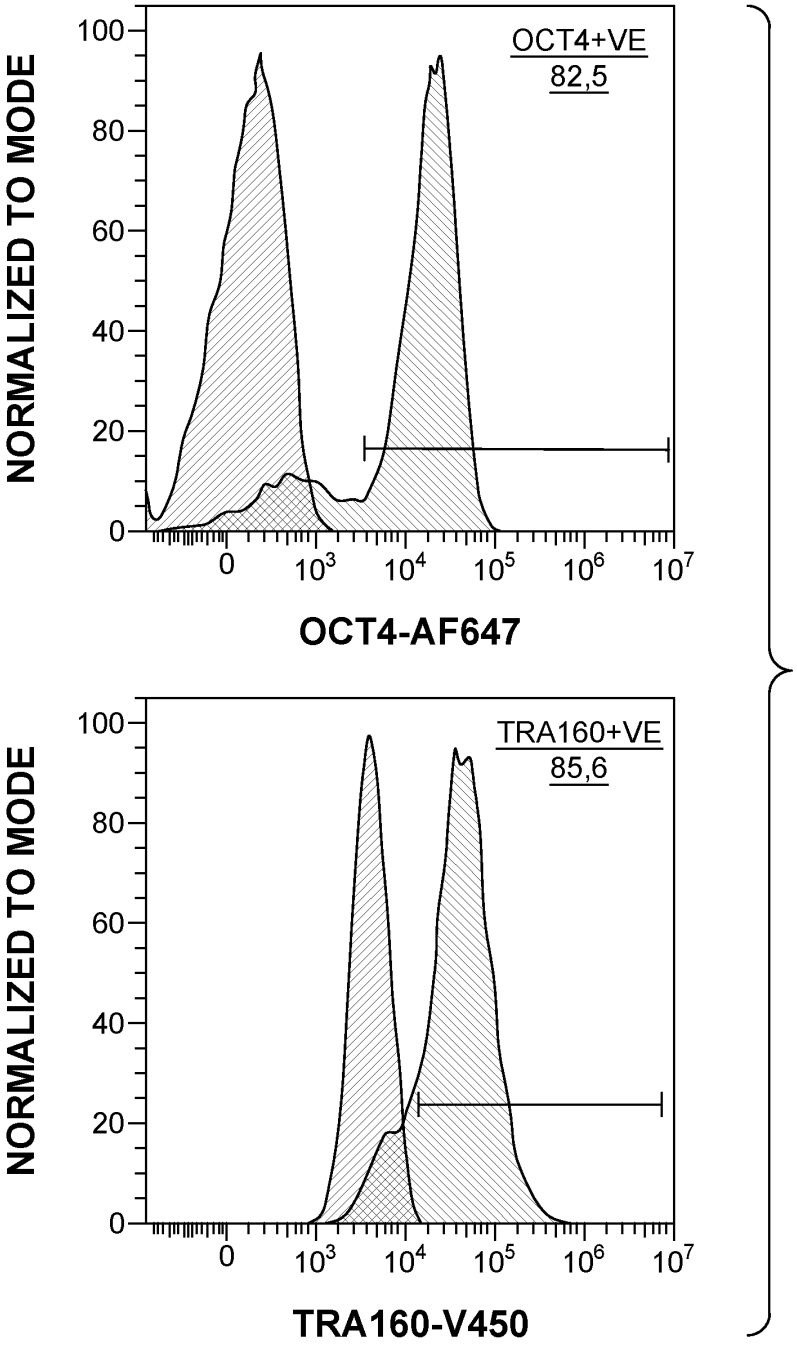
NORMALIZED TO MODE
100
80
60
40
20
0
OCT4+VE
82,5
0
10^3
10^4
10^5
10^6
10^7
OCT4-AF647
NORMALIZED TO MODE
100
80
60
40
20
0
TRA160+VE
85,6
0
10^3
10^4
10^5
10^6
10^7
TRA160-V450

FIG. 2C cont'd

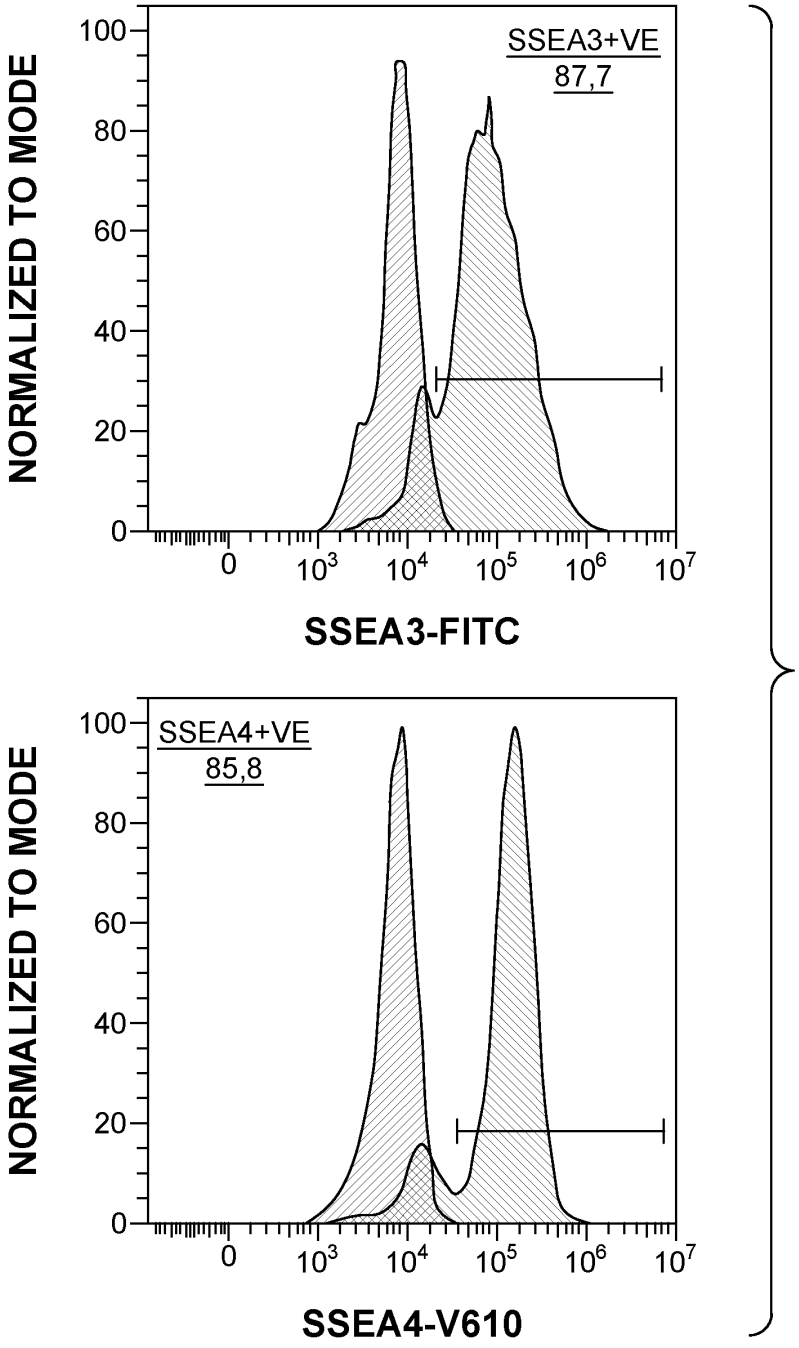
NORMALIZED TO MODE
SSEA3+VE
87,7
100
80
60
40
20
0
0
10^3
10^4
10^5
10^6
10^7
SSEA3-FITC
NORMALIZED TO MODE
SSEA4+VE
85,8
SSEA4-V610

FIG. 2D

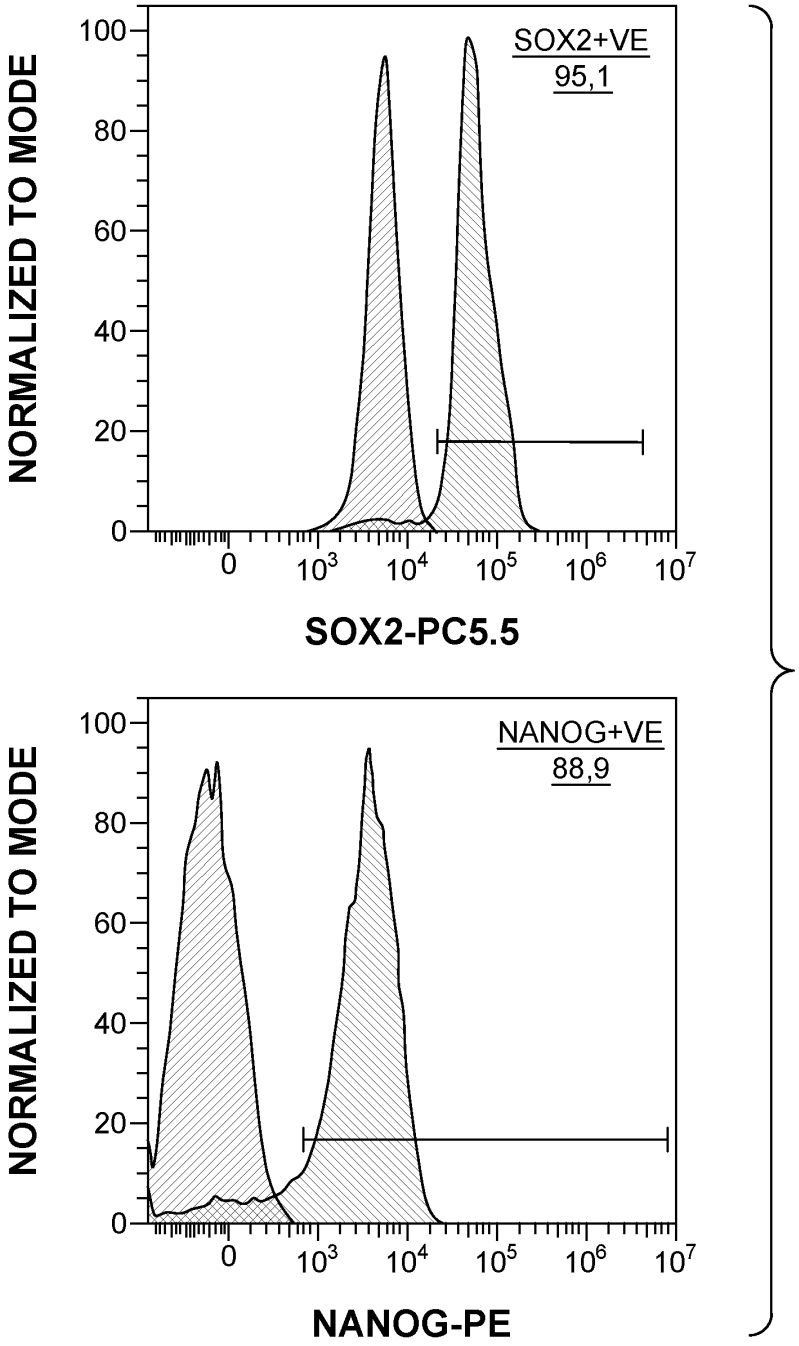
NORMALIZED TO MODE
100
80
60
40
20
0
SOX2+VE
95,1
0
10^3
10^4
10^5
10^6
10^7
SOX2-PC5.5
NORMALIZED TO MODE
100
80
60
40
20
0
NANOG+VE
88,9
0
10^3
10^4
10^5
10^6
10^7
NANOG-PE

FIG. 2D cont'd

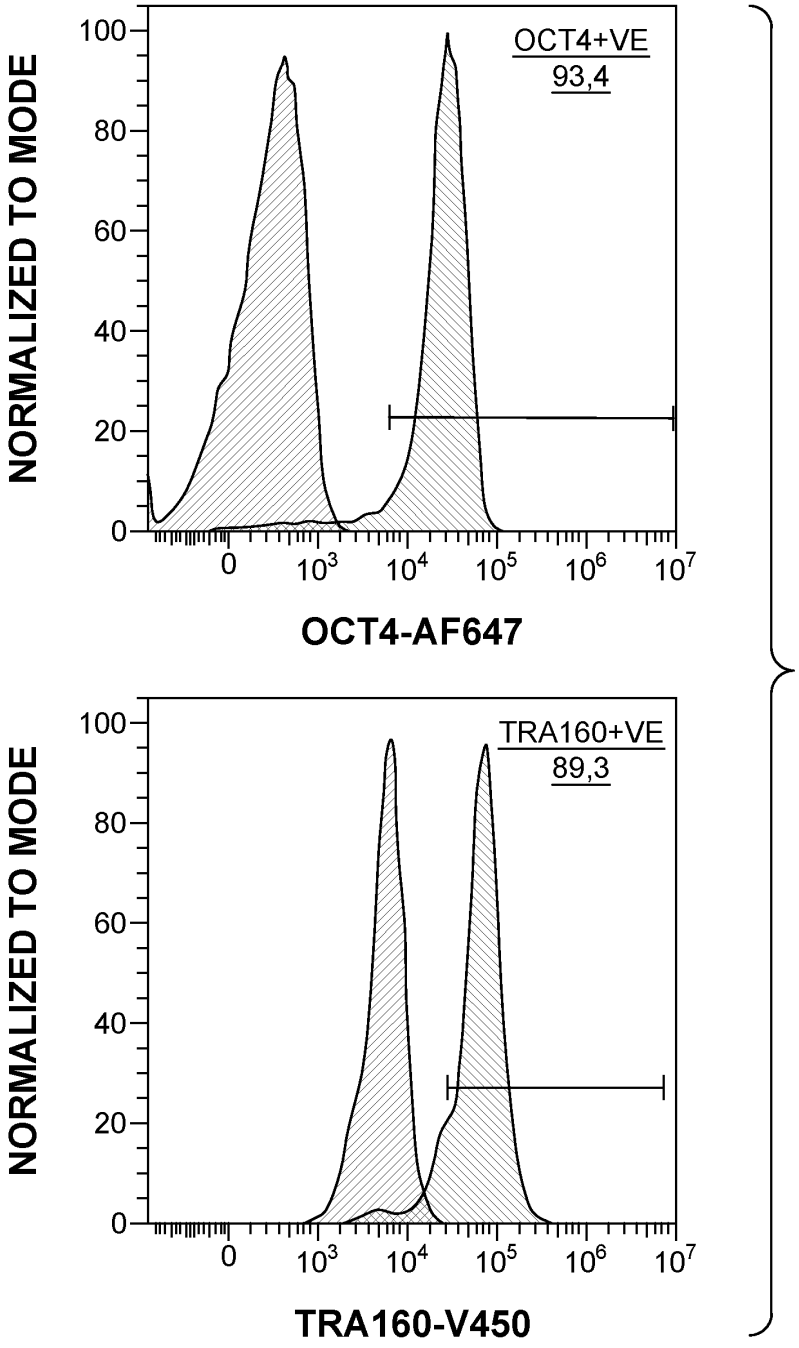
NORMALIZED TO MODE
100
80
60
40
20
0
OCT4+VE
93,4
0
10^3
10^4
10^5
10^6
10^7
OCT4-AF647
NORMALIZED TO MODE
100
80
60
40
20
0
TRA160+VE
89,3
0
10^3
10^4
10^5
10^6
10^7
TRA160-V450

FIG. 2D cont'd

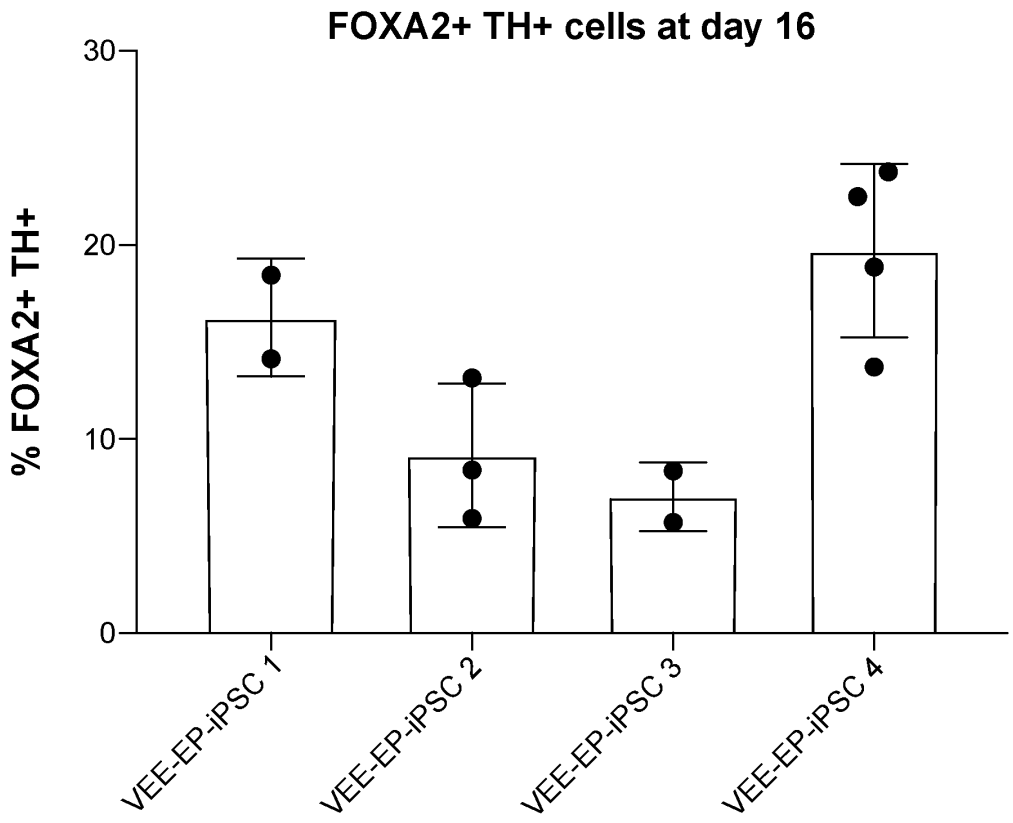
FOXA2+ TH+ cells at day 16
% FOXA2+ TH+
30
20
10
0
VEE-EP-iPSC 1
VEE-EP-iPSC 2
VEE-EP-iPSC 3
VEE-EP-iPSC 4

FIG. 3

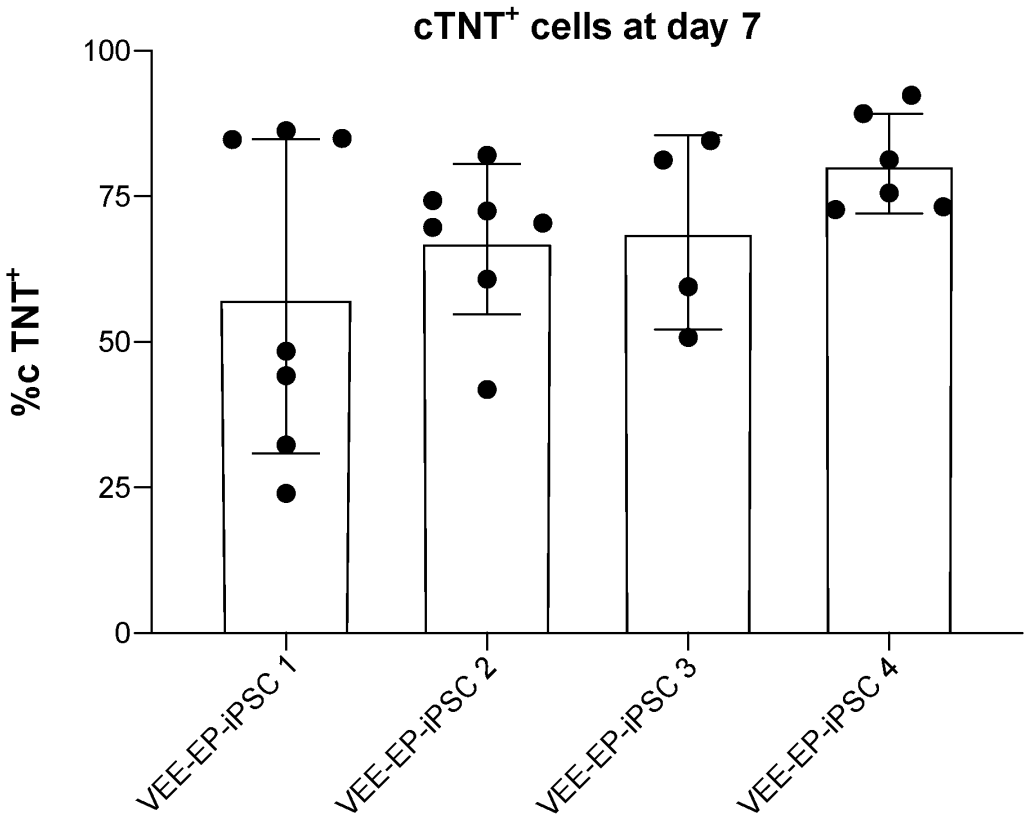
cTNT+ cells at day 7
%c TNT+
100
75
50
25
0
VEE-EP-iPSC 1
VEE-EP-iPSC 2
VEE-EP-iPSC 3
VEE-EP-iPSC 4

FIG. 4

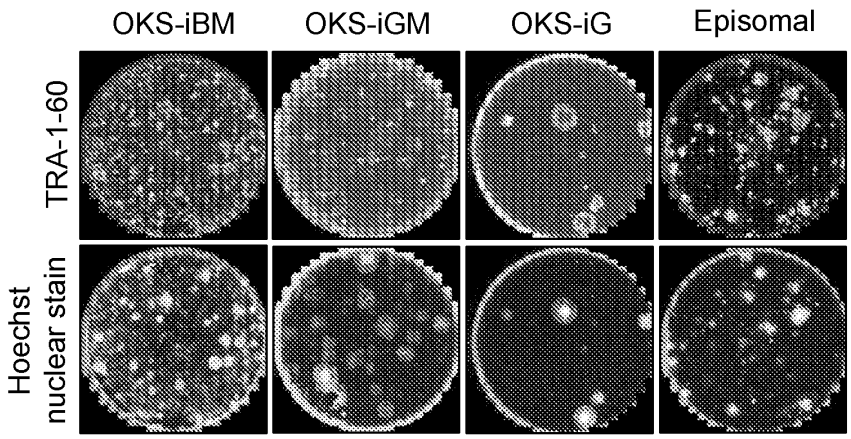
OKS-iBM
OKS-iGM
OKS-iG
Episomal
TRA-1-60
Hoechst nuclear stain

FIG. 5A

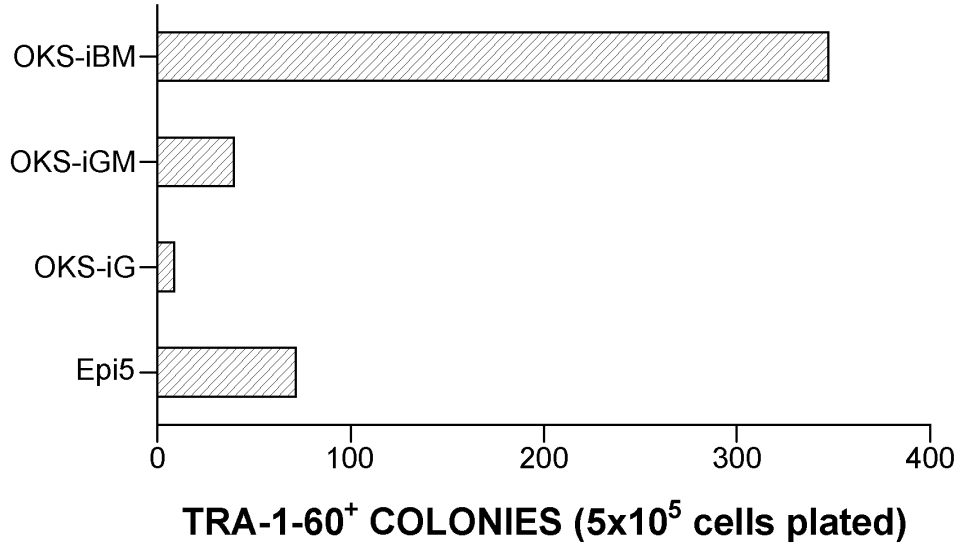
OKS-iBM
OKS-iGM
OKS-iG
Epi5
0
100
200
300
400
TRA-1-60+ COLONIES (5x10^5 cells plated)

FIG. 5B

>Wildtype VEEV Genomic Sequence
GAAAGTTCACGTTGACATCGAGGAAGACAGCCCATTCCTCAGAGCTTTGCAGCGGAGCTTCCCGCAGTTTGA
GGTAGAAGCCAAGCAGGTCACTGATAATGACCATGCTAATGCCAGAGCGTTTTCGCATCTGGCTTCAAAACTG
ATCGAAACGGAGGTGGACCCATCCGACACGATCCTTGACATTGGAAGTGCGCCCGCCCGCAGAATGTATTCT
AAGCACAAGTATCATTGTATCTGTCCGATGAGATGTGCGGAAGATCCGGACAGATTGTATAAGTATGCAACTA
AGCTGAAGAAAAACTGTAAGGAAATAACTGATAAGGAATTGGACAAGAAATGAAGGAGCTCGCCGCCGTCA
TGAGCGACCCTGACCTGGAAACTGAGACTATGTGCCTCCACGACGAGTCGTGTCGCTACGAAGGGCAA
GTCGCTGTTTACCAGGATGTATACGCGGTTGACGGACCGACAAGTCTCTATCACCAAGCCAATAAGGGAGTT
AGAGTCGCCTACTGGATAGGCTTTGACACCACCCCTTTTATGTTTAAGAACTTGGCTGGAGCATATCCATCAT
ACTCTACCAACTGGGCCGACGAAACCGTGTTAACGGCTCGTAACATAGGCCTATGCAGCTCTGACGTTATGG
AGCGGTCACGTAGAGGGATGTCCATTCTTAGAAAGAAGTATTTGAAACCATCCAACAATGTTCTATTCTCTGTT
GGCTCGACCATCTACCACGAGAAGAGGGACTTACTGAGGAGCTGGCACCTGCCGTCTGTATTTCACTTACGT
GGCAAGCAAAATTACACATGTCGGTGTGAGACTATAGTTAGTTGCGACGGGTACGTCGTTAAAAGAATAGCTA
TCAGTCCAGGCCTGTATGGGAAGCCTTCAGGCTATGCTGCTACGATGCACCGCGAGGGATTCTTGTGCTGCA
AAGTGACAGACACATTGAACGGGGAGAGGGTCTCTTTTCCCGTGTGCACGTATGTGCCAGCTACATTGTGTG
ACCAAATGACTGGCATACTGGCAACAGATGTCAGTGCGGACGACGCGCAAAAACTGCTGGTTGGGCTCAACC
AGCGTATAGTCGTCAACGGTCGCACCCAGAGAAACACCAATACCATGAAAAATTACCTTTTGCCCGTAGTGGC
CCAGGCATTTGCTAGGTGGGCAAAGGAATATAAGGAAGATCAAGAAGATGAAAGGCCACTAGGACTACGAGA
TAGACAGTTAGTCATGGGGTGTTGTTGGGCTTTTAGAAGGCACAAGATAACATCTATTTATAAGCGCCCGGAT
ACCCAAACCATCATCAAAGTGAACAGCGATTTCCACTCATTCGTGCTGCCCAGGATAGGCAGTAACACATTGG
AGATCGGGCTGAGAACAAGAAATCAGGAAAATGTTAGAGGAGCACAAGGAGCCGTCACCTCTCATTACCGCCG
AGGACGTACAAGAAGCTAAGTGCGCAGCCGATGAGGCTAAGGAGGTGCGTGAAGCCGAGGAGTTGCGCGC
AGCTCTACCACCTTTGGCAGCTGATGTTGAGGAGCCCACTCTGGAAGCCGATGTCGACTTGATGTTACAAGA
GGCTGGGGCCGGCTCAGTGGAGACACCTCGTGGCTTGATAAAGGTTACCAGCTACGCTGGCGAGGACAAGA
TCGGCTCTTACGCTGTGCTTTCTCCGCAGGCTGTACTCAAGAGTGAAAAATTATCTTGCATCCACCCTCTCGC
TGAACAAGTCATAGTGATAACACACTCTGGCCGAAAAGGGCGTTATGCCGTGGAACCATACCATGGTAAAGT
AGTGGTGCCAGAGGGACATGCAATACCCGTCCAGGACTTTCAAGCTCTGAGTGAAAGTGCCACCATTGTGTA
CAACGAACGTGAGTTCGTAAACAGGTACCTGCACCATATTGCCACACATGGAGGAGCGCTGAACACTGATGA

FIG. 6A

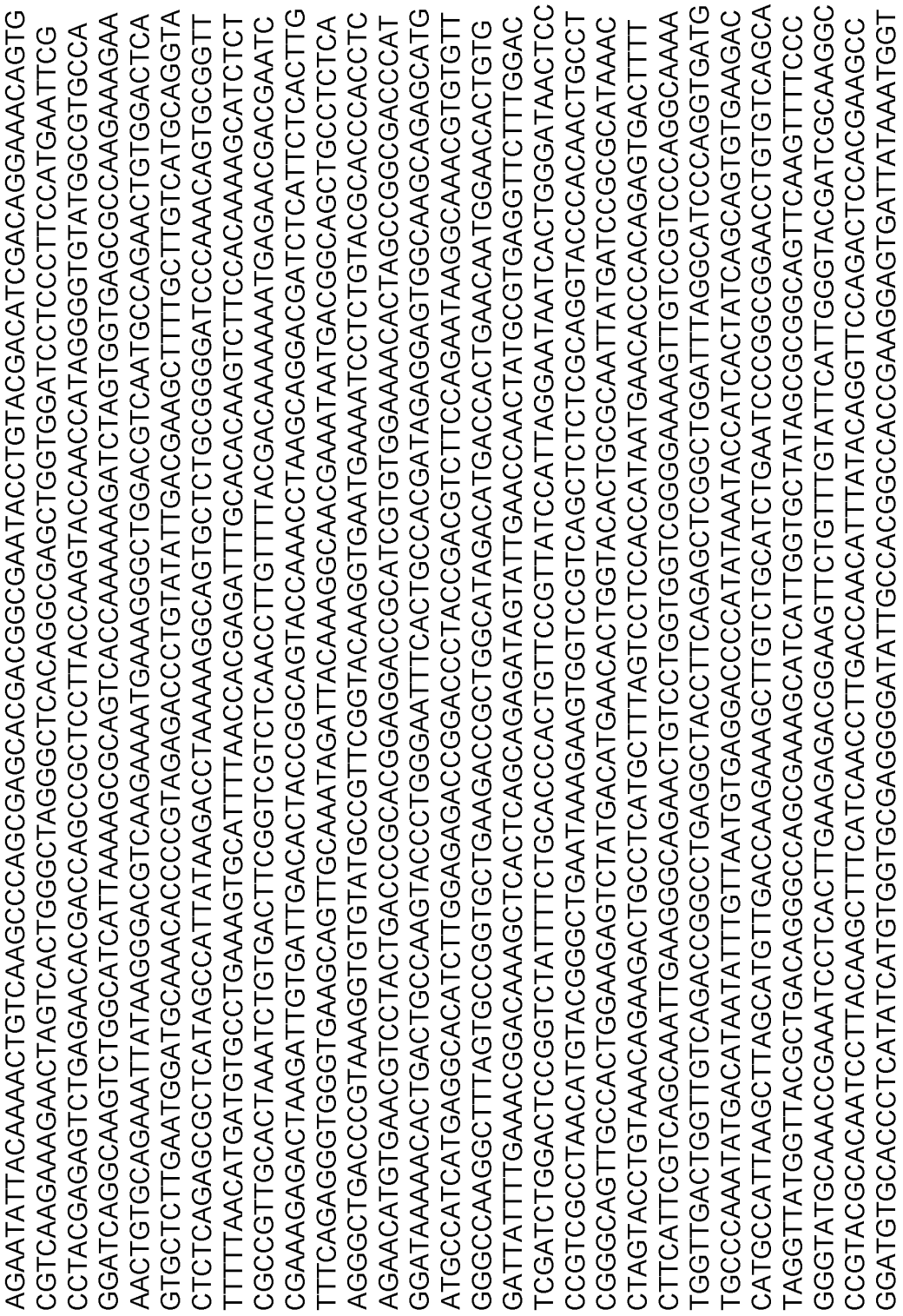
AGAATATTACAAAACTGTCAAGCCCAGCGAGCACGACGGCGAATACCTGTACGACATCGACAGGAAACAGTG
CGTCAAGAAAGAAGAACTAGTCACTGGGCTAGGGCTCACAGGCGAGCTGGTGGATCCTCCCTTCCATGAATTCG
CCTACCGAGAGGTCTGAGAACACCGACCAGCCGCTCCTTACCAAGTACCAACCATAGGGGTGTATGGCGTGCCA
GGATCAGGCAAGTCTGGCATCATTAAAAGCGCAGTCACCAAAAAAGATCTAGTGGTGAGCGCCAAGAAAGAA
AACTGTGCAGAAATTATAAGGGACGTCAAGAAAATGAAAGGGCTGGACGTCAATGCCAGAACTGTGGACTCA
GTGCTCTTGAATGGATGCAAACACCCCGTAGAGACCCTGTATATTGACGAAGCTTTTGCTTGTCATGCAGGTA
CTCTCAGAGCGCTCATAGCCATTATAAGACCTAAAAAGGCAGTGCTCTGCGGGGATCCCAAACAGTGCGGTT
TTTTTAACATGATGTGCCTGAAAGTGCATTTTAACCACGAGATTTGCACACAAGTCTTCCACAAAAGCATCTCT
CGCCGTTGCACTAAATCTGTGACTTCGGTCGTCTCAACCTTGTTTTACGACAAAAAAATGAGAACGACGAATC
CGAAAGAGACTAAGATTGTGATTGACACTACCGGCAGTACCAAACCTAAGCAGGACGATCTCATTCTCACTTG
TTTCAGAGGGTGGGTGAAGCAGTTGCAAATAGATTACAAAGGCAACGAAATAATGACGGCAGCTGCCTCTCA
AGGGCTGACCCGTAAAGGTGTGTATGCCGTTCGGTACAAGGTGAATGAAAATCCTCTGTACGCACCCACCTC
AGAACATGTGAACGTCCTACTGACCCGCACGGAGGACCGCATCGTGTGGAAAACACTAGCCGGCGACCCAT
GGATAAAAACACTGACTGCCAAGTACCCTGGGAATTTCACTGCCACGATAGAGGAGTGGCAAGCAGAGCATG
ATGCCATCATGAGGCACATCTTGGAGAGACCGGACCCTACCGACGTCTTCCAGAATAAGGCAAACGTGTGTT
GGGCCAAGGCTTTAGTGCCGGTGCTGAAGACCGCTGGCATAGACATGACCACTGAACAATGGAACACTGTG
GATTATTTTGAAACGGACAAAGCTCACTCAGCAGAGATAGTATTGAACCAACTATGCGTGAGGTTCTTTGGAC
TCGATCTGGACTCCGGTCTATTTTCTGCACCCACTGTTCCGTTATCCATTAGGAATAATCACTGGGATAACTCC
CCGTCGCCTAACATGTACGGGCTGAATAAAGAAGTGGTCCGTCAGCTCTCTCGCAGGTACCCACACAACTGCCT
CGGGCAGTTGCCACTGGAAGAGTCTATGACATGAACACTGGTACACTGCGCAATTATGATCCGCGCATAAAC
CTAGTACCTGTAAACAGAAGACTGCCTCATGCTTTAGTCCTCCACCATAATGAACACCCACAGAGTGACTTTT
CTTCATTCGTCAGCAAATTGAAGGGCAGAACTGTCCTGGTGGTCGGGGAAAAGTTGTCCGTCCCAGGCAAAA
TGGTTGACTGGTTGTCAGACCGGCCTGAGGCTACCTTCAGAGCTCGGCTGGATTTAGGCATCCCAGGTGATG
TGCCCAAATATGACATAATATTTGTTAATGTGAGGACCCCATATAAATACCATCACTATCAGCAGTGTGAAGAC
CATGCCATTAAGCTTAGCATGTTGACCAAGAAAGCTTGTCTGCATCTGAATCCCGGCGGAACCTGTGTCAGCA
TAGGTTATGGTTACGCTGACAGGGCCAGCGAAAGCATCATTGGTGCTATAGCGCGGCAGTTCAAGTTTTCCC
GGGTATGCAAACCGAAATCCTCACTTGAAGAGACGGAAGTTCTGTTTGTATTCATTGGGTACGATCGCAAGGC
CCGTACGCACAATCCTTACAAGCTTTCATCAACCAACATTTATACAGGTTCCAGACTCCACGAAGCC
GGATGTGCACCCTCATATCATGTGGTGCGAGGGGATATTGCCACGGCCACCGAAGGAGTGATTATAAATGGT

FIG. 6A cont'd

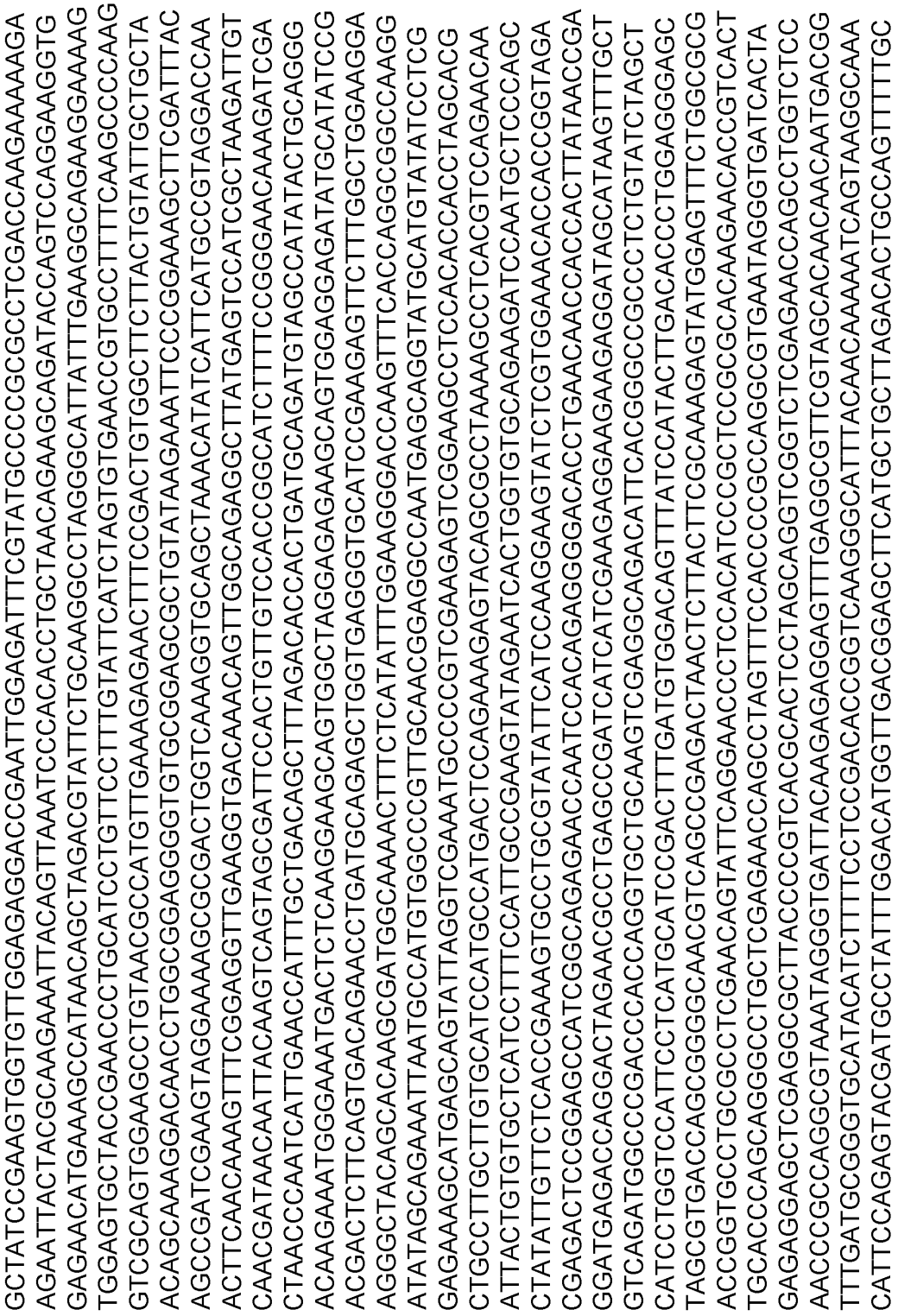
GCTATCCGAAGTGGTGTTGGAGAGGACCGAATTGGAGATTTCGTATGCCCCGCGCCTCGACCAAGAAAAAGA
AGAATTACTACGCAAGAAATTACAGTTAAATCCCACACCTGCTAACAGAAGCAGATACCAGTCCAGGAAGGTG
GAGAACATGAAAGCCATAACAGCTAGACGTATTCTGCAAGGCCTAGGGCATTATTTGAAGGCAGAAGGAAAAG
TGGAGTGCTACCGAACCCTGCATCCTGTTCCTTTGTATTCATCTAGTGTGAACCGTGCCTTTTCAAGCCCCAAG
GTCGCAGTGGAAGCCTGTAACGCCATGTTGAAAGAGAACTTTCCGACTGTGGCTTCTTACTGTATTGCTGCTA
ACAGCAAAGGACAACCTGGCGGAGGGGTGTGCGGAGCGCTGTATAAGAAATTCCCGGAAAGCTTCGATTTAC
AGCCGATCGAAGTAGGAAAAGCGCGACTGGTCAAAGGTGCAGCTAAACATATCATTCATGCCGTAGGACCAA
ACTTCAACACAAAGTTTCGGAGGTTGAAGGTGACAAACAGTTGGCAGAGGCTTATGAGTCCATCGCTAAGATTGT
CAACGATAACAATTACAAGTCAGTAGCGATTCCACTGTTGTCCACCGGCATCTTTTCCGGGAACAAAGATCGA
CTAACCCAATCATTGAACCATTTGCTGACAGCTTTAGACACCACTGATGCAGATGTAGCCATATACTGCAGGG
ACAAGAAATGGGAAATGACTCTCAAGGAAGCAGTGGCTAGGAGAGAAGCAGTGGAGGAGATATGCATATCCG
ACGACTCTTCAGTGACAGAACCTGATGCAGAGCTGGTGAGGGTGCATCCGAAGAGTTCTTTGGCTGGAAGGA
AGGGCTACAGCACAAGCGATGGCAAAACTTTCTCATATTTGGAAGGGACCAAGTTTCACCAGGCGGCCAAGG
ATATAGCAGAAATTAATGCCATGTGGCCCGTTGCAACGGAGGCCAATGAGCAGGTATGCATGTATATCCTCG
GAGAAAGCATGAGCAGTATTAGGTCGAAATGCCCCGTCGAAGAGTCGGAAGCCTCCACACCACCTAGCACG
CTGCCTTGCTTGTGCATCCATGCCATGACTCCAGAAAGAGTACAGCGCCTAAAAGCCTCACGTCCAGAACAA
ATTACTGTGTGCTCATCCTTTCCATTGCCGAAGTATAGAATCACTGGTGTGCAGAAGATCCAATGCTCCCAGC
CTATATTGTTCTCACCGAAAGTGCCTGCGTATATTCATCCAAGGAAGTATCTCGTGGAAACACCACCGGTAGA
CGAGACTCCGGAGCCATCGGCAGAGAACCAATCCACAGAGGGGACACCTGAACAACCACCACTTATAACCGA
GGATGAGACCAGGACTAGAACGCCTGAGCCGATCATCATCGAAGAGGAAGAAGAGGATAGCATAAGTTTGCT
GTCAGATGGCCCGACCCACCAGGTGCTGCAAGTCGAGGCAGACATTCACGGGCCGCCCTCTGTATCTAGCT
CATCCTGGTCCATTCCTCATGCATCCGACTTTGATGTGGACAGTTTATCCATACTTGACACCCTGGAGGGAGC
TAGCGTGACCAGCGGGGGCAACGTCAGCCGAGACTAACTCTTACTTCGCAAAGAGTATGGAGTTTCTGGCGCG
ACCGGTGCCTGCGCCTCGAACAGTATTCAGGAACCCTCCACATCCCGCTCCGCGCACAAGAACACCGTCACT
TGCACCCAGCAGGGCCTGCTCGAGAACCAGCCTAGTTTCCACCCCGCCAGGCGTGAATAGGGTGATCACTA
GAGAGGAGCTCGAGGCGCTTACCCCGTCACGCACTCCTAGCAGGTCGGTCTCGAGAACCAGCCTGGTCTCC
AACCCGCCAGGCGTAAATAGGGTGATTACAAGAGAGGAGTTTGAGGCGTTCGTAGCACAACAACAATGACGG
TTTGATGCGGGTGCATACATCTTTTCCTCCGACACCGGTCAAGGGCATTTACAACAAAAATCAGTAAGGCAAA
CATTCCAGAGTACGATGCCTATTTGGACATGGTTGACGGAGCTTCATGCTGCTTAGACACTGCCAGTTTTTGC

FIG. 6A cont'd

CCTGCAAAGCTGCGCAGCTTTCCAAAGAAACACTCCTATTTGGAACCCACAATACGATCGGCAGTGCCTTCAG
CGATCCAGAACACGCTCCAGAACGTCCTGGCAGCTGCCACAAAAAGAAATTGCAATGTCACGCAAATGAGAG
AATTGCCCGTATTGGATTCGGCGGCCTTTAATGTGGAATGCTTCAAGAAATATGCGTGTAATAATGAATATTGG
GAAACGTTTAAAGAAAACCCCATCAGGCTTACTGAAGAAAACGTGGTAAATTACATTACCAAATTAAAAGGACC
AAAAGCTGCTGCTCTTTTTGCGAAGACACATAATTTGAATATGTTGCAGGACATACCAATGGACAGGTTTGTAA
TGGACTTAAAGAGAGACGTGAAAGTGACTCCAGGAACAAAACATACTGAAGAACGGCCCAAGGTACAGGTGA
TCCAGGCTGCCGATCCGCTAGCAACAGCGTATCTGTGCGGAATCCACCGAGAGCTGGTTAGGAGATTAAATG
CGGTCCTGCTTCCGAACATTCATACACTGTTTGATATGTCGGCTGAAGACTTTGACGCTATTATAGCCGAGCA
CTTCCAGCCTGGGGATTGTGTTCTGGAAACTGACATCGCGTCGTTTGATAAAAGTGAGGACGACGCCATGGC
TCTGACCGCGTTAATGATTCTGGAAGACTTAGGTGTGGACGCAGAGCTGTTGACGCTGATTGAGGCGGCTTT
CGGCGAAATTTCATCAATACATTTGCCCACTAAAACTAAATTTAAATTCGGAGCCATGATGAAATCTGGAATGT
TCCTCACACTGTTTGTGAACACAGTCATTAACATTGTAATCGCAAGCAGAGTGTTGAGAGAACGGCTAACCGG
ATCACCATGTGCAGCATTCATTGGAGATGACAATATCGTGAAAGGAGTCAAATCGGACAAATTAATGGCAGAC
AGGTGCGCCACCTGGTTGAATATGGAAGTCAAGATTATAGATGCTGTGGTGGGCGAGAAAGCGCCTTATTTC
TGTGGAGGGTTTATTTTGTGTGACTCCGTGACCGGCACAGCGTGCCGTGTGGCAGACCCCCTAAAAAGGCTG
TTTAAGCTTGGCAAACCTCTGGCAGCAGACGATGAACATGATGATGACAGGAGAAGGGCATTGCATGAAGAG
TCAACACGCTGGAACCGAGTGGGTATTCTTTCAGAGGCTGTGCAAGGCAGTAGAATCAAGGTATGAAACCGTA
GGAACTTCCATCATAGTTATGGCCATGACTACTCTAGCTAGCAGTGTTAAATCATTCAGCTACCTGAGAGGGG
CCCCTATAACTCTCTACGGCTAACCTGAATGGACTACGACATAGTCTAGTCCGCCAAGTCTAGCATATGGGCG
CGTGAATTCGCC*GCGAATTGGCAAGCTGCTTACATAGAACTCGCGGCGATTGGCATGCCGCCTTAAAATTTT
TATTTTATTTTTCTTTTCCTTTTCCGAATCGGATTTTGTTTTTAATATTTCAAAAAAAAAAAAAAAAAAAAAA
(SEQ ID NO:14)

FIG. 6A cont'd

>Recombinant VEEV Genomic Sequence
GAAAGTTCACGTTGACATCGAGGAAGACAGCCCATTCCTCAGAGCTTTGCAGCGGAGCTTCCCGCAGTTTGA
GGTAGAAGCCAAGCAGGTCACTGATAATGACCATGCTAATGCCAGAGCGTTTTCGCATCTGGCTTCAAAACTG
ATCGAAACGGAGGTGGACCCATCCGACACGATCCTTGACATTGGAAGTGCGCCCGCCCGCAGAATGTATTCT
AAGCACAAGTATCATTGTATCTGTCCGATGAGATGTGCGGAAGATCCGGACAGATTGTATAAGTATGCAACTA
AGCTGAAGAAAAACTGTAAGGAAATAACTGATAAGGAATTGGACAAGAAATGAAGGAGCTGGCCGCCGTCA
TGAGCGACCCTGACCTGGAAACTGAGACTATGTGCCTCCACGACGAGTCGTGTCGCTACGAAGGGCAA
GTCGCTGTTTACCAGGATGTATACGCGGTTGACGGACCGACAAGTCTCTATCACCAAGCCAATAAGGGAGTT
AGAGTCGCCTACTGGATAGGCTTTGACACCACCCCTTTTATGTTTAAGAACTTGGCTGGAGCATATCCATCAT
ACTCTACCAACTGGGCCGACGAAACCGTGTTAACGGCTCGTAACATAGGCCTATGCAGCTCTGACGTTATGG
AGCGGTCACGTAGAGGGATGTCCATTCTTAGAAAGAAGTATTTGAAACCATCCAACAATGTTCTATTCTCTGTT
GGCTCGACCATCTACCACGAGAAGAGGGACTTACTGAGGAGCTGGCACCTGCCGTCTGTATTTCACTTACGT
GGCAAGCAAAATTACACATGTCGGTGTGAGACTATAGTTAGTTGCGACGGGTACGTCGTTAAAAGAATAGCTA
TCAGTCCAGGCCTGTATGGGAAGCCTTCAGGCTATGCTGCTACGATGCACCGCGAGGGATTCTTGTGCTGCA
AAGTGACAGACACATTGAACGGGGAGAGGGTCTCTTTTCCCGTGTGCACGTATGTGCCAGCTACATTGTGTG
ACCAAATGACTGGCATACTGGCAACAGATGTCAGTGCGGACGACGCGCAAAAACTGCTGGTTGGGCTCAACC
AGCGTATAGTCGTCAACGGTCGCACCCAGAGAAACACCAATACCATGAAAAATTACCTTTTGCCCGTAGTGGC
CCAGGCATTTGCTAGGTGGGCAAAGGAATATAAGGAAGATCAAGAAGATGAAAGGCCACTAGGACTACGAGA
TAGACAGTTAGTCATGGGGTGTTGTTGGGCTTTTAGAAGGCACAAGATAACATCTATTTATAAGCGCCCGGAT
ACCCAAACCATCATCAAAGTGAACAGCGATTTCCACTCATTCGTGCTGCCCAGGATAGGCAGTAACACATTGG
AGATCGGGCTGAGAACAAGAAATCAGGAAAATGTTAGAGGAGCACAAGGAGCCGTCACCTCTCATTACCGCCG
AGGACGTACAAGAAGCTAAGTGCGCAGCCGATGAGGCTAAGGAGGTGCGTGAAGCCGAGGAGTTGCGCGC
AGCTCTACCACCTTTGGCAGCTGATGTTGAGGAGCCCACTCTGGAGGCAGCGTCGACTTGATGTTACAAGA
GGCTGGGGCCGGCTCAGTGGAGACACCTCGTGGCTTGATAAAGGTTACCAGCTACGATGGCGAGGACAAGA
TCGGCTCTTACGCTGTGCTTTCTCCGCAGGCTGTACTCAAGAGTGAAAAATTATCTTGCATCCACCCTCTCGC
TGAACAAGTCATAGTGATAACACACTCTGGCCGAAAAGGGCGTTATGCCGTGGAACCATACCATGGTAAAGT
AGTGGTGCCAGAGGGACATGCAATACCCGTCCAGGACTTTCAAGCTCTGAGTGAAAGTGCCACCATTGTGTA
CAACGAACGTGAGTTCGTAAACAGGTACCTGCACCATATTGCCACACATGGAGGAGCGCTGAACACTGATGA

FIG. 6B

AGAATATTACAAAACTGTCAAGCCCAGCGAGCACGACGGCGAATACCTGTACGACATCGACAGGAAACAGTG
CGTCAAGAAAGAACTAGTCACTGGGCTAGGGCTCACAGGCGAGCTGGTGGATCCTCCCTTCCATGAATTCGC
CTACGAGAGTCTGAGAACACGACCAGCCGCTCCTTACCAAGTACCAACCATAGGGGTGTATGGCGTGCCAGG
ATCAGGCAAGTCTGGCATCATTAAAAGCGCAGTCACCAAAAAAGATCTAGTGGTGAGCGCCAAGAAAGAAAA
CTGTGCAGAAATTATAAGGGACGTCAAGAAAATGAAAGGGCTGGACGTCAATGCCAGAACTGTGGACTCAGT
GCTCTTGAATGGATGCAAACACCCCGTAGAGACCCTGTATATTGACGAAGCTTTTGCTTGTCATGCAGGTACT
CTCAGAGCGCTCATAGCCATTATAAGACCTAAAAAGGCAGTGCTCTGCGGGGATCCCAAACAGTGCGGTTTTT
TTAACATGATGTGCCTGAAAGTGCATTTTAACCACGAGATTTGCACACAAGTCTTCCACAAAAGCATCTCTCGC
CGTTGCACTAAATCTGTGACTTCGGTCGTCTCAACCTTGTTTTACGACAAAAAAATGAGAACGACGAATCCGA
AAGAGACTAAGATTGTGATTGACACTACCGGCAGTACCAAACCTAAGCAGGACGATCTCATTCTCACTTGTTT
CAGAGGGTGGGTGAAGCAGTTGCAAATAGATTACAAAGGCAACGAAATAATGACGGCAGCTGCCTCTCAAGG
GCTGACCCGTAAAGGTGTGTATGCCGTTCGGTACAAGGTGAATGAAAATCCTCTGTACGCACCCACCTCAGA
ACATGTGAACGTCCTACTGACCCGCACGGAGGACCGCATCGTGTGGAAAACACTAGCCGGCGACCCATGGA
TAAAAACACTGACTGCCAAGTACCCTGGGAATTTCACTGCCACGATAGAGGAGTGGCAAGCAGAGCATGATG
CCATCATGAGGCACATCTTGGAGAGACCGGACCCTACCGACGTCTTCCAGAATAAGGCAAACGTGTGTTGGG
CCAAGGCTTTAGTGCCGGTGCTGAAGACCGCTGGCATAGACATGACCACTGAACAATGGAACACTGTGGATT
ATTTTGAAACGGACAAAGCTCACTCAGCAGAGATAGTATTGAACCAACTATGCGTGAGGTTCTTTGGACTCGA
TCTGGACTCCGGTCTATTTTCTGCACCCACTGTTCCGTTATCCATTAGGAATAATCACTGGGATAACTCCCCGT
CGCCTAACATGTACGGGCTGAATAAAGAAGTGGTCCGTCAGCTCTCTCGCAGGTACCCACAACTGCCTCGGG
CAGTTGCCACTGGAAGAGTCTATGACATGAACACTGGTACACTGCGCGCAATTATGATCCGCCGCATAAACCTAGT
ACCTGTAAACAGAAGACTGCCTCATGCTTTAGTCCTCCACCATAATGAACACCCACAGAGTGACTTTTCTTCAT
TCGTCAGCAAATTGAAGGGCAGAACTGTCCTGGTGGTCGGGGAAAAGTTGTCCGTCCCAGGCAAAATGGTTG
ACTGGTTGTCAGACCGGCCTGAGGCTACCTTCAGAGCTCGGCTGGATTTAGGCATCCCAGGTGATGTGCCCA
AATATGACATAATATTTGTTAATGTGAGGACCCCATATAAATACCATCACTATCAGCAGTGTGAAGACCATGCC
ATTAAGCTTAGCATGTTGACCAAGAAAGCTTGTCTGCATCTGAATCCCGGCGGAACCTGTGTCAGCATAGGTT
ATGGTTACGCTGACAGGGCCAGCGAAAGCATCATTGGTGCTATAGCGCGGCAGTTCAAGTTTTCCCGGGTAT
GCAAACCGAAATCCTCACTTGAAGAGACGGAAGTTCTGTTTGTATTCATTGGGTACGATCGCAAGGCCCGTAC
GCACAATCTTACAAGCTTTCATCAACCTTGACCAACATTTATACAGGTTCCAGACTCCACGAAGCCGGATGTG
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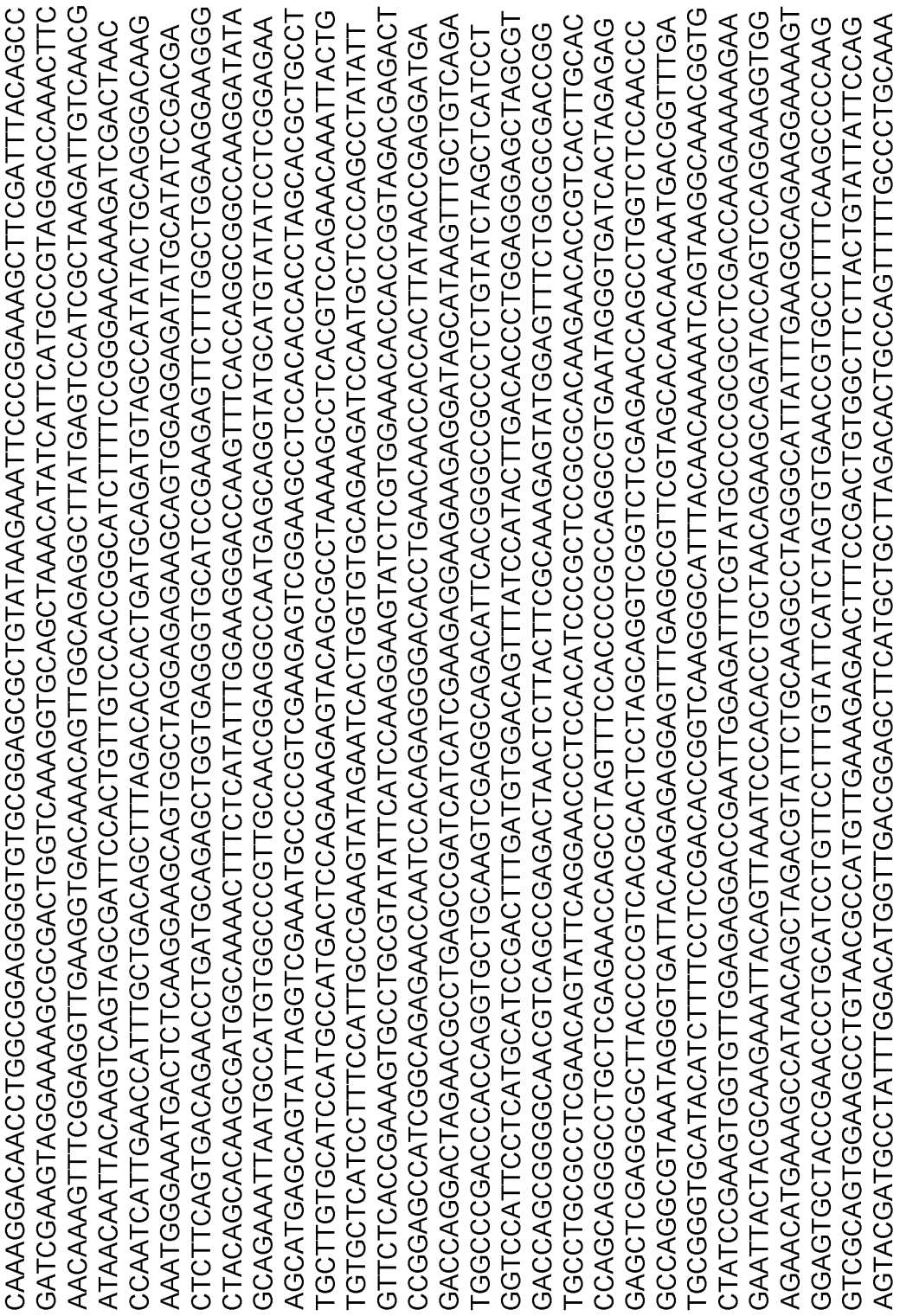
FIG. 6B cont'd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CCGGAGCCATCGGCAGAGAACCAATCCACAGAGGGGACACCTGAACAACCACCACTTATAACCGAGGATGA
GACCAGGACTAGAACGCCTGAGCCGATCATCATCGAAGAGGAAGAGGATAGCATAAGTTTGCTGTCAGA
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GGTCCATTCCTCATGCATCCGACTTTGATGTGGACAGTTTATCCATACTTGACACCCTGGAGGGAGCTAGCGT
GACCAGCGGGGCAACGTCAGCCGAGACTAACTCTTACTTCGCAAAGAGTATGGAGTTTCTGGCGCGACCGG
TGCCTGCGCCTCGAACAGTATTCAGGAACCCTCCACATCCCGCTCCGCGCACAAGAACACCGTCACTTGCAC
CCAGCAGGGCCTGCTCGAGAACCAGCCTAGTTTCCACCCCGCCAGGCGTGAATAGGGTGATCACTAGAGAG
GAGCTCGAGGCGCTTACCCCGTCACGCACTCCTAGCAGGTCGGTCTCGAGAACCAGCCTGGTCTCCAACCC
GCCAGGCGTAAATAGGGTGATTACAAGAGAGGAGTTTGAGGCGTTCGTAGCACAACAATGACGGTTTGA
TGCGGGTGCATACATCTTTTCCTCCGACACCGGTCAAGGGCATTTACAACAAAAATCAGTAAGGCAAACGGTG
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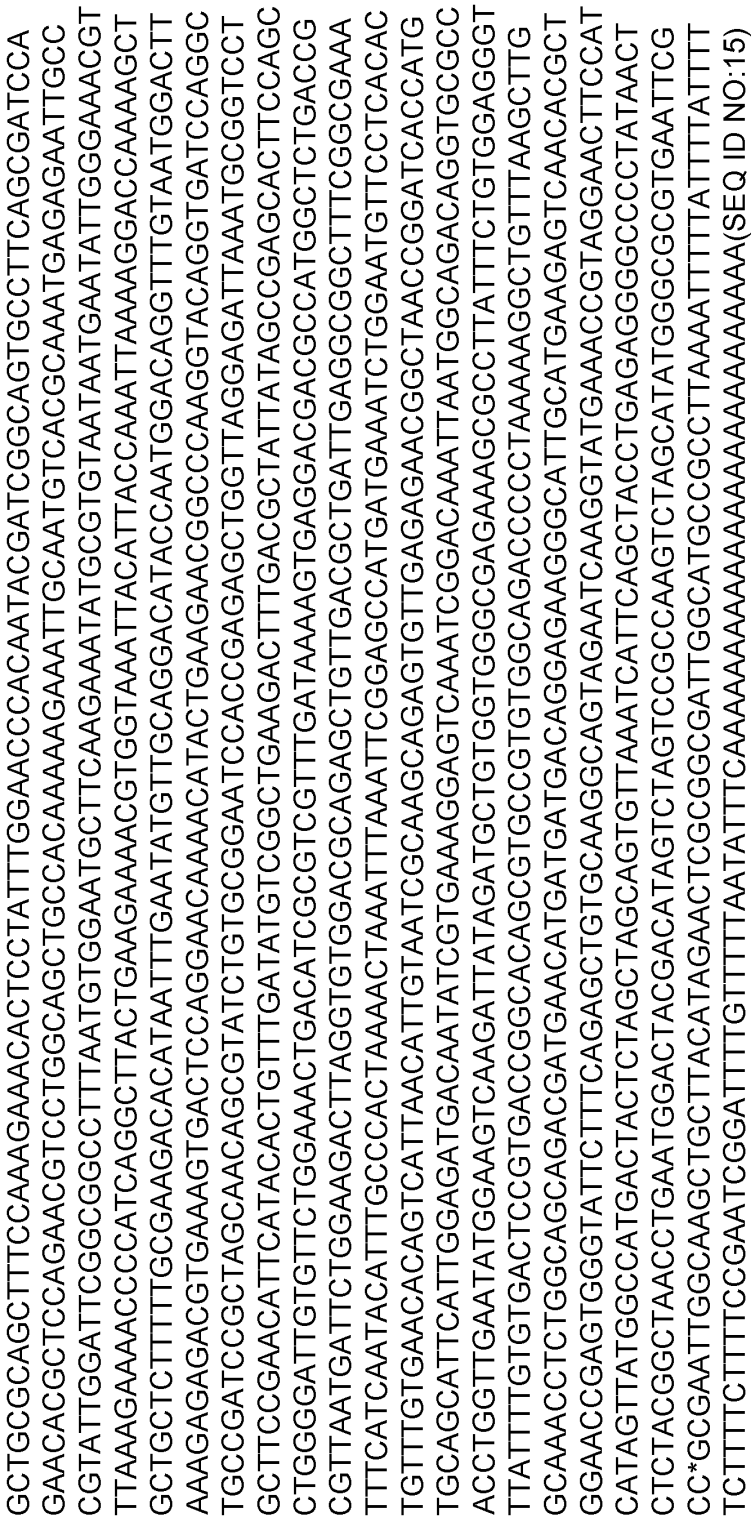
FIG. 6B cont'd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CGTATTGGATTCGGCGGCCTTTAATGTGGAATGCTTCAAGAAATATGCGTGTAATAATGAATATTGGGAAACGT
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CTGGGGATTGTGTTCTGGAAACTGACATCGCGTCGTTTGATAAAAGTGAGGACGACGCCATGGCTCTGACCG
CGTTAATGATTCTGGAAGACTTAGGTGTGGACGCAGAGCTGTTGACGCTGATTGAGGCGGCTTTCGGCGAAA
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GGAACCGAGTGGGTATTCTTTCAGAGCTGTGCAAGGCAGTAGAATCAAGGTATGAAACCGTAGGAACTTCCAT
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FIG. 6B cont'd