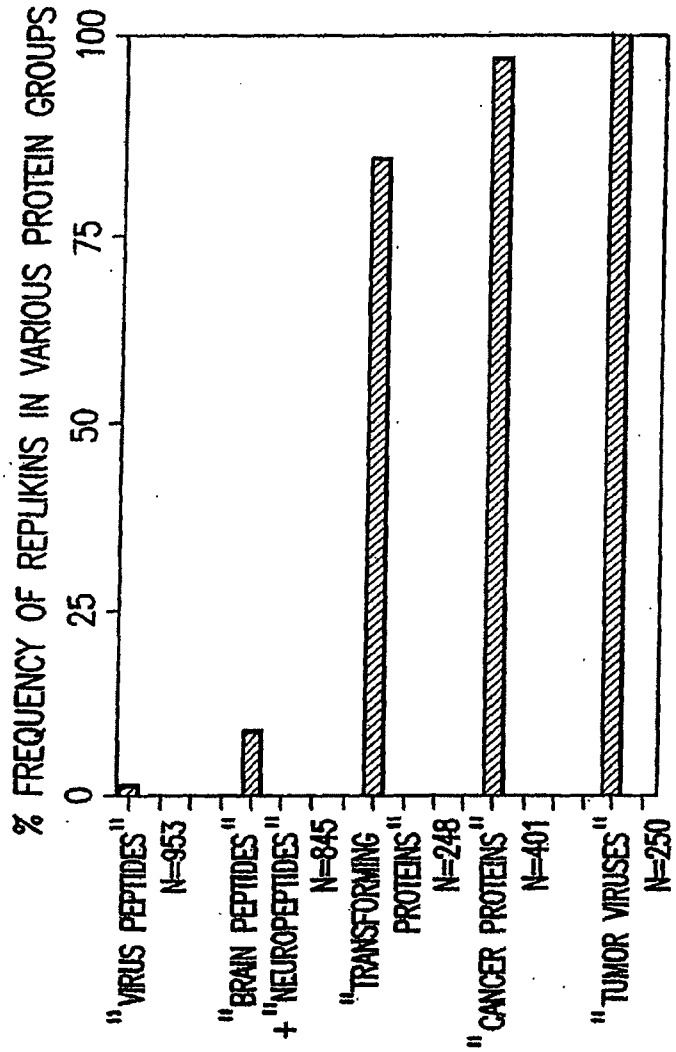

% FREQUENCY OF REPLIKINS IN VARIOUS PROTEIN GROUPS
0
25
50
75
100
"VIRUS PEPTIDES"
N=953
"BRAIN PEPTIDES"
+"NEUROPEPTIDES"
N=845
"TRANSFORMING
PROTEINS"
N=248
"CANCER PROTEINS"
N=401
"TUMOR VIRUSES"
N=250

Fig. 1

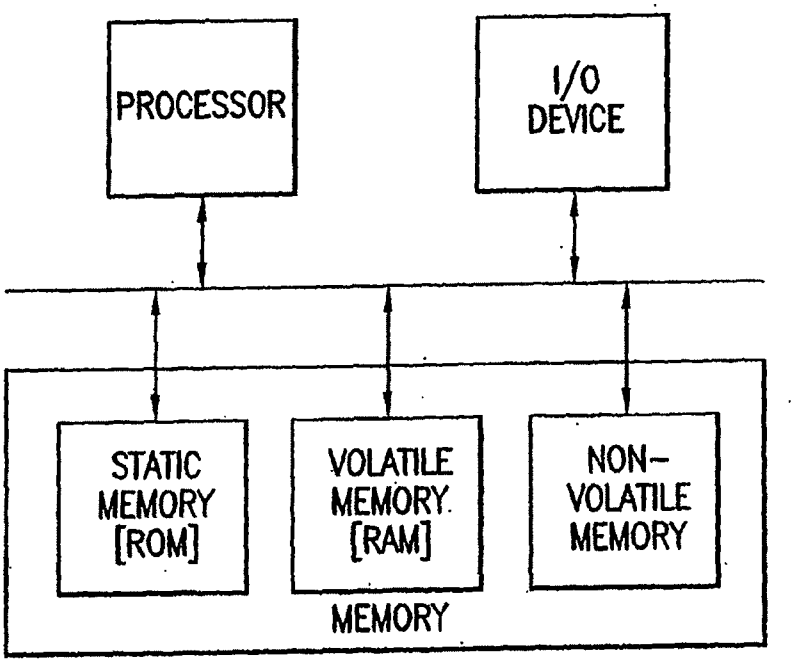

PROCESSOR
I/O DEVICE
STATIC MEMORY [ROM]
VOLATILE MEMORY [RAM]
NON-VOLATILE MEMORY
MEMORY

Fig. 2

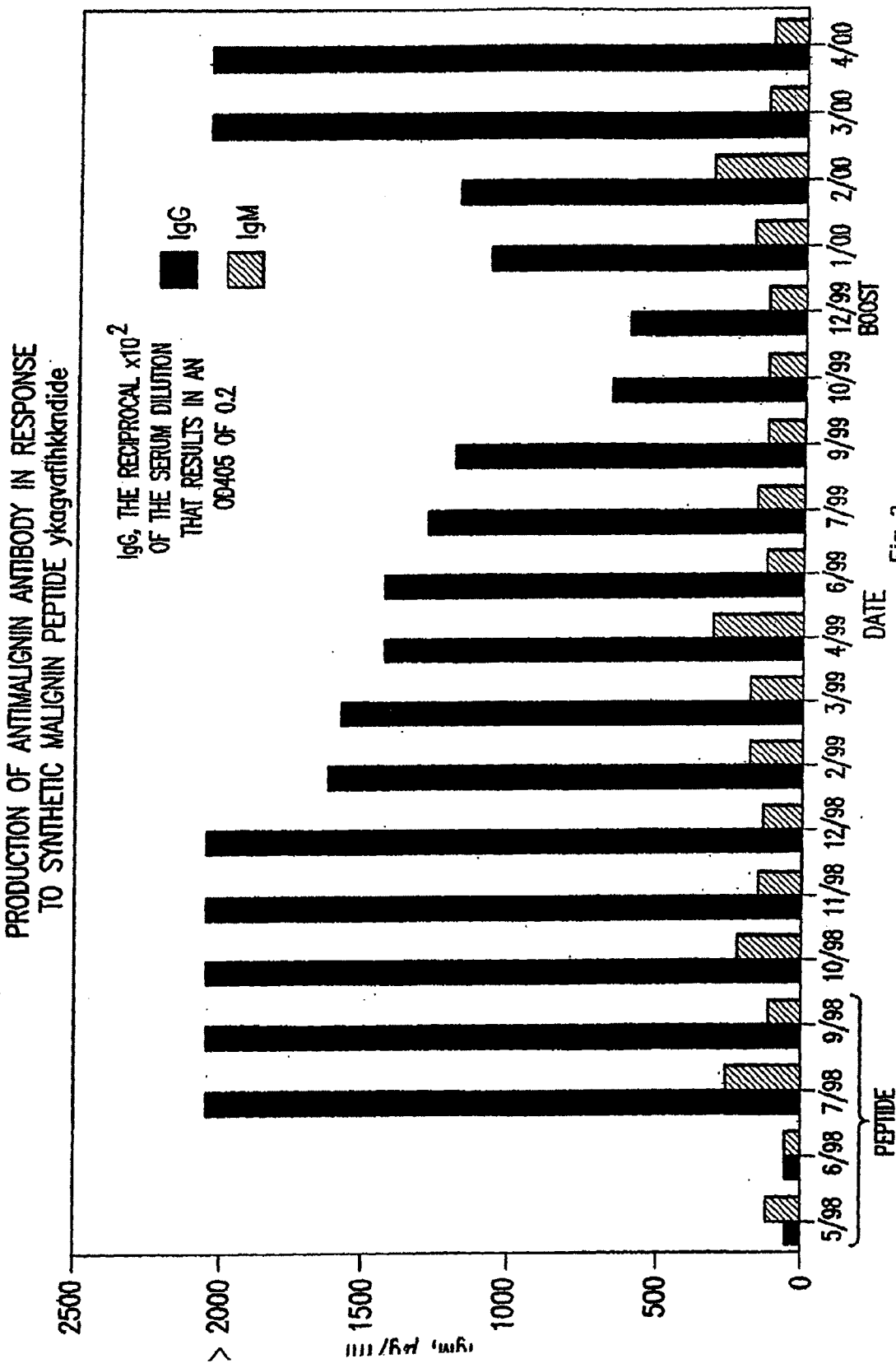

PRODUCTION OF ANTIMALIGNIN ANTIBODY IN RESPONSE TO SYNTHETIC MALIGNIN PEPTIDE ykagvafihkkndide
IgG, THE RECIPROCAL x10^2 OF THE SERUM DILUTION THAT RESULTS IN AN OD405 OF 0.2
IgG
IgM
2500
> 2000
1500
1000
500
0
5/98
6/98
7/98
9/98
10/98
11/98
12/98
2/99
3/99
4/99
6/99
7/99
9/99
10/99
12/99
1/00
2/00
3/00
4/00
PEPTIDE
BOOST
DATE

Fig. 3

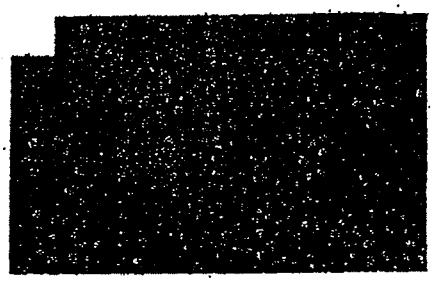


Fig. 4A

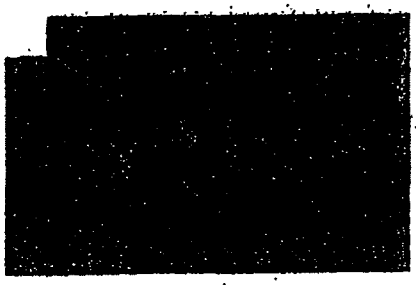


Fig. 4B

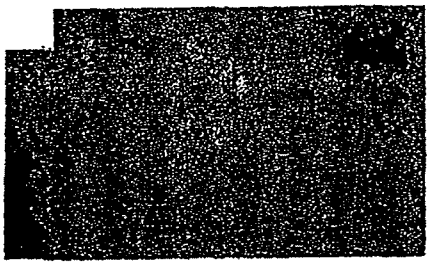


Fig. 4C



Fig. 4D



Fig. 4E

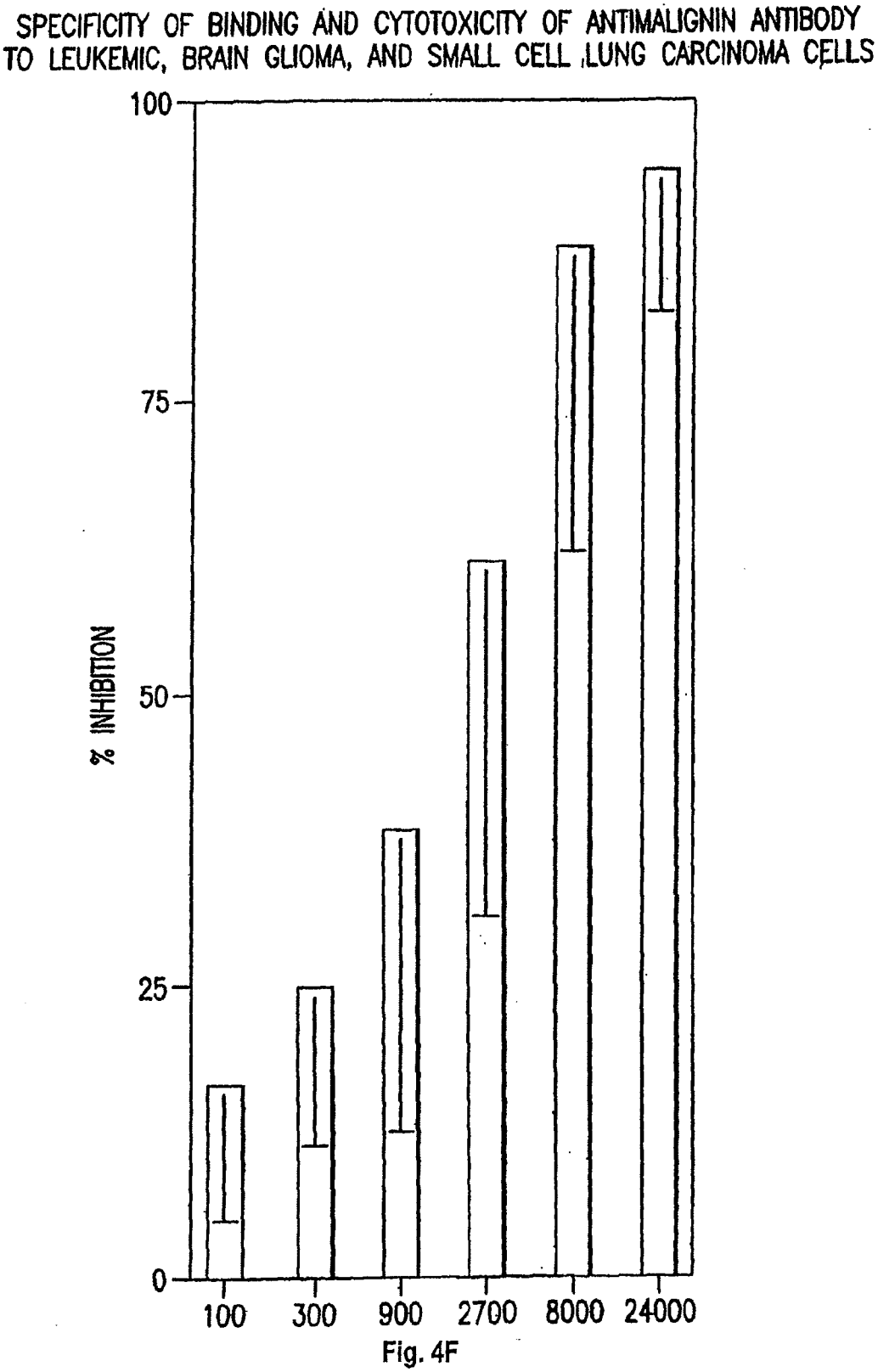

SPECIFICITY OF BINDING AND CYTOTOXICITY OF ANTIMALIGNIN ANTIBODY
TO LEUKEMIC, BRAIN GLIOMA, AND SMALL CELL LUNG CARCINOMA CELLS
% INHIBITION
100
75
50
25
0
100
300
900
2700
8000
24000

Fig. 4F

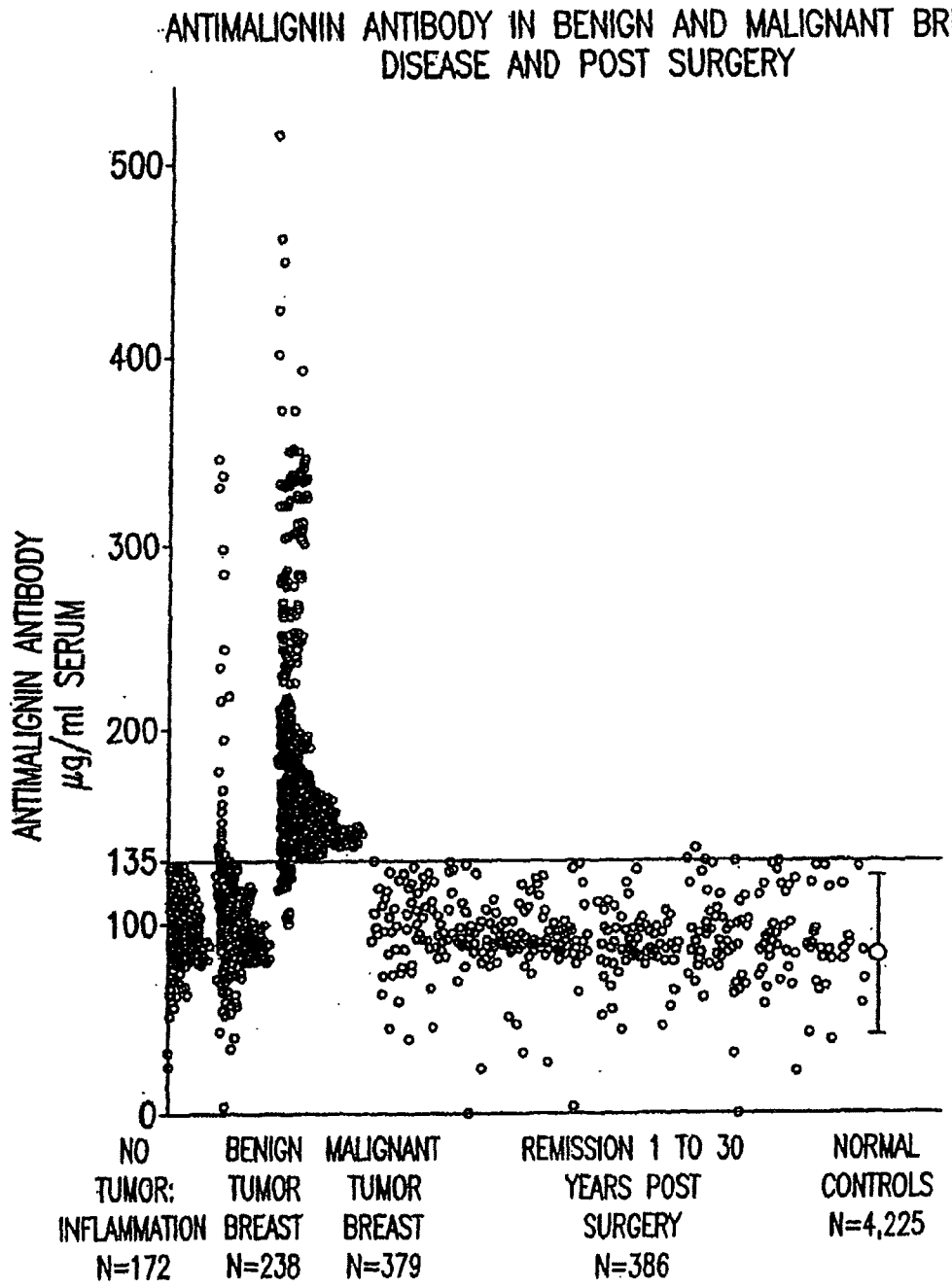

ANTIMALIGNIN ANTIBODY IN BENIGN AND MALIGNANT BREAST DISEASE AND POST SURGERY
ANTIMALIGNIN ANTIBODY µg/ml SERUM
500
400
300
200
135
100
0
NO TUMOR: INFLAMMATION N=172
BENIGN TUMOR BREAST N=238
MALIGNANT TUMOR BREAST N=379
REMISSION 1 TO 30 YEARS POST SURGERY N=386
NORMAL CONTROLS N=4,225

Fig. 5

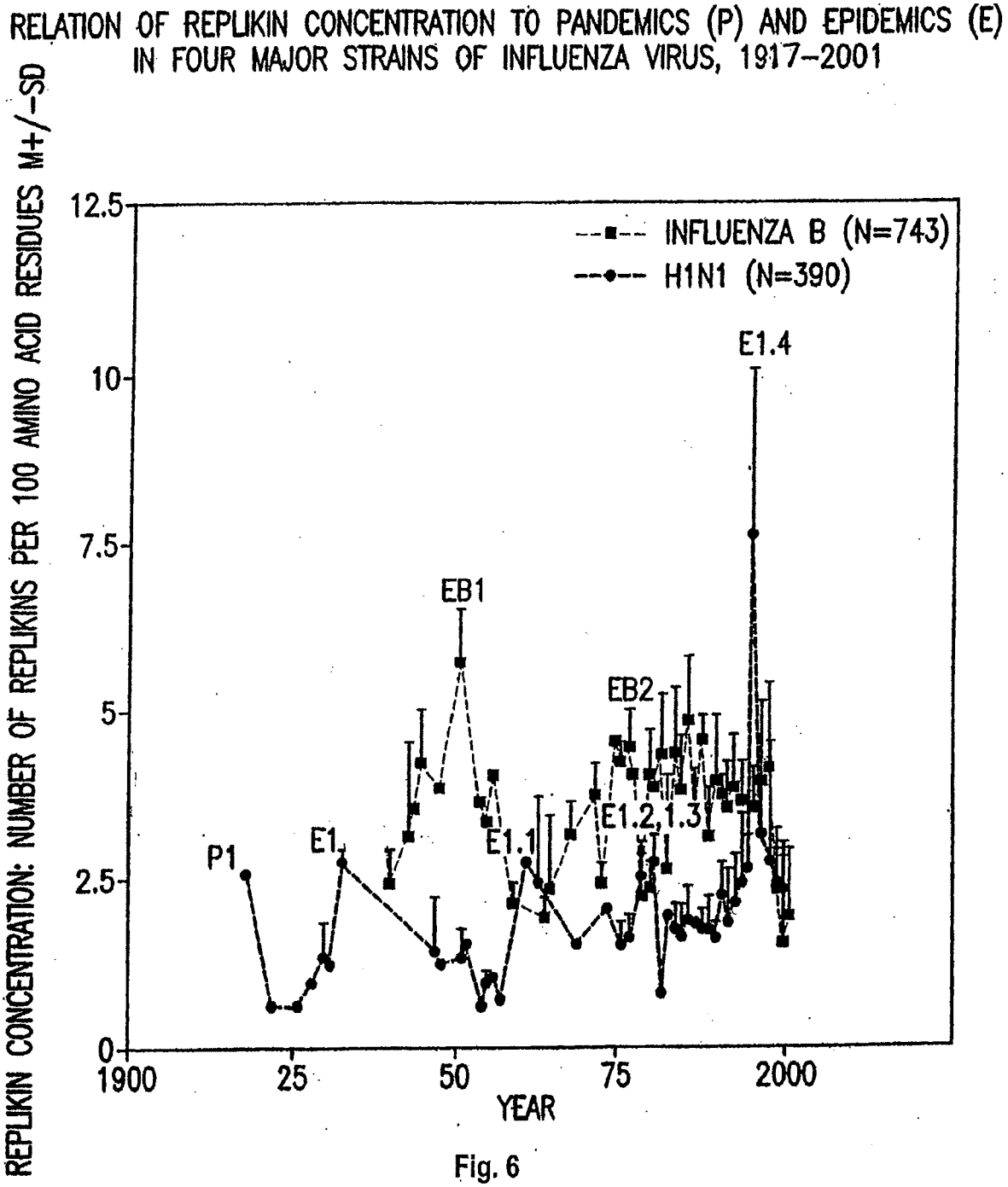

RELATION OF REPLIKIN CONCENTRATION TO PANDEMICS (P) AND EPIDEMICS (E) IN FOUR MAJOR STRAINS OF INFLUENZA VIRUS, 1917–2001
REPLIKIN CONCENTRATION: NUMBER OF REPLIKINS PER 100 AMINO ACID RESIDUES M+/-SD
INFLUENZA B (N=743)
H1N1 (N=390)
12.5
10
7.5
5
2.5
0
1900
25
50
75
2000
YEAR
P1
E1
EB1
E1.1
EB2
E1.2,1.3
E1.4

Fig. 6

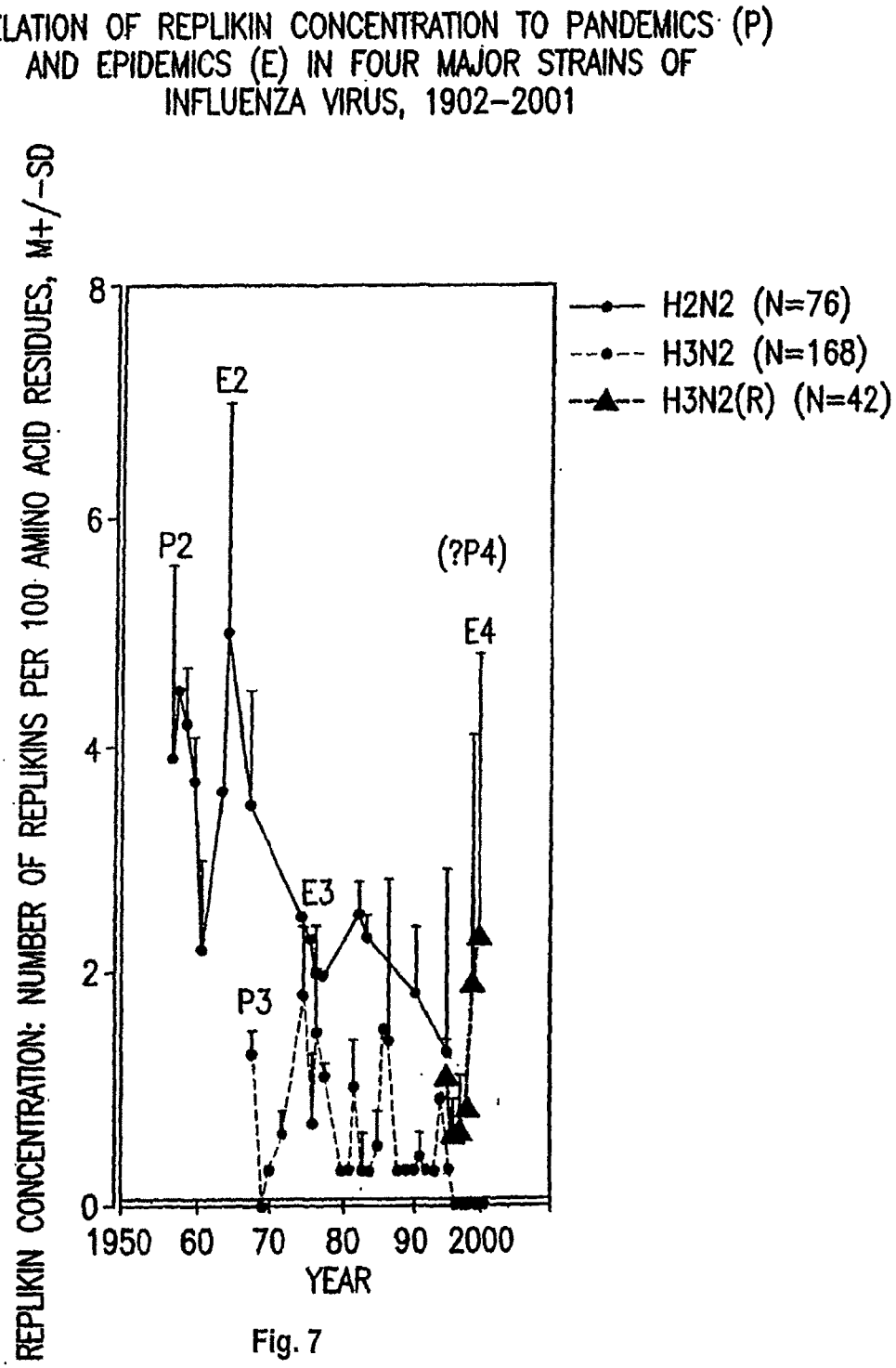

RELATION OF REPLIKIN CONCENTRATION TO PANDEMICS (P) AND EPIDEMICS (E) IN FOUR MAJOR STRAINS OF INFLUENZA VIRUS, 1902–2001
REPLIKIN CONCENTRATION: NUMBER OF REPLIKINS PER 100 AMINO ACID RESIDUES, M+/-SD
8
6
4
2
0
1950
60
70
80
90
2000
YEAR
P2
E2
P3
E3
(?P4)
E4
H2N2 (N=76)
H3N2 (N=168)
H3N2(R) (N=42)

Fig. 7

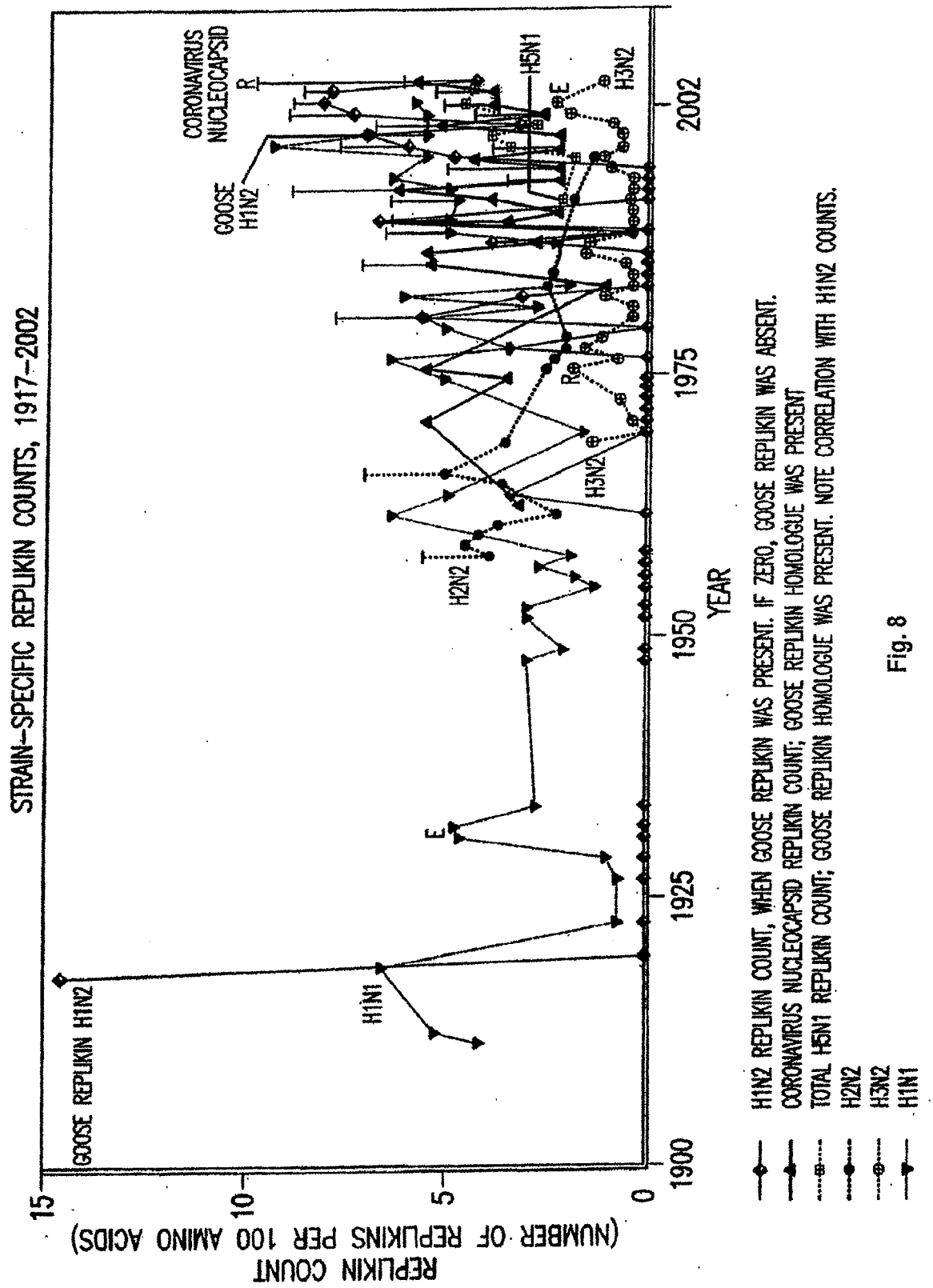

STRAIN-SPECIFIC REPLIKIN COUNTS, 1917-2002
REPLIKIN COUNT
(NUMBER OF REPLIKINS PER 100 AMINO ACIDS)
15
10
5
0
1900
1925
1950
1975
2002
YEAR
GOOSE REPLIKIN H1N2
CORONAVIRUS NUCLEOCAPSID
GOOSE H1N2
H1N1
H2N2
H3N2
H5N1
E
R
H1N2 REPLIKIN COUNT, WHEN GOOSE REPLIKIN WAS PRESENT. IF ZERO, GOOSE REPLIKIN WAS ABSENT.
CORONAVIRUS NUCLEOCAPSID REPLIKIN COUNT; GOOSE REPLIKIN HOMOLOGUE WAS PRESENT
TOTAL H5N1 REPLIKIN COUNT; GOOSE REPLIKIN HOMOLOGUE WAS PRESENT. NOTE CORRELATION WITH H1N2 COUNTS.
H2N2
H3N2
H1N1

Fig. 8

Replikin Count by Year

nucleocapsid coronavirus

Year	Accession Number - Replikin Count	No. Of Isolates per year	Mean Replikin Count per year	S.D.
1962	AAB4815713	1	3.2	0.0
1963				
1964				
1965				
1967				
1968				
1969				
1970	P05991 21	1	5.5	0.0
1971				
1972				
1973				
1974	AAB4815714	1	3.5	0.0
1975	AAB4815922	1	5.5	0.0
1976				
1977				
1978				

Fig. 9A

1979				
1980				
1981				
1982				
1983	A453402CAA251977CAA251987CAA254971P034162P034171P184531VHIHM11	8	1.0	1.3
1984	1010251C4AAA462202AAA464527AAA70233132AAA70235132AAA70236132AAA70237132AAA70238 132AAA70239132AAA70240132AAA70241132AAA70242132NP40829214NP040831214NP040833 214NP040834214NP 040835214NP 040836214NP 40837214NP 040838214NP 066134214NP 740 621214NP 740622214NP 740623214NP 740624214NP 740625214NP 740626214NP 740627214NP 740628214	38	3.2	0.5
1985	AAA4621417AAA4622127	2	5.4	1.7
1986	AAA4791421AAA4791321AAA4791621P0413421VHIHPC21	5	5.5	0.0
1987	AAA429142146AAA4291314 6AAA42914146AAA64744146AAA66393146AAA66397146AAA66399146AAK 297381146AAK29779146AAP20417146CAAA7869717CAA7869417CAA7869917P105234P10526600IHB C4VGIHBC6	17	2.4	0.7
1988	AAA427581AAA427591AAA6658323AAAB481602AAAB4816127P1264823P226541S0376221S068691VH IHAL23	10	3.7	2.8
1989	A60003IIAAA4546327AAA464622CAA335212CAA335222P1513026P154222P3346911VHIV2E27	9	3.2	2.8
1990	AAA464392AAA464402AAA464442AAA464452AAA464472AAA464482AAA464682AAA464692AAB4815618 B453402C453402CAA3507826CAA3985018CAA3985111CAA8084123D453402E3660723E453401F45340 1G453401H453402P184462P184472P184482P184522P184551P2441123P3292323S0803126VHIHGI22	30	2.2	2.5
1991	AAB4816228CAA410669CAA450992CAA451002J011726J011744P2590911P260216P266264P3346323S 2428223VHIH7918	12	3.9	2.5
1992	A4405622A4855923AAA9185530AAA9185623AAA9185720AAB2405423BAA015912CAA4724627J017252 4P36298240BI455300470022560313 9	13	5.8	2.0

Fig. 9B

1993	A453962AAC5406818AAK38656201AAK38657201AAK38658201AAK38659201AAK38660201AAK38661201 CAA808551CAA808561CAA808571CAA808581CAA108591CAA809718J0219117J021952NP598309201NP5 98310201NP598311201NP598312201NP598333201NP598314201NP839957201NP839958201NP8399592 01NP839960201NP839961201NP839962201NP839963201NP839964201NP839965201NP83996201NP839 967201NP839968201NP8399692010029152	36	2.5	1.1
1994	B495911CAA8411121D495911S4742821	4	3.8	2.0
1995	AAC5708018	1	4.4	0.0
1996	AAB4750214AAB4750311AAB481551VBAC0112014BAC0115610BAC0115710BAC0115313BAC0115913BAC0 116013BAC0116013BAC0116113BAC0549216BAC0349313	12	2.8	1.2
1997	AAB8682170CAA7423013NP045302129NP068674129	4	2.2	0.9
1998	AAC164223ACC164233AAD331042AAD390394AAD390404AAD390414AAD390424AAD390434AAD390444AAF2 387123AAF2387219AAF2387326	12	4.4	2.3
1999	AAF057061AAF0635216AAF1938979AAF6892681AAF6911622AAF6912321AAF6933877AAF6934970AAF9774 311AAL4040685BAA836159BAA836169	12	3.1	1.8
2000	AAF8241321AAG48597193AAG5397321NP073556193	4	3.9	1.2
2001	AAK27168122AAK2716220AAK2716319AAK3160722AAK83362147AAK9379720AAL57313147CAC39121214CAC 3930717NF150083146	11	3.9	1.3
2002	AAL800367AAM7700513AAM8228019AAM8228123AAM8228219AA04604819AA04604923AA04605019AA0594642 7AA05947327AA0604112AA0604127AA0604133AAC604146AA04146AA0604156XP11418016	16	5.1	3.6
2003	AA0594381GAAP13445188AAP13814188AAP30037AAP30714188APP3204623AAP3208323AAP37024188AAP4104 7188BAC6532822CAD676071NP828858188P5959515188AAP3204623AAP3208323AAP37024188AAP41047188BA C6532822CAD676071NP828858188P5959515	13	3.3	1.6

Fig. 9C

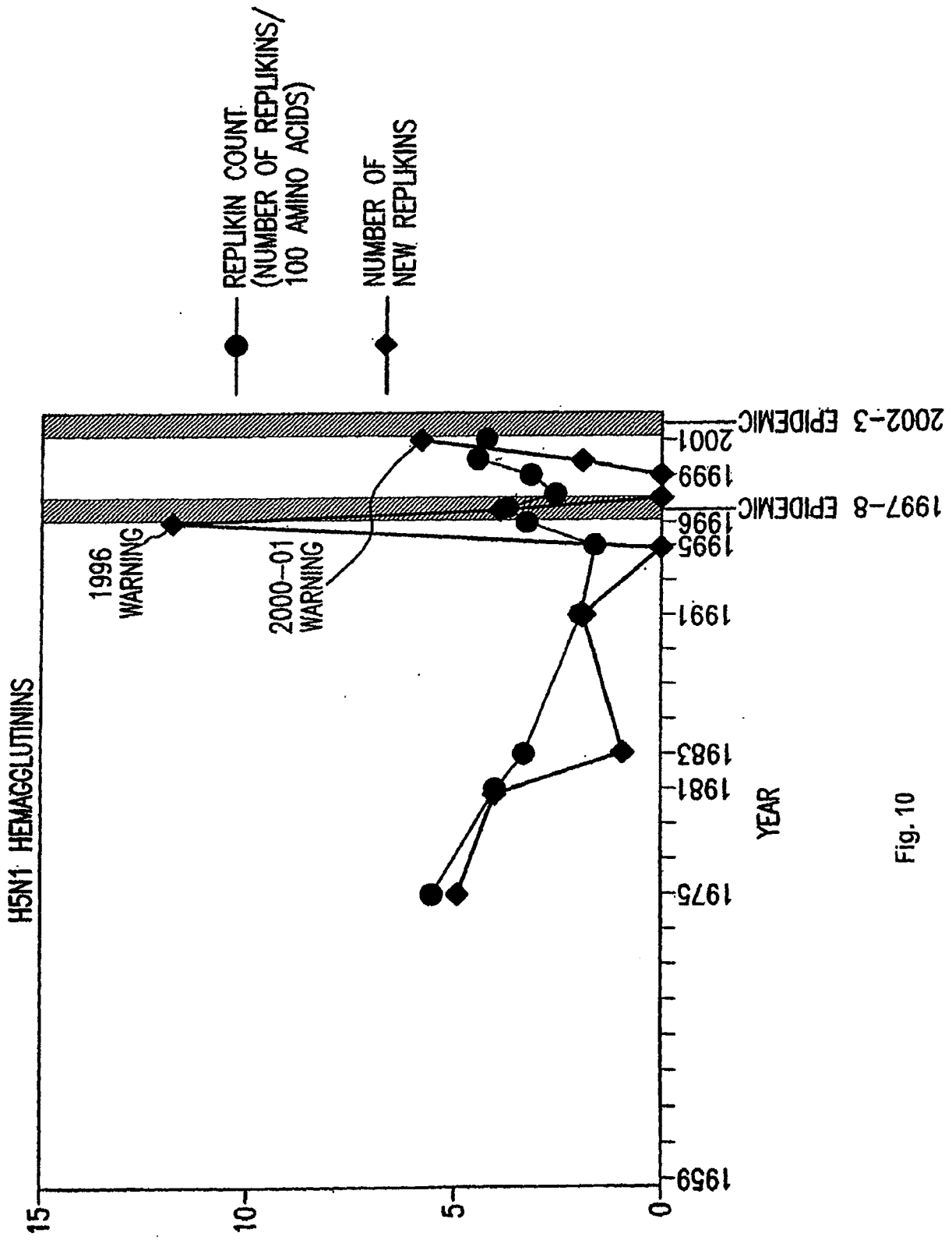
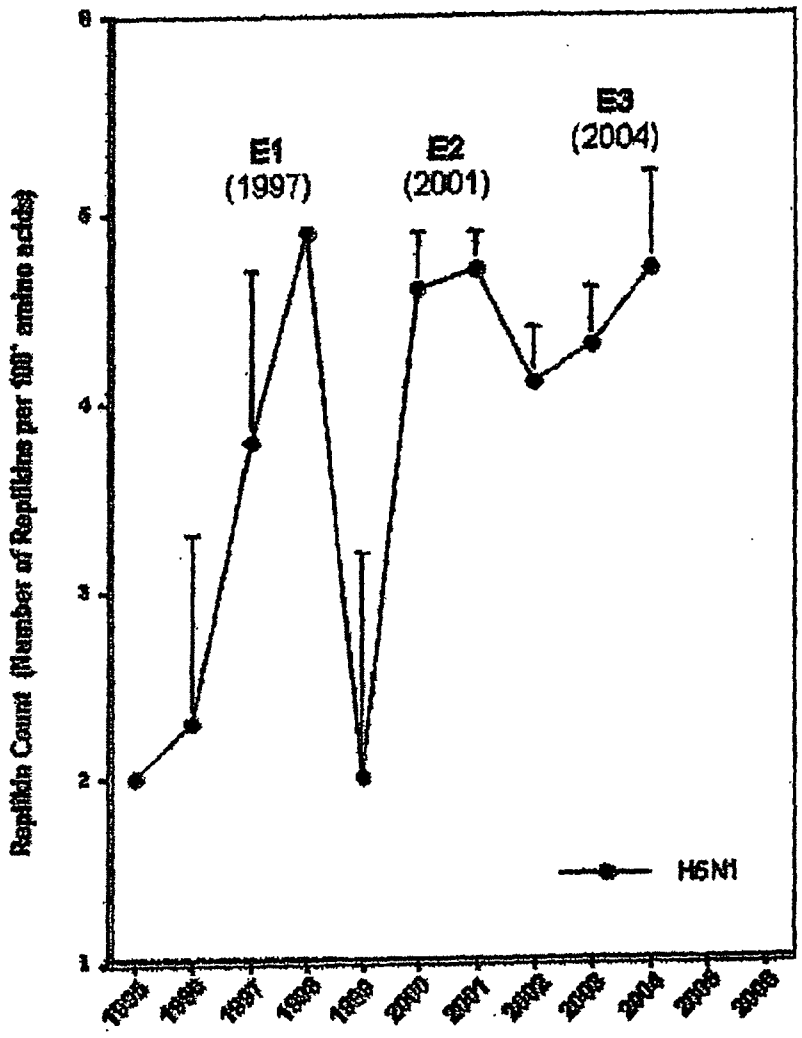

REPLIKIN COUNT
(NUMBER OF REPLIKINS/
100 AMINO ACIDS)
NUMBER OF
NEW REPLIKINS
H5N1 HEMAGGLUTININS
15
10
5
0
1996
WARNING
2000-01
WARNING
1997-8 EPIDEMIC
2002-3 EPIDEMIC
2001
1999
1998
1995
1991
1983
1981
1975
1959
YEAR

Fig. 10



Increasing Replikin Concentration ("Replikin Count") of Hemagglutinin Protein of H5N1 Prior to Three 'Bird Flu' Epidemics.

Fig. 11

Replikin Scaffolding.

1234.....29

kkgtsypklsksytnnkgkevlvlwgvhh	1917	H1N_ Influenza Goose Replikin
kkgssypklsksyvnnkgkevlvlwgvhh	1918	H1N1 Human Influenza Pandemic
kkensypklsksyvnnkgkevlvlwgvhh	1930	H1N1
kkgdsypkltnsyvnnkgkevlvlwgvhh	1933	H0N1
kkgtsypklsksytnnkgkevlvlwgvhh	1976	H1N1
kkgtsypklsksytnnkgkevlvlwgvhh	1977	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	1979	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	1980	H1N1
kkgtsypklsksytnnkgkevlvlwgvhh	1980	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	1981	H1N1
kkgtsypklsksytnnkgkevlvlwgvhh	1981	H1N1
kkgtsypklsksytnnkgkevlvlwgvhh	1985	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	1991	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	1992	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	1996	H1N1
kkgdsypklsksytnnkgkevlvjwgvhh	1996	H1N1
kkgssypklsksyvnnkgkevlvlwgvhh	1997	H1N1
kkgssypklsksyvnnkgkevlvlwgvhh	1998	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	1999	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	2000	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	2001	H1N1
kkgnsypklsksytnnkgkevlvjwgvhh	2002	H1N1
kkgnsypkisksyinnkekevlvlwgihh	1999	H1N2 Influenza
kkgnsypklsksyinnkkkevlvjwgihh	2000	H1N2
kkgnsypklsksyinnkgkkvlvlwgihh	2001	H1N2
kkgtsypklsksytnnkkkevlvlwgvhh	2001	H1N2
-knglypnlsksyannkekevlvlwgvhh	2002	H1N2
-knglypnlsksyannkekevlilwgvhh	2002	H1N2
kkensypklrksiiinkkevkljwgihh	1968	H3N2 Human Influenza Pandemic
----------ksykntrkdpaliiwgihh	1979–2003	H7N7 Influenza
kkgpnypvakrsynntsgeqmliiwgvhh	1957	H2N2 Human Influenza Pandemic
kkgpnypvakrsynntsgeqmliiwgihh	1957	H2N2 Human Influenza Pandemic
kknnayptikrtynntnvedlliiwgihh	2002	H5N2 Influenza
kknnayptikrsysntnqedllvlwgihh	1959	H5N1 Influenza (Scotland)
kknnayptikrtynntniedliiwgihh	1975	H5N1 (Wisconsin)
kknnayptikrtynntnmedliiwgihh	1981	H5N1 (Minnesota)
kkgnayptikrtynntnvedliiwgihh	1983	H5N1 (Pennsylvania)
kknntyptikrsynntnqedliiwgihh	1988	H5N1 (Scotland)

Residues identical to original 1917 Goose Replikin residues are shown in single underline. Amino acid substitutions in double underline and zig-zag underline.

Fig. 12

kknsayptikrsynntnqedllvlwgihh	1996	H5N1 (China)
kknsayptikrsynntnqedllvlwgihh	1997	H5N1 (China)
kknsayptikrsynntnqedllvlwgihh	1998	H5N1 (China)
kknsayptikrsynntnqedllvlwgihh	1999	H5N1 (China)
kknsayptikrsynntnqedllvlwgihh	2000	H5N1 (China)
kknsayptikrsynntnqedllvlwgihh	2001	H5N1 (China)
kknnayptikrsynntnqedllvlwgihh	2001	H5N1 (China)
kknsayptikrsynntnqedllvlwgihh	2002	H5N1 (China)
kknstyptikrsynntnqedllvlwgihh	2002	H5N1 (Thailand)
kknstyptikrsynntnqedllvlwgihh	2002	H5N1 (Vietnam)
kknstyptikrsynntnqedllvlwgihh	2003	H5N1 (Vietnam)
kknstyptikrsynntnqedllvlwgihh	2003	H5N1 (Thailand)
kknstyptikrsynntnqedllvlwgihh	2003	H5N1 (Sindong, China)
kknnayptikrsynntnqedllvlwgihh	2003	H5N1 (China)
kknstyptikrsynntnqedllvmwgihh	2004	H5N1 (Vietnam, highly pathogenic)
kknsayptikrsynntnqedllvlwgihh	2004	H5N1 (Vietnam,"highly pathogenic",gull)
kknstyptikrsynntnqedllvlwgihh	2004	H5N1 (Vietnam, highly pathogenic)
kknstyptikrsynntnqedllvlwgihh	2004	H5N1 (Thailand, highly pathogenic)
kknstyptikrsynntnqedllvlwgigh	2004	H5N1 (Thailand, highly pathogenic)
kknsaypiikrsynntnqedllvlwgihh	2004	H5N1 (China,highlypathogenic)
kknsayptikrsxnntnhedllvlwgihh	2004	H5N1 (China,"highly pathogenic", goose)

Residues identical to original 1917 Goose Replikin residues are shown in single underline. Amino acid substitutions in double underline and zig-zag underline.

Continued

Replikin Sequences present in hemagglutinins of Influenza B viruses in each year for which amino acid sequences were available (1940-2001).

Influenza B Replikins	Year Detected in Influenza B strain Peak in Figure 6: E
kshfanlk (SEQ ID NO: 104)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
kshfanlkgtk (SEQ ID NO: 105)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
kshfanlkgtktrgklcpk (SEQ ID NO: 106)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
hekygglnk (SEQ ID NO: 107)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
hekygglnksk (SEQ ID NO: 108)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
hekygglnkskpyytgehak (SEQ ID NO: 109)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
hakaigncpiwvk (SEQ ID NO: 110)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
hakaigncpiwvktplklangtk (SEQ ID NO: 111)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
hakaigncpiwvktplklangtkyrppak (SEQ ID NO: 112)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
hakaigncpiwvktplklangtkyrppakllk (SEQ ID NO: 113)	1940,43,51,59,75,76,77,89,90,93,97,98,99,00,01
k(a/v)silhevk (SEQ ID NO: 119)	1940, 59, 90,93
kvwcasgrskvikgslpligeadclh (SEQ ID NO: 123)	1940,43, 59,75,76,77,89,90, 98,99,00
kpyytgehak (SEQ ID NO: 124)	1940, 59, 89,90,93,97,98, 01
hgvavaadlkstqeaink (SEQ ID NO: 128)	1940, 59, 00
hgvavaadlkstqeainkdtistqeaink (SEQ ID NO: 129)	1940
hsdneiqmvklygdsk (SEQ ID NO: 116)	
hsdneiqdkmvklygdskpqk (SEQ ID NO: 117)	
kygglnkskpyytgeh (SEQ ID NO: 122)	
kcmgtipsakasilhevk (SEQ ID NO: 125)	1943, 75,76,77, 93
klygdskpqkftssangvtth (SEQ ID NO: 130)	1943, 75,76,77, 93,97, 00
hsdnetqmaklygdskpqk (SEQ ID NO: 131)	1943, 75,76,77, 93
hfanlkgtqtrgk (SEQ ID NO: 132)	1959
hfanlkgtktrgk (SEQ ID NO: 114)	1976, 89,90, 99,00,01
hfanlkgtktrgklcpk (SEQ ID NO: 115)	1976, 90 00,01
kprsalkckgfh (SEQ ID NO: 133)	1988
kctgtipsakasilhevk (SEQ ID NO: 121)	1993
hnvinaekapggpyk (SEQ ID NO: 126)	1993,97, 00
hsdnetqmaklygdsk (SEQ ID NO: 127)	1993,97, 00
hsdneiqmvklygdskpqk (SEQ ID NO: 118)	1997,98, 00
kctgtipsakasilh (SEQ ID NO: 120)	2000
kskpyytgehakai(g/a)ncpiwvk (SEQ ID NO: 134)	2000

Fig. 13

1. Influenza B has not been responsible for any human pandemic. 2. Abbreviation for years: e.g., "43" = 1943, "01" = 2001. 3. The first year that a given Replikin appears is indicated at the beginning of the series of years in which that Replikin has been found. 4. Overlapping Replikin sequences are listed separately. 5. Return of replikins, absent for several years, in the two years before the epidemic of 1977, underlined, correlates with increased total Replikin concentration (Replikin Count = number of Replikins per 100 amino acid residues). See Figure 6.

Continued

H1N1 Replikin Sequences present in HINI hemagglutinins of Influenza viruses in each year for which amino acid sequences were available (1918-2000)

H1N1 ReplikinYear Detected in Influenza

H1N1 Strain

Peak in Figure 6 :	P1	E1	E1.1, 1.2, 1.3	E1.4	)
hp(v/i)tigecpkyv(r/k)(s/t)(t/a)k (SEQ ID NO: 135)	1918,25,28,30,31,35,47,48,51,52,55,56,57,59,63,77,79,80,81,85,87,88,89,91,92,95,96,97,98,99,00				
hdsnvknly(e/g)kv(k/r)(n/s)ql(k/r)nnak (SEQ ID NO: 136)	1918,	28,30,31,	77,79,80,	88, 91, 95,	98
hdsnvknly(e/g)kv(k/r)(n/s)qlk (SEQ ID NO: 137)	1918,	28,30,31,	77,79,80,	88, 91, 95,	98
hkc(nn/dd)(a/t/e)cmesv(r/k)ngtydypkyseesklnre(e/k)idgvk (SEQ ID NO: 138)	1918,	30, 35,	77, 80,		98
hkc(nn/dd)(a/t/e)cmesv(r/k)ngtydypkyseesk (SEQ ID NO: 139)	1918,	30, 35,	77, 80,		98
hqn(e/g)qgsgyaadqkstqnai(d/n)gitnkvnsviekmntqftavgkefnklek (SEQ ID NO: 140)	1918,	28,30,31,35,	59, 79,	95	
hqn(e/g)qgsgyaadqkstqnai(d/n)gitnkvnsviek (SEQ ID NO: 141)	1918,	28,30,31,35,	59, 79,	95	
hqn(e/g)qgsgyaadqkstqnai(d/n)gitnk (SEQ ID NO: 142)	1918,	28,30,31,35,	59, 79,	95	
kfeifpktsswpnh (SEQ ID NO: 143)	1918,		77		
kg(n/s/t)sypkl(n/s)ksy(v/t)nnkgkevlvlwgvh (SEQ ID NO: 144)	1918,	35,	77,	96	
ksy(v/t)nnkgkevlvlwgvh (SEQ ID NO: 145)	1918,	35,	77,	96	
hkcnnecmesvkngtydypkyseesklnrekidgvk (SEQ ID NO: 146)	1928,	31,		95	
hkcnnecmesvkngtydypkyseesk (SEQ ID NO: 147)	1928,	31,		95	
hkcnnecmesvkngtydypk (SEQ ID NO: 148)	1928,	31,		95	
hkcnnecmesvk (SEQ ID NO: 149)	1928,	31,		95	
hngkssfy(k/r)nllwlt(e/g)knglypnlsksyvnnkek (SEQ ID NO: 150)	1928,			95,	00
hngkssfy(k/r)nllwlt(e/g)knglypnlsksyvnnk (SEQ ID NO: 151)	1928,	31,		95,	00
hngkssfy(k/r)nllwlt(e/g)knglypnlsk (SEQ ID NO: 152)	1928,	31,		95,	00
hngkssfy(k/r)nllwlt(e/g)k (SEQ ID NO: 153)	1928,	31,		95,	00
kssfyknllwltekng lypnlsksyvnnkekevlvlwgvh (SEQ ID NO: 154)	1928,	31,		95	
knllwltekng lypnlsksyvnnkekevlvlwgvh (SEQ ID NO: 155)	1928,	31,		95	
knglypnlsksyvnnkekevlvlwgvh (SEQ ID NO: 156)	1928,	31,		95,96,	00
ksy(v/a)nnkekev(l/-)(v/-)lwgvh (SEQ ID NO: 157)	1928,	31, 51,		95,96,	98, 00
kesswpnhtvtk (SEQ ID NO: 158)	1928,	31,		95	
het(t/n)kgvtaacpyagassfyrnllwlvkkensypklsksyvnnk (SEQ ID NO: 159)	1930,	35			
het(t/n)kgvtaacpyagassfyrnllwlvkkensypklsk (SEQ ID NO: 160)	1930,	35			
kfeifpktsswpnevlvlwgvh (SEQ ID NO: 161)	1930				
kerswpkh (SEQ ID NO: 162)		1947, 51,52,55,56,	79, 82		
klsksyvnnkekevlvlwqvh (SEQ ID NO: 163)		1947, 51			
knnkekevlvlwqvh (SEQ ID NO: 164)		1947			
h(k/n)(g/q)kssfy(r/k)nllwlteknng(l/s)yp(n/t)lsksyannkek (SEQ ID NO: 165)		1948	79,	89, 96,	
h(k/n)(g/q)kssfy(r/k)nllwltek (SEQ ID NO: 166)		1948	79,	89, 96,	
hakkssfyk (SEQ ID NO: 167)		1951, 57,59			
hngklcrlkgk (SEQ ID NO: 168)		1951,52,55,56,57,59,	79,		
hyklnn(q/g)kk (SEQ ID NO: 169)		1956,			00
hdiyrdeainnrfqiqgvkltqgyk (SEQ ID NO: 170)		1956			

Fig. 14

kgngcfeifhk (SEQ ID NO: 171)	1956			
klnrliektndkyhqiek (SEQ ID NO: 172)	1956			
klnrliektndkyh (SEQ ID NO: 173)	1956			
kchtdkgslsttk (SEQ ID NO: 174)	1956			
kinngdyaklyiwgvh (SEQ ID NO: 175)	1956			
hngklcrkgiaplqlgk (SEQ ID NO: 176)	1959,	82		
hetnrqvtaacpyagansffrnliwlvkkessypklsk (SEQ ID NO: 177)	1963,	81		
hetnrqvtaacpyagansffrnliwlvkkessypk (SEQ ID NO: 178)	1963,	81		
hpptstdqqslyqnadayifvgsskynrkfk (SEQ ID NO: 179)	1963,	81		
hpptstdqqslyqnadayifvgsskynrkfkpeia (SEQ ID NO: 180)	1963,	81		
hdiyrdeainnrfqiqgvkitqgyk (SEQ ID NO: 181)	1977,79,		91	
hqneqgsgyaadqkstqnaidgitnkvnsviekmntqftavgk (SEQ ID NO: 182)	1977			
hqneqgsgyaadqkstqnaidgitnkvnsviek (SEQ ID NO: 183)	1977			
hqneqgsgyaadqkstqnaingitnkvnsviekmntqftavgkefnklek (SEQ ID NO: 184)	1979,		91	
hngklcrlkgiaplqlgk (SEQ ID NO: 185)	1979			
hkcnnecmesvk (SEQ ID NO: 186)	1979			
kfeifpkasswpnh (SEQ ID NO: 187)	1981			
hdsnvknlyekvrsqlrnnak (SEQ ID NO: 188)	1981			
kvnsvikkmntqfaavgkefnh (SEQ ID NO: 189)	1981			
khngklck (SEQ ID NO: 190)	1981			
kkgtsypklsksythnkgkevlvlwgvh (SEQ ID NO: 191)	1981			
kgtsypklsksythnkgkevlvlwgvh (SEQ ID NO: 192)	1981			
klsksythnkgkevlvlwgvh (SEQ ID NO: 193)	1981			
ksythnkgkevlvlwgvh (SEQ ID NO: 194)	1981			
kgvtascshk (SEQ ID NO: 195)	1985,87			
kgvtascshkgrssfyrnllwltekngIypnlsk (SEQ ID NO: 196)	1985,87			
kgnsypklsksyvnnkekevlvlwgih (SEQ ID NO: 197)	1988			
kefnhlek (SEQ ID NO: 198)	1988			
hpptstdqqslyqnadayvfvgsskynkkfkpeiatrpk (SEQ ID NO: 199)	1988			
hpptstdqqslyqnadayvfvgsskynkkfk (SEQ ID NO: 200)	1988			
hegkssfyrnllwltekegsypklknsyvnk (SEQ ID NO: 201)	1991			
hegkssfyrnllwltekegsypk (SEQ ID NO: 202)	1991			
hkcdnecmesvrngtydypkyseesk (SEQ ID NO: 203)	1991			
kesswpnhtvtk (SEQ ID NO: 204)	1991,92			
knllwltekngIypnlsksyvnnkekeilvlwgvh (SEQ ID NO: 205)	1991,92,	96		
hngkssfy(k/m)(n/-)llwlt(e/g)(-/k)knglypnlsk (SEQ ID NO: 206)	1991,92,	96,		00
hngkssfyknllwltek (SEQ ID NO: 207)	1991,92,	96		
htvtkgvtascshngkssfyknllwltekngIypnlsksyvnnkekevlvlwgvh (SEQ ID NO: 208)	1995			
htvt(k/g)gv(t/s)ascshngkssfy(k/m)(n/-)llwlt(e/g)k(-n/k)glypnlsk (SEQ ID NO: 209)	1995,			00
htvtkgvtascshngkssfyknllwltek (SEQ ID NO: 210)	1995			
kyvrstklrmvtglrnipsiqsrglfgaiagfieggwtgmidgwygyh (SEQ ID NO: 211)	1995			
hqneqgsgyaadqkstqnaingitnkvnsiiekmntqftavgk (SEQ ID NO: 212)	1995			
hqneqgsgyaadqkstqnaingitnkvnsiiek (SEQ ID NO: 213)	1995			

Continued

hqneqgsgyaadqkstqnaingitnk (SEQ ID NO: 214)	1995
hsgarsfyrnllwivkkgnsypk (SEQ ID NO: 215)	1996
hsgarsfyrnllwivkkgnsypklnk (SEQ ID NO: 216)	1996
hsgarsfyrnllwivkkgnsypklnksytndk (SEQ ID NO: 217)	1996
hsgarsfyrnllwivkkgnsypklnksytndkgk (SEQ ID NO: 218)	1996
htvskgvttscshngk (SEQ ID NO: 219)	1996
katswpnhettk (SEQ ID NO: 220)	1996
kqvttscshnqk (SEQ ID NO: 221)	1996
kgnsypklnksytndkgkevlviwgvh (SEQ ID NO: 222)	1996
klnksytndkgkevlviwgvh (SEQ ID NO: 223)	1996
ksytndkgkevlviwgvh (SEQ ID NO: 224)	1996
hnqkssfyrnllwlt(e/q)knglypnlsksy(v/a)annkek (SEQ ID NO: 225)	1997,98,99
hpitigecpkyvrsak (SEQ ID NO: 226)	1997
hqneqgsgyaadqkstqnaingitnkvnsviekmntqftavgk (SEQ ID NO: 227)	1998
hqneqgsgyaadqkstqnaingitnkvnsviek (SEQ ID NO: 228)	1998
hngkssfyrnllwltekнglypnlsksyvnnkek (SEQ ID NO: 229)	1998

1. Influenza H1N1 was responsible for the human pandemic (global distribution) of 1918.
2. Abbreviation for years: eg. "96" = 1996.
3. The first year that a given Replikin appears is indicated at the beginning of the series of years in which that Replikin has been found in this work.
4. Overlapping Replikin sequences are listed separately.
5. Increase in number of new Replikin structures occurs in years of epidemics (underlined): eg. 1918 and 1977 and correlates with increased total Replikin concentration (number of Replikins per 100 amino acid residues). See Figure 6.

Continued

Replikin Sequences present in hemagglutinins of Influenza H2N2 viruses in years 1957-2000

Influenza H2N2 Replikins	***Year Detected in Influenza H2N2 strain*** (*Peak in Figure 7: P2 E2*)
khfekvkilpk (SEQ ID NO: 230)	1957,58,59,60,61,64,65,68, 78,83,84,91
khllssvkhfekvk (SEQ ID NO: 231)	1957,58,59,60,61, 83,84,91
ha(k/q/m)(d/n)ilekthngk (SEQ ID NO: 232)	1957,58,59,60,61,64,65,68, 78,83,84,91, 95
ha(k/q/m)(d/n)ilekthngklc(k/r) (SEQ ID NO: 233)	1957,58,59,60,61,64,65,68, 78,83,84,91, 95
hnvhpltigecpkyvksek (SEQ ID NO: 234)	1957,58,59, 65,68
hpltigecpkyvksek (SEQ ID NO: 235)	1957,58,59, 65,68,64,65,68,78,83,84,91
khllssvkhfekvkilpk (SEQ ID NO: 236)	1957,58,59,60,61,64,65,68, 78
krqssgimktegtlencetkcqtplgainttlpfhnvh (SEQ ID NO: 237)	1957, 59, 83
kgsnyp(v/i)ak(g/r)synntsgeqmliiwq(v/i)h (SEQ ID NO: 238)	1957,58,59, 61, 83, 91, 95
httlgqsracavsgnpsffrnmvwltekgsnypvak (SEQ ID NO: 239)	1957
khfekvk (SEQ ID NO: 240)	1957, 59, 65
kiskrgssgimktegtlencetkcqtplgainttlpfh (SEQ ID NO: 241)	1957, 59, 65, 91
krgssgimktegtlencetkcqtplgainttlpfh (SEQ ID NO: 242)	1957, 59, 65, 91
ktegtlencetkcqtplgainttlpfh (SEQ ID NO: 243)	1957, 59, 65, 91
kiskrgssgimktegtlencetkcqtplgainttlpfh (SEQ ID NO: 244)	1957, 59, 65, 91
ktegtlencetkcqtplgainttlpfhn(v/i)h (SEQ ID NO: 245)	1957, 59, 65, 91
kiskrgssgimktegtlencetkcqtplgainttlpfh (SEQ ID NO: 246)	1957, 59, 65, 91
k(e/g)snypvakgsynntsgeqmliiwgvh (SEQ ID NO: 247)	1957, 60, 65
hpltigecpkyvksek (SEQ ID NO: 248)	1957, 60, 65
kcqtplgaikttlpfh (SEQ ID NO: 249)	1957, 65
hhsndqgsgyaadkestqka(f/i)dgitnkvnsviek- -mntqfeavgklf(n/s)nleklenlnkk (SEQ ID NO: 250)	1961, 65,68, 83,84
hsndqgsgyaadkestqka(f/i)dgitnkvnsviek- -mntqfeavgklf(n/s)nleklenlnkk (SEQ ID NO: 251)	1961, 65, 68, 83,84
hsndqgsgyaadkestqka(f/i)dgitnk (SEQ ID NO: 252)	1961, 65, 68, 83,84
hdsnvrnlydkvrmqlrdnak (SEQ ID NO: 253)	1964, 68,76, 84,91
hkcddecmnsvkngtydypklnrneikgvk (SEQ ID NO: 254)	1964,65,68,76, 83,84,91
hkcddecmnsvkngtydypklnrneik (SEQ ID NO: 255)	1964,65,68,76, 83,84,91
hkcddecmnsvkngtydypk (SEQ ID NO: 256)	1964,65,68,76, 83,84,91
hkcddecmnsvk (SEQ ID NO: 257)	1964,65,68,76, 83,84,91
kgsnypvakgsynntngeqiliiwgvh (SEQ ID NO: 258)	1976,78
hsndqgsgyaadkestqkavdgitnkvnsviekmntqfeavgk (SEQ ID NO: 259)	1976, 91
krgssgimktegtlencetkcqtplgainttlpfh (SEQ ID NO: 260)	1976,78, 83,84
hpltigecpkyvksek (SEQ ID NO: 261)	1976
hakdilekthngklck (SEQ ID NO: 262)	1976

1. Influenza H2N2 was responsible for the human pandemic (global distribution) of 1957. 2. Abbreviation for years: eg. "58" =1958. 3. The first year that a given Replikin appears is indicated at the beginning of the series of years in which that Replikin has been found.in this work. 4. Overlapping Replikin sequences are listed separately. 5. Increase in number of new

Fig. 15

Replikin structures occurs in years of epidemics (underlined): eg. 1957 and 1965 and correlates with increased total Replikin concen tration (number of Replikins per 100 amino acid residues). See Figure 7.

Continued

H3N2 Replikin Sequences present in H3N2 hemagglutinins of Influenza viruses in each year for which amino acid sequences were available (1968-2000)

Influenza H3N2 Replikins	**Year Detected in Influenza H3N2 strain Influenza Replikins** (Peak in Figure 7: P3 E3 E4)
hdvyrdealnnrfqikgvelksgyk (SEQ ID NO: 263)	1968,72, 75 96,97,98
htidltdsemnklfertrk (SEQ ID NO: 264)	1968
kfhqiek (SEQ ID NO: 265)	1968,72, 75, 77 96,97,98
ktnekfh(g/q)iek (SEQ ID NO: 266)	1968 86 98
klnr(v/l)iektnekfh (SEQ ID NO: 267)	1968,72, 75, 77 97,98
hqiekefsevegriqdlekyvedtk (SEQ ID NO: 268)	1968,72, 98
kicnnphk (SEQ ID NO: 269)	1975
klnrvikktnekfh (SEQ ID NO: 270)	1975
hd(i,v)yrdealnnrfqik(g/q)ve(r/k)s(q/g)yk (SEQ ID NO: 271)	1975,76,77, 86
hqiekefsevegriqdlekyvedtk (SEQ ID NO: 272)	1975
kyvedtkidlwsynaellvalenqh (SEQ ID NO: 273)	1975
kyvkqnslklatgmrnvpekqtrglfgaiagfiengwegmidgwygfrh (SEQ ID NO: 274)	1975
kefsevegriqdlekyvedtkidlwsynaellvalenqh (SEQ ID NO: 275)	1975 2000
hqn(s/e)(e/q)g(t/s)g(q/y)aad(l/q)k- -stq(a/n)a(i/l)d(q/g)I(n/t)(g/n)k(l/v)n(r/s)vi(e/c)k (SEQ ID NO: 276)	1975 2000
hcd(g/q)f(q,r)nekwdlf(v,/i)er(s/t)k (SEQ ID NO: 277)	1975,76,77,78,80,81,82,83,84,85,86,88,89,90,91,92,93,94,95,96,97,98
htidltdsemnkklfertrk (SEQ ID NO: 278)	1977,
ksgstypvlkvtmpnndnfdklyiwgvh (SEQ ID NO: 279)	1977
klnwltksgntypvlnvtmpnndnfdklviwgvh (SEQ ID NO: 280)	1982
htidltdsemnklfektrk (SEQ ID NO: 281)	1986
klnrliektnekfhqtek (SEQ ID NO: 282)	1987
htgkssvmrsdapidfcnsecitpnqsipndkpfqnvnkitygacpk (SEQ ID NO: 283)	1994
htgkssvmrsdapidfcnsecitpnqsipndkpfqnvnk (SEQ ID NO: 284)	1994
hpstdsdqtslyvrasgrvtvstkrsqqtvipk (SEQ ID NO: 285)	1994
kyvedtkidlwsynaellvalenqh (SEQ ID NO: 286)	1997,98
klfertrkqlrenaedmgngcfkiyh (SEQ ID NO: 287)	1998
krrsiksffsrlnwlh (SEQ ID NO: 288)	1998
hpvtigecpky(v/r)kstk (SEQ ID NO: 289)	2000
kgnsypklsklsksyiinkkkevlviwgih (SEQ ID NO: 290)	2000
klsklsks(v/y)iinkkkevlviwgih (SEQ ID NO: 291)	2000
klsks(v/y)iinkkkevlviwgih (SEQ ID NO: 292)	2000

1. Influenza H3N2 was responsible for the human pandemic (global distribution) of 1968. 2. Abbreviation for years: eg. "77" =1977. 3. The first year that a given Replikin appears is indicated at the beginning of the series of years in which that Replikin has been found. 4. Overlapping Replikin sequences are listed separately. 5. Increase in number of new Replikin structures occurs in years of epidemics (underlined) : eg. 1975 and correlates with increased total Replikin concentration (number of Replikins per 100 amino acid residues). See Figure 7.

Fig. 16

Replikin Sequence	'Multi-K' Replikins: Length	% Untreated Mortality	ORGANISM
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29			Amino Acid position
A. INFLUENZA, SARS AND OTHER CORONAVIRUSES			
k k g t s y p k l s k s y t n n k g k e V l v l w g v h h	29		1917-18 Goose Replikin (SEQ ID NO: 743)
k k g t s y p k l s k s y t n n k g k e v l v l w g v h h	29	2.5	1918 Human Influenza (SEQ ID NO: 744)
l k e d l y p k l r k s v v h n k k k e v l v i w g i h h	29		1919-2001 H1N1, H1N2 (SEQ ID NO: 745)
l k e n s y p k l r k s i i i n k k k e v l v i w g i h h			H3N2 Influenza (SEQ ID NO: 746)
k k g t s y p k l s k s y t n n k k k e v l v l w g v h h	29		2001 H1N2 Influenza (SEQ ID NO: 747)
k k n s a y p t I k r s y n n t n q e d L l v l w g i h h	>37		1996-2001 H5N1 Influenza (SEQ ID NO: 748)
k k s a k t g t p k p s r n q s p a s s q t s a k s l a h	>37		2000 Human coronavirus 229E (SEQ ID NO: 794)[1]
k k l g v d t e k q q q r s k s k e r s n s k t r d t t p	>37		2003 Cancine coronavirus (SEQ ID NO: 795)[2]
k n g l y p n l s k s y a n n k e k e v L i l w g v h h	28		2002 H1N2 (SEQ ID NO: 749)
k k i n s p q p k f e g s g v p d n e n L k t s q q h	27		Avian bronchitis coronavirus (SEQ ID NO: 715)
k t g n a k l q r k k e k k n k r e t t L q q h	24		Porcine epidemic diarrhea coronavirus (SEQ ID NO: 716)
k h l d a y k t f p p t e p k k d k k k k	21		2003 Human SARS nucleocapsid (SEQ ID NO: 712)
k h r e f v f k n k d g f l y v y k	19		2003 Human SARS spike protein (SEQ ID NO: 717)
k e e l d k y f k n h	11		2003 Human SARS spike protein (SEQ ID NO: 718)
k y r y l r h g k	9		2003 Human SARS spike protein (SEQ ID NO: 719)
k k g a k l l h k	9	55	2003 SARS envelope protein (SEQ ID NO: 720)
k h l d a y k	7	55	**2003 Human SARS nucleocapsid protein (SEQ ID NO: 743)**

Fig. 17

B. OTHER VIRUSES, BACTERIA, MALARIA AND CANCER REPLIKINS			
h l v c g k k g l g l s g r k k	19		HIV-TAT (SEQ ID NO: 613)
k k i t n i t t k f e q l e k c c k h	19		Monkeypox virus (SEQ ID NO: 721)
k k l k k s l k l l s f y h p k k	17		African swine fever virus (SEQ ID NO: 722)
k n r i e r l k k e y s s t w h	16		West Nile Virus (SEQ ID NO: 723)
k s r g i p i k k g h	11		Nipah virus, v-protein (SEQ ID NO: 724)
k s r i m p i k k g h	11		Hendra virus, V-protein (SEQ ID NO: 725)
k k f l n q f k h h	10		Sindbis virus (SEQ ID NO: 726)
k k k s k k h k d k	10		EEL Leukemia (SEQ ID NO: 85)
k h h p k d n l i k	10		BRCA-1 Breast cancer (SEQ ID NO: 81)
k h k r k k f r q k	10		Ovarian cancer (SEQ ID NO: 84)
k a g v a f l h k k	10	>90%	Glioma Replikin (SEQ ID NO: 83)
k i h l i s v k k	9		Smallpox virus (SEQ ID NO: 727)
k l i s i h e k	8		Smallpox virus (SEQ ID NO: 728)
k l r e e h e k	8		B. anthracis, HATPase (SEQ ID NO: 729)
k h k k q i v k	8		Plasm. Falciparum ATPase (SEQ ID NO: 750)
k k h a t v l k	8	>90%	Ebola virus polymerase (SEQ ID NO: 730
k k e d d e k h	8		P. falciparum blood trophozoites (SEQ ID NO:)
k h k e k m s k	8	>90%	(K-RAS 2B) lung cancer (SEQ ID NO: 731)

Continued

k k l r h e k	7		Rous sarcoma virus (SEQ ID NO: 48)
k k l r h e k	7		c-src, colon, breast cancer (SEQ ID NO: 52)
k k l r h d k	7		c-yes, melanoma, colon cancer (SEQ ID NO: 50)

Continued

FIG. 17A

Replikin Sequence																											'Multi-K' Replikins: Length	% Untreated Mortality	ORGANISM
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29			Amino Acid position
A. INFLUENZA, SARS AND OTHER CORONAVIRUSES																													
k	**k**	g	t	s	y	p	**k**	l	s	**k**	s	y	t	n	n	**k**	g	**k**	e	V	l	v	l	w	g	v	**h**	**h**	29		1917-18 Goose Replikin
k	**k**	g	t	s	y	p	**k**	l	s	**k**	s	y	t	n	n	**k**	g	**k**	e	v	l	v	l	w	g	v	**h**	**h**	29	2.5	1918 Human Influenza
l	**k**	e	d	l	y	p	**k**	l	r	**k**	s	v	v	**h**	n	**k**	**k**	**k**	e	v	l	v	i	w	g	i	**h**	**h**	29		1919-2001 H1N1, *H1N2*
l	**k**	e	n	s	y	p	**k**	l	r	**k**	s	i	i	i	n	**k**	**k**	**k**	e	v	l	v	i	w	g	i	**h**	**h**			H3N2 Influenza
k	**k**	g	t	s	y	p	**k**	l	s	**k**	s	y	t	n	n	**k**	**k**	**k**	e	v	l	v	l	w	g	v	**h**	**h**	29		2001 H1N2 Influenza

FIG. 17B

k	**k**	n	s	a	y	p	t	I	**k**	r	s	y	n	n	t	n	q	e	d	L	l	v	l	w	g	i	**h**	**h**	>37		1996-2001 H5N1 Influenza
k	**k**	s	a	k	t	g	t	p	**k**	p	s	r	n	q	s	p	a	s	s	q	t	s	a	k	s	l	a	h	>37		2000 Human coronavirus 229E [1]
k	**k**	l	g	v	d	t	e	**k**	q	q	q	r	s	**k**	s	**k**	e	r	s	n	s	k	t	r	d	t	t	p	>37		2003 Canine coronavirus [2]
k	n	g	l	y	p	n	l	s	**k**	s	y	a	n	n	**k**	e	**k**	e	v	L	i	l	w	g	v	**h**	**h**		28		2002 H1N2
k	**k**	i	n	s	p	q	p	**k**	f	e	g	s	g	v	p	d	n	e	n	L	**k**	t	s	q	q	**h**				27		Avian bronchitis coronavirus
k	t	g	n	a	**k**	l	q	r	**k**	**k**	e	**k**	**k**	n	**k**	r	e	t	t	L	q	q	**h**							24		*Porcine epidemic* diarrhea coronavirus
k	**h**	l	d	a	y	**k**	t	f	p	p	t	e	p	**k**	**k**	d	**k**	**k**	**k**	**k**										21		2003 Human SARS nucleocapsid

[1] Human coronavirus 229E 2000: kksaktgtpkpsrnqspassqtsakslarsqssetkeqkh
[2] Canine coronavirus 2003: kklgvdtekqqqrsrskskersnsktrdttpknenkh

FIG. 17C

k	**h**	r	e	f	v	f	**k**	n	**k**	d	g	f	l	y	v	y	**k**												19		2003 Human SARS spike protein
k	e	e	l	d	**k**	y	f	**k**	n	**h**																			11		2003 Human SARS spike protein
k	y	r	y	l	r	**h**	g	**k**																					9		2003 Human SARS spike protein
k	**k**	g	a	**k**	l	l	**h**	**k**																					9	55	2003 SARS envelope protein
k	**h**	l	d	a	y	**k**																							7	55	**2003 Human SARS nucleocapsid protein (SEQ ID NO: 743)**
B. OTHER VIRUSES, BACTERIA, MALARIA AND CANCER REPLIKINS																															
h		l	v	c		g	**k**	**k**	g	l	g	l	s	g	r	**k**	**k**												19		HIV-TAT
k	**k**	i	t	n	i	t	t	**k**	f	e	q	l	e	**k**	c	c	**k**	**h**											19		Monkeypox virus

FIG. 17D

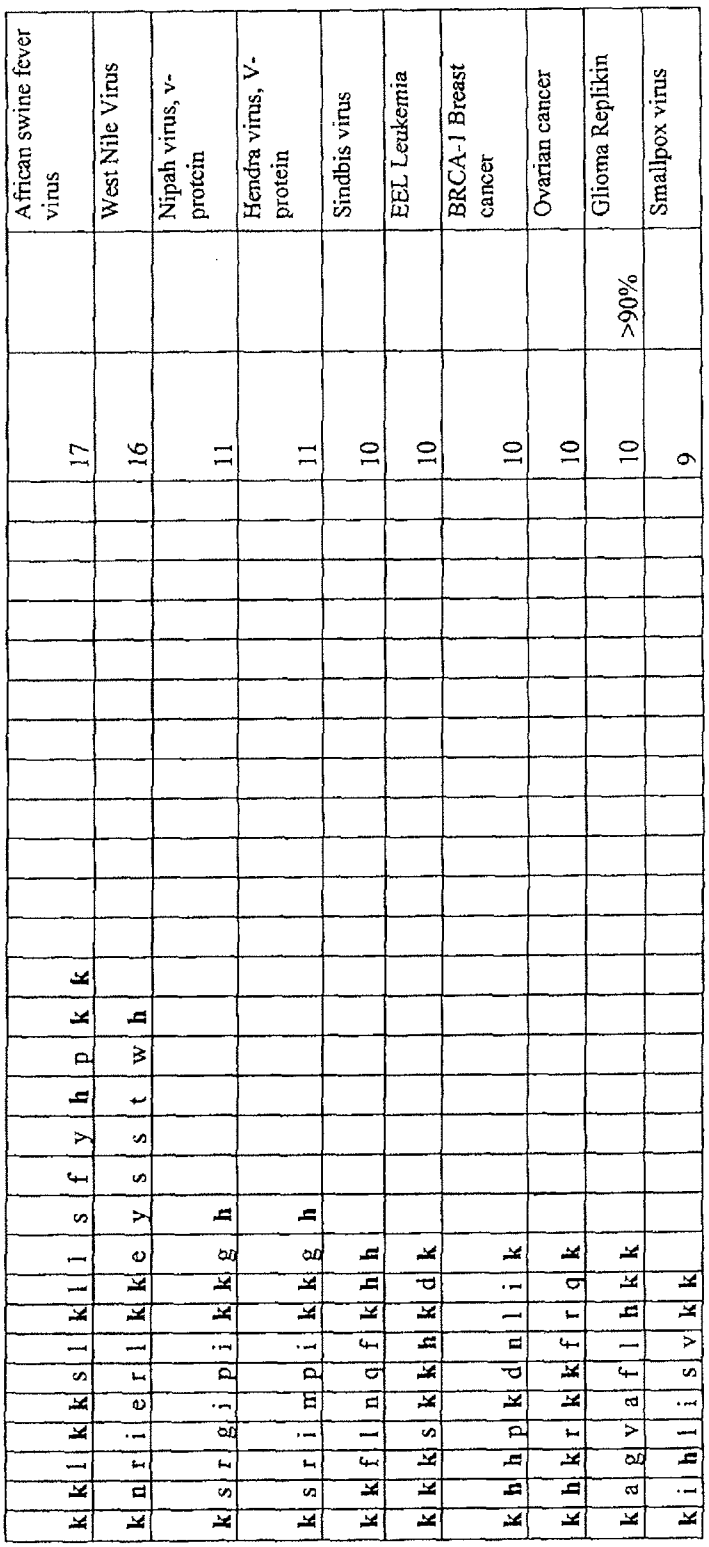
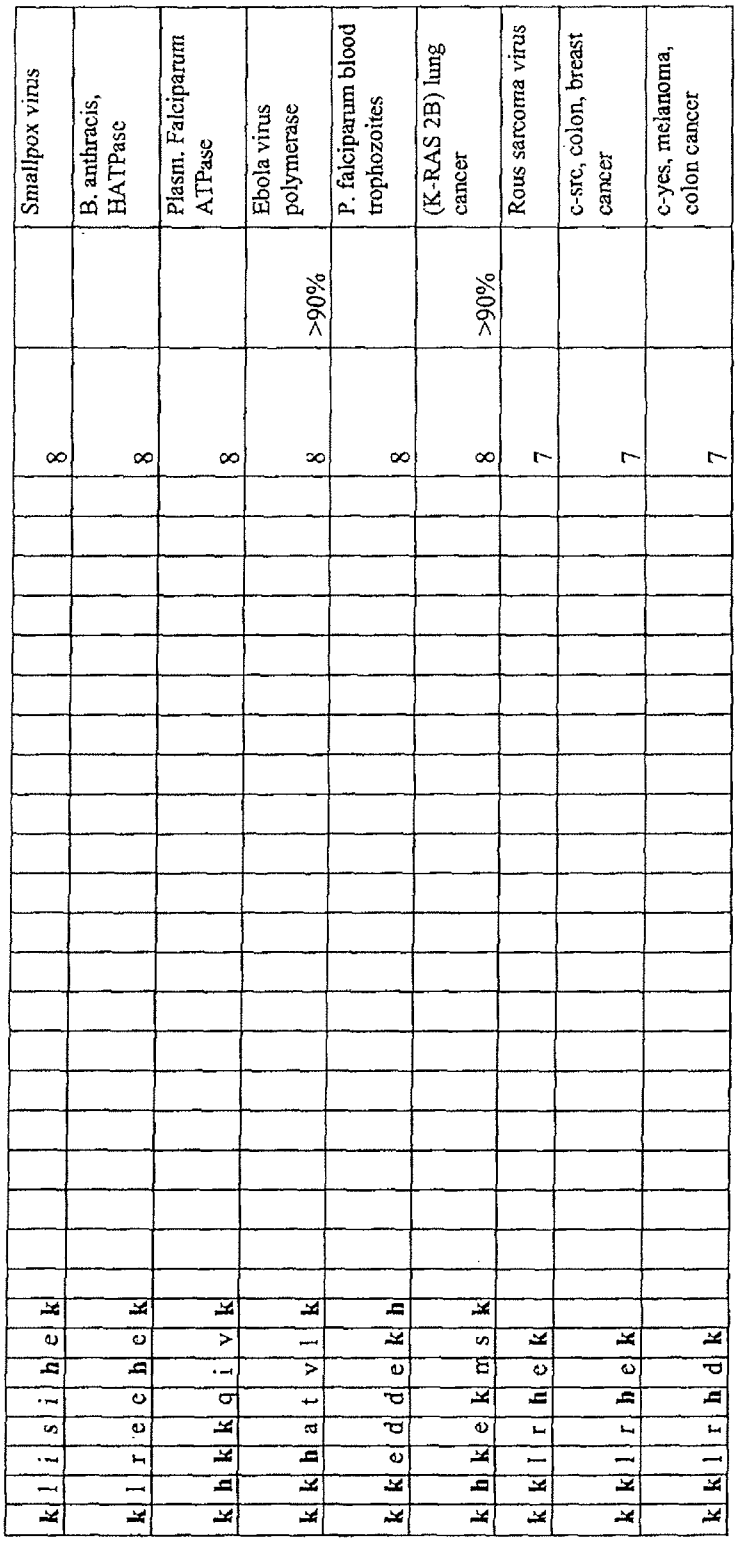

k k l k k s l k l l s f y h p k k
k n r i e r l k k e y s s t w h
k s r g j p i k k g h
k s r i m p i k k g h
k k f l l n q f k h h h
k k k s k k h k d k
k h h p k d n l l i k
k h k r k k f r q k
k a g v a f l h k k
k i h l l i s v k k
17
16
11
11
10
10
10
10
9
>90%
African swine fever virus
West Nile Virus
Nipah virus, v-protein
Hendra virus, V-protein
Sindbis virus
EEL Leukemia
BRCA-1 Breast cancer
Ovarian cancer
Glioma Replikin
Smallpox virus

FIG. 17E


k l l i s i h e k
k l l r e c h c k
k h k k q i v k
k k h a t v l l k
k k e d d e k h
k h k k e k m s k
k k l l r h e k
k k l l r h e k
k k l l r h d k
8
8
8
>90%
8
8
>90%
7
7
7
Smallpox virus
B. anthracis, HATPase
Plasm. Falciparum ATPase
Ebola virus polymerase
P. falciparum blood trophozoites
(K-RAS 2B) lung cancer
Rous sarcoma virus
c-src, colon, breast cancer
c-yes, melanoma, colon cancer