

SEQUENCE LISTING

<110> SANOFI PASTEUR

<120> LIVE-ATTENUATED YELLOW FEVER VIRUS STRAIN ADAPTED TO GROW ON VERO CELLS AND VACCINE COMPOSITION COMPRISING THE SAME

<130> PM1801-WO-PCT

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<170> BiSSAP 1.3.6

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<211> 10862

<212> RNA

<213> Yellow fever virus

<220>

<223> RNA sequence of the YFV 17D204 strain

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18

<210> 15
<211> 493
<212> PRT
<213> Yellow fever virus

<220>
<223> Sequence of the envelope protein of the YFV TV3111 or TV3112 strains

<400> 15
Ala His Cys Ile Gly Ile Thr Asp Arg Asp Phe Ile Glu Gly Val His
1 5 10 15
Gly Gly Thr Trp Val Ser Ala Thr Leu Glu Gln Asp Lys Cys Val Thr
20 25 30
Val Met Ala Pro Asp Lys Pro Ser Leu Asp Ile Ser Leu Glu Thr Val
35 40 45
Ala Ile Asp Arg Pro Ala Glu Val Arg Lys Val Cys Tyr Asn Ala Val
50 55 60
Leu Thr His Val Lys Ile Asn Asp Lys Cys Pro Ser Thr Gly Glu Ala
65 70 75 80
His Leu Ala Glu Glu Asn Glu Gly Asp Asn Ala Cys Lys Arg Thr Tyr
85 90 95
Ser Asp Arg Gly Trp Gly Asn Gly Cys Gly Leu Phe Gly Lys Gly Ser
100 105 110
Ile Val Ala Cys Ala Lys Phe Thr Cys Ala Lys Ser Met Ser Leu Phe
115 120 125
Glu Val Asp Gln Thr Lys Ile Gln Tyr Val Ile Arg Ala Gln Leu His
130 135 140
Val Gly Ala Lys Gln Glu Asn Trp Thr Thr Asp Ile Lys Thr Leu Lys
145 150 155 160
Phe Asp Ala Leu Ser Gly Ser Gln Glu Val Glu Phe Ile Gly Tyr Gly
165 170 175
Lys Ala Thr Leu Glu Cys Gln Val Gln Thr Ala Val Asp Phe Gly Asn
180 185 190
Ser Tyr Ile Ala Glu Met Glu Thr Glu Ser Trp Ile Val Asp Arg Gln
195 200 205
Trp Ala Gln Asp Leu Thr Leu Pro Trp Gln Ser Gly Ser Gly Gly Val
210 215 220
Trp Arg Glu Met His His Leu Val Glu Phe Glu Pro Pro His Ala Ala
225 230 235 240
Thr Ile Arg Val Leu Ala Leu Gly Asn Gln Glu Gly Ser Leu Lys Thr
245 250 255

Ala	Leu	Thr	Gly	Ala	Met	Arg	Val	Thr	Lys	Asp	Thr	Asn	Asp	Asn	Asn
			260					265					270		
Leu	Tyr	Lys	Leu	His	Gly	Gly	His	Val	Ser	Cys	Arg	Val	Lys	Leu	Ser
		275					280					285			
Ala	Leu	Thr	Leu	Lys	Gly	Thr	Ser	Tyr	Lys	Ile	Cys	Thr	Asp	Lys	Met
		290				295					300				
Phe	Phe	Val	Lys	Asn	Pro	Thr	Asp	Thr	Gly	His	Gly	Thr	Val	Val	Met
305					310					315					320
Gln	Val	Lys	Val	Ser	Lys	Gly	Ala	Pro	Cys	Arg	Ile	Pro	Val	Ile	Val
				325					330					335	
Ala	Asp	Asp	Leu	Thr	Ala	Ala	Ile	Asn	Lys	Gly	Ile	Leu	Val	Thr	Val
			340					345					350		
Asn	Pro	Ile	Ala	Ser	Thr	Asn	Asp	Asp	Glu	Val	Leu	Ile	Glu	Val	Asn
		355					360					365			
Pro	Pro	Phe	Gly	Asp	Ser	Tyr	Ile	Ile	Val	Gly	Arg	Gly	Asp	Ser	Arg
	370					375					380				
Leu	Thr	Tyr	Gln	Trp	His	Lys	Glu	Gly	Ser	Ser	Ile	Gly	Lys	Leu	Phe
385					390					395					400
Thr	Gln	Thr	Met	Lys	Gly	Val	Glu	Arg	Leu	Ala	Val	Met	Gly	Asp	Thr
			405						410					415	
Ala	Trp	Asp	Phe	Ser	Ser	Ala	Gly	Gly	Phe	Phe	Thr	Ser	Val	Gly	Lys
		420						425					430		
Gly	Ile	His	Thr	Val	Phe	Gly	Ser	Ala	Phe	Gln	Gly	Leu	Phe	Gly	Gly
		435				440						445			
Leu	Asn	Trp	Ile	Thr	Lys	Val	Ile	Met	Gly	Ala	Val	Leu	Ile	Trp	Val
	450					455					460				
Gly	Ile	Asn	Thr	Arg	Asn	Met	Thr	Met	Ser	Met	Ser	Met	Ile	Leu	Leu
465					470					475					480
Gly	Val	Ile	Met	Met	Phe	Leu	Ser	Leu	Gly	Val	Gly	Ala			
			485						490						

<210> 16

<211> 224

<212> PRT

<213> Yellow fever virus

<220>

<223> Sequence of the NS2a protein of the YFV TV3111 or TV3112 strains

<400> 16

Gly	Glu	Ile	His	Ala	Val	Pro	Phe	Gly	Leu	Val	Ser	Met	Met	Ile	Ala
1				5				10						15	
Met	Glu	Val	Val	Leu	Arg	Lys	Arg	Gln	Gly	Pro	Lys	Gln	Met	Leu	Val
		20						25				30			
Gly	Gly	Val	Val	Leu	Leu	Gly	Ala	Met	Leu	Val	Gly	Gln	Val	Thr	Leu
		35				40						45			
Leu	Asp	Leu	Leu	Lys	Leu	Thr	Val	Ala	Val	Gly	Leu	His	Phe	His	Glu
	50					55				60					
Val	Asn	Asn	Gly	Gly	Asp	Ala	Met	Tyr	Met	Ala	Leu	Ile	Ala	Ala	Phe
65					70					75					80
Ser	Ile	Arg	Pro	Gly	Leu	Leu	Ile	Gly	Phe	Gly	Leu	Arg	Thr	Leu	Trp
			85					90					95		
Ser	Pro	Arg	Glu	Arg	Leu	Val	Leu	Thr	Leu	Gly	Ala	Ala	Met	Val	Glu

			100					105					110			
Ile	Ala	Leu	Gly	Gly	Val	Met	Gly	Gly	Leu	Trp	Lys	Tyr	Leu	Asn	Ala	
		115					120					125				
Val	Ser	Leu	Cys	Ile	Leu	Thr	Ile	Asn	Ala	Val	Ala	Ser	Arg	Lys	Ala	
	130					135					140					
Ser	Asn	Thr	Ile	Leu	Pro	Leu	Met	Ala	Leu	Leu	Thr	Pro	Val	Thr	Met	
145					150					155					160	
Ala	Glu	Val	Arg	Leu	Ala	Ala	Met	Phe	Phe	Cys	Ala	Val	Val	Ile	Ile	
			165					170						175		
Gly	Val	Leu	His	Gln	Asn	Phe	Lys	Asp	Thr	Ser	Met	Gln	Lys	Thr	Ile	
		180				185					190					
Pro	Leu	Val	Ala	Leu	Thr	Leu	Thr	Ser	Tyr	Leu	Gly	Leu	Thr	Gln	Pro	
	195					200					205					
Phe	Leu	Gly	Leu	Cys	Ala	Phe	Leu	Ala	Thr	Arg	Ile	Phe	Gly	Arg	Arg	
	210					215					220					

<210> 17
 <211> 378
 <212> RNA
 <213> Yellow fever virus

<220>
 <223> RNA Sequence coding for the NS4a protein of the YFV TV3112 strain

<400> 17
 ggagcugcug aagugcuagu ugugcugagu gaacuccug auuuccuggc uaaaaagggg 60
 ggagaggcaa uggauaccu caguguguuu cuccacucug aggaaggcuc uagggcuuac 120
 cgcaaugcac uaucaugau gccugaggca augacaauag ucaugcuguu uauacuggcu 180
 ggacuacuga caucgggaau ggucaucuuu uucaugucuc ccaaaggcau caguagaau 240
 ucuauggcga ugggcacaau ggccggcugu ggauaucuca uguuccuugg aggcgucaaa 300
 cccacucaca ucuccuauau caugcucaua uucuuugucc ugaugguggu ugugaucucc 360
 gagccagggc aacaaagg 378

<210> 18
 <211> 1479
 <212> RNA
 <213> Yellow fever virus

<220>
 <223> RNA Sequence coding for the envelope protein of the YFV TV3112 strain

<400> 18

gcucacugca uuggaauuac ugacagggau uucauugagg gggugcaugg aggaacuugg	60
guuucagcua cccuggagca agacaagugu gucacuguua uggccccuga caagccuua	120
uuggacauca cacuagagac aguagccauu gauagaccug cugaggugag gaaagugugu	180
uacaauugcag uucucacuca ugugaagauu aaugacaagu gccccagcac uggagaggcc	240
caccuagcug aagagaacga aggggacaau gcgugcaagc gcacuuauuc ugauagaggc	300
uggggcaaug gcuguggccu auuugggaaa gggagcauug uggcaugcgc caaaauucacu	360
ugugccaaau ccaugaguuu guuugagguu gaucagacca aaauucagua ugucaucaga	420
gcacaauugc auguuggggc caagcaggaa aaugggacua ccgacauuaa gacucucaag	480
uuugaugccc ugucaggcuc ccaggaaguc gaguucuuug gguauaggaaa agcuacacug	540
gaaugccagg ugcaaacugc gguggacuuu gguaacagu uacaucgcuga gauggaaaca	600
gagagcugga uaguggacag acagugggcc caggacuuga cccugccaug gcagagugga	660
aguggcgggg uguggagaga gaugcaucau cuugucgaau uugaaccucc gcaugccgcc	720
acuaucagag uacuggcccu gggaaaccag gaaggcuccu ugaaaacagc ucuuacuggc	780
gcaaugaggg uuacaaagga cacaaaugac aacaaccuuu acaaacuaca ugguggacau	840
guuucuugca gagugaaauu gucagcuuug acacucaagg ggacauccua caaaauaugc	900
acugacaaaa uguuuuuugu caagaacca acugacacug gccauggcac uguugugaug	960
caggugaaag ugucaaaagg agccccugc aggauuccag ugauaguagc ugaugaucuu	1020
acagcggcaa ucaauaaagg cauuuugguu acaguuaacc ccaucgccuc aaccaaugau	1080
gaugaagugc ugauugaggu gaaccaccu uuuggagaca gcuacauuau cguugggaga	1140
ggagauucac gucucacua ccaguggcac aaagaggga gcucaauagg aaaguuguuc	1200
acucagacca ugaaaggcgu ggaacgccug gccgucaugg gagacaccgc cugggauuuc	1260
agcuccgcug gaggguuuuu cacuucgguu gggaaaggaa uucauacggu guuuggcucu	1320
gccuuucagg ggcuauuugg cggcuugaac uggauaaca aggucaucau gggggcggua	1380
cuuauauggg uuggcaucaa cacaagaaac augacaangu ccaugagcau gaucuuguua	1440
ggagugauca ugauguuuuu gucucuagga guuggggcg	1479