

SEQUENCE LISTING

<110> Sanofi Pasteur

<120> Human cytomegalovirus immunogenic composition

<130> BET17L3240

<160> 6

<170> PatentIn version 3.5

<210> 1

<211> 806

<212> PRT

<213> Artificial Sequence

<220>

<223> gB antigen

<400> 1

Ser	Ser	Thr	Arg	Gly	Thr	Ser	Ala	Thr	His	Ser	His	His	Ser	Ser	His
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Thr	Thr	Ser	Ala	Ala	His	Ser	Arg	Ser	Gly	Ser	Val	Ser	Gln	Arg	Val
			20					25					30		

Thr	Ser	Ser	Gln	Thr	Val	Ser	His	Gly	Val	Asn	Glu	Thr	Ile	Tyr	Asn
		35					40					45			

Thr	Thr	Leu	Lys	Tyr	Gly	Asp	Val	Val	Gly	Val	Asn	Thr	Thr	Lys	Tyr
		50				55					60				

Pro	Tyr	Arg	Val	Cys	Ser	Met	Ala	Gln	Gly	Thr	Asp	Leu	Ile	Arg	Phe
65					70					75					80

Glu	Arg	Asn	Ile	Val	Cys	Thr	Ser	Met	Lys	Pro	Ile	Asn	Glu	Asp	Leu
			85						90					95	

Asp	Glu	Gly	Ile	Met	Val	Val	Tyr	Lys	Arg	Asn	Ile	Val	Ala	His	Thr
			100					105					110		

Phe	Lys	Val	Arg	Val	Tyr	Gln	Lys	Val	Leu	Thr	Phe	Arg	Arg	Ser	Tyr
		115					120					125			

Ala Tyr Ile His Thr Thr Tyr Leu Leu Gly Ser Asn Thr Glu Tyr Val
130 135 140

Ala Pro Pro Met Trp Glu Ile His His Ile Asn Ser His Ser Gln Cys
145 150 155 160

Tyr Ser Ser Tyr Ser Arg Val Ile Ala Gly Thr Val Phe Val Ala Tyr
165 170 175

His Arg Asp Ser Tyr Glu Asn Lys Thr Met Gln Leu Met Pro Asp Asp
180 185 190

Tyr Ser Asn Thr His Ser Thr Arg Tyr Val Thr Val Lys Asp Gln Trp
195 200 205

His Ser Arg Gly Ser Thr Trp Leu Tyr Arg Glu Thr Cys Asn Leu Asn
210 215 220

Cys Met Val Thr Ile Thr Thr Ala Arg Ser Lys Tyr Pro Tyr His Phe
225 230 235 240

Phe Ala Thr Ser Thr Gly Asp Val Val Asp Ile Ser Pro Phe Tyr Asn
245 250 255

Gly Thr Asn Arg Asn Ala Ser Tyr Phe Gly Glu Asn Ala Asp Lys Phe
260 265 270

Phe Ile Phe Pro Asn Tyr Thr Ile Val Ser Asp Phe Gly Arg Pro Asn
275 280 285

Ser Ala Leu Glu Thr His Arg Leu Val Ala Phe Leu Glu Arg Ala Asp
290 295 300

Ser Val Ile Ser Trp Asp Ile Gln Asp Glu Lys Asn Val Thr Cys Gln
305 310 315 320

Leu Thr Phe Trp Glu Ala Ser Glu Arg Thr Ile Arg Ser Glu Ala Glu
325 330 335

Asp Ser Tyr His Phe Ser Ser Ala Lys Met Thr Ala Thr Phe Leu Ser
340 345 350

Lys Lys Gln Glu Val Asn Met Ser Asp Ser Ala Leu Asp Cys Val Arg
355 360 365

Asp Glu Ala Ile Asn Lys Leu Gln Gln Ile Phe Asn Thr Ser Tyr Asn
370 375 380

Gln Thr Tyr Glu Lys Tyr Gly Asn Val Ser Val Phe Glu Thr Thr Gly
385 390 395 400

Gly Leu Val Val Phe Trp Gln Gly Ile Lys Gln Lys Ser Leu Val Glu
405 410 415

Leu Glu Arg Leu Ala Asn Arg Ser Ser Leu Asn Leu Thr His Asn Thr
420 425 430

Thr Gln Thr Ser Thr Asp Gly Asn Asn Ala Thr His Leu Ser Asn Met
435 440 445

Glu Ser Val His Asn Leu Val Tyr Ala Gln Leu Gln Phe Thr Tyr Asp
450 455 460

Thr Leu Arg Gly Tyr Ile Asn Arg Ala Leu Ala Gln Ile Ala Glu Ala
465 470 475 480

Trp Cys Val Asp Gln Arg Arg Thr Leu Glu Val Phe Lys Glu Leu Ser
485 490 495

Lys Ile Asn Pro Ser Ala Ile Leu Ser Ala Ile Tyr Asn Lys Pro Ile
500 505 510

Ala Ala Arg Phe Met Gly Asp Val Leu Gly Leu Ala Ser Cys Val Thr
515 520 525

Ile Asn Gln Thr Ser Val Lys Val Leu Arg Asp Met Asn Val Lys Glu
530 535 540

Ser Pro Gly Arg Cys Tyr Ser Arg Pro Val Val Ile Phe Asn Phe Ala
545 550 555 560

Asn Ser Ser Tyr Val Gln Tyr Gly Gln Leu Gly Glu Asp Asn Glu Ile
565 570 575

Leu Leu Gly Asn His Arg Thr Glu Glu Cys Gln Leu Pro Ser Leu Lys
580 585 590

Ile Phe Ile Ala Gly Asn Ser Ala Tyr Glu Tyr Val Asp Tyr Leu Phe
595 600 605

Lys Arg Met Ile Asp Leu Ser Ser Ile Ser Thr Val Asp Ser Met Ile
610 615 620

Ala Leu Asp Ile Asp Pro Leu Glu Asn Thr Asp Phe Arg Val Leu Glu
625 630 635 640

Leu Tyr Ser Gln Lys Glu Leu Arg Ser Ser Asn Val Phe Asp Leu Glu
645 650 655

Glu Ile Met Arg Glu Phe Asn Ser Tyr Lys Gln Arg Val Lys Tyr Val
660 665 670

Glu Asp Lys Arg Leu Cys Met Gln Pro Leu Gln Asn Leu Phe Pro Tyr
675 680 685

Leu Val Ser Ala Asp Gly Thr Thr Val Thr Ser Gly Asn Thr Lys Asp
690 695 700

Thr Ser Leu Gln Ala Pro Pro Ser Tyr Glu Glu Ser Val Tyr Asn Ser
705 710 715 720

Gly Arg Lys Gly Pro Gly Pro Pro Ser Ser Asp Ala Ser Thr Ala Ala
725 730 735

Pro Pro Tyr Thr Asn Glu Gln Ala Tyr Gln Met Leu Leu Ala Leu Val
740 745 750

Arg Leu Asp Ala Glu Gln Arg Ala Gln Gln Asn Gly Thr Asp Ser Leu
755 760 765

Asp Gly Gln Thr Gly Thr Gln Asp Lys Gly Gln Lys Pro Asn Leu Leu
770 775 780

Asp Arg Leu Arg His Arg Lys Asn Gly Tyr Arg His Leu Lys Asp Ser
785 790 795 800

Asp Glu Glu Glu Asn Val
805

<210> 2
<211> 694
<212> PRT
<213> Artificial Sequence

<220>
<223> gH polypeptide

<400> 2

Arg Tyr Gly Ala Glu Ala Val Ser Glu Pro Leu Asp Lys Ala Phe His
1 5 10 15

Leu Leu Leu Asn Thr Tyr Gly Arg Pro Ile Arg Phe Leu Arg Glu Asn
20 25 30

Thr Thr Gln Cys Thr Tyr Asn Asn Ser Leu Arg Asn Ser Thr Val Val
35 40 45

Arg Glu Asn Ala Ile Ser Phe Asn Phe Phe Gln Ser Tyr Asn Gln Tyr
50 55 60

Tyr Val Phe His Met Pro Arg Cys Leu Phe Ala Gly Pro Leu Ala Glu
65 70 75 80

Gln Phe Leu Asn Gln Val Asp Leu Thr Glu Thr Leu Glu Arg Tyr Gln
85 90 95

Gln Arg Leu Asn Thr Tyr Ala Leu Val Ser Lys Asp Leu Ala Ser Tyr
100 105 110

Arg Ser Phe Ser Gln Gln Leu Lys Ala Gln Asp Ser Leu Gly Glu Gln
115 120 125

Pro Thr Thr Val Pro Pro Pro Ile Asp Leu Ser Ile Pro His Val Trp
130 135 140

Met Pro Pro Gln Thr Thr Pro His Gly Trp Thr Glu Ser His Thr Thr
145 150 155 160

Ser Gly Leu His Arg Pro His Phe Asn Gln Thr Cys Ile Leu Phe Asp
165 170 175

Gly His Asp Leu Leu Phe Ser Thr Val Thr Pro Cys Leu His Gln Gly
180 185 190

Phe Tyr Leu Ile Asp Glu Leu Arg Tyr Val Lys Ile Thr Leu Thr Glu
195 200 205

Asp Phe Phe Val Val Thr Val Ser Ile Asp Asp Asp Thr Pro Met Leu
210 215 220

Leu Ile Phe Gly His Leu Pro Arg Val Leu Phe Lys Ala Pro Tyr Gln
225 230 235 240

Arg Asp Asn Phe Ile Leu Arg Gln Thr Glu Lys His Glu Leu Leu Val
245 250 255

Leu Val Lys Lys Asp Gln Leu Asn Arg His Ser Tyr Leu Lys Asp Pro
260 265 270

Asp Phe Leu Asp Ala Ala Leu Asp Phe Asn Tyr Leu Asp Leu Ser Ala
275 280 285

Leu Leu Arg Asn Ser Phe His Arg Tyr Ala Val Asp Val Leu Lys Ser
290 295 300

Gly Arg Cys Gln Met Leu Asp Arg Arg Thr Val Glu Met Ala Phe Ala
305 310 315 320

Tyr Ala Leu Ala Leu Phe Ala Ala Ala Arg Gln Glu Glu Ala Gly Ala
325 330 335

Gln Val Ser Val Pro Arg Ala Leu Asp Arg Gln Ala Ala Leu Leu Gln
340 345 350

Ile Gln Glu Phe Met Ile Thr Cys Leu Ser Gln Thr Pro Pro Arg Thr
355 360 365

Thr Leu Leu Leu Tyr Pro Thr Ala Val Asp Leu Ala Lys Arg Ala Leu
370 375 380

Trp Thr Pro Asn Gln Ile Thr Asp Ile Thr Ser Leu Val Arg Leu Val
385 390 395 400

Tyr Ile Leu Ser Lys Gln Asn Gln Gln His Leu Ile Pro Gln Trp Ala
405 410 415

Leu Arg Gln Ile Ala Asp Phe Ala Leu Lys Leu His Lys Thr His Leu
420 425 430

Ala Ser Phe Leu Ser Ala Phe Ala Arg Gln Glu Leu Tyr Leu Met Gly
435 440 445

Ser Leu Val His Ser Met Leu Val His Thr Thr Glu Arg Arg Glu Ile
450 455 460

Phe Ile Val Glu Thr Gly Leu Cys Ser Leu Ala Glu Leu Ser His Phe
465 470 475 480

Thr Gln Leu Leu Ala His Pro His His Glu Tyr Leu Ser Asp Leu Tyr
485 490 495

Thr Pro Cys Ser Ser Ser Gly Arg Arg Asp His Ser Leu Glu Arg Leu
500 505 510

Thr Arg Leu Phe Pro Asp Ala Thr Val Pro Ala Thr Val Pro Ala Ala
515 520 525

Leu Ser Ile Leu Ser Thr Met Gln Pro Ser Thr Leu Glu Thr Phe Pro
530 535 540

Asp Leu Phe Cys Leu Pro Leu Gly Glu Ser Phe Ser Ala Leu Thr Val
545 550 555 560

Ser Glu His Val Ser Tyr Val Val Thr Asn Gln Tyr Leu Ile Lys Gly
565 570 575

Ile Ser Tyr Pro Val Ser Thr Thr Val Val Gly Gln Ser Leu Ile Ile
580 585 590

Thr Gln Thr Asp Ser Gln Thr Lys Cys Glu Leu Thr Arg Asn Met His
595 600 605

Thr Thr His Ser Ile Thr Ala Ala Leu Asn Ile Ser Leu Glu Asn Cys
610 615 620

Ala Phe Cys Gln Ser Ala Leu Leu Glu Tyr Asp Asp Thr Gln Gly Val
625 630 635 640

Ile Asn Ile Met Tyr Met His Asp Ser Asp Asp Val Leu Phe Ala Leu
645 650 655

Asp Pro Tyr Asn Glu Val Val Val Ser Ser Pro Arg Thr His Tyr Leu
660 665 670

Met Leu Leu Lys Asn Gly Thr Val Leu Glu Val Thr Asp Val Val Val
675 680 685

Asp Ala Thr Asp Ser Arg
690

<210> 3
<211> 248
<212> PRT
<213> Artificial Sequence

<220>
<223> gL polypeptide

<400> 3

Ala Ala Val Ser Val Ala Pro Thr Ala Ala Glu Lys Val Pro Ala Glu
1 5 10 15

Cys Pro Glu Leu Thr Arg Arg Cys Leu Leu Gly Glu Val Phe Gln Gly
20 25 30

Asp Lys Tyr Glu Ser Trp Leu Arg Pro Leu Val Asn Val Thr Gly Arg
35 40 45

Asp Gly Pro Leu Ser Gln Leu Ile Arg Tyr Arg Pro Val Thr Pro Glu
50 55 60

Ala Ala Asn Ser Val Leu Leu Asp Glu Ala Phe Leu Asp Thr Leu Ala
65 70 75 80

Leu Leu Tyr Asn Asn Pro Asp Gln Leu Arg Ala Leu Leu Thr Leu Leu
85 90 95

Ser Ser Asp Thr Ala Pro Arg Trp Met Thr Val Met Arg Gly Tyr Ser
100 105 110

Glu Cys Gly Asp Gly Ser Pro Ala Val Tyr Thr Cys Val Asp Asp Leu
115 120 125

Cys Arg Gly Tyr Asp Leu Thr Arg Leu Ser Tyr Glu Arg Ser Ile Phe
130 135 140

Thr Glu His Val Leu Gly Phe Glu Leu Val Pro Pro Ser Leu Phe Asn
145 150 155 160

Val Val Val Ala Ile Arg Asn Glu Ala Thr Arg Thr Asn Arg Ala Val
165 170 175

Arg Leu Pro Val Ser Thr Ala Ala Ala Pro Glu Gly Ile Thr Leu Phe
180 185 190

Tyr Gly Leu Tyr Asn Ala Val Lys Glu Phe Cys Leu Arg His Gln Leu
195 200 205

Asp Pro Pro Leu Leu Arg His Leu Asp Lys Tyr Tyr Ala Gly Leu Pro
210 215 220

Pro Glu Leu Lys Gln Thr Arg Val Asn Leu Pro Ala His Ser Arg Tyr
225 230 235 240

Gly Pro Gln Ala Val Asp Ala Arg
245

<210> 4
<211> 144
<212> PRT
<213> Artificial Sequence

<220>
<223> UL128 polypeptide

<400> 4

Glu Glu Cys Cys Glu Phe Ile Asn Val Asn His Pro Pro Glu Arg Cys
1 5 10 15

Tyr Asp Phe Lys Met Cys Asn Arg Phe Thr Val Ala Leu Arg Cys Pro
20 25 30

Asp Gly Glu Val Cys Tyr Ser Pro Glu Lys Thr Ala Glu Ile Arg Gly
35 40 45

Ile Val Thr Thr Met Thr His Ser Leu Thr Arg Gln Val Val His Asn
50 55 60

Lys Leu Thr Ser Cys Asn Tyr Asn Pro Leu Tyr Leu Glu Ala Asp Gly
65 70 75 80

Arg Ile Arg Cys Gly Lys Val Asn Asp Lys Ala Gln Tyr Leu Leu Gly
85 90 95

Ala Ala Gly Ser Val Pro Tyr Arg Trp Ile Asn Leu Glu Tyr Asp Lys
100 105 110

Ile Thr Arg Ile Val Gly Leu Asp Gln Tyr Leu Glu Ser Val Lys Lys
115 120 125

His Lys Arg Leu Asp Val Cys Arg Ala Lys Met Gly Tyr Met Leu Gln
130 135 140

<210> 5
<211> 189
<212> PRT
<213> Artificial Sequence

<220>
<223> UL130 polypeptide

<400> 5

Ser Pro Trp Ser Thr Leu Thr Ala Asn Gln Asn Pro Ser Pro Leu Trp
1 5 10 15

Ser Lys Leu Thr Tyr Ser Lys Pro His Asp Ala Ala Thr Phe Tyr Cys
20 25 30

Pro Phe Ile Tyr Pro Ser Pro Pro Arg Ser Pro Leu Gln Phe Ser Gly
35 40 45

Phe Gln Arg Val Leu Thr Gly Pro Glu Cys Arg Asn Glu Thr Leu Tyr
50 55 60

Leu Leu Tyr Asn Arg Glu Gly Gln Thr Leu Val Glu Arg Ser Ser Thr
65 70 75 80

Trp Val Lys Lys Val Ile Trp Tyr Leu Ser Gly Arg Asn Gln Thr Ile
85 90 95

Leu Gln Arg Met Pro Arg Thr Ala Ser Lys Pro Ser Asp Gly Asn Val
100 105 110

Gln Ile Ser Val Glu Asp Ala Lys Ile Phe Gly Ala His Met Val Pro
115 120 125

Lys Gln Thr Lys Leu Leu Arg Phe Val Val Asn Asp Gly Thr Arg Tyr
130 135 140

Gln Met Cys Val Met Lys Leu Glu Ser Trp Ala His Val Phe Arg Asp
145 150 155 160

Tyr Ser Val Ser Phe Gln Val Arg Leu Thr Phe Thr Glu Ala Asn Asn
165 170 175

Gln Thr Tyr Thr Phe Cys Thr His Pro Asn Leu Ile Val
180 185

<210> 6

<211> 111

<212> PRT

<213> Artificial Sequence

<220>

<223> UL131A polypeptide

<400> 6

Gln Cys Gln Arg Glu Thr Ala Glu Lys Asn Asp Tyr Tyr Arg Val Pro
1 5 10 15

His Tyr Trp Asp Ala Cys Ser Arg Ala Leu Pro Asp Gln Thr Arg Tyr
20 25 30

Lys Tyr Val Glu Gln Leu Val Asp Leu Thr Leu Asn Tyr His Tyr Asp
35 40 45

Ala Ser His Gly Leu Asp Asn Phe Asp Val Leu Lys Arg Ile Asn Val
50 55 60

Thr Glu Val Ser Leu Leu Ile Ser Asp Phe Arg Arg Gln Asn Arg Arg
65 70 75 80

Gly Gly Thr Asn Lys Arg Thr Thr Phe Asn Ala Ala Gly Ser Leu Ala
85 90 95

Pro His Ala Arg Ser Leu Glu Phe Ser Val Arg Leu Phe Ala Asn
100 105 110