

SEQUENCE LISTING

<110> Centre Leon-Berard
<120> HERV-K-derived antigens for cancer vaccine
<130> BET18L1817
<160> 16
<170> PatentIn version 3.5
<210> 1
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> HERV epitope

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Phe Leu Gln Phe Lys Thr Trp Trp Ile
1 5

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Arg Leu Ile Pro Tyr Asp Trp Glu Ile
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Lys Leu Ile Asp Cys Tyr Thr Phe Leu
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Tyr Leu Ser Phe Ile Lys Ile Leu Leu
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Ala Met Ile Pro Lys Asp Trp Pro Leu
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Tyr Ala Met Ser Asn Leu Phe Ser Ile
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Ser Met Asp Asp Gln Leu Asn Gln Leu
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<210> 8

<211> 29

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<223> peptide 8

<400> 8

Lys Ser Lys Ile Lys Ser Lys Tyr Ala Ser Tyr Leu Ser Phe Ile Lys
1 5 10 15

Ile Leu Leu Lys Arg Gly Gly Val Lys Val Ser Thr Lys
20 25

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<223> peptide 9

<400> 9

Thr Leu Leu Asp Ser Ile Ala His Gly His Arg Leu Ile Pro Tyr Asp
1 5 10 15

Trp Glu Ile Leu Ala Lys Ser Ser Leu Ser Pro Ser Gln
20 25

<210> 10

<211> 29

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<223> peptide 10

<400> 10

Leu	Ala	Lys	Ser	Ser	Leu	Ser	Pro	Ser	Gln	Phe	Leu	Gln	Phe	Lys	Thr
1				5					10					15	

Trp	Trp	Ile	Asp	Gly	Val	Gln	Glu	Gln	Val	Arg	Arg	Asn
			20					25				

<210> 11

<211> 29

<212> PRT

<213> Artificial sequence

<220>

<223> peptide 11

<400> 11

Gly	Pro	Leu	Gln	Pro	Gly	Leu	Pro	Ser	Pro	Ala	Met	Ile	Pro	Lys	Asp
1				5					10					15	

Trp	Pro	Leu	Leu	Ile	Ile	Ile	Asp	Leu	Lys	Asp	Cys	Phe
			20					25				

<210> 12

<211> 29

<212> PRT

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<223> peptide 12

<400> 12

Lys	Leu	Ile	Asp	Cys	Tyr	Thr	Phe	Leu	Gln	Ala	Glu	Val	Ala	Asn	Ala
1				5					10					15	

Gly	Leu	Ala	Ile	Ala	Ser	Asp	Lys	Ile	Gln	Thr	Ser	Thr
			20					25				

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<213> Artificial sequence

<220>
<223> peptide 13

<400> 13

Trp	Ile	Arg	Pro	Thr	Leu	Gly	Ile	Pro	Thr	Tyr	Ala	Met	Ser	Asn	Leu
1				5				10						15	

Phe	Ser	Ile	Leu	Arg	Gly	Asp	Ser	Asp	Leu	Asn	Ser	Lys
			20				25					

<210> 14
<211> 29
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<220>
<223> peptide 14

<400> 14

Arg	Asp	Val	Glu	Thr	Ala	Leu	Ile	Lys	Tyr	Ser	Met	Asp	Asp	Gln	Leu
1				5				10						15	

Asn	Gln	Leu	Phe	Asn	Leu	Leu	Gln	Gln	Thr	Val	Arg	Lys
			20				25					

<210> 15
<211> 522
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<220>
<223> polypeptide (gag)

<400> 15

Met	Gly	Gln	Thr	Lys	Ser	Lys	Ile	Lys	Ser	Lys	Tyr	Ala	Ser	Tyr	Leu
1				5				10						15	

Ser Phe Ile Lys Ile Leu Leu Lys Arg Gly Gly Val Lys Val Ser Thr
20 25 30

Lys Asn Leu Ile Lys Leu Phe Gln Ile Ile Glu Gln Phe Cys Pro Trp
35 40 45

Phe Pro Glu Gln Gly Thr Leu Asp Leu Lys Asp Trp Ser Gln Lys Glu
50 55 60

Thr Glu Gly Leu His Cys Glu Tyr Val Ala Glu Pro Val Met Ala Gln
65 70 75 80

Ser Thr Gln Asn Val Asp Tyr Asn Gln Leu Gln Glu Val Ile Tyr Pro
85 90 95

Glu Thr Leu Lys Leu Glu Glu Ser Lys Pro Arg Gly Thr Ser Pro Leu
100 105 110

Pro Ala Gly Gln Val Pro Val Thr Leu Gln Pro Gln Lys Gln Val Lys
115 120 125

Glu Asn Lys Thr Gln Pro Pro Val Ala Tyr Gln Tyr Trp Pro Pro Ala
130 135 140

Glu Leu Gln Tyr Arg Pro Pro Pro Glu Ser Gln Tyr Gly Tyr Pro Gly
145 150 155 160

Met Pro Pro Ala Pro Gln Gly Arg Ala Pro Tyr Pro Gln Pro Pro Thr
165 170 175

Arg Arg Leu Asn Pro Thr Ala Pro Pro Ser Arg Gln Gly Ser Lys Leu
180 185 190

His Glu Ile Ala Gln Glu Gly Glu Pro Pro Thr Val Glu Ala Arg Tyr
195 200 205

Lys Ser Phe Ser Ile Lys Lys Leu Lys Asp Met Lys Glu Gly Val Lys
210 215 220

Gln Tyr Gly Pro Asn Ser Pro Tyr Met Arg Thr Leu Leu Asp Ser Ile
 225 230 235 240

Ala His Gly His Arg Leu Ile Pro Tyr Asp Trp Glu Ile Leu Ala Lys
 245 250 255

Ser Ser Leu Ser Pro Ser Gln Phe Leu Gln Phe Lys Thr Trp Trp Ile
 260 265 270

Asp Gly Val Gln Glu Gln Val Arg Arg Asn Arg Ala Ala Asn Pro Pro
 275 280 285

Val Asn Ile Asp Ala Asp Gln Leu Leu Gly Ile Gly Gln Asn Trp Ser
 290 295 300

Thr Ile Ser Gln Gln Ala Leu Met Gln Asn Glu Ala Ile Glu Gln Val
 305 310 315 320

Arg Ala Ile Cys Leu Arg Ala Trp Glu Lys Ile Gln Asp Pro Ser Lys
 325 330 335

Glu Pro Tyr Pro Asp Phe Val Ala Arg Leu Gln Asp Val Ala Gln Lys
 340 345 350

Ser Ile Ala Asp Glu Lys Ala Arg Lys Val Ile Val Glu Leu Met Ala
 355 360 365

Tyr Glu Asn Ala Asn Pro Glu Cys Gln Ser Ala Ile Lys Pro Leu Lys
 370 375 380

Gly Lys Val Pro Ala Gly Ser Asp Val Ile Ser Glu Tyr Val Lys Ala
 385 390 395 400

Cys Asp Gly Ile Gly Gly Ala Met His Lys Ala Met Leu Met Ala Gln
 405 410 415

Ala Ile Thr Gly Val Val Leu Gly Gly Gln Val Arg Thr Phe Gly Arg
 420 425 430

Lys Cys Tyr Asn Cys Gly Gln Ile Gly His Leu Lys Lys Asn Cys Pro
 435 440 445

Val Leu Asn Lys Gln Asn Ile Thr Ile Gln Ala Thr Thr Thr Gly Arg
 450 455 460

Glu Pro Pro Asp Leu Cys Asn Glu Gln Arg Gly Gln Pro Gln Ala Pro
 465 470 475 480

Gln Gln Thr Gly Ala Phe Pro Ile Gln Pro Phe Val Pro Gln Gly Phe
 485 490 495

Gln Gly Gln Gln Pro Pro Leu Ser Gln Val Phe Gln Gly Ile Ser Gln
 500 505 510

Leu Pro Gln Tyr Asn Asn Cys Pro Pro Pro
 515 520

<210> 16
 <211> 831
 <212> PRT
 <213> Artificial sequence

<220>
 <223> polypeptide (pol)

<400> 16

Asn Lys Ser Arg Lys Arg Arg Asn Arg Glu Ser Leu Leu Gly Ala Ala
 1 5 10 15

Thr Val Glu Pro Pro Lys Pro Ile Pro Leu Thr Trp Lys Thr Glu Lys
 20 25 30

Pro Val Trp Val Asn Gln Trp Pro Leu Pro Lys Gln Lys Leu Glu Ala
 35 40 45

Leu His Leu Leu Ala Asn Glu Gln Leu Glu Lys Gly His Ile Glu Pro
50 55 60

Ser Phe Ser Pro Trp Asn Ser Pro Val Phe Val Ile Gln Lys Lys Ser
65 70 75 80

Gly Lys Trp Arg Met Leu Thr Asp Leu Arg Ala Val Asn Ala Val Ile
85 90 95

Gln Pro Met Gly Pro Leu Gln Pro Gly Leu Pro Ser Pro Ala Met Ile
100 105 110

Pro Lys Asp Trp Pro Leu Ile Ile Ile Asp Leu Lys Asp Cys Phe Phe
115 120 125

Thr Ile Pro Leu Ala Glu Gln Asp Cys Glu Lys Phe Ala Phe Thr Ile
130 135 140

Pro Ala Ile Asn Asn Lys Glu Pro Ala Thr Arg Phe Gln Trp Lys Val
145 150 155 160

Leu Pro Gln Gly Met Leu Asn Ser Pro Thr Ile Cys Gln Thr Phe Val
165 170 175

Gly Arg Ala Leu Gln Pro Val Arg Glu Lys Phe Ser Asp Cys Tyr Ile
180 185 190

Ile His Cys Ile Asp Asp Ile Leu Cys Ala Ala Glu Thr Lys Asp Lys
195 200 205

Leu Ile Asp Cys Tyr Thr Phe Leu Gln Ala Glu Val Ala Asn Ala Gly
210 215 220

Leu Ala Ile Ala Ser Asp Lys Ile Gln Thr Ser Thr Pro Phe His Tyr
225 230 235 240

Leu Gly Met Gln Ile Glu Asn Arg Lys Ile Lys Pro Gln Lys Ile Glu
245 250 255

Ile Arg Lys Asp Thr Leu Lys Thr Leu Asn Asp Phe Gln Lys Leu Leu
260 265 270

Gly Asp Ile Asn Trp Ile Arg Pro Thr Leu Gly Ile Pro Thr Tyr Ala
275 280 285

Met Ser Asn Leu Phe Ser Ile Leu Arg Gly Asp Ser Asp Leu Asn Ser
290 295 300

Lys Arg Met Leu Thr Pro Glu Ala Thr Lys Glu Ile Lys Leu Val Glu
305 310 315 320

Glu Lys Ile Gln Ser Ala Gln Ile Asn Arg Ile Asp Pro Leu Ala Pro
325 330 335

Leu Gln Leu Leu Ile Phe Ala Thr Ala His Ser Pro Thr Gly Ile Ile
340 345 350

Ile Gln Asn Thr Asp Leu Val Glu Trp Ser Phe Leu Pro His Ser Thr
355 360 365

Val Lys Thr Phe Thr Leu Tyr Leu Asp Gln Ile Ala Thr Leu Ile Gly
370 375 380

Gln Thr Arg Leu Arg Ile Ile Lys Leu Cys Gly Asn Asp Pro Asp Lys
385 390 395 400

Ile Val Val Leu Thr Lys Glu Gln Val Arg Gln Ala Phe Ile Asn Ser
405 410 415

Gly Ala Trp Lys Ile Gly Leu Ala Asn Phe Val Gly Ile Ile Asp Asn
420 425 430

His Tyr Pro Lys Thr Lys Ile Phe Gln Phe Leu Lys Leu Thr Thr Trp
435 440 445

Ile Leu Pro Lys Ile Thr Arg Arg Glu Pro Leu Glu Asn Ala Leu Thr
450 455 460

Val Phe Thr Asp Gly Ser Ser Asn Gly Lys Ala Ala Tyr Thr Gly Pro
465 470 475 480

Lys Glu Arg Val Ile Lys Thr Pro Tyr Gln Ser Ala Gln Arg Ala Glu
485 490 495

Leu Val Ala Val Ile Thr Val Leu Gln Asp Phe Asp Gln Pro Ile Asn
500 505 510

Ile Ile Ser Asp Ser Ala Tyr Val Val Gln Ala Thr Arg Asp Val Glu
515 520 525

Thr Ala Leu Ile Lys Tyr Ser Met Asp Asp Gln Leu Asn Gln Leu Phe
530 535 540

Asn Leu Leu Gln Gln Thr Val Arg Lys Arg Asn Phe Pro Phe Tyr Ile
545 550 555 560

Thr His Ile Arg Ala His Thr Asn Leu Pro Gly Pro Leu Thr Lys Ala
565 570 575

Asn Glu Gln Ala Asp Leu Leu Val Ser Ser Ala Leu Ile Lys Ala Gln
580 585 590

Glu Leu His Ala Leu Thr His Val Asn Ala Ala Gly Leu Lys Asn Lys
595 600 605

Phe Asp Val Thr Trp Lys Gln Ala Lys Asp Ile Val Gln His Cys Thr
610 615 620

Gln Cys Gln Val Leu His Leu Pro Thr Gln Glu Ala Gly Val Asn Pro
625 630 635 640

Arg Gly Leu Cys Pro Asn Ala Leu Trp Gln Met Asp Val Thr His Val
645 650 655

Pro Ser Phe Gly Arg Leu Ser Tyr Val His Val Thr Val Asp Thr Tyr
660 665 670

Ser His Phe Ile Trp Ala Thr Cys Gln Ser Thr Ser His Val Lys Lys
675 680 685

His Leu Leu Ser Cys Phe Ala Val Met Gly Val Pro Glu Lys Ile Lys
690 695 700

Thr Asp Asn Gly Pro Gly Tyr Cys Ser Lys Ala Phe Gln Lys Phe Leu
705 710 715 720

Ser Gln Trp Lys Ile Ser His Thr Thr Gly Ile Pro Tyr Asn Ser Gln
725 730 735

Gly Gln Ala Ile Val Glu Arg Thr Asn Arg Thr Leu Lys Thr Gln Leu
740 745 750

Val Lys Gln Lys Glu Gly Gly Asp Ser Lys Cys Thr Thr Pro Gln Met
755 760 765

Gln Leu Asn Leu Ala Leu Tyr Thr Leu Asn Phe Leu Asn Ile Tyr Arg
770 775 780

Asn Gln Thr Thr Thr Ser Ala Glu Gln His Leu Thr Gly Lys Lys Ser
785 790 795 800

Pro Gly Glu Asn Gln Leu Pro Val Trp Ile Pro Thr Arg His Leu Lys
805 810 815

Phe Tyr Asn Glu Pro Ile Arg Asp Ala Lys Lys Ser Thr Ser Ala
820 825 830