Fig. 1

```
                1                                                          60
Hpv11-e1        MADDSGTENEGSGCTGWFMVEAIVEHTTGTQISEDEEEEVEDSGYDMVDFIDDRHITQNS
Hpv6a-e1        MADDSGTENEGSGCTGWFMVEAIVQHPTGTQISDDEDEEVEDSGYDMVDFIDDSNITHNS
   6b-e1        MADDSGTENEGSGCTGWFMVEAIVQHPTGTQISDDEDEEVEDSGYDMVDFIDDSNITHNS

               61                                                         120
Hpv11-e1        VEAQALFNRQEADAHYATVQDLKRKYLGSPYVSPISNVANAVESEISPRLDAIKLTTQPK
Hpv6a-e1        LEAQALFNRQEADTHYATVQDLKRKYLGSPYVSPINTIAEAVESEISPRLDAIKLTRQPK
   6b-e1        LEAQALFNRQEADTHYATVQDLKRKYLGSPYVSPINTIAEAVESEISPRLDAIKLTRQPK

               121                                                        180
Hpv11-e1        KVKRRLFETRELTDSGYGYSEVEA..ATQVEKHGDPENGGDGQERDTGRDIEGEGVEHRE
Hpv6a-e1        KVKRRLFQTRELTDSGYGYSEVEAGTGTQVEKHGVPENGGDGQEKDTGRDIEG..EEHTE
   6b-e1        KVKRRLFQTRELTDSGYGYSEVEAGTGTQVEKHGVPENGGDGQEKDTGRDIEG..EEHTE

               181                                                        240
Hpv11-e1        AEAVDDSTREHADTSGILELLKCKDIRSTLHGKFKDCFGLSFVDLIRPFKSDRTTCADWV
Hpv6a-e1        AEAPTNSVREHAGTAGILELLKCKDLRAALLGKFKECFGLSFIDLIRPFKSDKTTCADWV
   6b-e1        AEAPTNSVREHAGTAGILELLKCKDLRAALLGKFKECFGLSFIDLIRPFKSDKTTCLDWV

               241                                                        300
Hpv11-e1        VAGFGIHHSIADAFQKLIEPLSLYAHIQWLTNAWGMVLLVLIRFKVNKSRCTVARTLGTL
Hpv6a-e1        VAGFGIHHSISEAFQKLIEPLSLYAHIQWLTNAWGMVLLVLVRFKVNKSRSTVARTLATL
   6b-e1        VAGFGIHHSISEAFQKLIEPLSLYAHIQWLTNAWGMVLLVLLRFKVNKSRSTVARTLATL

               301                                                        360
Hpv11-e1        LNIPENHMLIEPPKIQSGVRALYWFRTGISNASTVIGEAPEWITRQTVIEHSLADSQFKL
Hpv6a-e1        LNIPDNQMLIEPPKIQSGVAALYWFRTGISNASTVIGEAPEWITRQTVIEHGLADSQFKL
   6b-e1        LNIPENQMLIEPPKIQSGVAALYWFRTGISNASTVIGEAPEWITRQTVIEHGLADSQFKL

               361                                                        420
Hpv11-e1        TEMVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNSNMQAKYVKDCAIMCRHYKHAEM
Hpv6a-e1        TEMVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNSNMQAKYVKDCATMCRHYKHAEM
   6b-e1        TEMVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNSNMQAKYVKDCATMCRHYKHAEM

               421                                                        480
Hpv11-e1        KKMSIKQWIKYRGTKVDSVGNWKPIVQFLRHQNIEFIPFLSKLKLWLHGTPKKNCIAIVG
Hpv6a-e1        RKMSIKQWIKHRGSKIEGTGNWKPIVQFLRHQNIEFIPFLSKFKLWLHGTPKKNCIAIVG
   6b-e1        RKMSIKQWIKHRGSKIEGTGNWKPIVQFLRHQNIEFIPFLTKFKLWLHGTPKKNCIAIVG

               481                                                        540
Hpv11-e1        PPDTGKSCFCMSLIKFLGGTVISYVNSCSHFWLQPLTDAKVALLDDATQPCWTYMDTYMR
Hpv6a-e1        PPDTGKSYFCMSLISFLGGTVISHVNSSSHFWLQPLVDAKVALLDDATQPCWIYMDTYMR
   6b-e1        PPDTGKSYFCMSLISFLGGTVISHVNSSSHFWLQPLVDAKVALLDDATQPCWIYMDTYMR

               541                                                        600
Hpv11-e1        NLLDGNPMSIDRKHRALTLIKCPPLLVTSNIDISKEEKYKYLHSRVTTFTFPNPFPFDRN
Hpv6a-e1        NLLDGNPMSIDRKHKALTLIKCPPLLVTSNIDITKEEKYKYLHTRVTTFTFPNPFPFDRN
   6b-e1        NLLDGNPMSIDRKHKALTLIKCPPLLVTSNIDITKEDKYKYLHTRVTTFTFPNPFPFDRN

               601                                                        651
Hpv11-e1        GNAVYELSDANWKCFFERLSSSLDIEDSEDEEDGSNSQAFRCVPGSVVRTL
Hpv6a-e1        GNAVYELSNANWKCFFERLSSSLDIQDSEDEEDGSNSQAFRCVPGTVVRTL
   6b-e1        GNAVYELSNTNWKCFFERLSSSLDIQDSEDEEDGSNSQAFRCVPGTVVRTL
```

Fig. 2

```
            1                                                          60
6b-e1       MADDSGTENEGSGCTGWFMVEAIVQHPTGTQISDDEDEEVEDSGYDMVDFIDDSNITHNS
6b-e1 mut   MADDSGTENEGSGCTGWFMVEAIVQHPTGTQISDDEDEEVEDSGYDMVDFIDDSNITHNS

            61                                                         120
6b-e1       LEAQALFNRQEADTHYATVQDLKRKYLGSPYVSPINTIAEAVESEISPRLDAIKLTRQPK
6b-e1 mut   LEAQALFNRQEADTHYATVQDLGGKYLGSPYVSPINTIAEAVESEISPRLDAIKLTRQPK

            121                                                        180
6b-e1       KVKRRLFQTRELTDSGYGYSEVEAGTGTQVEKHGVPENGGDGQEKDTGRDIEGEEHTEAE
6b-e1 mut   KVKRRLFQTRELTDSGYGYSEVEAGTGTQVEKHGVPENGGDGQEKDTGRDIEGEEHTEAE

            181                                                        240
6b-e1       APTNSVREHAGTAGILELLKCKDLRAALLGKFKECFGLSFIDLIRPFKSDKTTCLDWVVA
6b-e1 mut   APTNSVREHAGTAGILELLKCKDLRAALLGKFKECFGLSFIDLIRPFKSDKTTCLDWVVA

            241                                                        300
6b-e1       GFGIHHSISEAFQKLIEPLSLYAHIQWLTNAWGMVLLVLLRFKVNKSRSTVARTLATLLN
6b-e1 mut   GFGIHHSISEAFQKLIEPLSLYAHIQWLTNAWGMVLLVLLRFKVNKSRSTVARTLATLLN

            301                                                        360
6b-e1       IPENQMLIEPPKIQSGVAALYWFRTGISNASTVIGEAPEWITRQTVIEHGLADSQFKLTE
6b-e1 mut   IPENQMLIEPPKIQSGVAALYWFRTGISNASTVIGEAPEWITRQTVIEHGLADSQFKLTE

            361                                                        420
6b-e1       MVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNSNMQAKYVKDCATMCRHYKHAEMRK
6b-e1 mut   MVQWAYDNDICEESEIAFEYAQRGDFDSNARAFLNSNMQAKYVKDCATMCRHYKHAEMRK

            421                                                        480
6b-e1       MSIKQWIKHRGSKIEGTGNWKPIVQFLRHQNIEFIPFLTKFKLWLHGTPKKNCIAIVGPP
6b-e1 mut   MSIKQWIKHRGSKIEGTGNWKPIVQFLRHQNIEFIPFLTKFKLWLHGTPKKNCIAIVGPP

            481                                                        540
6b-e1       DTGKSYFCMSLISFLGGTVISHVNSSSHFWLQPLVDAKVALLDDATQPCWIYMDTYMRNL
6b-e1 mut   DTDKSYFCMSLISFLGGTVISHVNSSSHFWLQPLVDAKVALLDDATQPCWIYMDTYMRNL

            541                                                        600
6b-e1       LDGNPMSIDRKHKALTLIKCPPLLVTSNIDITKEDKYKYLHTRVTTFTFPNPFPFDRNGN
6b-e1 mut   LDGNPMSIDRKHKALTLIKCPPLLVTSNIDITKEDKYKYLHTRVTTFTFPNPFPFDRNGN

            601                                                649
6b-e1       AVYELSNTNWKCFFERLSSSLDIQDSEDEEDGSNSQAFRCVPGTVVRTL
6b-e1 mut   AVYELSNTNWKCFFERLSSSLDIQDSEDEEDGSNSQAFRCVPGTVVRTL
```

Fig. 3

```
            1                                                          60
Hpv-11e2    MEAIAKRLDACQDQLLELYEENSIDIHKHIMHWKCIRLESVLLHKAKQMGLSHIGLQVVP
Hpv6a-e2    MEAIAKRLDACQEQLLELYEENSTDLNKHVLHWKCMRHESVLLYKAKQMGLSHIGMQVVP
Hpv6b-e2    MEAIAKRLDACQEQLLELYEENSTDLHKHVLHWKCMRHESVLLYKAKQMGLSHIGMQVVP

            61                                                         120
Hpv-11e2    PLTVSETKGHNAIEMQMHLESLAKTQYGVEPWTLQDTSYEMWLTPPKRCFKKQGNTVEVK
Hpv6a-e2    PLKVSEAKGHNAIEMQMHLESLLKTEYSMEPWTLQETSYEMWQTPPKRCFKKRGKTVEVK
Hpv6b-e2    PLKVSEAKGHNAIEMQMHLESLLRTEYSMEPWTLQETSYEMWQTPPKRCFKKRGKTVEVK

            121                                                        180
Hpv-11e2    FDGCEDNVMEYVVWTHIYLQDNDSWVKVTSSVDAKGIYYTCGQFKTYYVNFNKEAQKYGS
Hpv6a-e2    FDGCANNTMDYVVWTDVYVQDTDSWVKVHSMVDAKGIYYTCGQFKTYYVNFVKEAEKYGS
Hpv6b-e2    FDGCANNTMDYVVWTDVYVQDNDTWVKVHSMVDAKGIYYTCGQFKTYYVNFVKEAEKYGS

            181                                                        240
Hpv-11e2    TNHWEVCYGSTVICSPASVSSTVREVSIAEPTTYTPAQTTAPTVSACTTEDGVSAPPRKR
Hpv6a-e2    TKQWEVCYGSTVICSPASVSSTTQEVSIPESTTYTPAQTSTP.VSSSTQEDAVQTPPRKR
Hpv6b-e2    TKHWEVCYGSTVICSPASVSSTTQEVSIPESTTYTPAQTSTL.VSSSTKEDAVQTPPRKR

            241                                                        300
Hpv-11e2    ARGPSTN..NTLCVANIRSVDSTINNIVTDNYNKHQRRNNCHSAATPIVQLQGDSNCLKC
Hpv6a-e2    ARGVQQSPCNALCVAHIGPVDSGNHNLITNNHDQHQRRNNSNSSATPIVQFQGESNCLKC
Hpv6b-e2    ARGVQQSPCNALCVAHIGPVDSGNHNLITNNHDQHQRRNNSNSSATPIVQFQGESNCLKC

            301                                                        360
Hpv-11e2    FRYRLNDKYKHLFELASSTWHWASPEAPHKNAIVTLTYSSEEQRQQFLNSVKIPPTIRHK
Hpv6a-e2    FRYRLNDKHRHLFDLISSTWHWASPKAPHKHAIVTVTYHSEEQRQQFLNVVKIPPTIRHK
Hpv6b-e2    FRYRLNDRHRHLFDLISSTWHWASSKAPHKHAIVTVTYDSEEQRQQFLDVVKIPPTISHK

            361     369
Hpv-11e2    VGFMSLHLL
Hpv6a-e2    LGFMSLHLL
Hpv6b-e2    LGFMSLHLL
```

Fig. 4a

```
                1                                                          60
Hpv-11e2-comut  MEAIAKRLDACQDQLLELYEENSIDIHKHIMHWKCIRLESVLLHKAKQMGLSHIGLQVVP
Hpv-11e2-mut    MEAIAKRLDACQDQLLELYEENSIDIHKHIMHWKCIRLESVLLHKAKQMGLSHIGLQVVP
Hpv-11e2-wt     MEAIAKRLDACQDQLLELYEENSIDIHKHIMHWKCIRLESVLLHKAKQMGLSHIGLQVVP

               61                                                         120
Hpv-11e2-comut  PLTVSETKGHNAIEMQMHLESLAKTQYGVEPWTLQDTSYEMWLTPPKRCFAKQGNTVEVK
Hpv-11e2-mut    PLTVSETKGHNAIEMQMHLESLAKTQYGVEPWTLQDTSYEMWLTPPKRCFAKQGNTVEVK
Hpv-11e2-wt     PLTVSETKGHNAIEMQMHLESLAKTQYGVEPWTLQDTSYEMWLTPPKRCFKKQGNTVEVK

               121                                                        180
Hpv-11e2-comut  FDGCEDNVMEYVVWTHIYLQDNDSWVKVTSSVDAKGIYYTCGQFKTYYVNFNKEAQKYGS
Hpv-11e2-mut    FDGCEDNVMEYVVWTHIYLQDNDSWVKVTSSVDAKGIYYTCGQFKTYYVNFNKEAQKYGS
Hpv-11e2-wt     FDGCEDNVMEYVVWTHIYLQDNDSWVKVTSSVDAKGIYYTCGQFKTYYVNFNKEAQKYGS

               181                                                        240
Hpv-11e2-comut  TNHWEVCYGSTVICSPASVSSTVREVSIAEPTTYTPAQTTAPTVSACTTEDGVSAPPRKR
Hpv-11e2-mut    TNHWEVCYGSTVICSPASVSSTVREVSIAEPTTYTPAQTTAPTVSACTTEDGVSAPPRKR
Hpv-11e2-wt     TNHWEVCYGSTVICSPASVSSTVREVSIAEPTTYTPAQTTAPTVSACTTEDGVSAPPRKR

               241                                                        300
Hpv-11e2-comut  ARGPSTNNTLCVANIRSVDSTINNIVTDNYNKHQRRNNCHSAATPIVQLQGDSNCLKCFR
Hpv-11e2-mut    ARGPSTNNTLCVANIRSVDSTINNIVTDNYNKHQRRNNCHSAATPIVQLQGDSNCLKCFR
Hpv-11e2-wt     ARGPSTNNTLCVANIRSVDSTINNIVTDNYNKHQRRNNCHSAATPIVQLQGDSNCLKCFR

               301                                                        360
Hpv-11e2-comut  YRLNDKYKHLFELASSTWHWASPEAPHKNAIVTLTYSSEEQRQQFLNSVKIPPTIRHKVG
Hpv-11e2-mut    YRLNDKYKHLFELASSTWHWASPEAPHKNAIVTLTYSSEEQRQQFLNSVKIPPTIRHKVG
Hpv-11e2-wt     YRLNDKYKHLFELASSTWHWASPEAPHKNAIVTLTYSSEEQRQQFLNSVKIPPTIRHKVG

               361    367
Hpv-11e2-comut  FMSLHLL
Hpv-11e2-mut    FMSLHLL
Hpv-11e2-wt     FMSLHLL
```

Fig. 4b

```
                1                                                          60
 Hpv-6be2-wt    MEAIAKRLDACQEQLLELYEENSTDLHKHVLHWKCMRHESVLLYKAKQMGLSHIGMQVVP
 Hpv-6be2-mut   MEAIAKRLDACQEQLLELYEENSTDLHKHVLHWKCMRHESVLLYKAKQMGLSHIGMQVVP

               61                                                         120
 Hpv-6be2-wt    PLKVSEAKGHNAIEMQMHLESLLRTEYSMEPWTLQETSYEMWQTPPKRCFKKRGKTVEVK
 Hpv-6be2-mut   PLKVSEAKGHNAIEMQMHLESLLRTEYSMEPWTLQETSYEMWQTPPKRCFAKRGKTVEVK

               121                                                        180
 Hpv-6be2-wt    FDGCANNTMDYVVWTDVYVQDNDTWVKVHSMVDAKGIYYTCGQFKTYYVNFVKEAEKYGS
 Hpv-6be2-mut   FDGCANNTMDYVVWTDVYVQDNDTWVKVHSMVDAKGIYYTCGQFKTYYVNFVKEAEKYGS

               181                                                        240
 Hpv-6be2-wt    TKHWEVCYGSTVICSPASVSSTTQEVSIPESTTYTPAQTSTL.VSSSTKEDAVQTPPRKR
 Hpv-6be2-mut   TKHWEVCYGSTVICSPASVSSTTQEVSIPESTTYTPAQTSTL.VSSSTKEDAVQTPPRKR

               241                                                        300
 Hpv-6be2-wt    ARGVQQSPCNALCVAHIGPVDSGNHNLITNNHDQHQRRNNSNSSATPIVQFQGESNCLKC
 Hpv-6be2-mut   ARGVQQSPCNALCVAHIGPVDSGNHNLITNNHDQHQRRNNSNSSATPIVQFQGESNCLKC
```

Fig.4 Cont..

```
            301                                                       360
Hpv-6be2-wt   FRYRLNDRHRHLFDLISSTWHWASSKAPHKHAIVTVTYDSEEQRQQFLDVVKIPPTISHK
Hpv-6be2-mut FRYRLNDRHRHLFDLISSTWHWASSKAPHKHAIVTVTYDSEEQRQQFLDVVKIPPTISHK

            361     369
Hpv-6be2-wt   LGFMSLHLL
Hpv-6be2-mut LGFMSLHLL
```

Fig. 5

```
                1                                                      60
HPV6be1-comut GCGGCCGCCATGGCAGACGATTCCGGTACTGAGAACGAAGGTTCTGGTTGTACCGGTTGG

               61                                                     120
HPV6be1-comut TTCATGGTTGAAGCAATCGTTCAGCATCCGACTGGTACCCAGATCTCCGATGACGAAGAC

              121                                                     180
HPV6be1-comut GAAGAAGTTGAAGATTCTGGTTACGACATGGTTGACTTCATCGATGACTCCAACATCACT

              181                                                     240
HPV6be1-comut CATAACTCTCTGGAAGCACAGGCTCTGTTTAACCGCCAGGAAGCTGATACCCATTACGCT

              241                                                     300
HPV6be1-comut ACTGTTCAGGACCTGGGAGGCAAATATCTGGGCTCTCCGTACGTTTCCCCGATCAACACT

              301                                                     360
HPV6be1-comut ATCGCAGAAGCAGTTGAGTCTGAAATCTCCCCGCGCCTGGACGCTATCAAACTGACTCGT

              361                                                     420
HPV6be1-comut CAGCCGAAGAAGGTTAAACGTCGTCTGTTCCAGACTCGTGAACTGACCGACTCCGGTTAC

              421                                                     480
HPV6be1-comut GGTTATAGCGAAGTTGAGGCTGGCACCGGCACCCAGGTTGAAAAACACGGTGTACCGGAA

              481                                                     540
HPV6be1-comut AACGGCGGCGACGGTCAGGAAAAGGACACCGGCCGCGACATCGAGGGTGAGGAACACACC

              541                                                     600
HPV6be1-comut GAAGCTGAAGCTCCGACTAACTCTGTTCGTGAACACGCAGGTACTGCGGGTATCCTGGAA

              601                                                     660
HPV6be1-comut CTGCTGAAATGCAAAGACCTGCGCGCGGCTCTGCTGGGCAAATTCAAAGAATGCTTCGGC

              661                                                     720
HPV6be1-comut CTGTCTTTCATTGACCTGATCCGTCCGTTTAAGTCTGACAAAACTACCTGTCTGGACTGG

              721                                                     780
HPV6be1-comut GTTGTAGCAGGCTTCGGCATCCACCACTCTATCTCTGAAGCATTCCAGAAACTGATCGAG

              781                                                     840
HPV6be1-comut CCGCTGTCTCTGTACGCGCACATCCAGTGGCTGACTAACGCTTGGGGTATGGTTCTGCTG

              841                                                     900
HPV6be1-comut GTACTGCTGCGCTTTAAAGTAAACAAATCTCGTTCCACTGTTGCTCGTACTCTGGCTACC

              901                                                     960
HPV6be1-comut CTGCTGAACATCCCGGAGAACCAGATGCTGATCGAACCGCCGAAAATCCAGTCTGGTGTA

              961                                                    1020
HPV6be1-comut GCTGCACTGTACTGGTTTCGTACTGGCATCTCTAACGCTAGCACTGTTATCGGTGAAGCA

             1021                                                    1080
HPV6be1-comut CCGGAATGGATCACTCGTCAGACCGTTATCGAACACGGTCTGGCAGATTCTCAGTTCAAA

             1081                                                    1140
HPV6be1-comut CTGACTGAAATGGTTCAGTGGGCATACGACAACGACATCTGCGAGGAATCTGAAATTGCG
```

Fig. 5 Cont..

```
                1141                                                1200
HPV6be1-comut TTCGAATACGCTCAGCGTGGCGACTTCGACTCCAACGCTCGTGCTTTCCTGAACAGCAAC

                1201                                                1260
HPV6be1-comut ATGCAGGCTAAATACGTAAAAGACTGCGCTACCATGTGCCGTCACTACAAACACGCGGAA

                1261                                                1320
HPV6be1-comut ATGCGTAAAATGTCTATCAAACAGTGGATCAAGCACCGCGGTTCTAAAATCGAAGGTACC

                1321                                                1380
HPV6be1-comut GGTAACTGGAAACCGATCGTTCAGTTCCTGCGCCATCAGAACATCGAATTCATCCCGTTC

                1381                                                1440
HPV6be1-comut CTGACCAAATTCAAGCTGTGGCTGCACGGTACCCCGAAAAAAAACTGCATCGCTATCGTA

                1441                                                1500
HPV6be1-comut GGTCCACCGGACACTGACAAGTCTTACTTCTGTATGTCCCTGATCTCTTTCCTGGGCGGC

                1501                                                1560
HPV6be1-comut ACTGTAATCTCTCACGTTAACTCTTCCTCCCATTTCTGGCTGCAGCCACTGGTAGACGCG

                1561                                                1620
HPV6be1-comut AAAGTAGCTCTGCTGGACGACGCGACCCAGCCGTGCTGGATCTACATGGATACTTACATG

                1621                                                1680
HPV6be1-comut CGCAACCTGCTGGACGGTAACCCGATGTCTATCGACCGTAAACACAAAGCGCTGACTCTG

                1681                                                1740
HPV6be1-comut ATCAAGTGCCCGCCGCTGCTGGTAACTTCTAACATCGACATCACCAAGGAAGATAAATAC

                1741                                                1800
HPV6be1-comut AAGTACCTGCATACCCGTGTTACTACCTTTACTTTCCCGAACCCGTTCCCGTTTGATCGT

                1801                                                1860
HPV6be1-comut AACGGTAACGCTGTTTACGAACTGTCCAACACTAACTGGAAATGCTTCTTCGAGCGTCTG

                1861                                                1920
HPV6be1-comut TCTTCCTCCCTGGACATCCAGGACTCTGAAGATGAAGAAGATGGTTCTAACTCTCAGGCT

                1921                                        1968
HPV6be1-comut TTCCGTTGTGTTCCGGGTACTGTTGTTCGTACTCTGTGAGGATCC''.
```

Fig. 6

```
                1                                                          60
Hpv11e2-comut ''GCGGCCGCCATGGAAGCCATCGCGAAGAGGCTCGACGCCTGCCAGGACCAGCTGCTCG

               61                                                         120
Hpv11e2-comut AGCTGTACGAGGAGAACAGCATTGACATCCATAAGCACATCATGCACTGGAAGTGCATTC

              121                                                         180
Hpv11e2-comut GCCTGGAGAGCGTGCTGTTGCACAAGGCCAAGCAGATGGGCCTGTCCCACATAGGCCTTC

              181                                                         240
Hpv11e2-comut AGGTGGTCCCCCCTCTGACCGTGTCAGAGACAAAGGGCCATAACGCAATCGAGATGCAGA

              241                                                         300
Hpv11e2-comut TGCACCTCGAGTCGCTGGCGAAAACACAGTACGGCGTGGAGCCATGGACCCTGCAGGACA

              301                                                         360
Hpv11e2-comut CCTCGTACGAAATGTGGCTGACCCCACCTAAGCGATGCTTCGCCAAACAGGGCAACACAG

              361                                                         420
Hpv11e2-comut TGGAGGTGAAGTTCGACGGCTGTGAGGATAACGTTATGGAGTATGTCGTGTGGACGCACA

              421                                                         480
Hpv11e2-comut TCTATCTGCAGGACAACGACAGTTGGGTGAAGGTGACCAGCTCCGTGGACGCGAAGGGCA

              481                                                         540
Hpv11e2-comut TCTACTATACCTGTGGGCAGTTTAAAACCTACTATGTGAACTTCAACAAAGAGGCCCAAA

              541                                                         600
Hpv11e2-comut AGTATGGCTCCACCAACCACTGGGAGGTCTGCTATGGGAGCACGGTGATTTGCTCTCCCG

              601                                                         660
Hpv11e2-comut CCAGCGTGTCTAGCACTGTGCGCGAGGTGAGCATTGCCGAGCCGACCACGTACACCCCTG

              661                                                         720
Hpv11e2-comut CCCAGACGACCGCTCCGACCGTGTCTGCTTGTACTACCGAGGACGGCGTGAGCGCTCCAC

              721                                                         780
Hpv11e2-comut CCAGGAAGCGTGCGAGGGGCCCAAGCACCAACAACACCCTCTGTGTGGCGAACATTCGCA

              781                                                         840
Hpv11e2-comut GCGTCGACAGTACCATCAATAACATCGTGACGGATAACTATAACAAGCACCAGAGGCGTA

              841                                                         900
Hpv11e2-comut ACAACTGTCACTCTGCCGCAACCCCCATCGTGCAGCTCCAGGGAGACAGCAATTGCCTTA

              901                                                         960
Hpv11e2-comut AGTGCTTCCGCTATCGCCTCAACGACAAGTACAAGCACCTCTTTGAGCTCGCCTCGTCGA

              961                                                        1020
Hpv11e2-comut CGTGGCACTGGGCCTCACCCGAGGCACCTCACAAGAACGCCATCGTCACTCTCACTTACT

             1021                                                        1080
Hpv11e2-comut CCAGTGAGGAGCAGAGACAGCAGTTTCTGAACAGCGTGAAGATCCCACCGACGATCCGTC

             1081                                        1123
Hpv11e2-comut ATAAGGTCGGCTTCATGTCACTGCATCTCCTGTGAGGATCC''
```

Figure 7: WRG7313plc

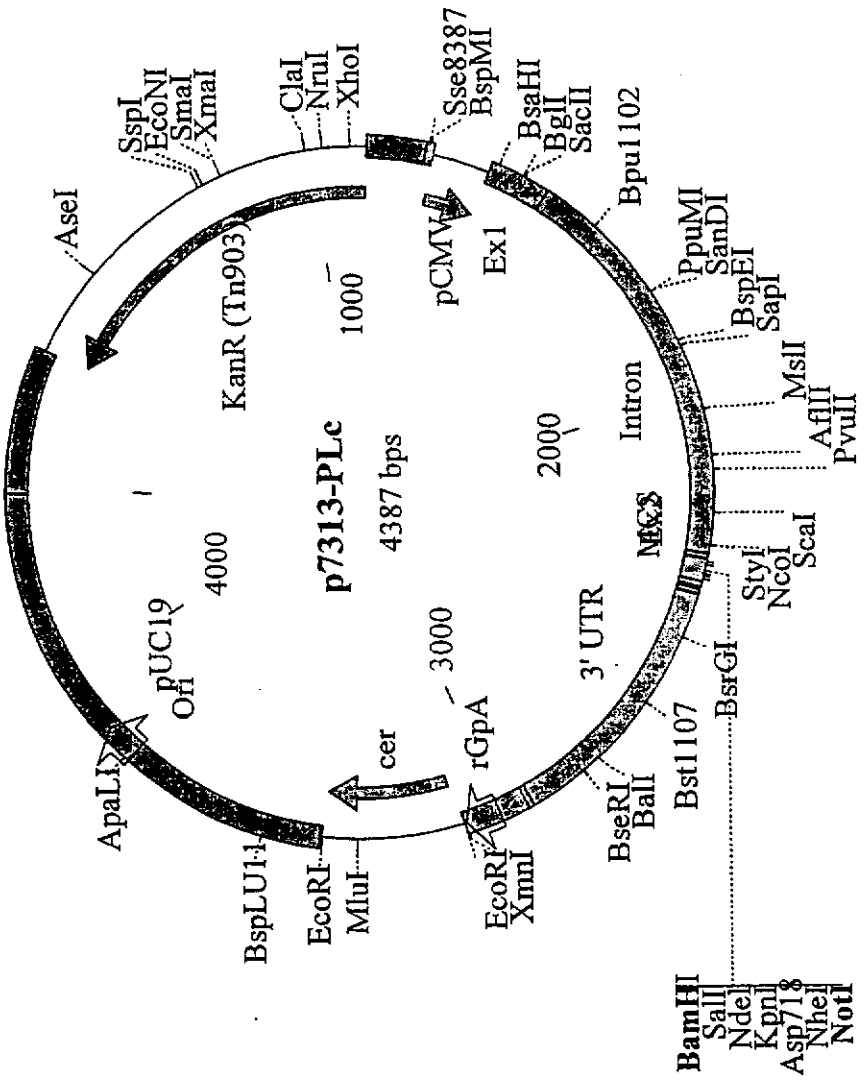
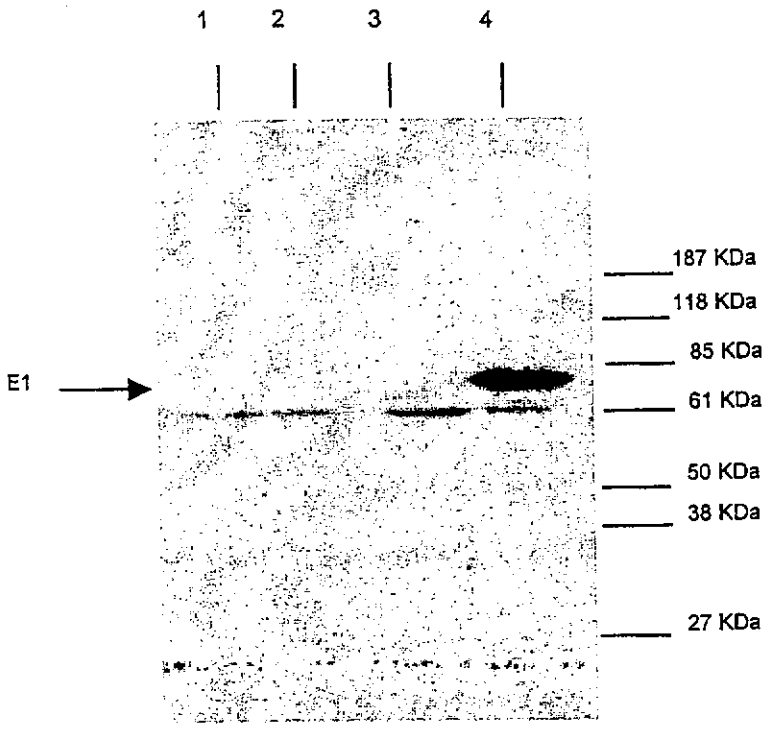


Fig. 8



Key :

1- 293T cell lysate control
2- p7313PLc vector control
3- p6bE1 w/t
4- p6bE1 c/o

fig.9

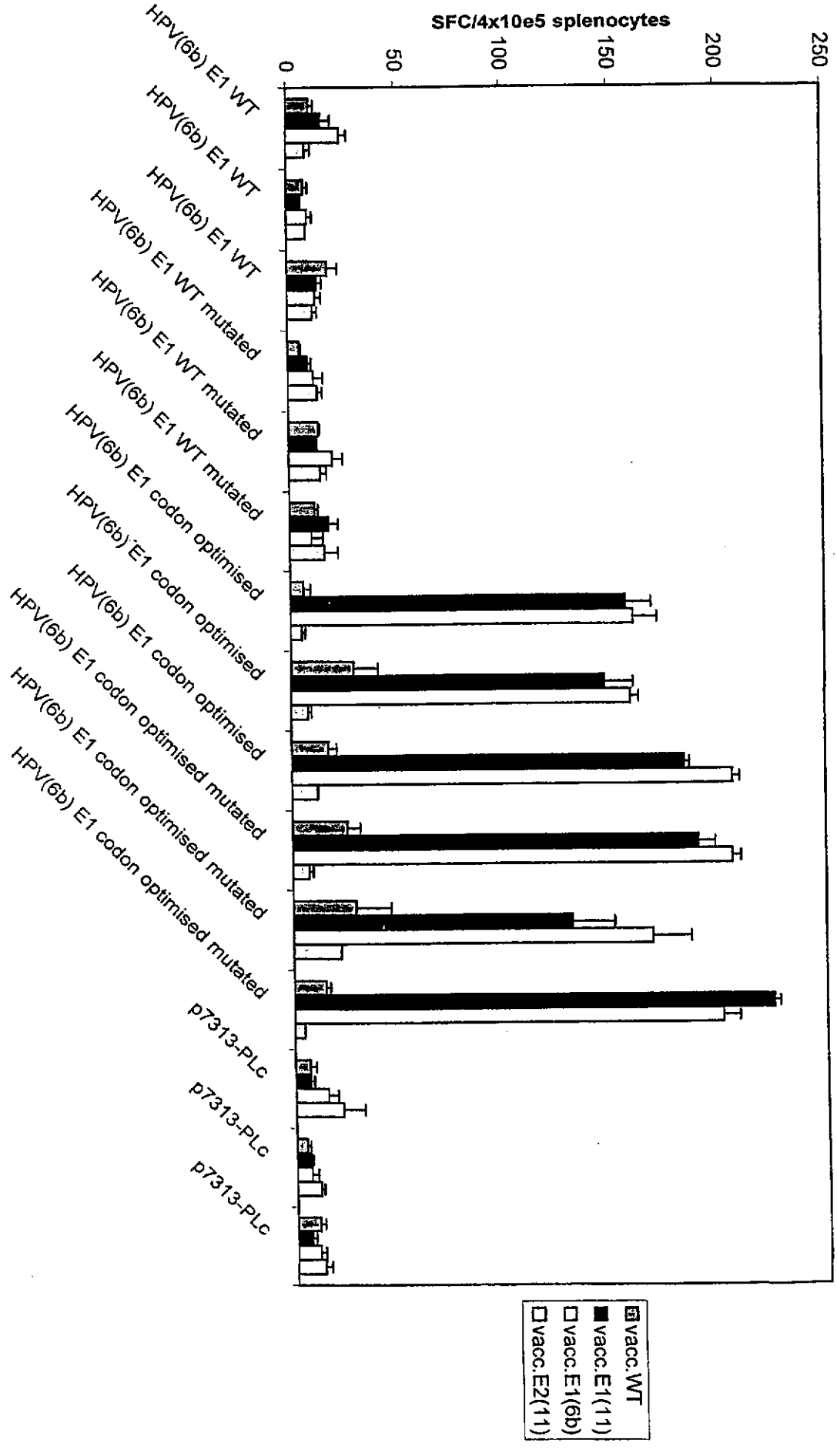
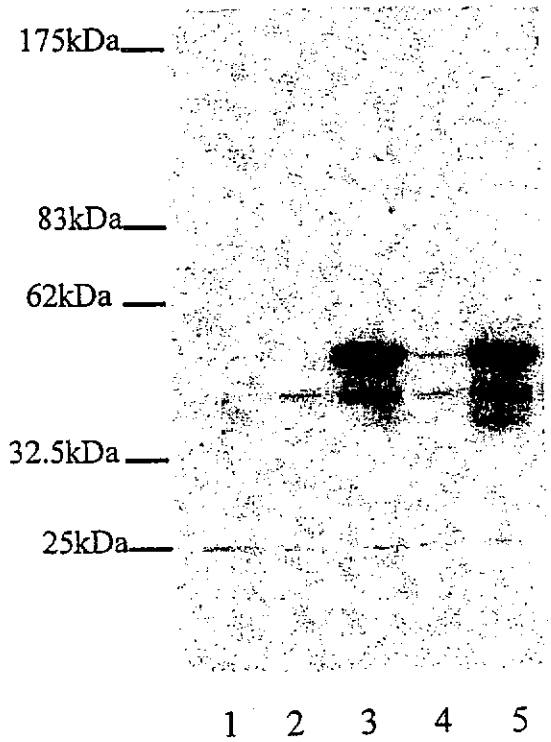

SFC/4x10e5 splenocytes
0
50
100
150
200
250
HPV(6b) E1 WT
HPV(6b) E1 WT
HPV(6b) E1 WT
HPV(6b) E1 WT mutated
HPV(6b) E1 WT mutated
HPV(6b) E1 WT mutated
HPV(6b) E1 codon optimised
HPV(6b) E1 codon optimised
HPV(6b) E1 codon optimised
HPV(6b) E1 codon optimised mutated
HPV(6b) E1 codon optimised mutated
HPV(6b) E1 codon optimised mutated
p7313-PLc
p7313-PLc
p7313-PLc
vacc.WT
vacc.E1(11)
vacc.E1(6b)
vacc.E2(11)

Fig. 10



1 p7313PLc
2 p6bE2 w/t
3 p6bE2 c/o
4 p6bE2 w/t mutated
5 p6bE2 c/o mutated