FIGURE 1



FIGURE 2

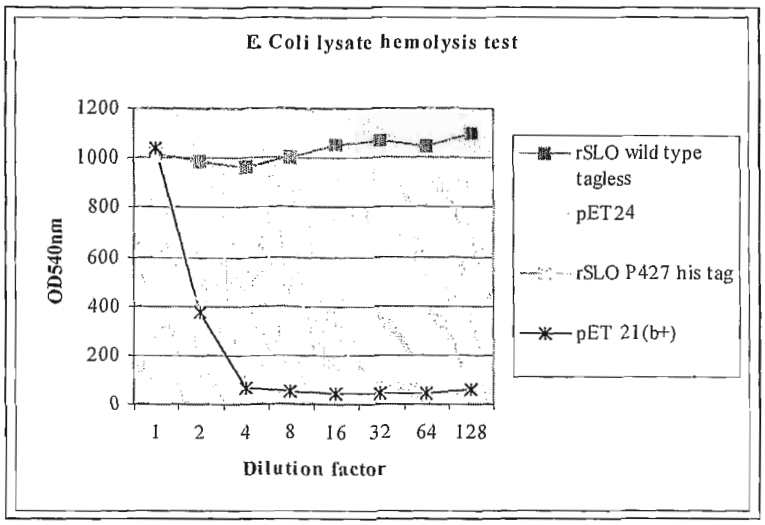


FIGURE 3

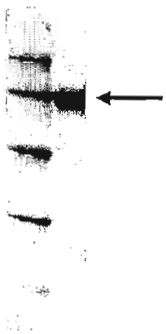


FIGURE 4

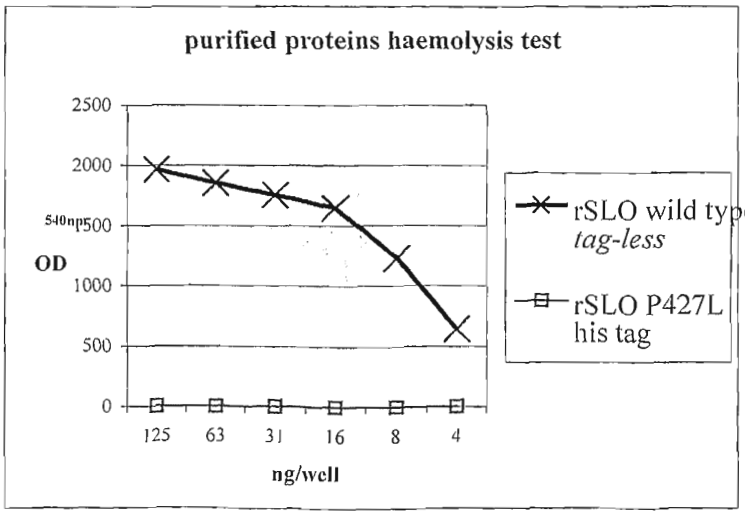
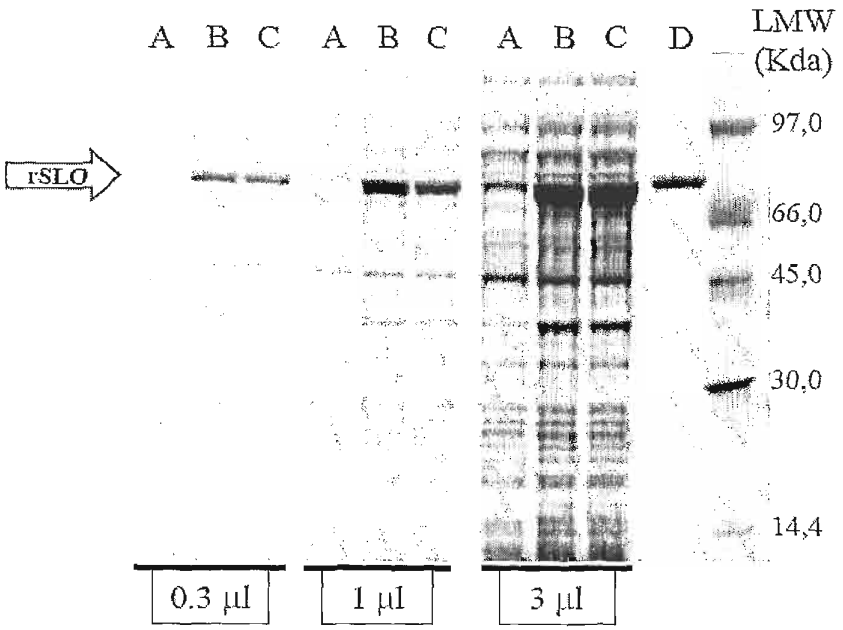


FIGURE 5



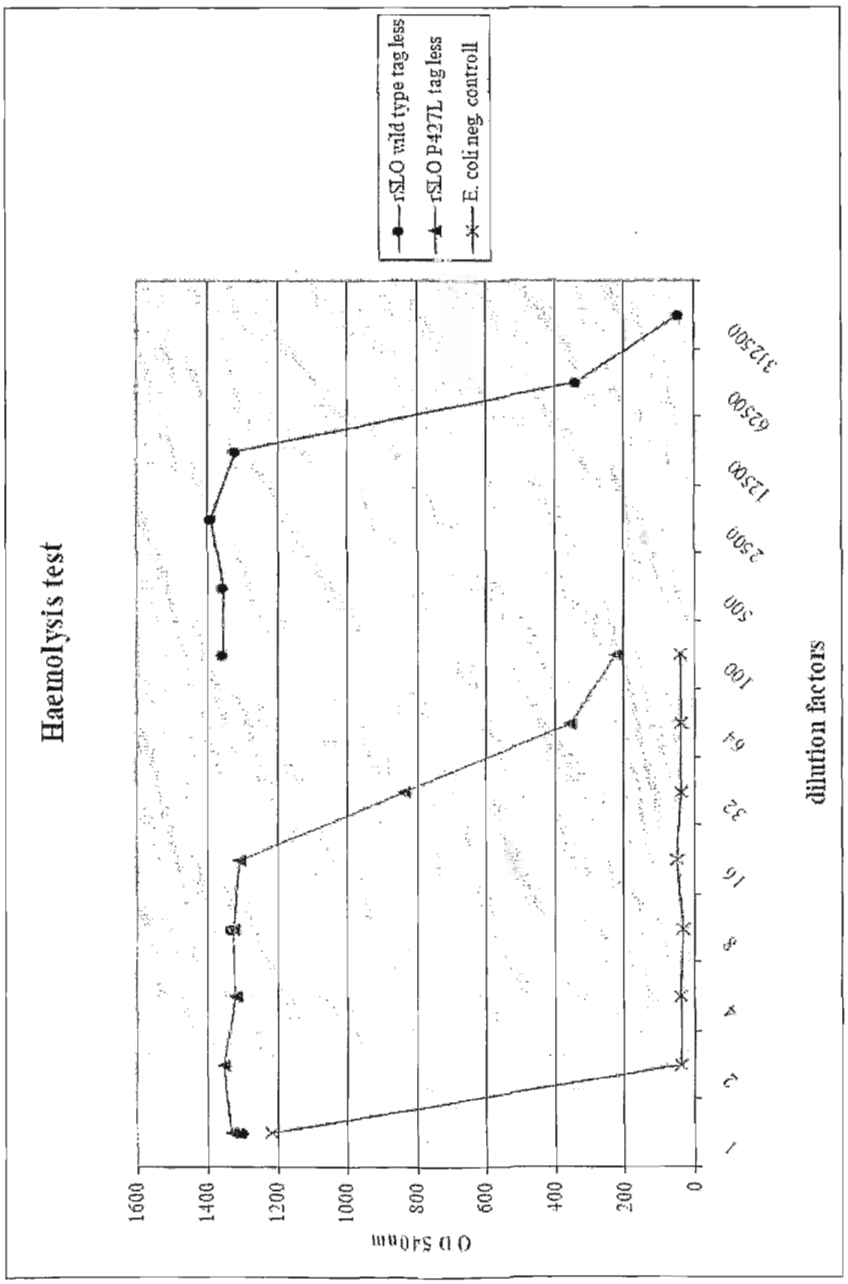
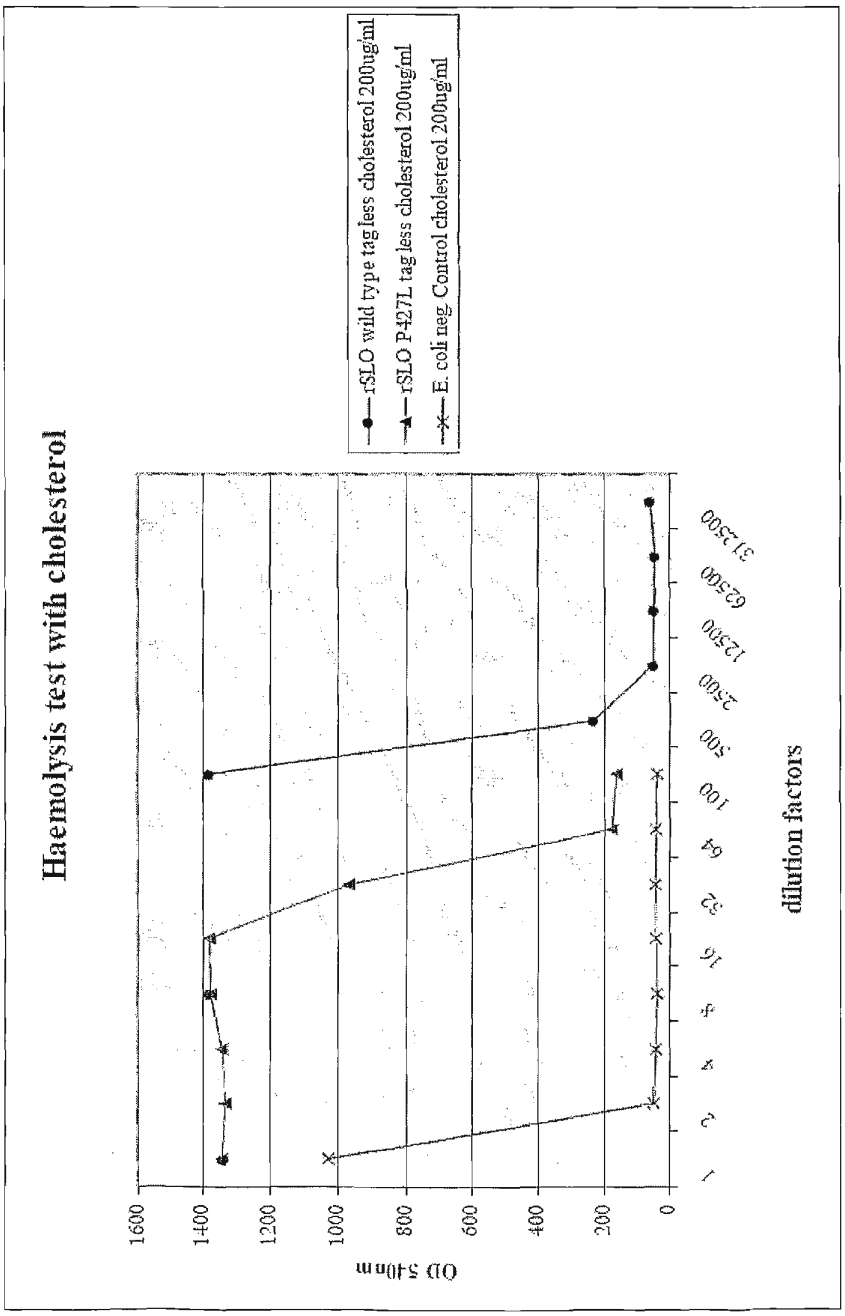

Haemolysis test
rSLO wild type tag less
rSLO P427L tag less
E. coli neg. controll
O.D 540nm
0
200
400
600
800
1000
1200
1400
1600
dilution factors
1
2
4
8
16
32
64
100
500
2500
12500
62500
312500

FIGURE 6

FIGURE 7


Haemolysis test with cholesterol
rSLO wild type tag less cholesterol 200ug/ml
rSLO P427L tag less cholesterol 200ug/ml
E. coli neg. Control cholesterol 200ug/ml
OD 540nm
0
200
400
600
800
1000
1200
1400
1600
dilution factors
1
2
4
8
16
32
64
100
500
2500
12500
62500
312500

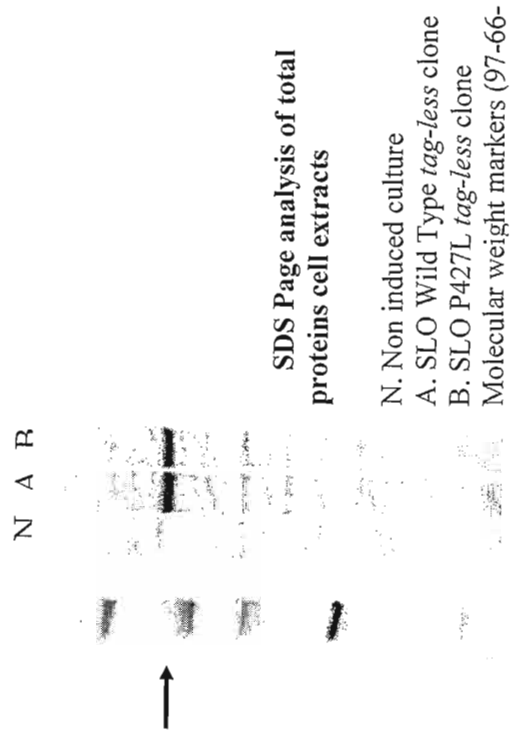

N A R
SDS Page analysis of total proteins cell extracts
N. Non induced culture
A. SLO Wild Type tag-less clone
B. SLO P427L tag-less clone
Molecular weight markers (97-66-

FIGURE 8A

FIGURE 8B

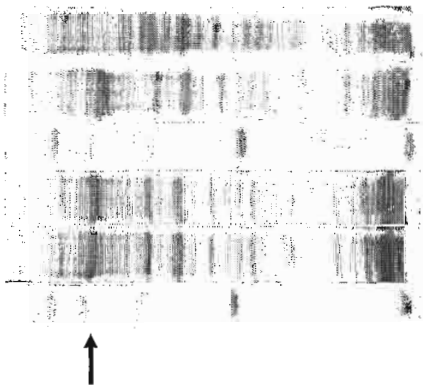
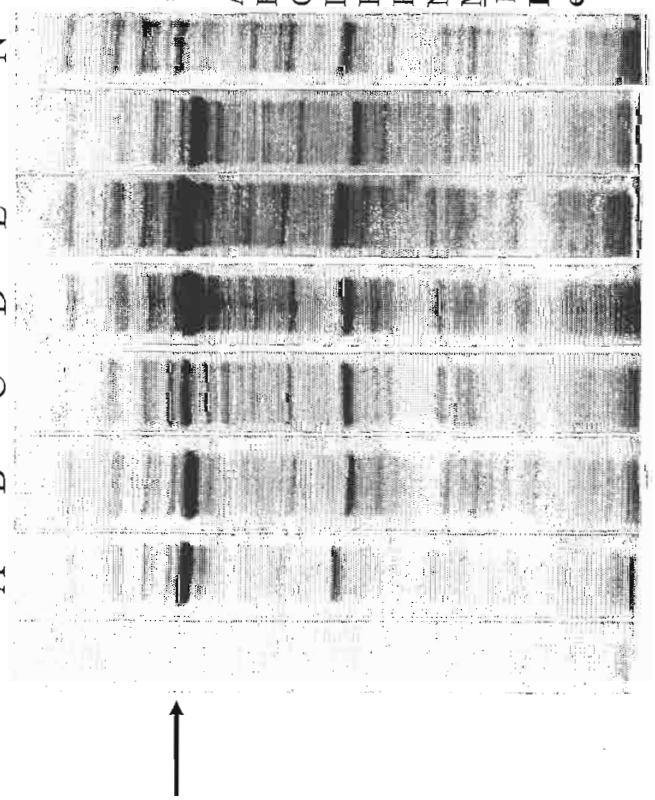

SDS Page analysis of total proteins extracts
A. SLO P427L-W535F tag-less clone
B. SLO P427L-C530G tag-

FIGURE 9

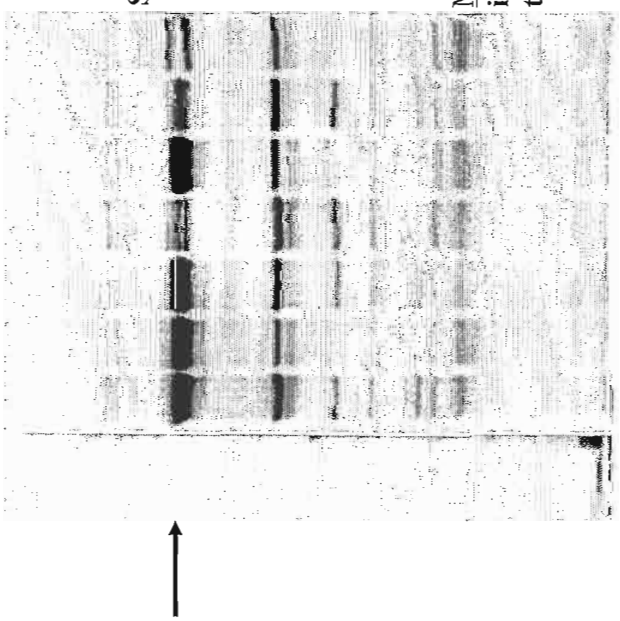


SDS Page analysis of total proteins extracts

A. SLO Wild Type *his-tagged* clone
B. SLO W535F *his-tagged* clone
C. SLO W535F-D482N *his-tagged* clone
D. SLO C530G *his-tagged* clone
E. SLO P427L *his-tagged* clone
F. SLO delta Ala 248 *his-tagged* clone
N. Non induced culture
Molecular weight markers (97-66-45-30-20.1-14,4)

Black arrow indicates SLO protein band in extracts from mutants and wild type clones

FIGURE 10



SDS Page analysis of purified proteins

A. rSLO wild type his tagged (5µg);
B. rSLO mutant C530G his tagged (5µg);
C. rSLO mutant W535F his tagged (5µg);
D. rSLO mutant W535F and D482N his tagged (5µg);
E. rSLO mutant P427L his tagged (5µg);
F. rSLO mutant delta Ala248 his tagged (5µg);
G. *E. coli* contaminants as negative control (5µg);
Molecular weight markers (97-66-45-30-20.1) **black arrow indicates SLO protein purified from mutants and wild type clones**

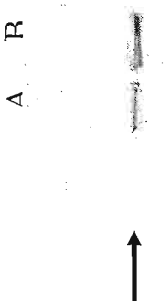


FIGURE 11A

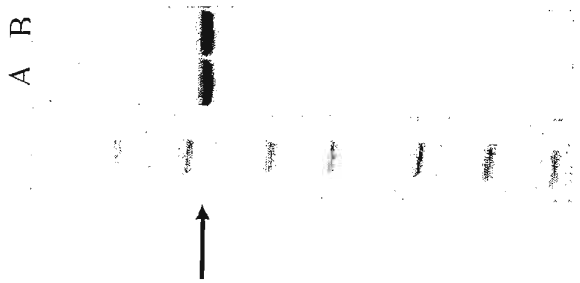


FIGURE 11B

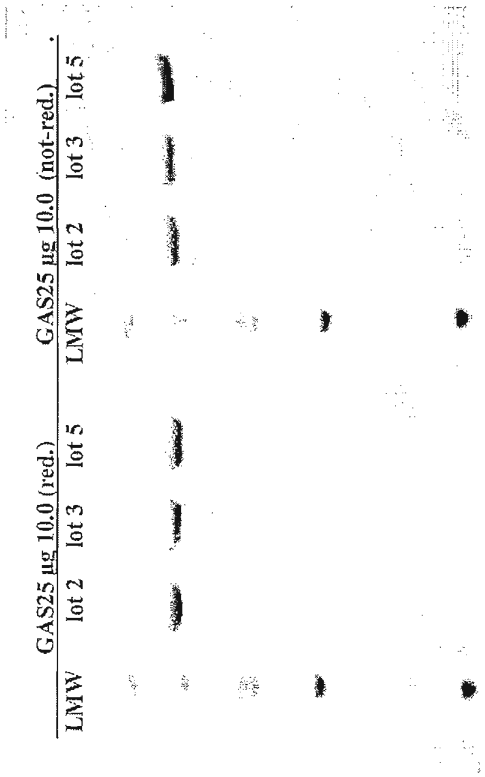

GAS25 µg 10.0 (red.)
LMW
lot 2
lot 3
lot 5
GAS25 µg 10.0 (not-red.)
LMW
lot 2
lot 3
lot 5

FIGURE 12

FIGURE 13

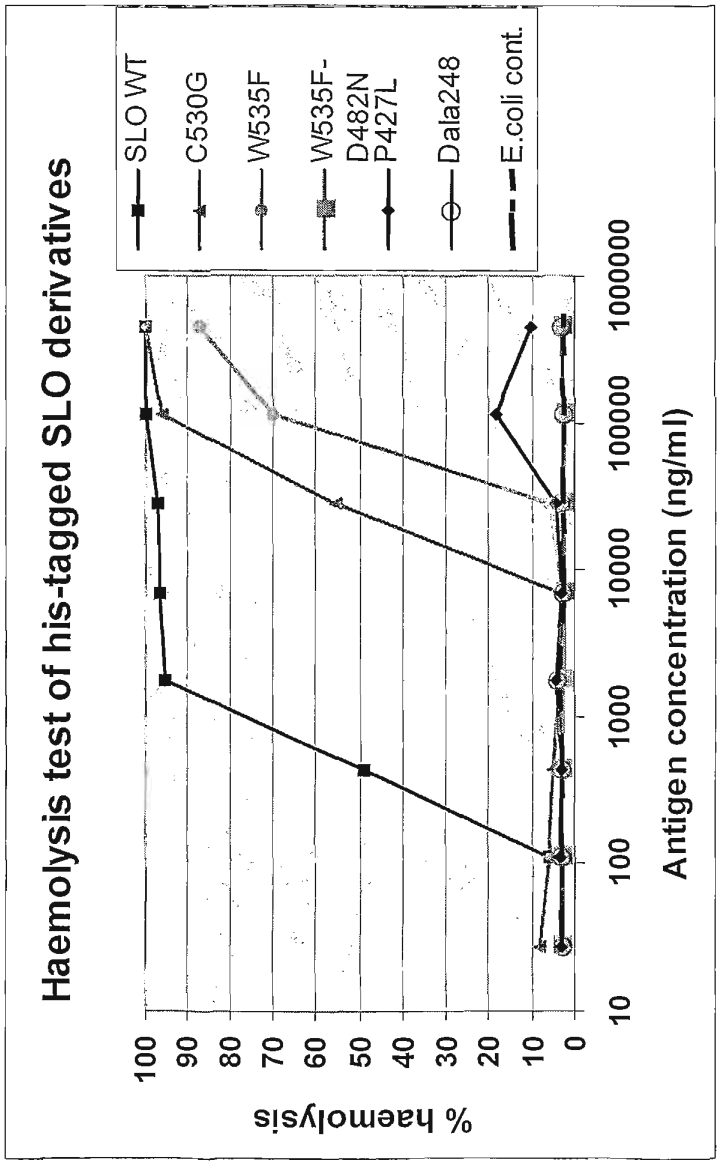

Haemolysis test of his-tagged SLO derivatives
% haemolysis
100
90
80
70
60
50
40
30
20
10
0
10
100
1000
10000
100000
1000000
Antigen concentration (ng/ml)
SLO WT
C530G
W535F
W535F-D482N P427L
Dala248
E.coli cont.

FIG. 14

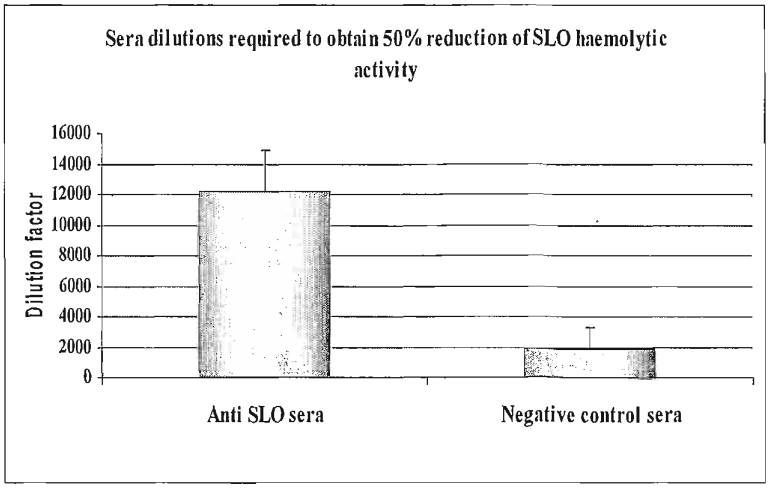

Sera dilutions required to obtain 50% reduction of SLO haemolytic activity
Dilution factor
16000
14000
12000
10000
8000
6000
4000
2000
0
Anti SLO sera
Negative control sera

FIG. 15

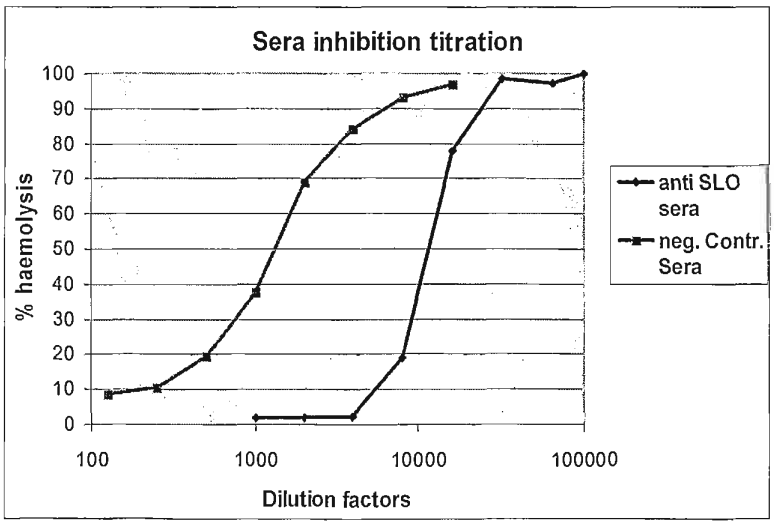

Sera inhibition titration
% haemolysis
100
90
80
70
60
50
40
30
20
10
0
100
1000
10000
100000
Dilution factors
anti SLO sera
neg. Contr. Sera

FIG. 16

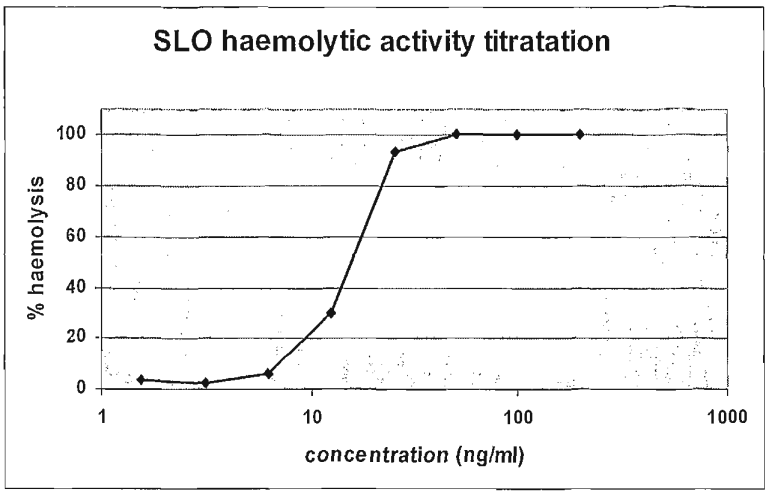

SLO haemolytic activity titratation
% haemolysis
100
80
60
40
20
0
1
10
100
1000
concentration (ng/ml)

FIG. 17

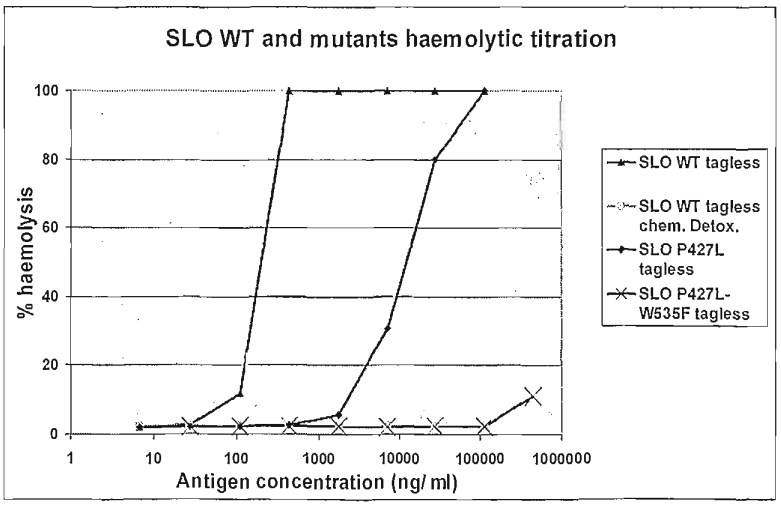

SLO WT and mutants haemolytic titration
% haemolysis
100
80
60
40
20
0
1
10
100
1000
10000
100000
1000000
Antigen concentration (ng/ml)
SLO WT tagless
SLO WT tagless chem. Detox.
SLO P427L tagless
SLO P427L-W535F tagless

FIG. 18

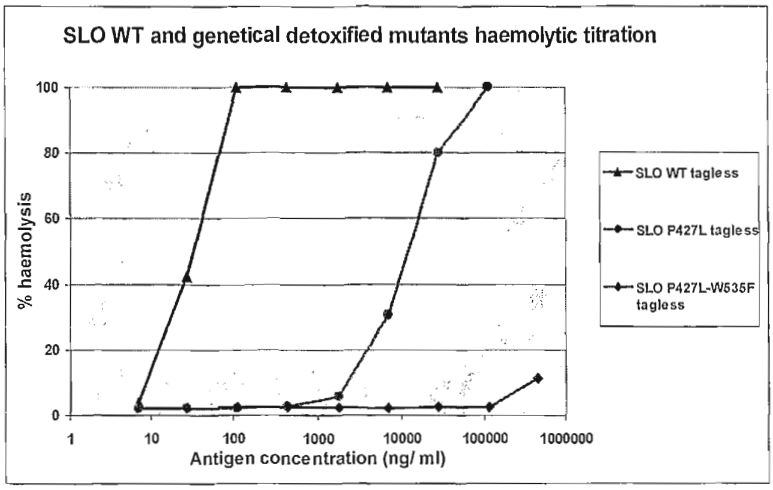

SLO WT and genetical detoxified mutants haemolytic titration
% haemolysis
100
80
60
40
20
0
1
10
100
1000
10000
100000
1000000
Antigen concentration (ng/ ml)
SLO WT tagless
SLO P427L tagless
SLO P427L-W535F tagless

FIG. 19

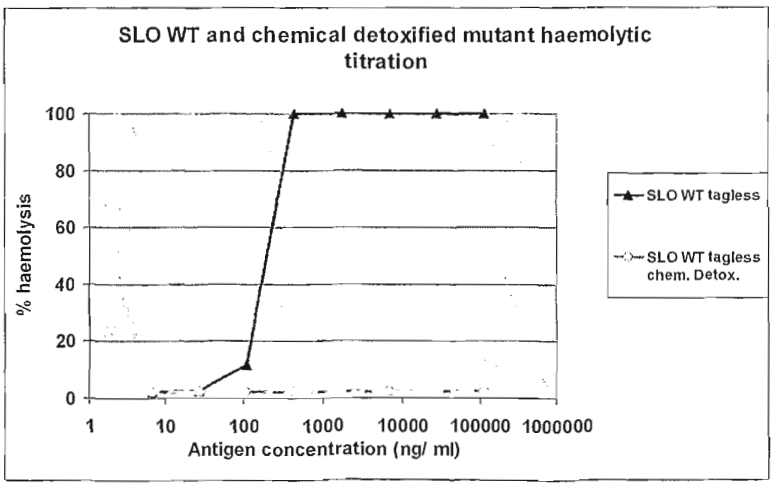

SLO WT and chemical detoxified mutant haemolytic titration
% haemolysis
100
80
60
40
20
0
1
10
100
1000
10000
100000
1000000
Antigen concentration (ng/ ml)
SLO WT tagless
SLO WT tagless chem. Detox.

FIG. 20

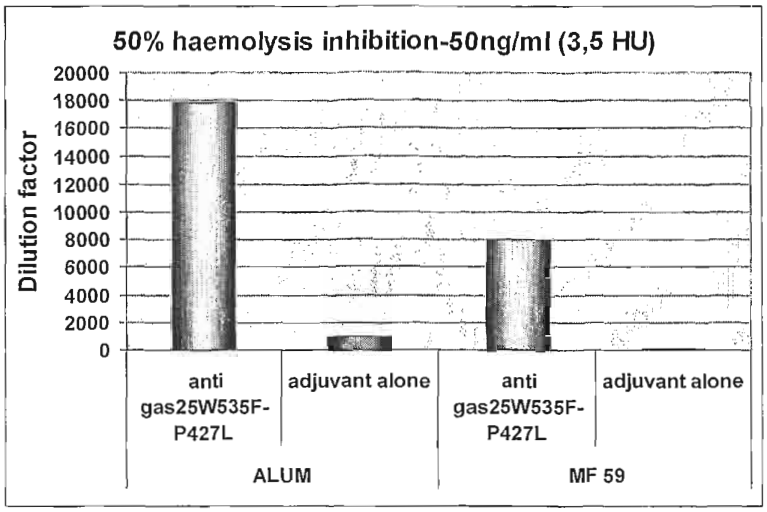

50% haemolysis inhibition-50ng/ml (3,5 HU)
Dilution factor
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
anti gas25W535F-P427L
adjuvant alone
anti gas25W535F-P427L
adjuvant alone
ALUM
MF 59

FIG. 21

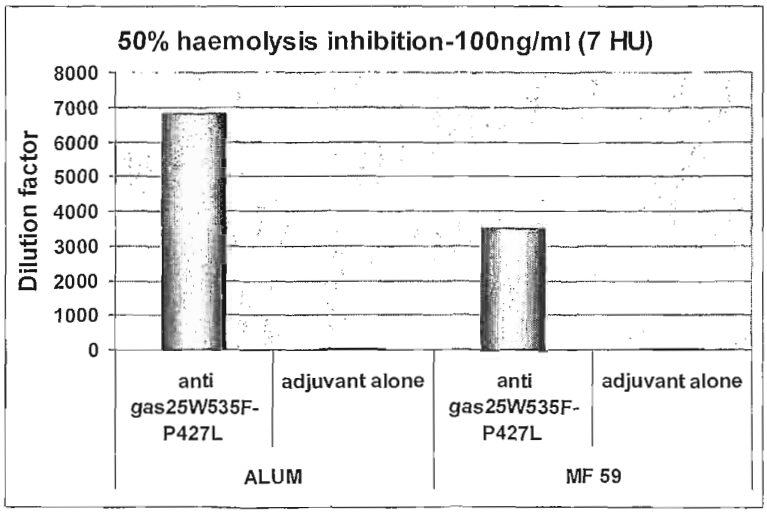

50% haemolysis inhibition-100ng/ml (7 HU)
Dilution factor
8000
7000
6000
5000
4000
3000
2000
1000
0
anti gas25W535F-P427L
adjuvant alone
anti gas25W535F-P427L
adjuvant alone
ALUM
MF 59

FIG. 22

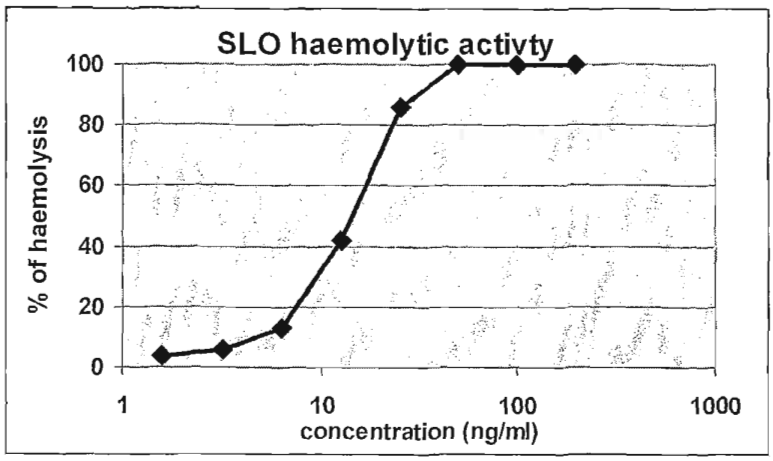

SLO haemolytic activty
% of haemolysis
100
80
60
40
20
0
1
10
100
1000
concentration (ng/ml)

FIG. 23.

```
                      1                                                  50
   GAS25_SF370     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
GAS25_M12_2096     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
GAS25_M12_9429     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
 GAS25_M1_5005     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
      GAS25_M2     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTTSTETTTTNEQP
     GAS25_M28     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
      GAS25_M6     (1) MSNKKTFKKYSRVAGLLTVALIIGNLVTANAESNKQNTASTETTTTNEQP
     GAS25_M18     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
      GAS25_M5     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
      GAS25_M3     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
  GAS25_M3_SSI     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
      GAS25_M4     (1) MSNKKTFKKYSRVAGLLTAALIIGNLVTANAESNKQNTASTETTTTNEQP
                      51                                                 100
   GAS25_SF370    (51) KPESSELTTEKAGQKTDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
GAS25_M12_2096    (51) KPESSELTTEKAGQKMDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
GAS25_M12_9429    (51) KPESSELTTEKAGQKMDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
 GAS25_M1_5005    (51) KPESSELTTEKAGQKMDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
      GAS25_M2    (51) KPESSELTIEKAGQKMDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
     GAS25_M28    (51) KPESSELTIEKAGQKMDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
      GAS25_M6    (51) KPESSELTIEKAGQKMDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
     GAS25_M18    (51) KPESSELTTEKAGQKTDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
      GAS25_M5    (51) KPESSELTTEKAGQKTDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
      GAS25_M3    (51) KPESSELTTEKAGQKTDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
  GAS25_M3_SSI    (51) KPESSELTTEKAGQKTDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
      GAS25_M4    (51) KPESSELTTEKAGQKTDDMLNSNDMIKLAPKEMPLESAEKEEKKSEDKKK
                     101                                                 150
   GAS25_SF370   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
GAS25_M12_2096   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
GAS25_M12_9429   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
 GAS25_M1_5005   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
      GAS25_M2   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
     GAS25_M28   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
      GAS25_M6   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
     GAS25_M18   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
      GAS25_M5   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
      GAS25_M3   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
  GAS25_M3_SSI   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFVPKEGVKKADKFIVIE
      GAS25_M4   (101) SEEDHTEEINDKIYSLNYNELEVLAKNGETIENFAPKEGVKKADKFIVIE
                     151                                                 200
   GAS25_SF370   (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
GAS25_M12_2096   (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
GAS25_M12_9429   (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
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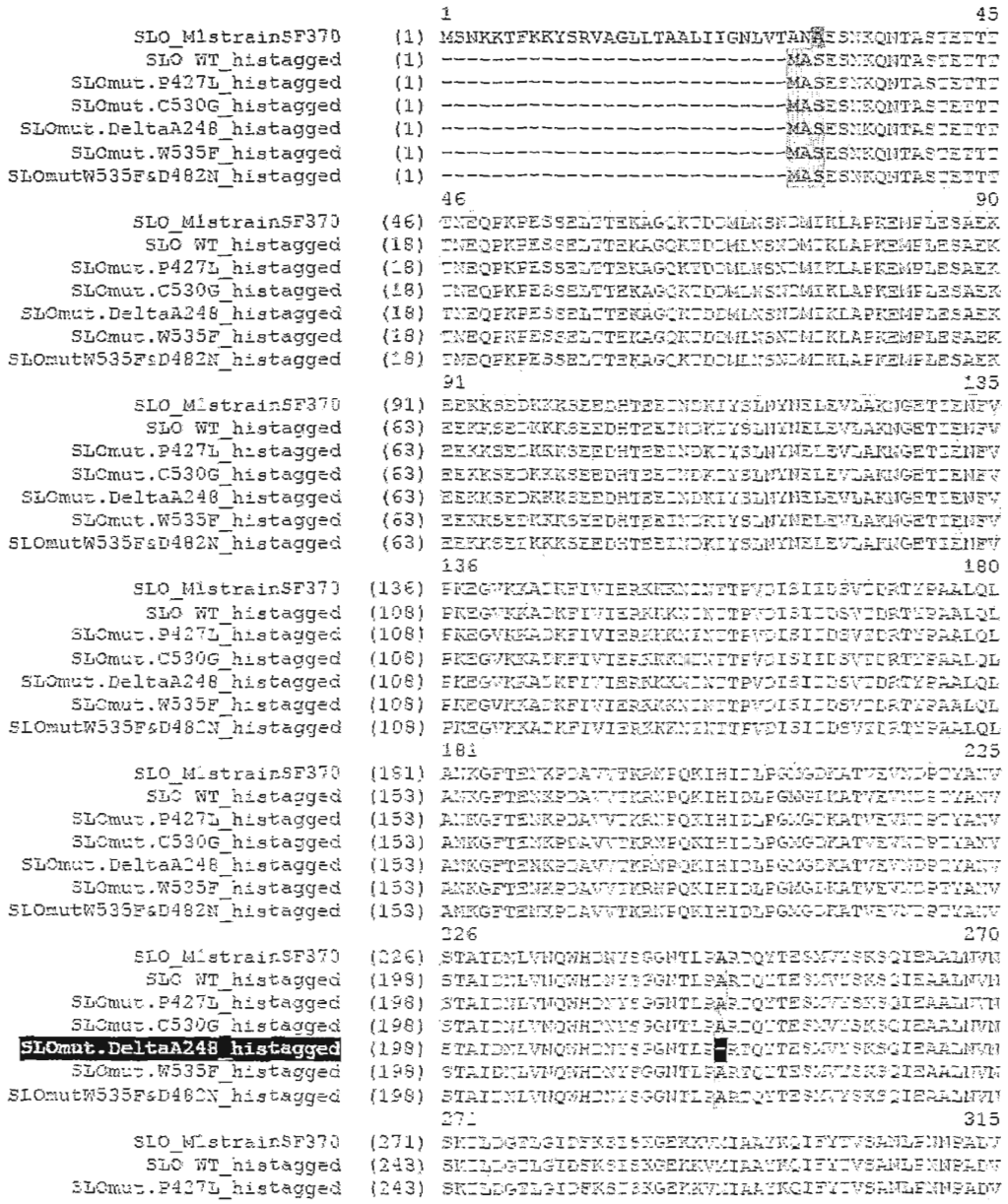
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GAS25_M1_5005  (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
     GAS25_M2  (151) RKKKNINTTPVDISIIDSVTDMTYPAALQLADKGFTENKPDAVVTKRNPQ
    GAS25_M28  (151) RKKKNINTTPVDISIIDSVTDMTYPAALQLADKGFTENKPDAVVTKRNPQ
     GAS25_M6  (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
    GAS25_M18  (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
     GAS25_M5  (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
     GAS25_M3  (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
  GAS25_M3_SSI (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
     GAS25_M4  (151) RKKKNINTTPVDISIIDSVTDRTYPAALQLANKGFTENKPDAVVTKRNPQ
                     201                                             250
   GAS25_SF370 (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
GAS25_M12_2096 (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
GAS25_M12_9429 (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
GAS25_M1_5005  (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
     GAS25_M2  (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
    GAS25_M28  (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
     GAS25_M6  (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
    GAS25_M18  (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
     GAS25_M5  (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
     GAS25_M3  (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
  GAS25_M3_SSI (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLVNQWHDNYSGGNTLPART
     GAS25_M4  (201) KIHIDLPGMGDKATVEVNDPTYANVSTAIDNLINQWHDNYSGGNTLPART
                     251                                             300
   GAS25_SF370 (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
GAS25_M12_2096 (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
GAS25_M12_9429 (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
GAS25_M1_5005  (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
     GAS25_M2  (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
    GAS25_M28  (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
     GAS25_M6  (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
    GAS25_M18  (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
     GAS25_M5  (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
     GAS25_M3  (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
  GAS25_M3_SSI (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
     GAS25_M4  (251) QYTESMVYSKSQIEAALNVNSKILDGTLGIDFKSISKGEKKVMIAAYKQI
                     301                                             350
   GAS25_SF370 (301) FYTVSANLPNNPADVFDKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
GAS25_M12_2096 (301) FYTVSANLPNNPADVFDKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
GAS25_M12_9429 (301) FYTVSANLPNNPADVFDKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
GAS25_M1_5005  (301) FYTVSANLPNNPADVFDKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
     GAS25_M2  (301) FYTVSANLPNNPADVFDKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
    GAS25_M28  (301) FYTVSANLPNNPADVFDKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
     GAS25_M6  (301) FYTVSANLPNNPADVFDKSVTFKDLQRKGVSNEAPPLFVSNVAYGRTVFV
    GAS25_M18  (301) FYTVSANLPNNPADVFDKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
     GAS25_M5  (301) FYTVSANLPNNPADVFDKSVTFKDLQRKGVSNEAPPLFVSNVAYGRTVFV
     GAS25_M3  (301) FYTVSANLPNNPADVFDKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
  GAS25_M3_SSI (301) FYTVSANLPNNPADVFDKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
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      GAS25_M4  (301) FYTVSANLPNNPADVFAKSVTFKELQRKGVSNEAPPLFVSNVAYGRTVFV
                      351                                             400
   GAS25_SF370  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
GAS25_M12_2096  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
GAS25_M12_9429  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
 GAS25_M1_5005  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
      GAS25_M2  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
     GAS25_M28  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
      GAS25_M6  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
     GAS25_M18  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
      GAS25_M5  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
      GAS25_M3  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
   GAS25_M3_SSI  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
      GAS25_M4  (351) KLETSSKSNDVEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAE
                      401                                             450
   GAS25_SF370  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
GAS25_M12_2096  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRS
GAS25_M12_9429  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRS
 GAS25_M1_5005  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRS
      GAS25_M2  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
     GAS25_M28  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
      GAS25_M6  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
     GAS25_M18  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
      GAS25_M5  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
      GAS25_M3  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
   GAS25_M3_SSI  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
      GAS25_M4  (401) HNKVVTKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
                      451                                             500
   GAS25_SF370  (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVITKRRWD
GAS25_M12_2096  (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVITKRRWD
GAS25_M12_9429  (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVITKRRWD
 GAS25_M1_5005  (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVITKRRWD
      GAS25_M2  (451) EYVETTSTEYTSGKINLSHRGAYVAQYEILWDEINYDDKGKEVITKRRWD
     GAS25_M28  (451) EYVETTSTEYTSGKINLSHRGAYVAQYEILWDEINYDDKGKEVITKRRWD
      GAS25_M6  (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVITKRRWD
     GAS25_M18  (451) EYVETTSTEYTSGKINLSHRGAYVAQYEILWDEINYDDKGKEVITKRRWD
      GAS25_M5  (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVITKRRWD
      GAS25_M3  (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVITKRRWD
   GAS25_M3_SSI  (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVITKRRWD
      GAS25_M4  (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVITKRRWD
                      501                                             550
   GAS25_SF370  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
GAS25_M12_2096  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
GAS25_M12_9429  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
 GAS25_M1_5005  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
      GAS25_M2  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
     GAS25_M28  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
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      GAS25_M6  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
     GAS25_M18  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
      GAS25_M5  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
      GAS25_M3  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
  GAS25_M3_SSI  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
      GAS25_M4  (501) NNWYSKTSPFSTVIPLGANSRNIRIMARECTGLAWEWWRKVIDERDVKLS
                      551                 572
   GAS25_SF370  (551) KEINVNISGSTLSPYGSITYK-
GAS25_M12_2096  (551) KEINVNISGSTLSPYGSITYK-
GAS25_M12_9429  (551) KEINVNISGSTLSPYGSITYK-
 GAS25_M1_5005  (551) KEINVNISGSTLSPYGSITYK-
      GAS25_M2  (551) KEINVNISGSTLSPYGSITYK-
     GAS25_M28  (551) KEINVNISGSTLSPYGSITYK-
      GAS25_M6  (551) KEINVNISGSTLSPYGSITYK-
     GAS25_M18  (551) KEINVNISGSTLSPYGSITYK-
      GAS25_M5  (551) KEINVNISGSTLSPYGSITYK-
      GAS25_M3  (551) KEINVNISGSTLSPYGSITYK-
  GAS25_M3_SSI  (551) KEINVNISGSTLSPYGSITYK-
      GAS25_M4  (551) KEINVNISGSTLSPYGSITYK-
```

Consensus positions: 99.8%
Identity positions: 97.7%

FIG. 24


SLO_MistrainSF370
SLO WT_histagged
SLOmut.P427L_histagged
SLOmut.C530G_histagged
SLOmut.DeltaA248_histagged
SLOmut.W535F_histagged
SLOmutW535F&D482N_histagged


SLOmut.C530G_histagged (243) SKILDGILGIDFKSISKGEKKVMIAAYKQIFYTVSANLPNNPADV
SLOmut.DeltaA248_histagged (242) SKILDGILGIDFKSISKGEKKVMIAAYKQIFYTVSANLPNNPADV
SLOmut.W535F_histagged (243) SKILDGILGIDFKSISKGEKKVMIAAYKQIFYTVSANLPNNPADV
SLOmutW535F&D482N_histagged (243) SKILDGILGIDFKSISKGEKKVMIAAYKQIFYTVSANLPNNPADV
316 360
SLO_M1strainSF370 (316) FDKSVTFKELQRKGVSNEAPFLFVSNVAYGRTVFVKLETSSKSND
SLO WT_histagged (288) FDKSVTFKELQRKGVSNEAPFLFVSNVAYGRTVFVKLETSSKSND
SLOmut.P427L_histagged (288) FDKSVTFKELQRKGVSNEAPFLFVSNVAYGRTVFVKLETSSKSND
SLOmut.C530G_histagged (288) FDKSVTFKELQRKGVSNEAPFLFVSNVAYGRTVFVKLETSSKSND
SLOmut.DeltaA248_histagged (287) FDKSVTFKELQRKGVSNEAPFLFVSNVAYGRTVFVKLETSSKSND
SLOmut.W535F_histagged (288) FDKSVTFKELQRKGVSNEAPFLFVSNVAYGRTVFVKLETSSKSND
SLOmutW535F&D482N_histagged (288) FDKSVTFKELQRKGVSNEAPFLFVSNVAYGRTVFVKLETSSKSND
361 405
SLO_M1strainSF370 (361) VEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAEHNKVV
SLO WT_histagged (333) VEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAEHNKVV
SLOmut.P427L_histagged (333) VEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAEHNKVV
SLOmut.C530G_histagged (333) VEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAEHNKVV
SLOmut.DeltaA248_histagged (332) VEAAFSAALKGTDVKTNGEYSDILENSSFTAVVLGGDAAEHNKVV
SLOmut.W535F_histagged (333) VEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAEHNKVV
SLOmutW535F&D482N_histagged (333) VEAAFSAALKGTDVKTNGKYSDILENSSFTAVVLGGDAAEHNKVV
406 450
SLO_M1strainSF370 (406) IKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
SLO WT_histagged (378) IKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
SLOmut.P427L_histagged (378) IKDFDVIRNVIKDNATFSRKNLAYPISYTSVFLKNNKIAGVNNRT
SLOmut.C530G_histagged (378) IKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
SLOmut.DeltaA248_histagged (377) IKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
SLOmut.W535F_histagged (378) IKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
SLOmutW535F&D482N_histagged (378) IKDFDVIRNVIKDNATFSRKNPAYPISYTSVFLKNNKIAGVNNRT
451 495
SLO_M1strainSF370 (451) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVIT
SLO WT_histagged (423) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVIT
SLOmut.P427L_histagged (423) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVIT
SLOmut.C530G_histagged (423) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVIT
SLOmut.DeltaA248_histagged (422) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVIT
SLOmut.W535F_histagged (423) EYVETTSTEYTSGKINLSHQGAYVAQYEILWDEINYDDKGKEVIT
SLOmutW535F&D482N_histagged (423) EYVETTSTEYTSGKINLSHQGAYVAQYEILWNEINYDDKGKEVIT
496 540
SLO_M1strainSF370 (496) KRSWDNNWYSKTSPFSTVIPLGANSRNIRIMAHECTGLAWEWWRT
SLO WT_histagged (468) KRSWDNNWYSKTSPFSTVIPLGANSRNIRIMAHECTGLAWEWWRT
SLOmut.P427L_histagged (468) KRSWDNNWYSKTSPFSTVIPLGANSRNIRIMAHECTGLAWEWWRT
SLOmut.C530G_histagged (468) KRSWDNNWYSKTSPFSTVIPLGANSRNIRIMAHECTGLAWEWWRT
SLOmut.DeltaA248_histagged (467) KRSWDNNWYSKTSPFSTVIPLGANSRNIRIMAHECTGLAWEWWRT
SLOmut.W535F_histagged (468) KRSWDNNWYSKTSPFSTVIPLGANSRNIRIMAHECTGLAFEWWRT
SLOmutW535F&D482N_histagged (468) KRSWDNNWYSKTSPFSTVIPLGANSRNIRIMAHECTGLAFEWWRT
541 580
SLO_M1strainSF370 (541) VIDERDVKLSKEINVNISGSTLSPYGSITYK---------
SLO WT_histagged (513) VIDERDVKLSKEINVNISGSTLSPYGSITYKLEHHHHHH-
SLOmut.P427L_histagged (513) VIDERDVKLSKEINVNISGSTLSPYGSITYKLEHHHHHH-
SLOmut.C530G_histagged (513) VIDERDVKLSKEINVNISGSTLSPYGSITYKLEHHHHHH-
SLOmut.DeltaA248_histagged (512) VIDERDVKLSKEINVNISGSTLSPYGSITYKLEHHHHHH-
SLOmut.W535F_histagged (513) VIDERDVKLSKEINVNISGSTLSPYGSITYKLEHHHHHH-
SLOmutW535F&D482N_histagged (513) VIDERDVKLSKEINVNISGSTLSPYGSITYKLEHHHHHH-

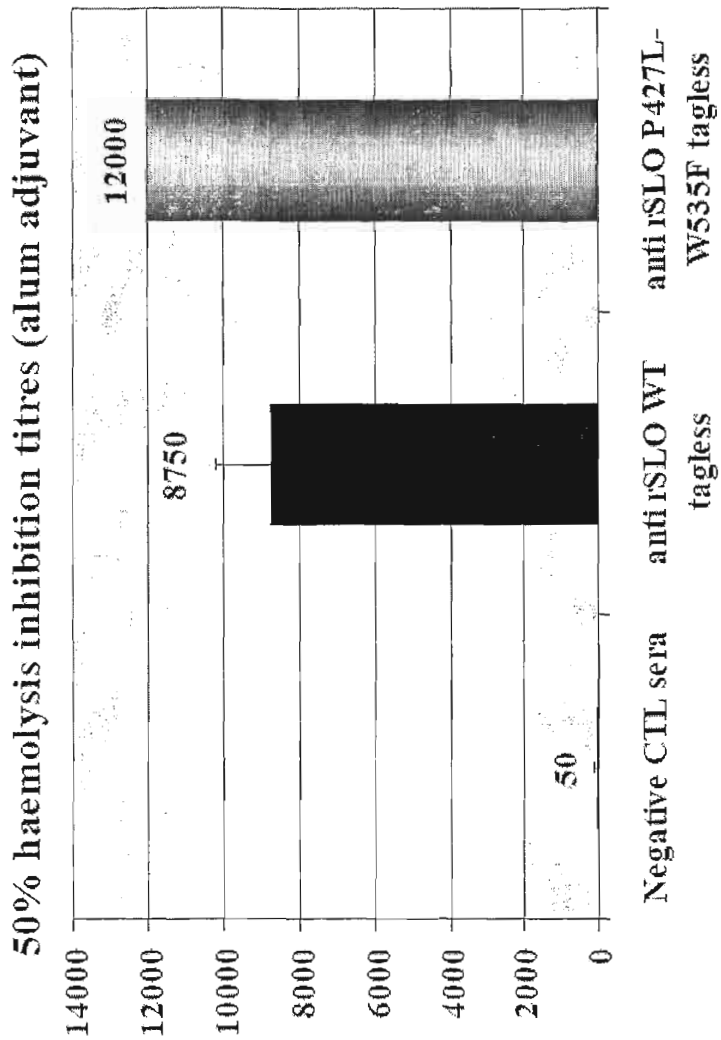

50% haemolysis inhibition titres (alum adjuvant)
14000
12000
10000
8000
6000
4000
2000
0
50
8750
12000
Negative CTL sera
anti rSLO WT tagless
anti rSLO P427L-W535F tagless

FIG. 25

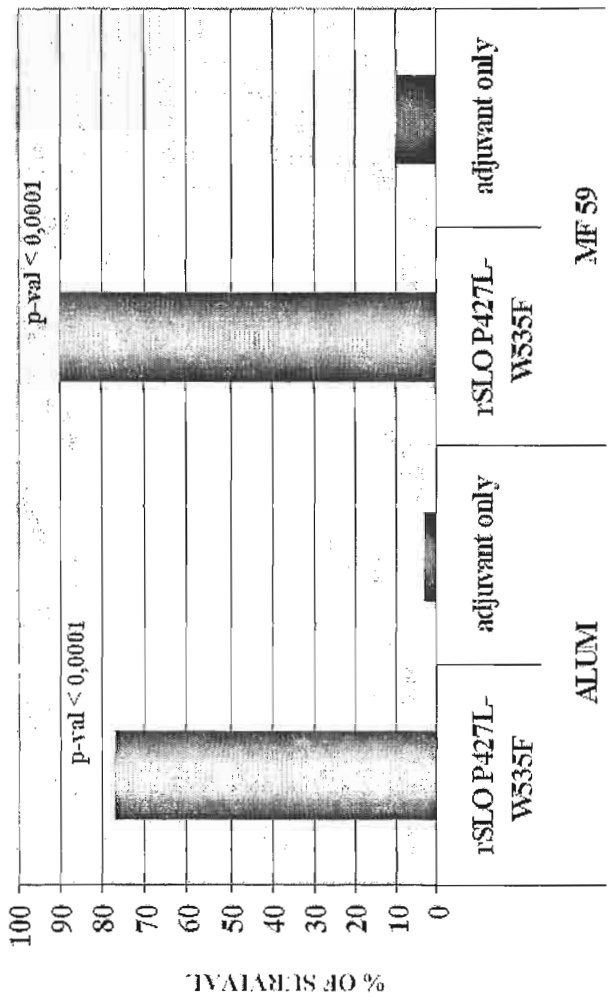

% OF SURVIVAL
100
90
80
70
60
50
40
30
20
10
0
p-val < 0,0001
p-val < 0,0001
rSLO P427L-W535F
adjuvant only
rSLO P427L-W535F
adjuvant only
ALUM
MF 59
p-values < 0,05 are statistically significant

FIG. 26