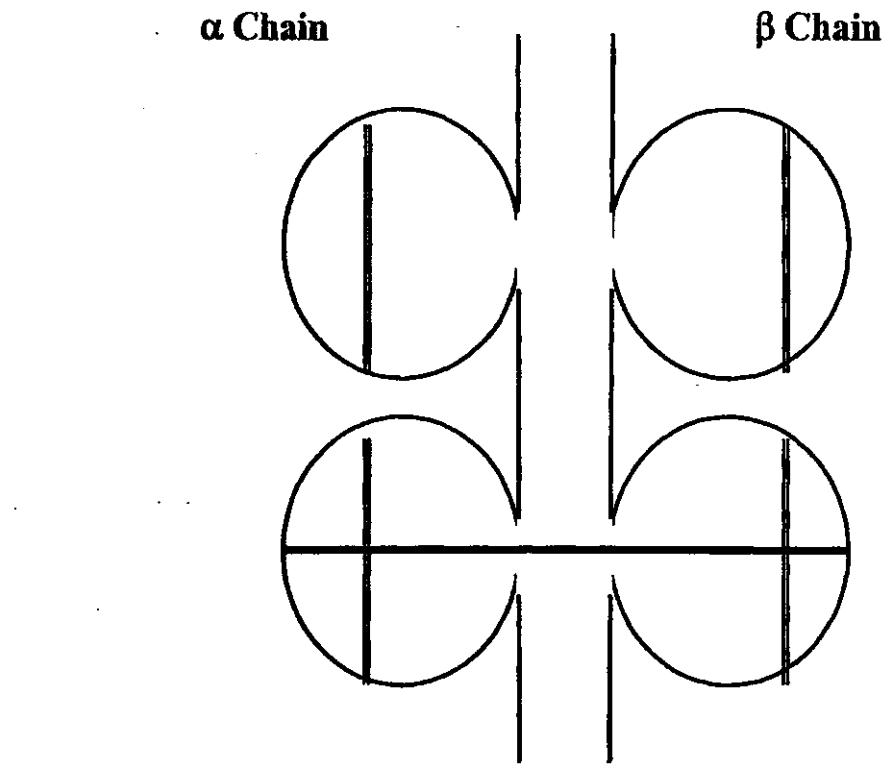
Figure 1



Native intra-chain disulphide bond

Non-native interchain disulphide bond

TCR domain

Figure 2a

atgcagaaggaagtggagcagaactctggaccctcagtgttccagagggagccattg
cctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggtacagaca
atattctgggaaaagccctgagttgataatgtccatatactccaatggtgacaaagaa
gatggaaggtttacagcacagctcaataaagccagccagtatgtttctctgctcatca
gagactcccagcccagtgattcagccacctacctctgtgccgttacaactgacagctg
ggggaaattgcagtttggagcagggacccaggttgtggtcaccccagatatccagaac
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tatcacagacaaaactgtgctagacatgaggtctatggacttcaagagcaacagtgct
gtggcctggagcaacaaatctgactttgcatgtgcaaacgccttcaacaacagcatta
ttccagaagacaccttcttccccagcccagaaagttcctaa

Figure 2b

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacagagca
tgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcgacaaga
cccaggcatggggctgaggctgattcattactcagttggtgctggtatcactgaccaa
ggagaagtccccaatggctacaatgtctccagatcaaccacagaggatttcccgctca
ggctgctgtcggctgctccctcccagacatctgtgtacttctgtgccagcaggccggg
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gaggacctgaaaaacgtgttcccacccgaggtcgctgtgtttgagccatcagaagcag
agatctcccacacccaaaaggccacactggtgtgcctggccacaggcttctaccccga
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gacccgcagcccctcaaggagcagcccgccctcaatgactccagatacgctctgagca
gccgcctgagggtctcggccaccttctggcaggacccccgcaaccacttccgctgtca
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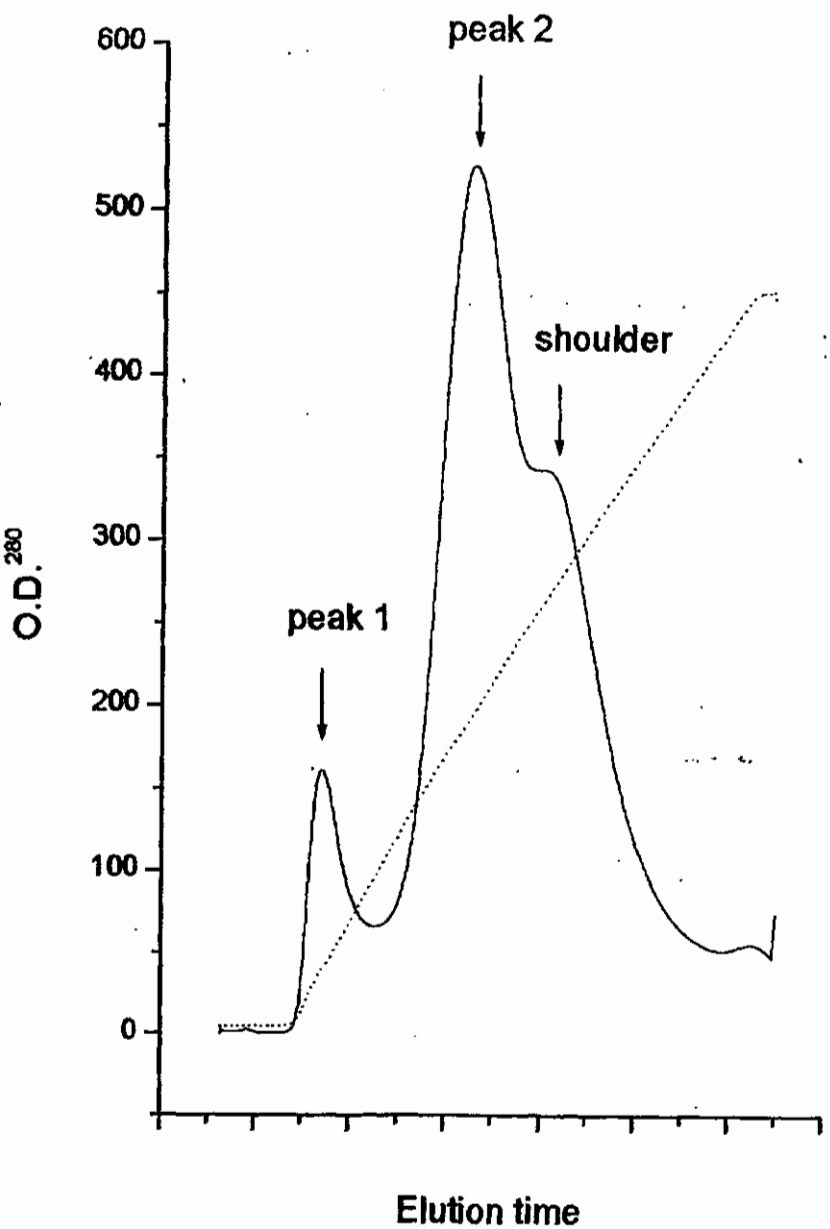
Figure 3a

MQ
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GAGTQVVVTP DIQNPDPAVY QLRDSKSSDK SVCLFTDFDS QTNVSQSKDS
DVYITDKCVL DMRSMDFKSN SAVAWSNKSD FACANAFNNS IIPEDTFFPS
PESS*

Figure 3b

M
N_1AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVFE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VCTDPQPLKE QPALNDSRYA LSSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 4


peak 2
shoulder
peak 1
600
500
400
300
200
100
0
O.D.280
Elution time

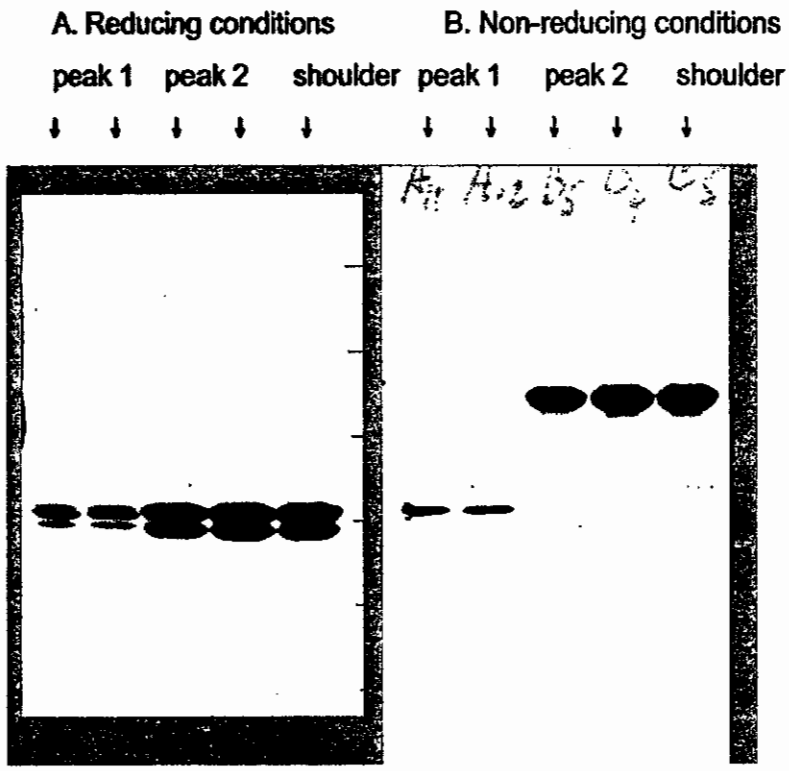

A. Reducing conditions
B. Non-reducing conditions
peak 1
peak 2
shoulder
peak 1
peak 2
shoulder

Figure 5

Figure 6

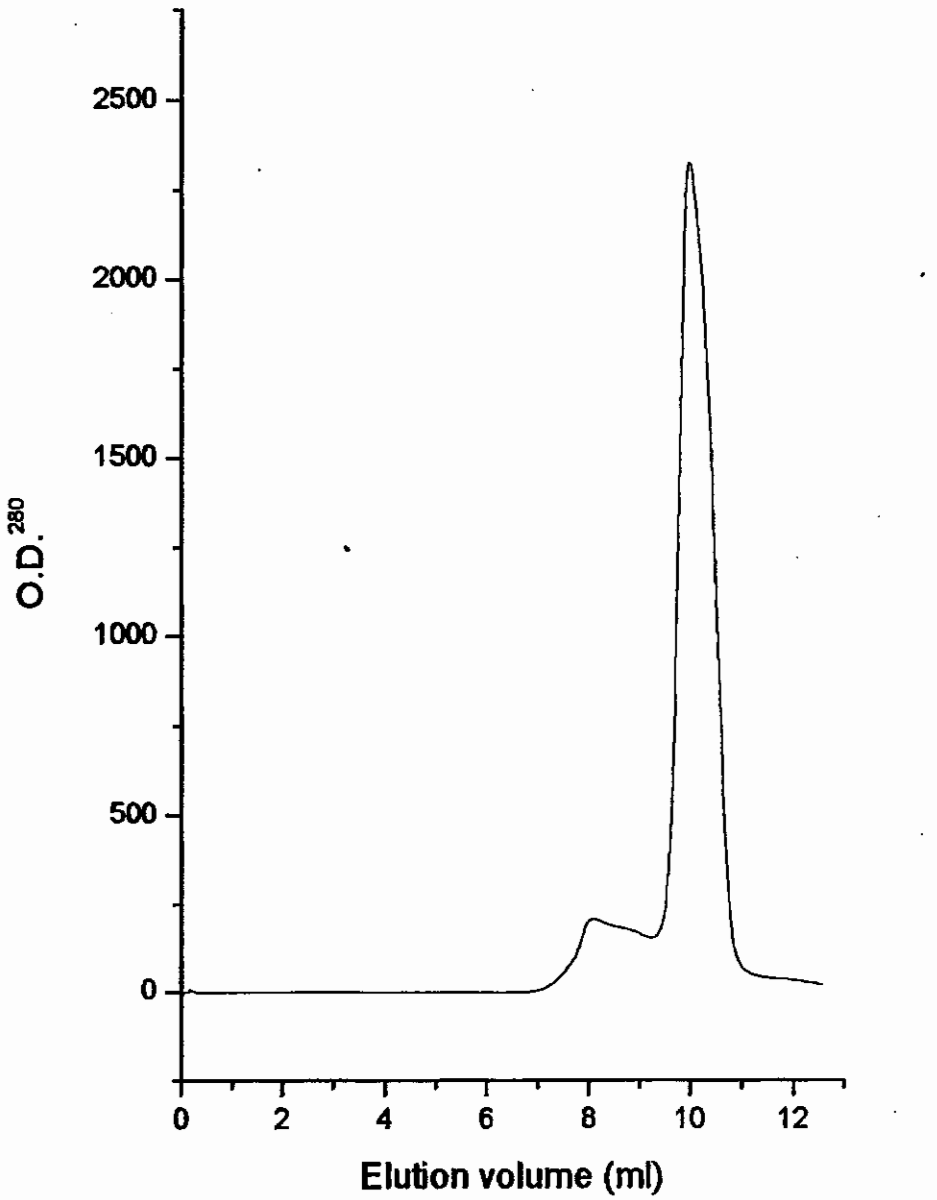


Figure 7

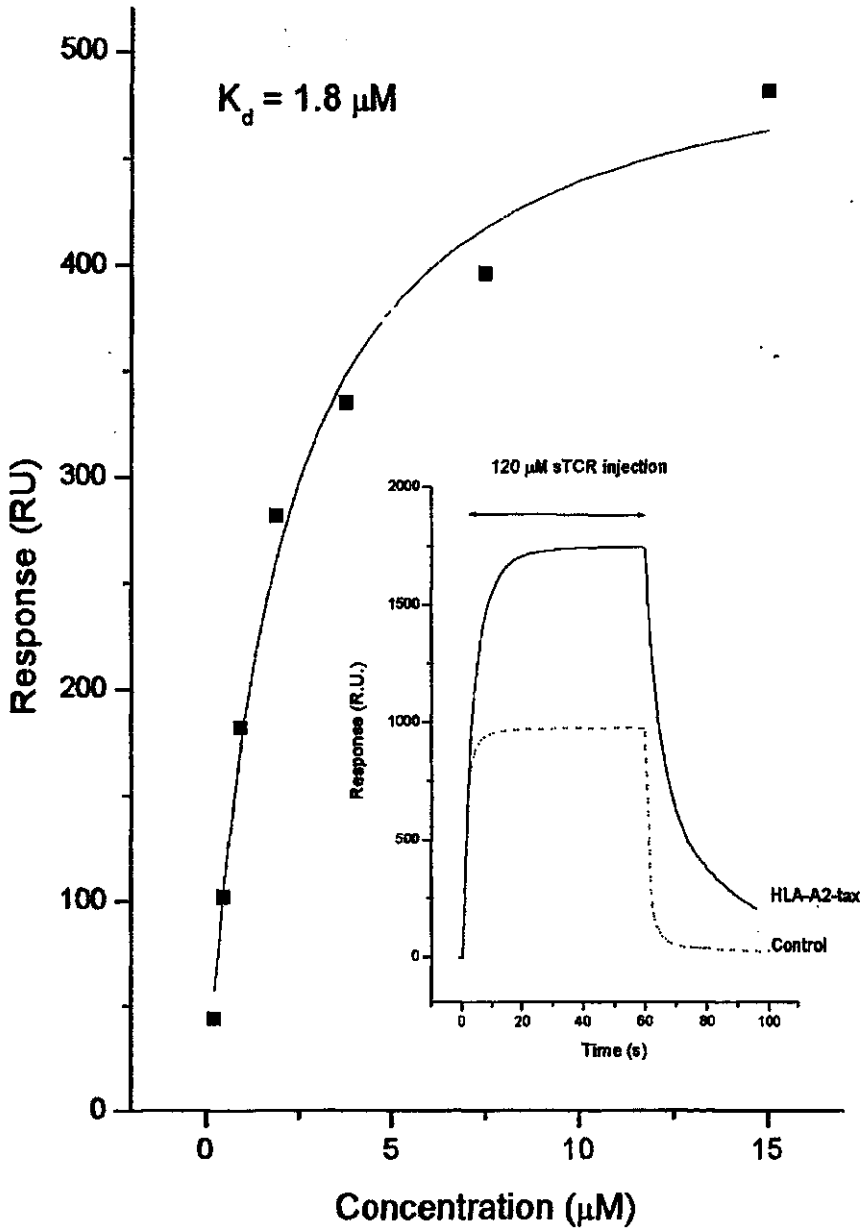

K_d = 1.8 μM
Response (RU)
Concentration (μM)
120 μM sTCR injection
Response (R.U.)
Time (s)
HLA-A2-tax
Control

Figure 8a

atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagccattg
cctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggtacagaca
atattctgggaaaagccctgagttgataatgtccatatactccaatggtgacaaagaa
gatggaaggtttacagcacagctcaataaagccagccagtatgtttctctgctcatca
gagactcccagcccagtgattcagccacctacctctgtgccgttacaactgacagctg
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ccggagcctgccgtgtaccagctgagagactctaaatccagtgacaagtctgtctgcc
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ttccagaagacaccttcttccccagcccagaaagttcctaa

Figure 8b

atgcaactactagaacaaagtcctcagtttctaagcatccaagagggagaaaatctca
ctgtgtactgcaactcctcaagtgtttttttccagcttacaatggtacagacaggagcc
tggggaaggtcctgtcctcctggtgacagtagttacgggtggagaagtgaagaagctg
aagagactaacctttcagtttggtgatgcaagaaaggacagttctctccacatcactg
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cctgccgtgtaccagctgagagactctaaatccagtgacaagtctgtctgcctattca
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agacaaatgtgtgctagacatgaggtctatggacttcaagagcaacagtgctgtggcc
tggagcaacaaatctgactttgcatgtgcaaacgccttcaacaacagcattattccag
aagacaccttcttccccagcccagaaagttcctaa

Figure 8c

atggtggatggtggaatcactcagtccccaaagtacctgttcagaaaggaaggacaga
atgtgaccctgagttgtgaacagaatttgaaccacgatgccatgtactggtaccgaca
ggacccagggcaagggctgagattgatctactactcacagatagtaaatgactttcag
aaaggagatatagctgaagggtacagcgtctctcgggagaagaaggaatcctttcctc
tcactgtgacatcggcccaaaagaacccgacagctttctatctctgtgccagtagttc
gaggagctcctacgagcagtacttcgggccgggcaccaggctcacggtcacagaggac
ctgaaaaacgtgttcccacccgaggtcgctgtgtttgagccatcagaagcagagatct
cccacacccaaaaggccacactggtgtgcctggccacaggcttctaccccgaccacgt
ggagctgagctggtgggtgaatgggaaggaggtgcacagtggggtctgcacagacccg
cagcccctcaaggagcagcccgccctcaatgactccagatacagcctgagcagccgcc
tgagggtctcggccaccttctggcagaaccccgcaaccacttccgctgtcaagtcca
gttctacgggctctcggagaatgacgagtggacccaggatagggccaaacctgtcacc
cagattgtcagcgccgaggcctggggtagagcagactaa

Figure 9a

MQLLEQSPQFLSIQEGENLTVYCNSSSVFSSLQWYRQEP
GEGPVLLVTVVTGGEVKKLKRLTFQFGDARKDSSLHIT
AAQPGDTGLYLCAGAGSQGNLIFGKGTKLSVKPNIQNP
DPAVYQLRDSKSSDKSVCLFTDFDSQTNVSQSKDSDVY
ITDKCVLDMRSMDFKSNSAVAWSNKSDFACANAFNNSI
IPEDTFFPSPESS Stop

Figure 9b

MVDGGITQSPKYLFRKEGQNVTLSCEQNLNHDAMYWY
RQDPGQGLRLIYYSQIVNDFQKGDIAEGYSVSREKKESF
PLTVTSAQKNPTAFYLCASSSRSSYEQYFGPGTRLTVTE
DLKNVFPPEVAVFEPSEAEISHTQKATLVCLATGFYPDH
VELSWWVNGKEVHSGVCTDPQPLKEQPALNDSRYSLSS
RLRVSATFWQNPRNHFRCQVQFYGLSENDEWTQDRAK
PVTQIVSAEAWGRAD Stop

Figure 10

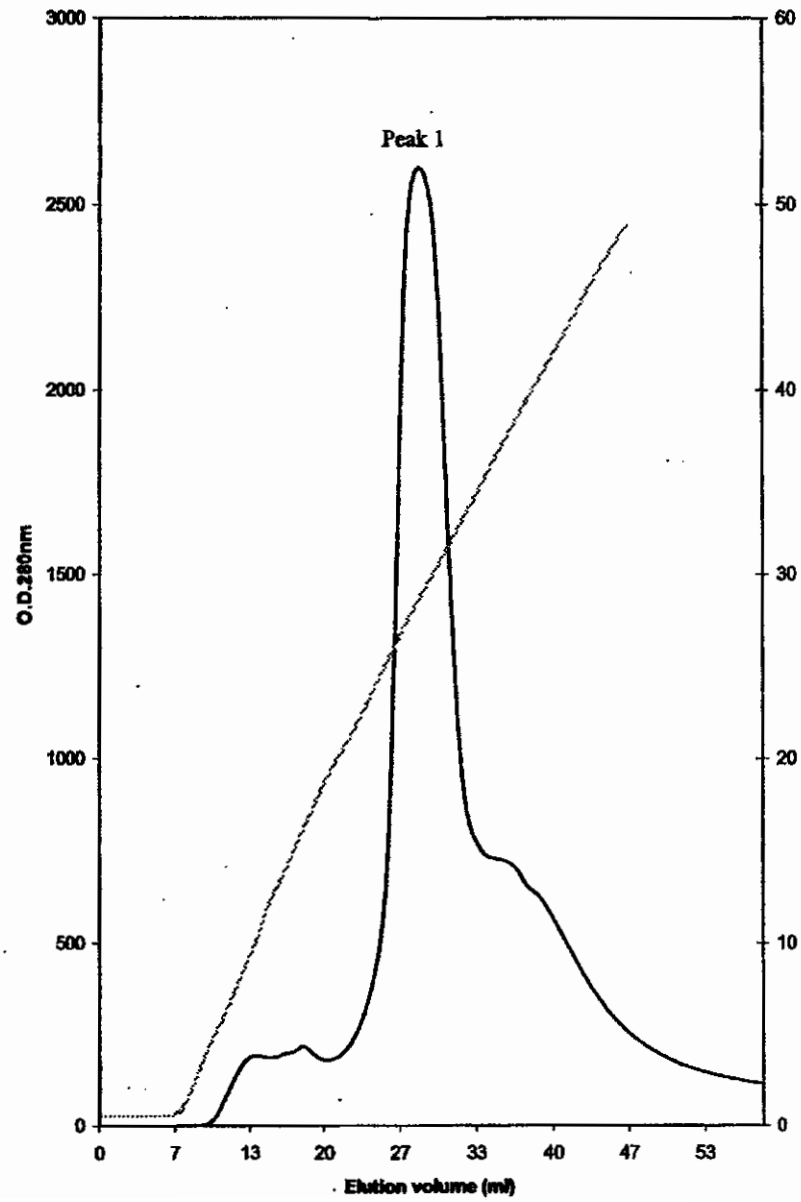

Peak 1
O.D.280nm
Elution volume (ml)
3000
2500
2000
1500
1000
500
0
60
50
40
30
20
10
0
0
7
13
20
27
33
40
47
53

Figure 11

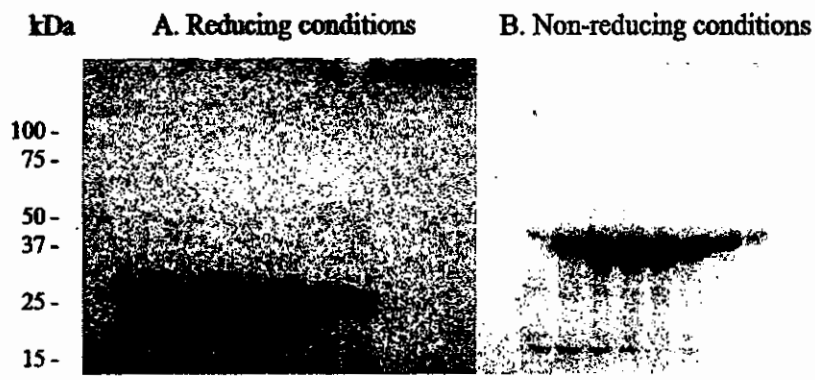


Figure 12

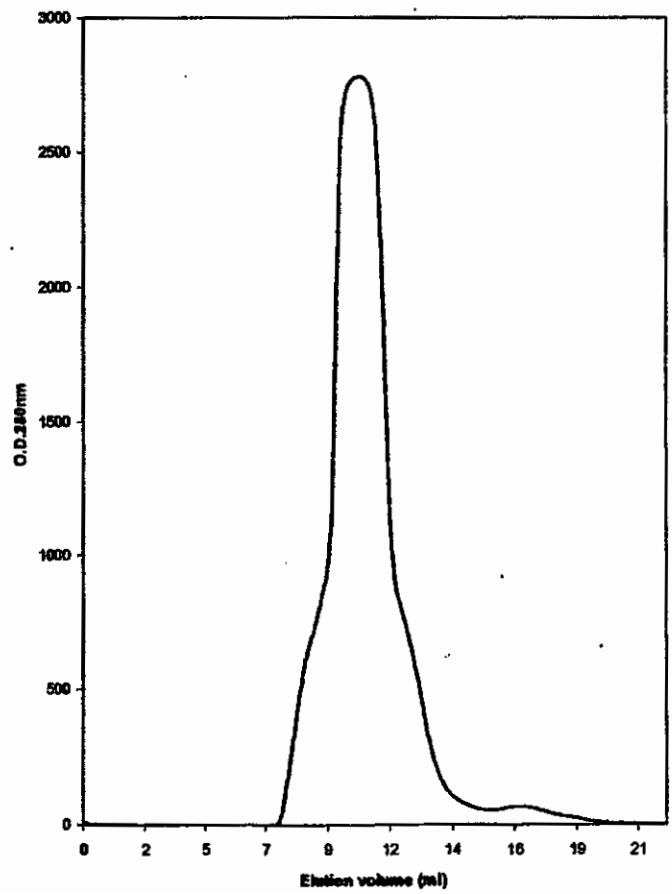


Figure 13a

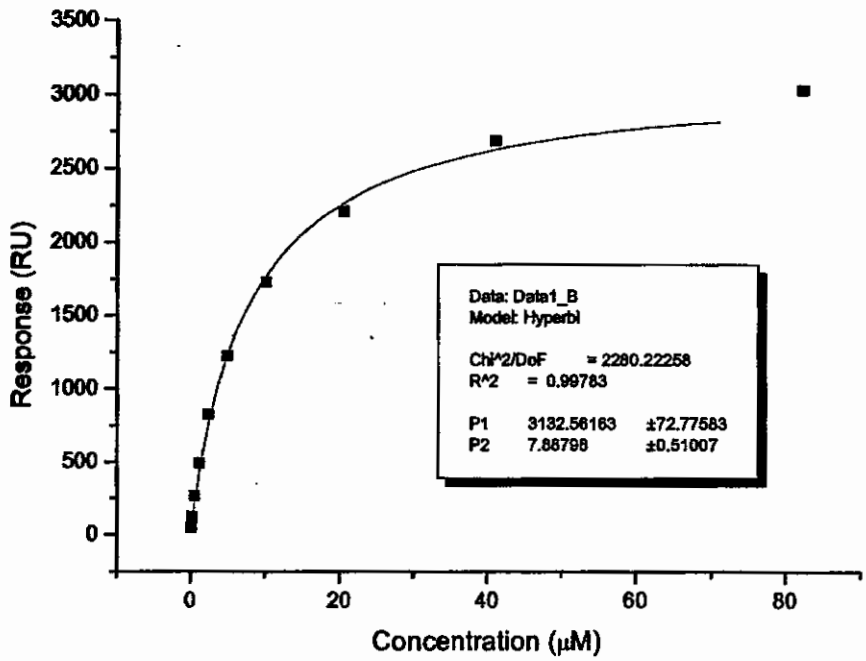


Figure 13b

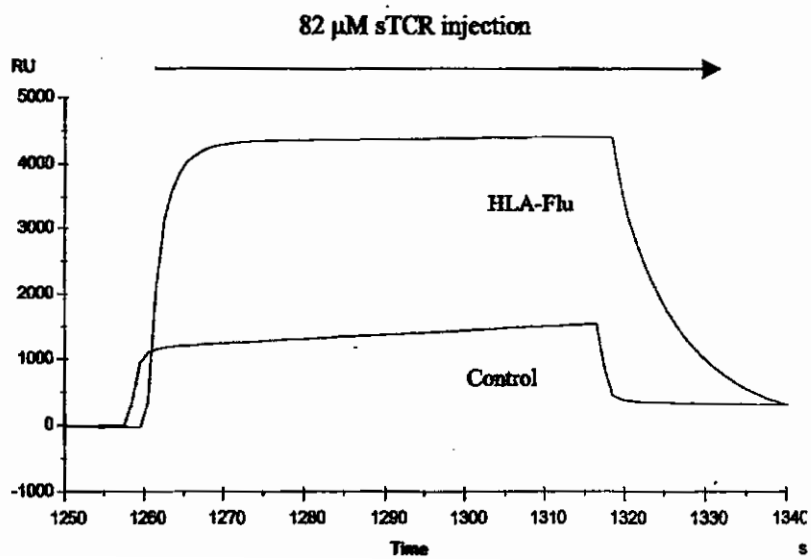


Figure 14a

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agtggaagacttaatgcctcgctggataaatcatcaggacgtagtactttatacattg
cagcttctcagcctggtgactcagccacctacctctgtgctgtgaggcccacatcagg
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agtgctgtggcctggagcaacaaatctgactttgcatgtgcaaacgccttcaacaaca
gcattattccagaagacaccttcttccccagcccagaaagttcctaa

Figure 14b

atgggtgtcactcagaccccaaaattccaggtcctgaagacaggacagagcatgacac
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catggggctgaggctgattcattactcagttggtgctggtatcactgaccaaggagaa
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tctcggccaccttctggcaggacccccgcaaccacttccgctgtcaagtccagttcta
cgggctctcggagaatgacgagtggacccaggatagggccaaacccgtcacccagatc
gtcagcgccgaggcctggggtagagcagactaa

Figure 15a

MQEXTQIPAALSVPEGENLVLNCSFTDSAIYNLQWFRQ
DPGKGLTSLLLIQSSQREQTSGRLNASLDKSSGRSTLYI
AASQPGDSATYLCAVRPTSGGSYIPTFGRGTSLIVHPYI
QNPDPAVYQLRDSKSSDKSVCLFTDFDSQTNVSQSKDS
DVYITDKCVLDMRSMDFKSNSAVAWSNKSDFACANAF
NNSIIPEDTFFPSPESS**Stop**

Figure 15b

MGVTQTPKFQVLKTGQSMTLQCAQDMNHEYMSWYRQ
DPG**Met**GLRLIHYSVGAGITDQGEVPNGYNVSRSTTEDF
PLRLLSAAPSQTSVYFCASSYVGNTGELFFGEGSRLTVL
EDLKNVFPPEVAVFEPSEAEISHTQKATLVCLATGFYPD
HVELSWWVNGKEVHSGVCTDPQPLKEQPALNDSRYAL
SSRLRVSATFWQDPRNHFRCQVQFYGLSENDEWTQDRA
KPVTQIVSAEAWGRAD**Stop**

Figure 16

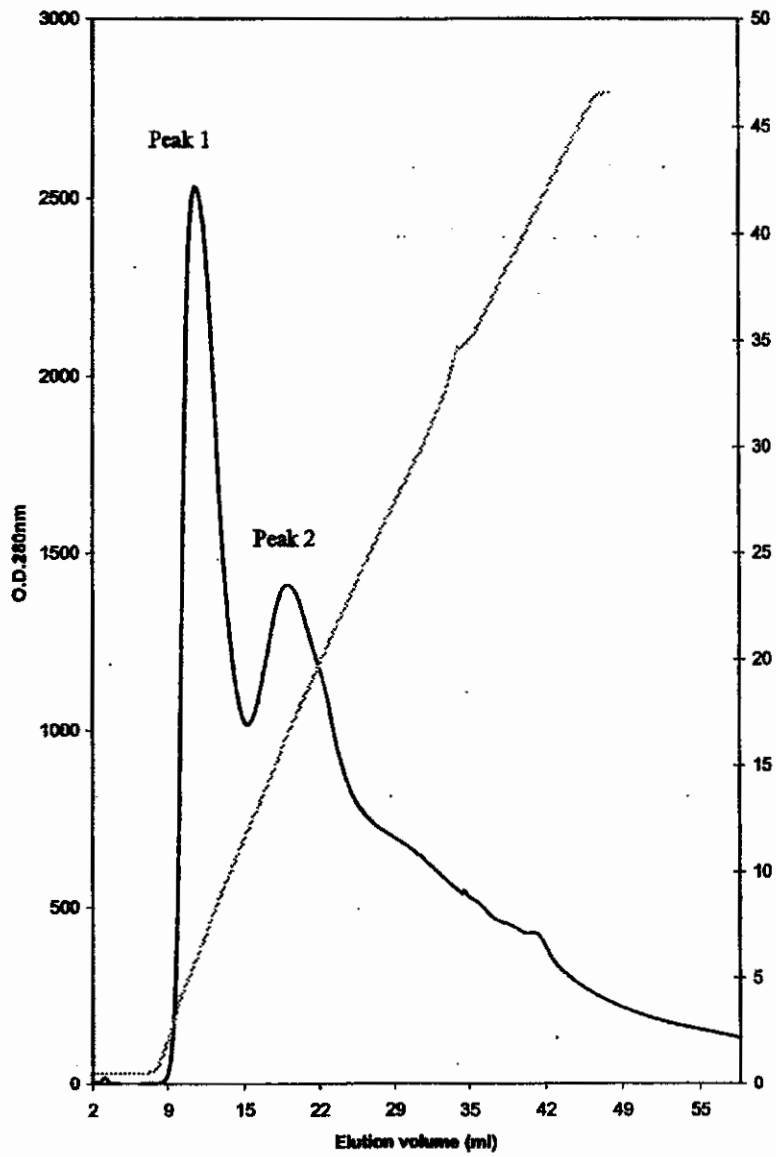

Peak 1
Peak 2
O.D.280nm
Elution volume (ml)
3000
2500
2000
1500
1000
500
0
50
45
40
35
30
25
20
15
10
5
0
2
9
15
22
29
35
42
49
55

Figure 17

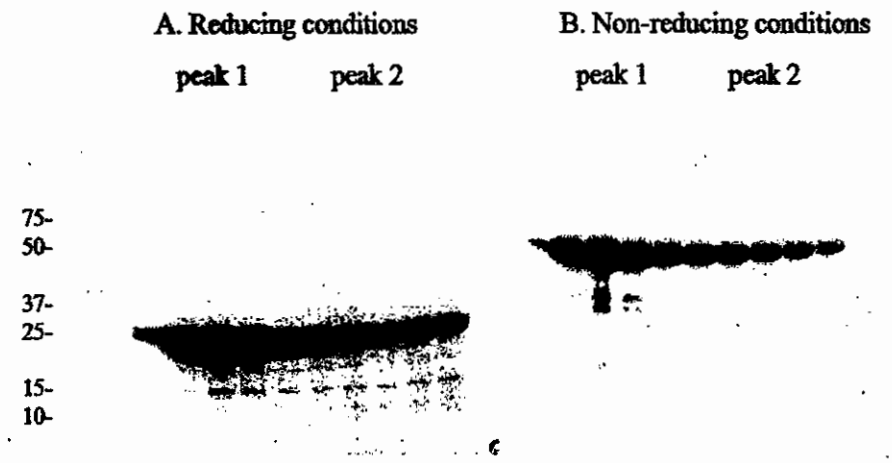


Figure 18

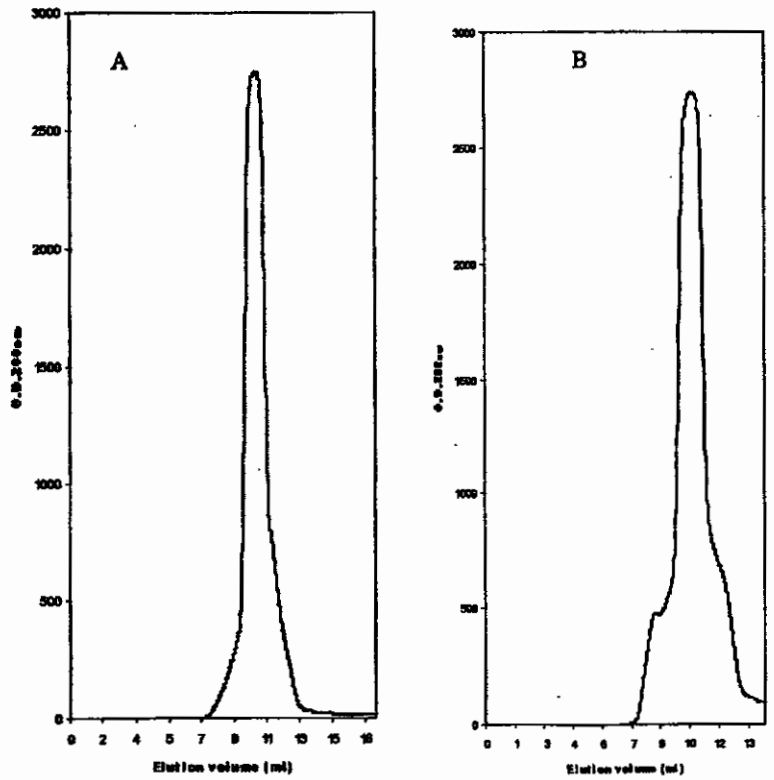


Figure 19a

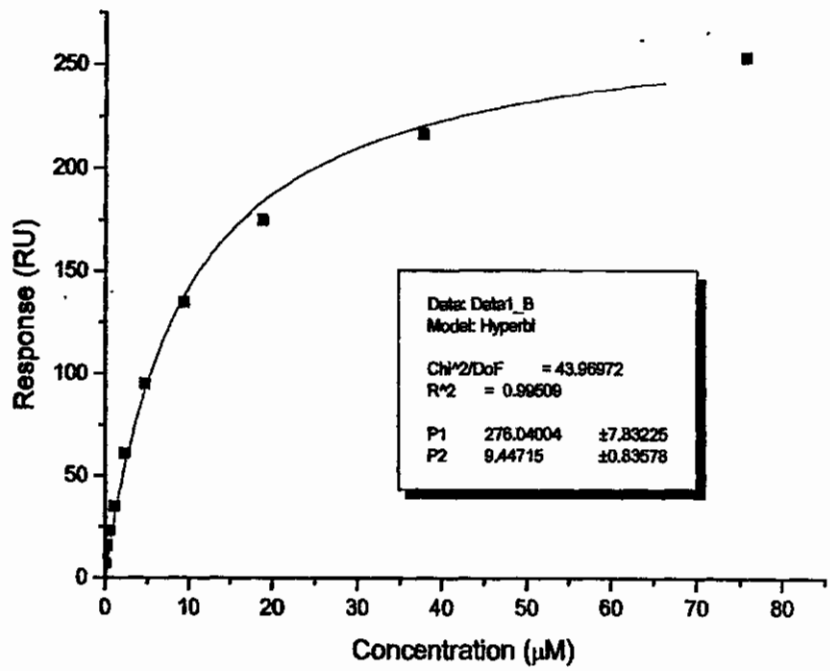


Figure 19b

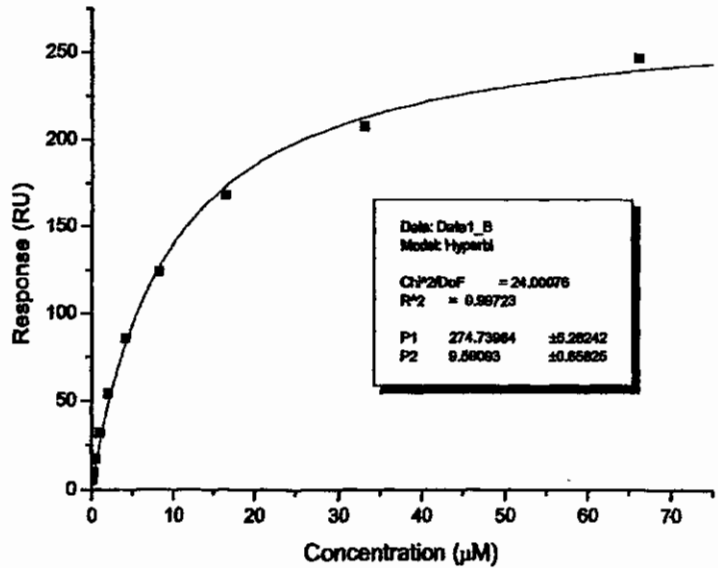


Figure 20a

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agtggaagacttaatgcctcgctggataaatcatcaggacgtagtactttatacattg
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agtgctgtggcctggagcaacaaatctgactttgcatgtgcaaacgccttcaacaaca
gcattattccagaagacaccttcttccccagcccagaaagttcctgttaa

Figure 20b

atgggtgtcactcagaccccaaaattccaggtcctgaagacaggacagagcatgacac
tgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcgacaagacccagg
catggggctgaggctgattcattactcagttggtgctggtatcactgaccaaggagaa
gtccccaatggctacaatgtctccagatcaaccacagaggatttcccgctcaggctgc
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ctcaaggagcagcccgccctcaatgactccagatacgctctgagcagccgcctgaggg
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Figure 21a

MQEXTQIPAALSVPEGENLVLNCSFTDSAIYNLQWFRQ
DPGKGLTSLLLIQSSQREQTSGRLNASLDKSSGRSTLYI
AASQPGDSATYLCAVRPTSGGSYIPTFGRGTSLIVHPYI
QNPDPAVYQLRDSKSSDKSVCLFTDFDSQTNVSQSKDS
DVYITDKCVLDMRSMDFKSNSAVAWSNKSDFACANAF
NNSIIPEDTFFPSPESSCStop

Figure 21b

MGVTQTPKFQVLKTGQSMTLQCAQDMNHEYMSWYRQ
DPGMGLRLIHYSVGAGITDQGEVPNGYNVSRSTTEDFP
LRLLSAAPSQTSVYFCASSYVGNTGELFFGEGSRLTVLE
DLKNVFPPEVAVFEPSEAEISHTQKATLVCLATGFYPDH
VELSWWVNGKEVHSGVCTDPQPLKEQPALNDSRYALSS
RLRVSATFWQDPRNHFRCQVQFYGLSENDEWTQDRAK
PVTQIVSAEAWGRADCStop

Figure 22

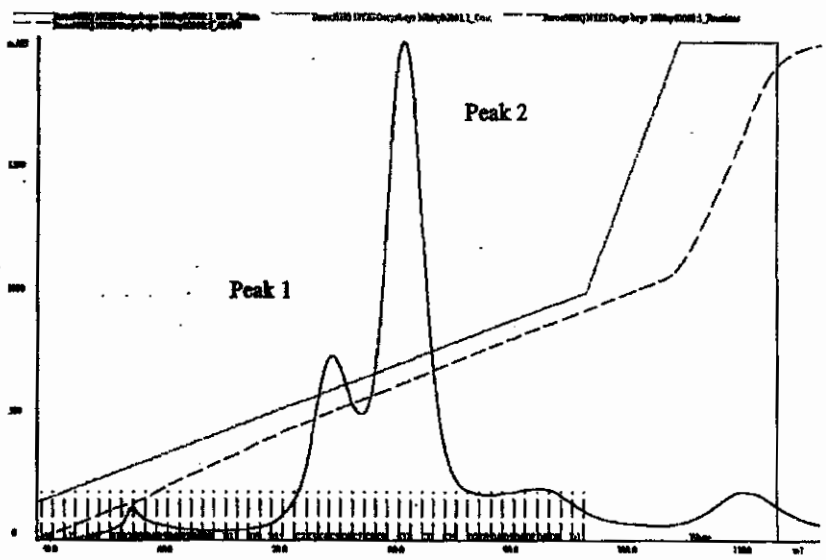


Figure 23

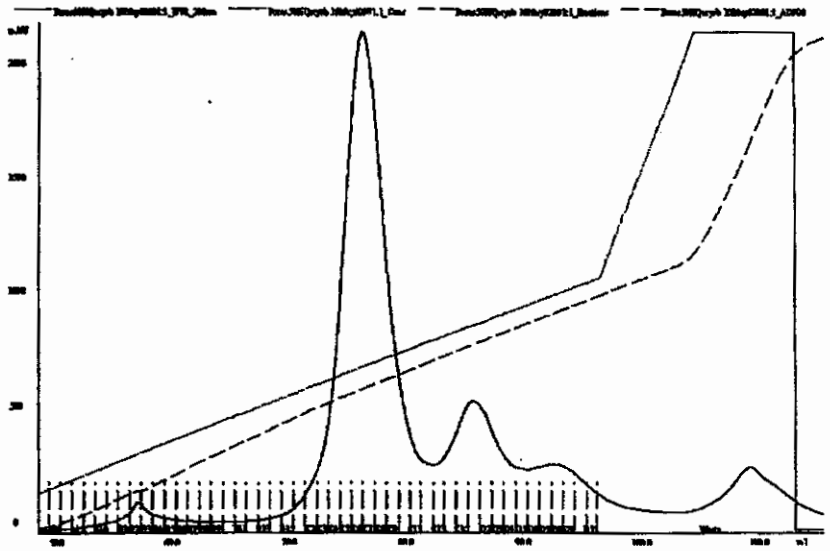


Figure 24

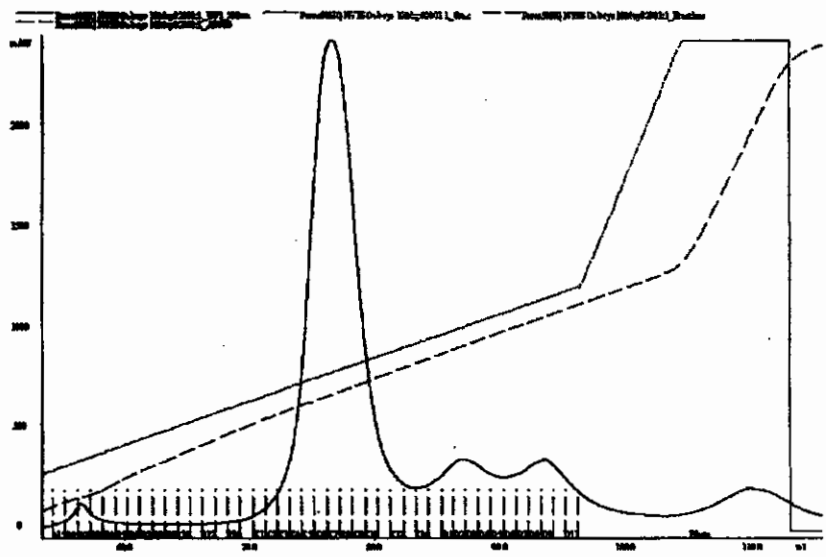


Figure 25

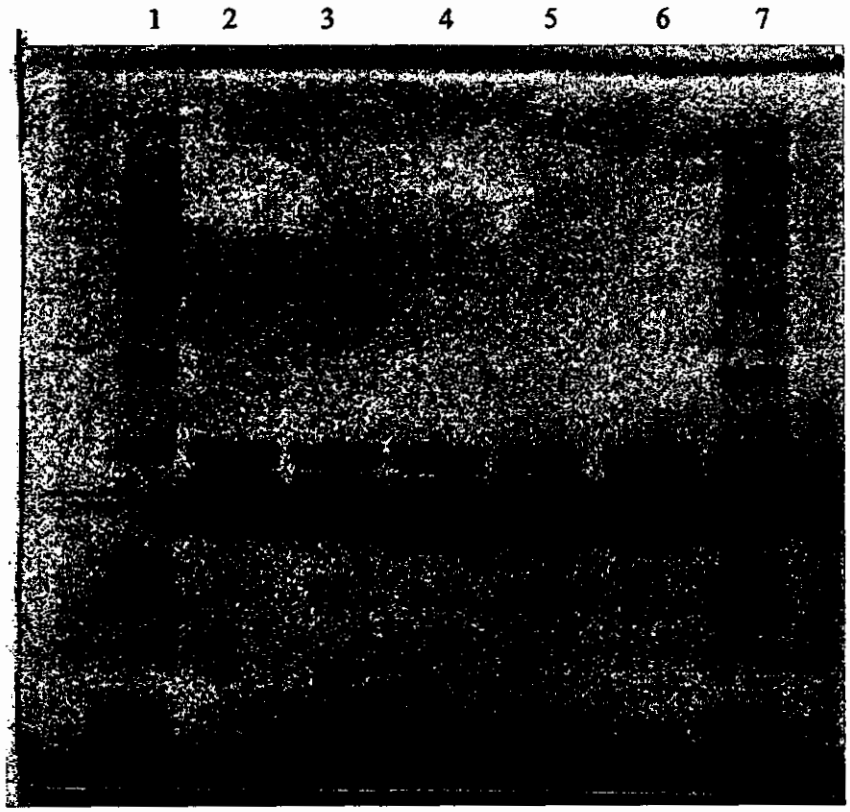


Figure 26

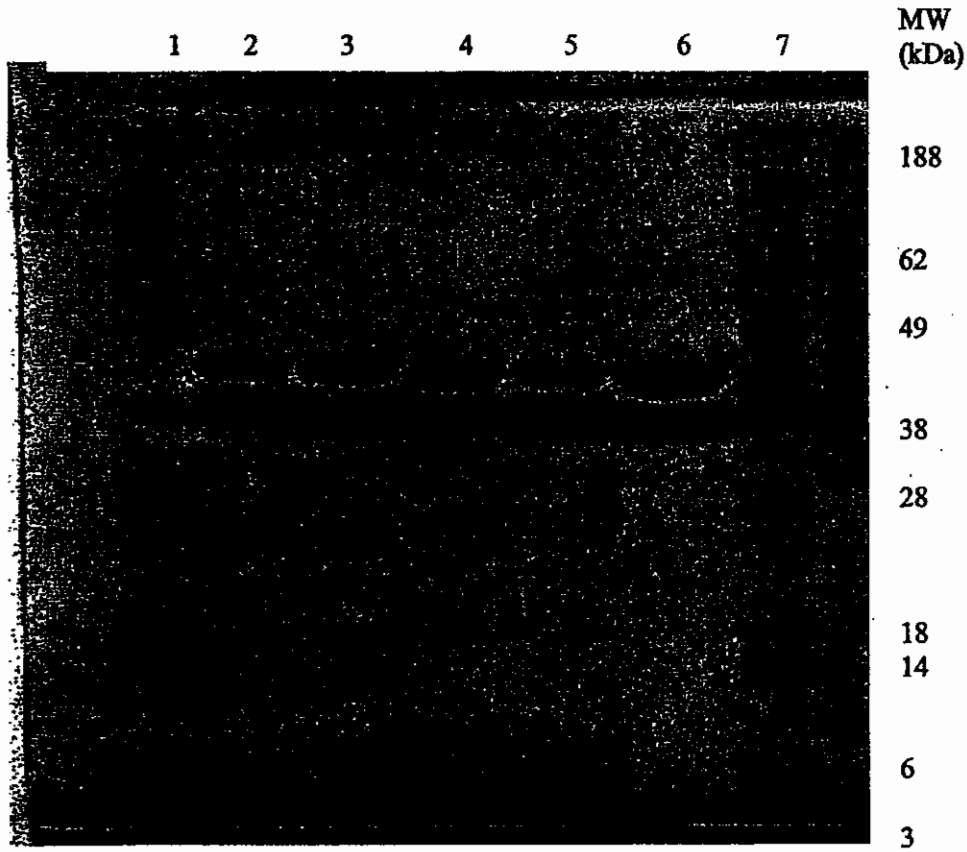


Figure 27

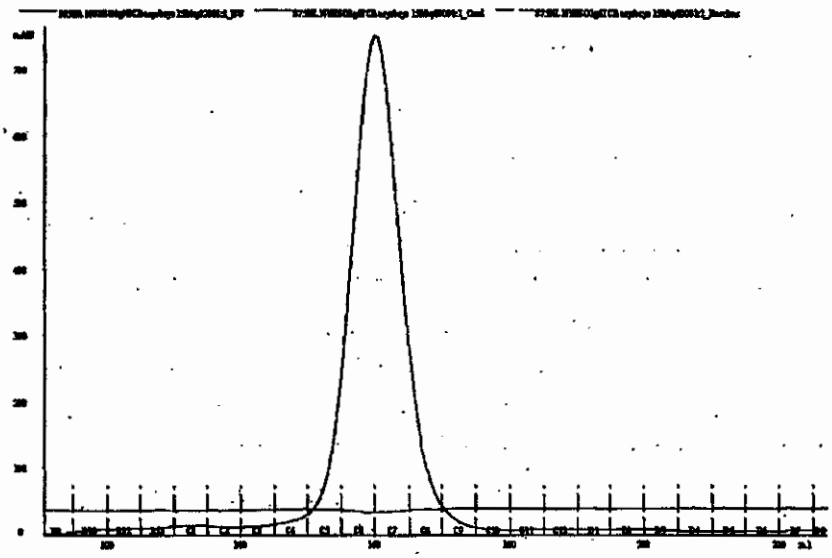


Figure 28

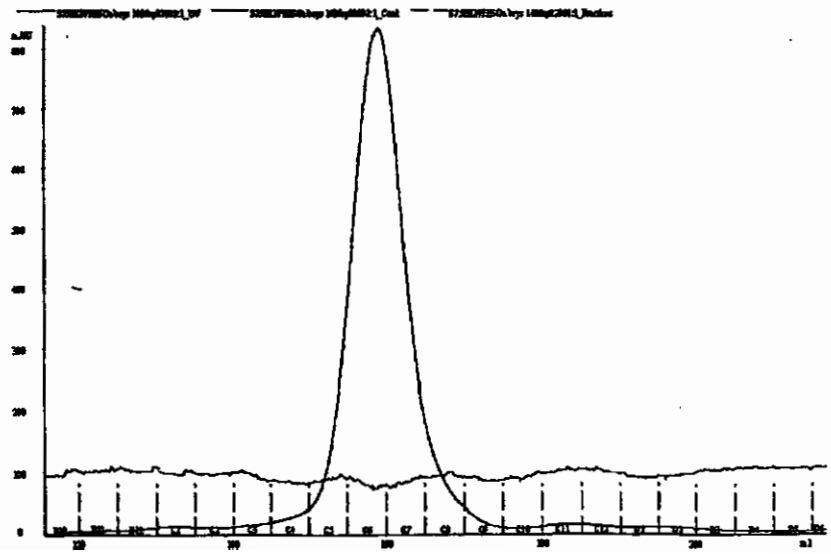


Figure 29

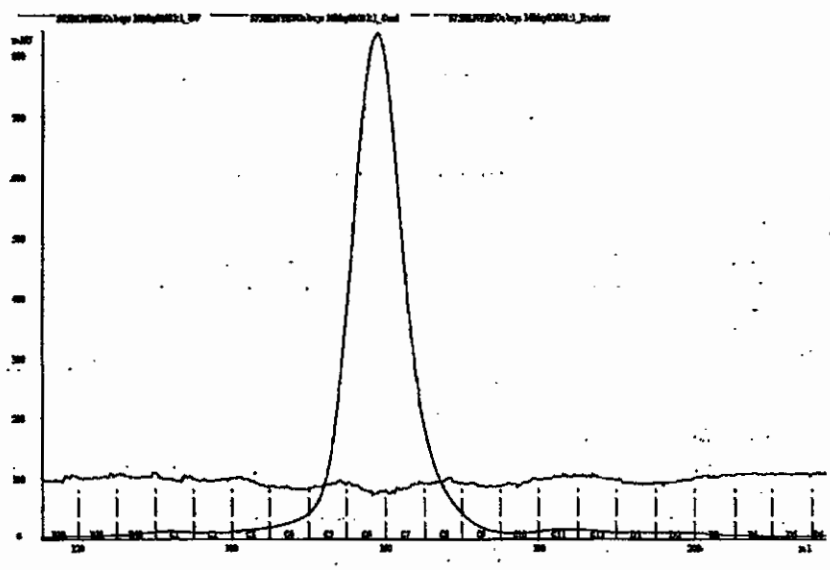


Figure 30

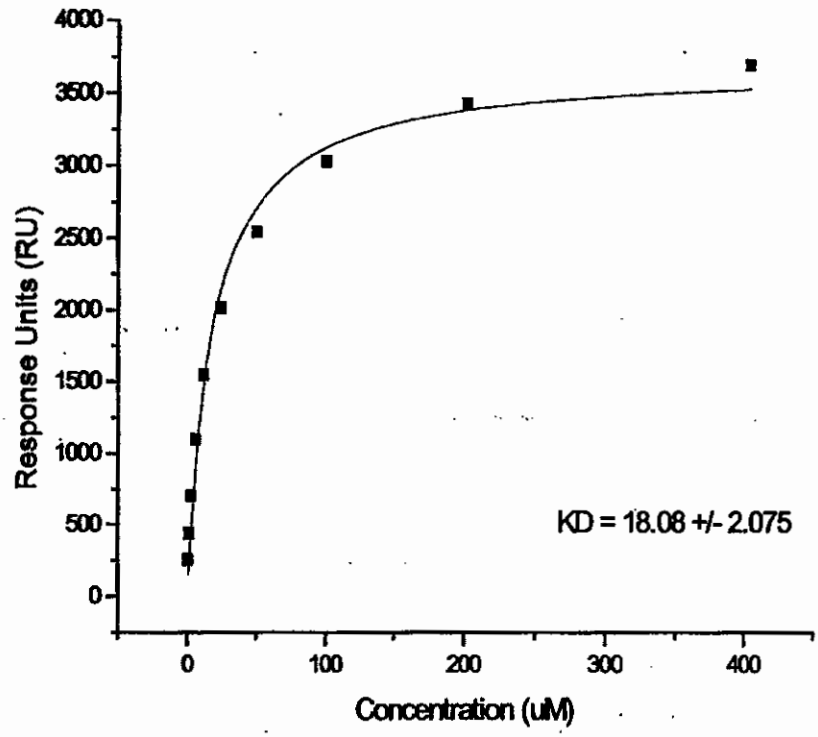

Response Units (RU)
4000
3500
3000
2500
2000
1500
1000
500
0
0
100
200
300
400
Concentration (uM)
KD = 18.08 +/- 2.075

Figure 31

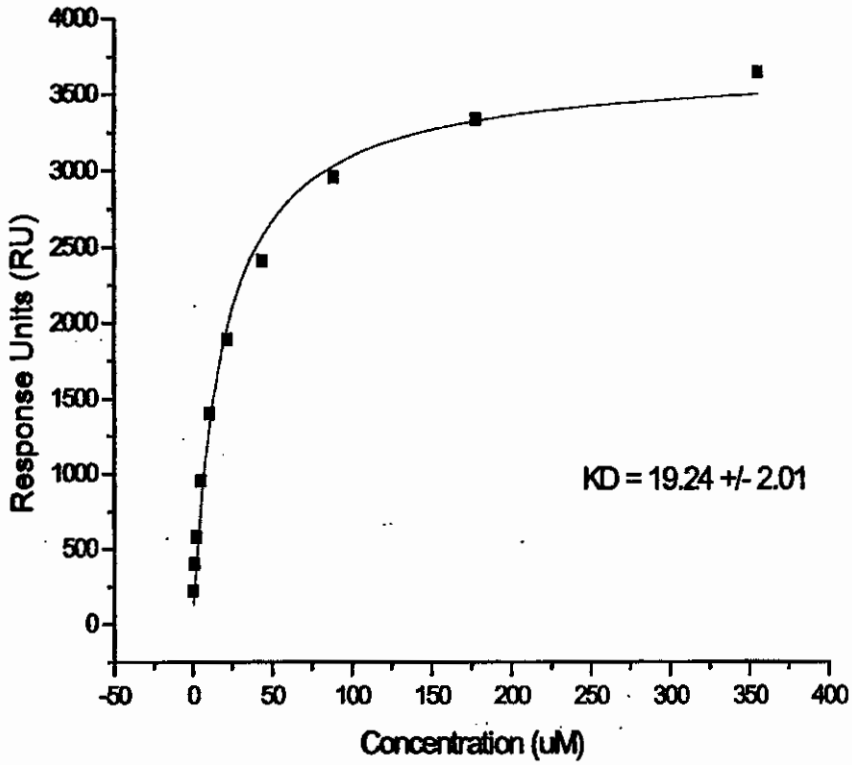

Response Units (RU)
4000
3500
3000
2500
2000
1500
1000
500
0
-50
0
50
100
150
200
250
300
350
400
Concentration (uM)
KD = 19.24 +/- 2.01

Figure 32

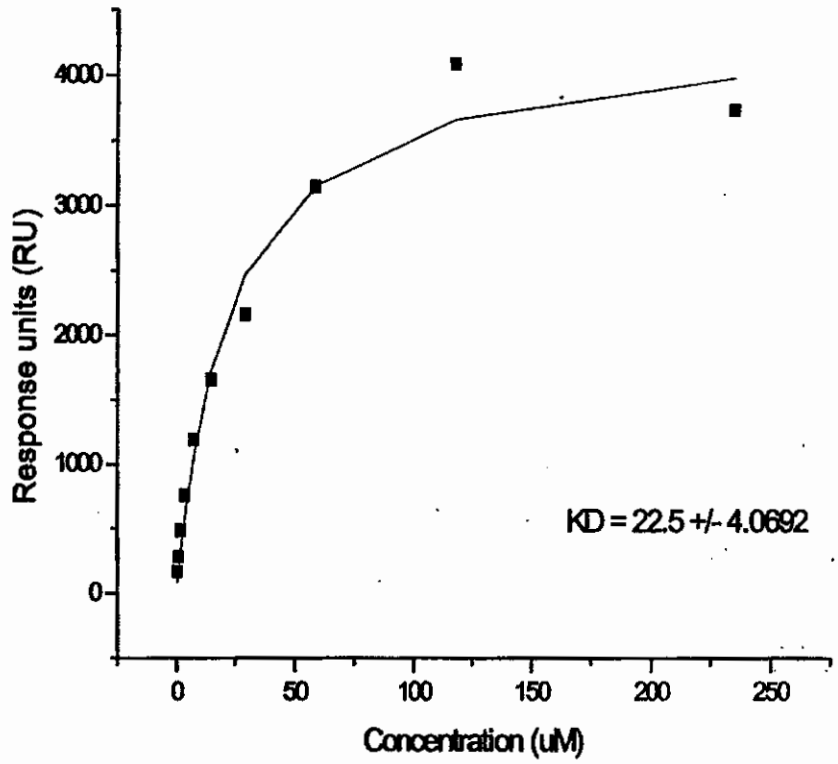

Response units (RU)
4000
3000
2000
1000
0
0
50
100
150
200
250
Concentration (uM)
KD = 22.5 +/- 4.0692

Figure 33a

atgaaggaggtggagcagaattctggacccctcagtgttccagagggagccattg
cctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggtacag
acaatattctgggaaaagccctgagttgataatgttcatatactccaatggtgac
aaagaagatggaaggtttacagcacagctcaataaagccagccagtatgtttctc
tgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgtgaa
ggggggtctgggggttaccagaaagttacctttggaactggaacaaagctccaa
gtcatcccaaatatccagaacccggatcctgccgtgtaccagctgagagactcta
aatccagtgacaagtctgtctgcctattcaccgattttgattctcaaacaaatgt
gtcacaaagtaaggattctgatgtgtatatcacagacaaa[redacted]gtgctagacatg
aggtctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgact
ttgcatgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccc
cagcccagaaagttcctaa

Figure 33b

atgggcgtcatgcagaacccaagacacctggtcaggaggaggggacaggaggcaa
gactgagatgcagcccaatgaaaggacacagtcatgtttactggtatcggcagct
cccagaggaaggtctgaaattcatggtttatctccagaaagaaaatatcatagat
gagtcaggaatgccaaaggaacgattttctgctgaatttcccaaagagggcccca
gcatcctgaggatccagcaggtagtgcgaggagattcggcagcttatttctgtgc
cagctcaccacagacaggggcacagatacgcagtattttggcccaggcacccgg
ctgacagtgctcgaggacctgaaaaacgtgttcccacccgaggtcgctgtgtttg
agccatcagaagcagagatctcccacacccaaaaggccacactggtgtgcctggc
cacaggcttctaccccgaccacgtggagctgagctggtgggtgaatgggaaggag
gtgcacagtggggtc[redacted]acagacccgcagcccctcaaggagcagcccgccctca
atgactccagatacgctctgagcagccgcctgagggtctcggccaccttctggca
ggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcggagaat
gacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcgccgagg
cctggggtagagcagactaa

Figure 34a

MKEVEQNSGPLSVPEGAIASLNCTYSDRGSQSFFWYRQYS
GKSPELIMFIYSNGDKEDGRFTAQLNKASQYVSLLIRDSQP
SDSATYLCAVKGGSGGYQKVTFGTGTKLQVIPNIQNPDPA
VYQLRDSKSSDKSVCLFTDFDSQTNVSQSKDSDVYITDKC
VLDMRSMDFKSNSAVAWSNKSDFACANAFNNSIIPEDTFF
PSPESS**Stop**

Figure 34b

MGVMQNPRHLVRRRGQEARLRCSPMKGHSHVYWYRQLP
EEGLKFMVYLQKENIIDESGMPKERFSAEFPKEGPSILRIQ
QVVRGDSAAYFCASSPQTGGTDTQYFGPGTRLTVLEDLKN
VFPPEVAVFEPSEAEISHTQKATLVCLATGFYPDHVELSW
WVNGKEVHSGVCTDPQPLKEQPALNDSRYALSSRLRVSAT
FWQDPRNHFRCQVQFYGLSENDEWTQDRAKPVTQIVSAE
AWGRAD**Stop**

Figure 35

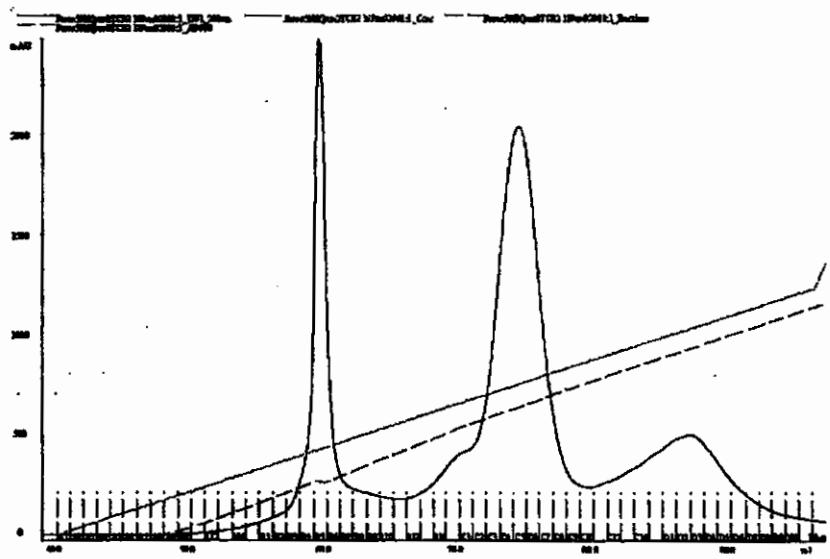


Figure 36

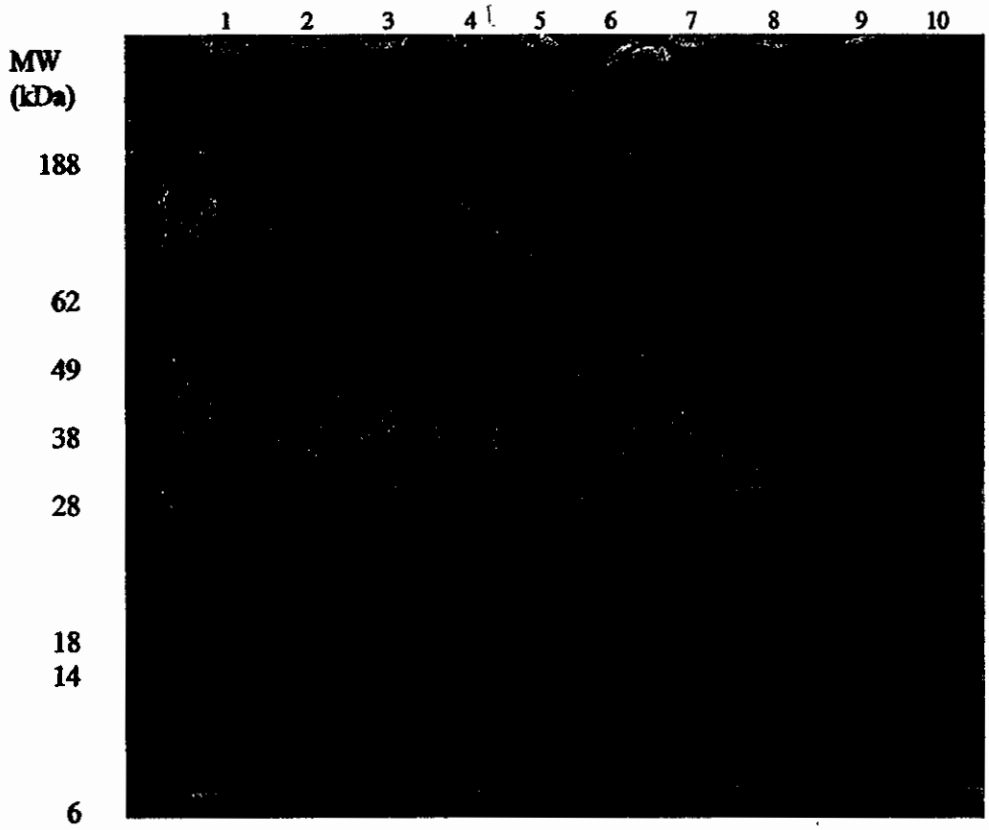


Figure 37

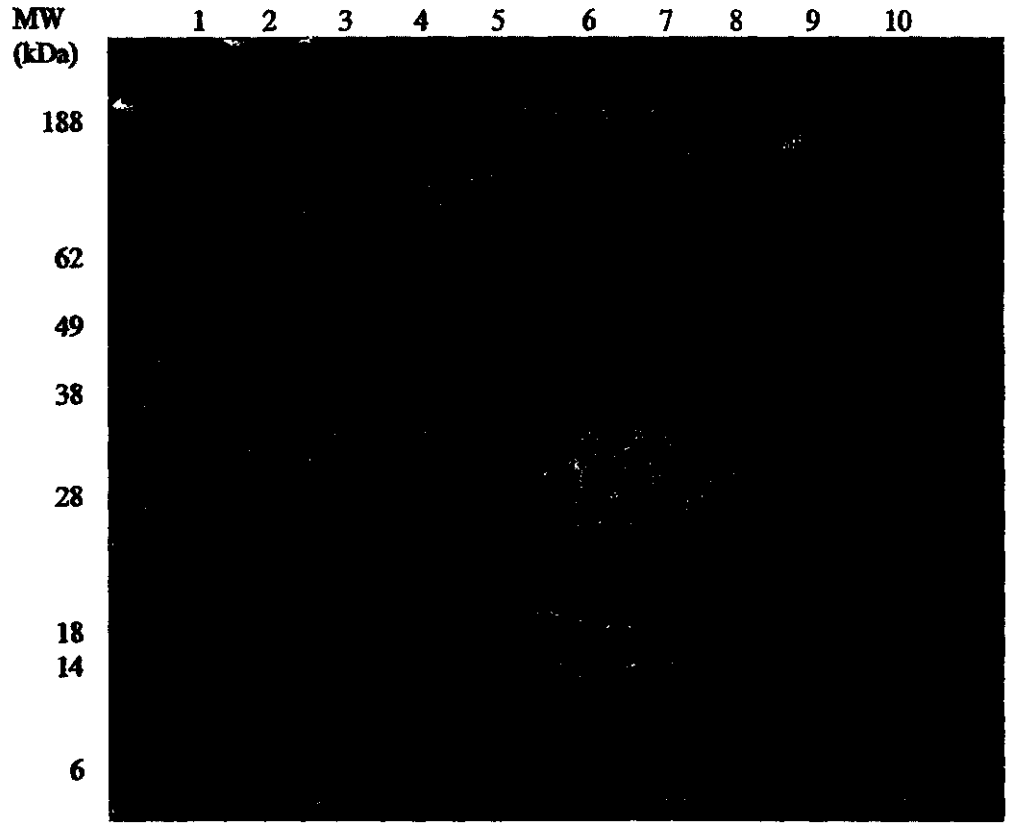


Figure 38

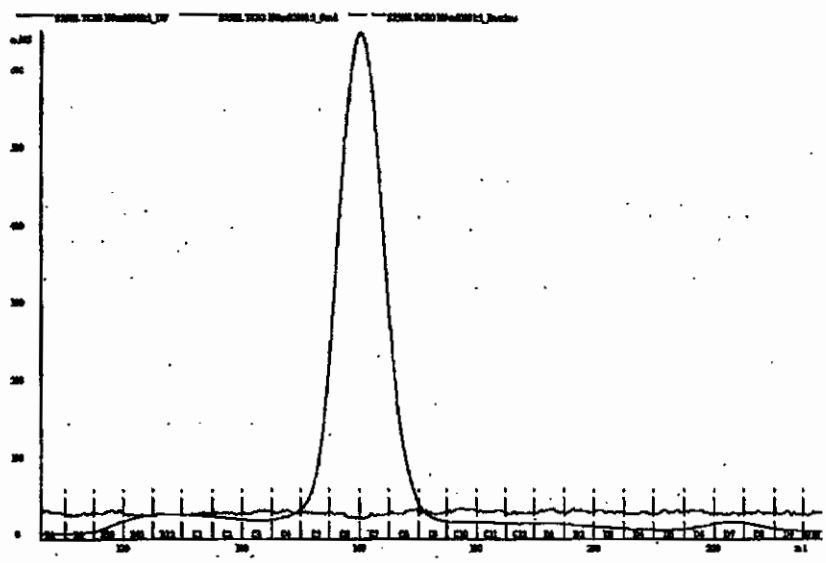


Figure 39a – T48→C α chain

atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtgtaccagctgagagactctaaat
ccagtgacaagtctgtctgcctattcaccgattttgattctcaaacaaatgtgtc
acaaagtaaggattctgatgtgtatatcacagacaaa[redacted]gtgctagacatgagg
tctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 39b – T48→C α chain

MQ
K$_1$EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY SNGDKEDGRF
TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF GAGTQVVVTP DIQNPDPAVY
QLRDSKSSDK SVCLFTDFDS QTNVSQSKDS DVYITDKCVL DMRSMDFKSN SAVAWSNKSD
FACANAFNNS IIPEDTFFPS PESS*

Figure 40a – T45→C alpha chain DNA Sequence

Atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtgtaccagctgagagactctaaat
ccagtgacaagtctgtctgcctattcaccgattttgattctcaaacaaatgtgtc
acaaagtaaggattctgatgtgtatatc[redacted]gacaaaactgtgctagacatgagg
tctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 40b – T45→C alpha chain Amino Acid Sequence

MQ
K$_1$EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY SNGDKEDGRF
TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF GAGTQVVVTP DIQNPDPAVY
QLRDSKSSDK SVCLFTDFDS QTNVSQSKDS DVYICDKTVL DMRSMDFKSN SAVAWSNKSD

Figure 41a – S61→C alpha chain DNA Sequence

Atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtgtaccagctgagagactctaaat
ccagtgacaagtctgtctgcctattcaccgattttgattctcaaacaaatgtgtc
acaaagtaaggattctgatgtgtatatcacagacaaaactgtgctagacatgagg
tctatggacttcaagagcaac[redacted]gctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 41b – S61→C alpha chain Amino Acid Sequence

MQ
K_1EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY
SNGDKEDGRF TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF
GAGTQVVVTP DIQNPDPAVY QLRDSKSSDK SVCLFTDFDS QTNVSQSKDS
DVYITDKTVL DMRSMDFKSN CAVAWSNKSD FACANAFNNS IIPEDTFFPS PESS*

Figure 42a – L50→C alpha chain DNA Sequence

Atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtgtaccagctgagagactctaaat
ccagtgacaagtctgtctgcctattcaccgattttgattctcaaacaaatgtgtc
acaaagtaaggattctgatgtgtatatcacagacaaaactgtg[redacted]gacatgagg
tctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 42b – L50→C alpha chain Amino Acid Sequence

MQ
K_1EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY
SNGDKEDGRF TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF
GAGTQVVVTP DIQNPDPAVY QLRDSKSSDK SVCLFTDFDS QTNVSQSKDS
DVYITDKTVC DMRSMDFKSN SAVAWSNKSD FACANAFNNS IIPEDTFFPS PESS*

Figure 43a – Y10→C α chain

atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtg[redacted]cagctgagagactctaaat
ccagtgacaagtctgtctgcctattcaccgattttgattctcaaacaaatgtgtc
acaaagtaaggattctgatgtgtatatcacagacaaaactgtgctagacatgagg
tctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 43b – Y10→C α chain

MQ
K_1EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY
SNGDKEDGRF TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF
GAGTQVVVTP DIQNPDPAVC QLRDSKSSDK SVCLFTDFDS QTNVSQSKDS
DVYITDKTVL DMRSMDFKSN SAVAWSNKSD FACANAFNNS IIPEDTFFPS PESS*

Figure 44a – S15→C α chain

atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtgtaccagctgagagac[redacted]aaat
ccagtgacaagtctgtctgcctattcaccgattttgattctcaaacaaatgtgtc
acaaagtaaggattctgatgtgtatatcacagacaaaactgtgctagacatgagg
tctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 44b – S15→C α chain

MQ
K_1EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY
SNGDKEDGRF TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF
GAGTQVVVTP DIQNPDPAVY QLRDCKSSDK SVCLFTDFDS QTNVSQSKDS
DVYITDKTVL DMRSMDFKSN SAVAWSNKSD FACANAFNNS IIPEDTFFPS PESS*

Figure 45a – L12→C α chain

atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtgtaccag[redacted]agagactctaaat
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acaaagtaaggattctgatgtgtatatcacagacaaaactgtgctagacatgagg
tctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 45b – L12→C α chain

MQ
K_1EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY
SNGDKEDGRF TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF
GAGTQVVVTP DIQNPDPAVY QCRDSKSSDK SVCLFTDFDS QTNVSQSKDS
DVYITDKTVL DMRSMDFKSN SAVAWSNKSD FACANAFNNS IIPEDTFFPS PESS*

Figure 46a – V22→C α chain

atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtgtaccagctgagagactctaaat
ccagtgacaagtct[redacted]tgcctattcaccgattttgattctcaaacaaatgtgtc
acaaagtaaggattctgatgtgtatatcacagacaaaactgtgctagacatgagg
tctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 46b – V22→C α chain

MQ
K_1EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY
SNGDKEDGRF TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF
GAGTQVVVTP DIQNPDPAVY QLRDSKSSDK S[redacted]CLFTDFDS QTNVSQSKDS
DVYITDKTVL DMRSMDFKSN SAVAWSNKSD FACANAFNNS IIPEDTFFPS PESS*

Figure 47a – M52→C α chain

atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtgtaccagctgagagactctaaat
ccagtgacaagtctgtctgcctattcaccgattttgattctcaaacaaatgtgtc
acaaagtaaggattctgatgtgtatatcacagacaaaactgtgctagac[redacted]agg
tctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 47b – M52→C α chain

MQ
K_1EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY
SNGDKEDGRF TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF
GAGTQVVVTP DIQNPDPAVY QLRDSKSSDK SVCLFTDFDS QTNVSQSKDS
DVYITDKTVL DCRSMDFKSN SAVAWSNKSD FACANAFNNS IIPEDTFFPS PESS*

Figure 48a – Y43→C α chain

atgcagaaggaagtggagcagaactctggacccctcagtgttccagagggagcca
ttgcctctctcaactgcacttacagtgaccgaggttcccagtccttcttctggta
cagacaatattctgggaaaagccctgagttgataatgtccatatactccaatggt
gacaaagaagatggaaggtttacagcacagctcaataaagccagccagtatgttt
ctctgctcatcagagactcccagcccagtgattcagccacctacctctgtgccgt
tacaactgacagctgggggaaattgcagtttggagcagggacccaggttgtggtc
accccagatatccagaaccctgaccctgccgtgtaccagctgagagactctaaat
ccagtgacaagtctgtctgcctattcaccgattttgattctcaaacaaatgtgtc
acaaagtaaggattctgatgtg[redacted]atcacagacaaaactgtgctagacatgagg
tctatggacttcaagagcaacagtgctgtggcctggagcaacaaatctgactttg
catgtgcaaacgccttcaacaacagcattattccagaagacaccttcttccccag
cccagaaagttcctaa

Figure 48b – Y43→C α chain

MQ
K_1EVEQNSGPL SVPEGAIASL NCTYSDRGSQ SFFWYRQYSG KSPELIMSIY
SNGDKEDGRF TAQLNKASQY VSLLIRDSQP SDSATYLCAV TTDSWGKLQF
GAGTQVVVTP DIQNPDPAVY QLRDSKSSDK SVCLFTDFDS QTNVSQSKDS

Figure 49a – Ser57→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctcctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgctg
tgtttgagccatcagaagcagagatctcccacacccaaaaggccacactggtgtg
cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagtggggtc[redacted]acagacccgcagcccctcaaggagcagcccg
ccctcaatgactccagatacgctctgagcagccgcctgagggtctcggccaccttt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 49b Ser57→C β chain

M
N_1AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVFE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VCTDPQPLKE QPALNDSRYA LSSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 50a – Ser77→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctcctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgctg
tgtttgagccatcagaagcagagatctcccacacccaaaaggccacactggtgtg
cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagtggggtcagcacagacccgcagcccctcaaggagcagcccg
ccctcaatgactccagatacgctctg[redacted]agccgcctgagggtctcggccaccttt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 50b Ser77→C β chain

M
N_1AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVFE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VSTDPQPLKE QPALNDSRYA LCSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 51a – Ser17→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctccctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgctg
tgtttgagcca[redacted]gaagcagagatctcccacacccaaaaggccacactggtgtg
cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagtggggtcagcacagacccgcagcccctcaaggagcagcccg
ccctcaatgactccagatacgctctgagcagccgcctgagggtctcggccacctt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 51b Ser17→C β chain

M
N$_1$AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVFE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VSTDPQPLKE QPALNDSRYA LSSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 52a – Val 13→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctccctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgct[redacted]
[redacted]tttgagccatcagaagcagagatctcccacacccaaaaggccacactggtgtg
cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagtggggtcagcacagacccgcagcccctcaaggagcagcccg
ccctcaatgactccagatacgctctgagcagccgcctgagggtctcggccacctt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 52 Val 13→C β chain

M
N$_1$AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVACFE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VSTDPQPLKE QPALNDSRYA LSSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 53a – Asp 59→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctccctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgctg
tgtttgagccatcagaagcagagatctcccacacccaaaaggccacactggtgtg
cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagtggggtcagcacagacccgcagcccctcaaggagcagcccg
ccctcaatgactccagatacgctctgagcagccgcctgagggtctcggccacctt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 53b Asp 59→C β chain

M
N_1AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVFE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VSTCPQPLKE QPALNDSRYA LSSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 54a – Arg 79→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctccctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgctg
tgtttgagccatcagaagcagagatctcccacacccaaaaggccacactggtgtg
cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagtggggtcagcacagacccgcagcccctcaaggagcagcccg
ccctcaatgactccagatacgctctgagcagccgcctgagggtctcggccacctt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 54b Arg 79→C β chain

M
N_1AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVFE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VSTDPQPLKE QPALNDSRYA LSSCLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 55a – Phe 14→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctccctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgctg
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cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagtggggtcagcacagacccgcagcccctcaaggagcagcccg
ccctcaatgactccagatacgctctgagcagccgcctgagggtctcggccacctt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 55b Phe 14→C β chain

M
N_1AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVCE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VSTDPQPLKE QPALNDSRYA LSSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 56a – Gly 55→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctccctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgctg
tgtttgagccatcagaagcagagatctcccacacccaaaaggccacactggtgtg
cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagt[redacted]gtcagcacagacccgcagcccctcaaggagcagcccg
ccctcaatgactccagatacgctctgagcagccgcctgagggtctcggccacctt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 56b Gly 55→C β chain

M
N_1AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVFE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSC VSTDPQPLKE QPALNDSRYA LSSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 57a – Leu 63→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctccctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgctg
tgtttgagccatcagaagcagagatctcccacacccaaaaggccacactggtgtg
cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagtggggtcagcacagacccgcagcccctgaaggagcagcccg
ccctcaatgactccagatacgctctgagcagccgcctgagggtctcggccacctt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 57b Leu 63→C β chain

M
N_1AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVFE PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VSTDPQPCKE QPALNDSRYA LSSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

Figure 58a – Glu 15→C β chain

atgaacgctggtgtcactcagaccccaaaattccaggtcctgaagacaggacaga
gcatgacactgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcg
acaagacccaggcatggggctgaggctgattcattactcagttggtgctggtatc
actgaccaaggagaagtccccaatggctacaatgtctccagatcaaccacagagg
atttcccgctcaggctgctgtcggctgctccctcccagacatctgtgtacttctg
tgccagcaggccgggactagcgggagggcgaccagagcagtacttcgggccgggc
accaggctcacggtcacagaggacctgaaaaacgtgttcccacccgaggtcgctg
tgtttgagccatcagaagcagagatctcccacacccaaaaggccacactggtgtg
cctggccacaggcttctaccccgaccacgtggagctgagctggtgggtgaatggg
aaggaggtgcacagtggggtcagcacagacccgcagcccctcaaggagcagcccg
ccctcaatgactccagatacgctctgagcagccgcctgagggtctcggccacctt
ctggcaggacccccgcaaccacttccgctgtcaagtccagttctacgggctctcg
gagaatgacgagtggacccaggatagggccaaacccgtcacccagatcgtcagcg
ccgaggcctggggtagagcagactaa

Figure 58b Glu 15→C β chain

M
N_1AGVTQTPKF QVLKTGQSMT LQCAQDMNHE YMSWYRQDPG MGLRLIHYSV
GAGITDQGEV PNGYNVSRST TEDFPLRLLS AAPSQTSVYF CASRPGLAGG
RPEQYFGPGT RLTVTEDLKN VFPPEVAVFC PSEAEISHTQ KATLVCLATG
FYPDHVELSW WVNGKEVHSG VSTDPQPLKE QPALNDSRYA LSSRLRVSAT
FWQDPRNHFR CQVQFYGLSE NDEWTQDRAK PVTQIVSAEA WGRAD*

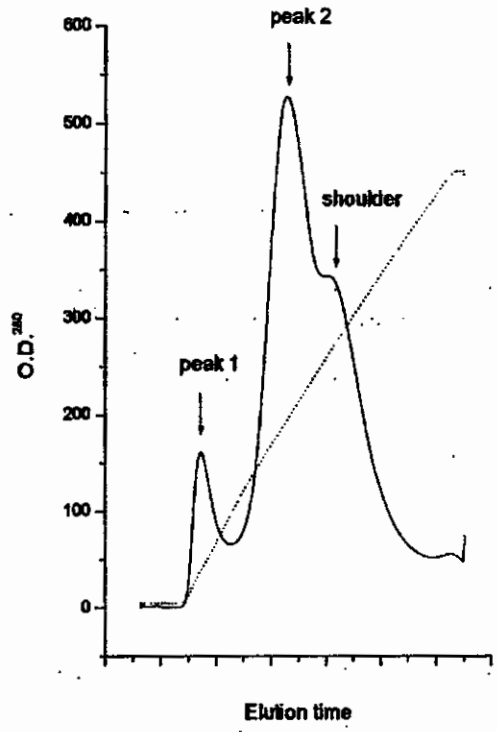


Figure 59: AE column Thr48/Ser57

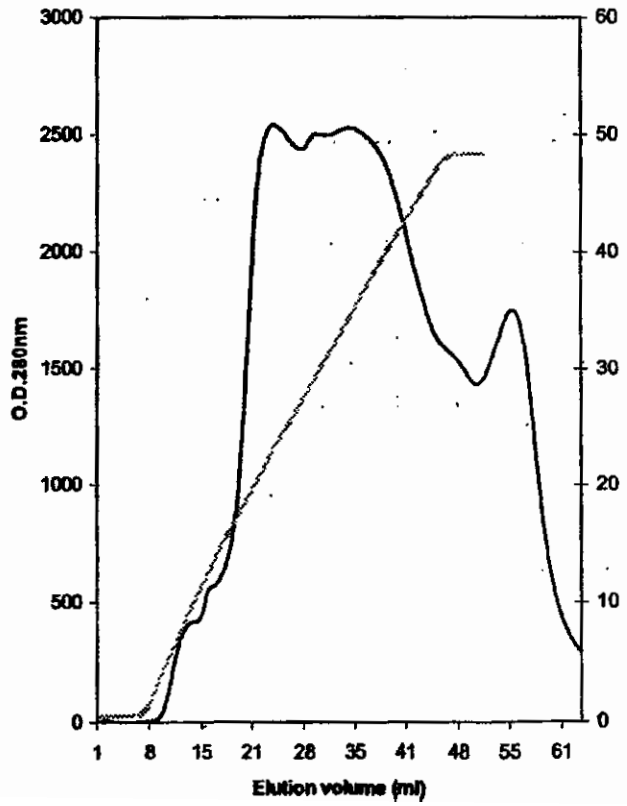


Figure 60: AE column Thr45/Ser77

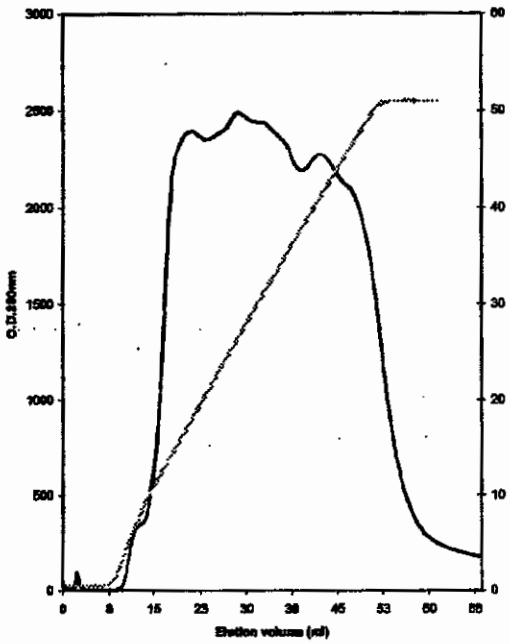


Figure 61: AE column Tyr10/Ser17

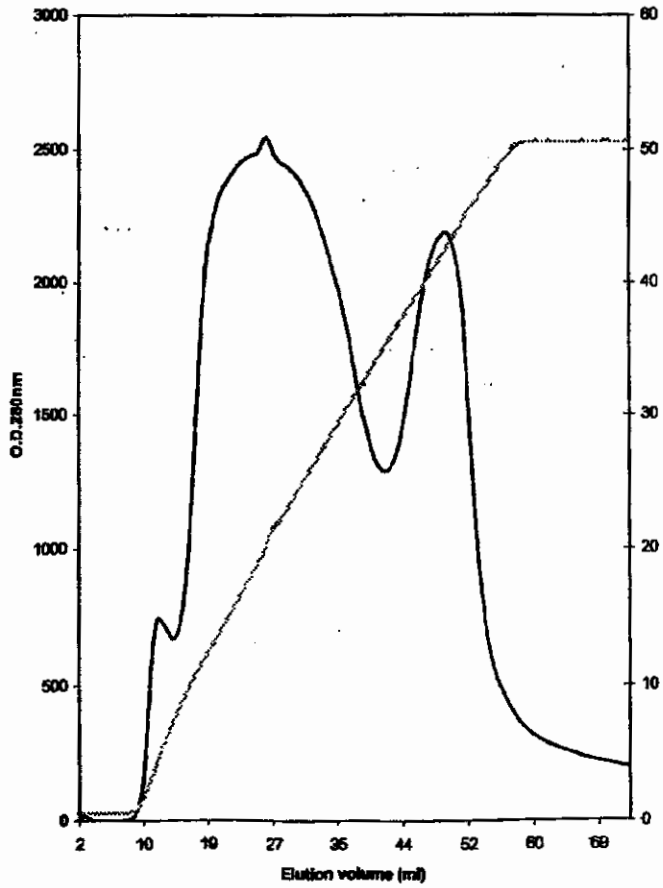


Figure 62: AE column Thr45/Asp59

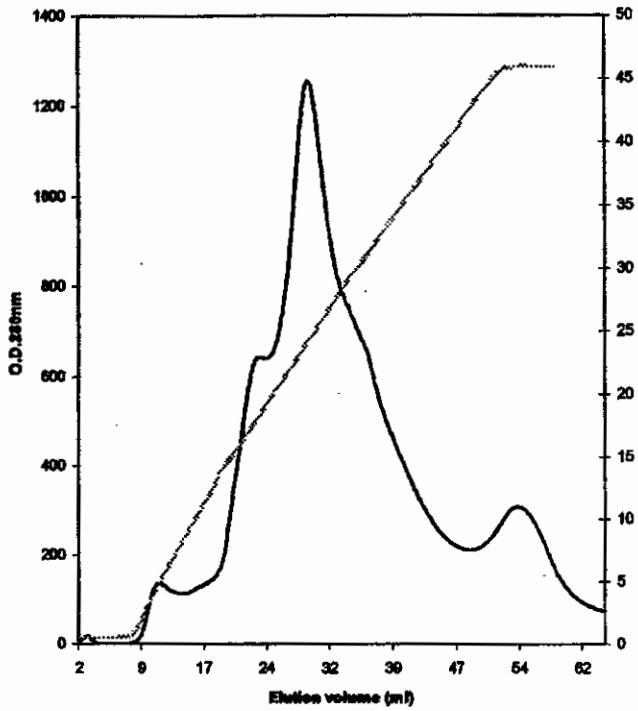


Figure 63: AE column Met52/Gly55

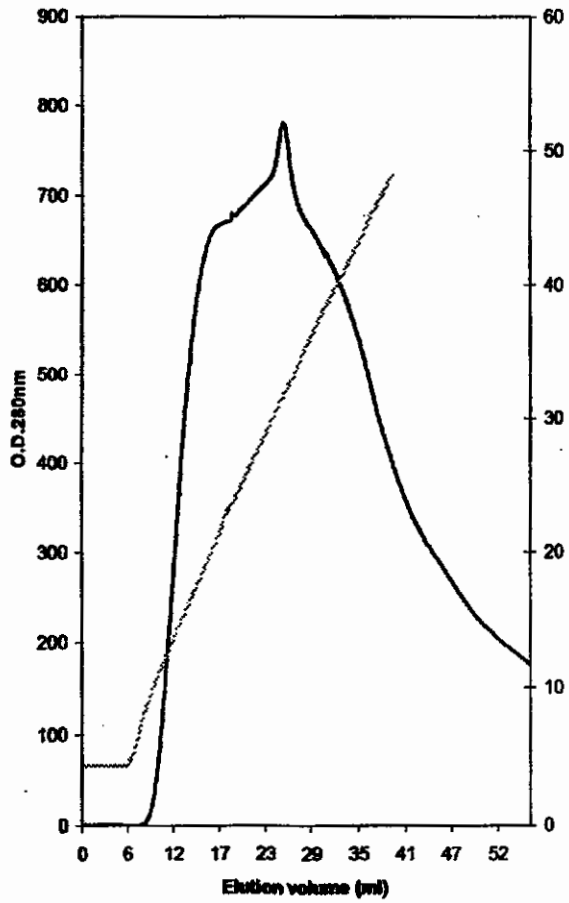


Figure 64: AE column Ser15/Glu15

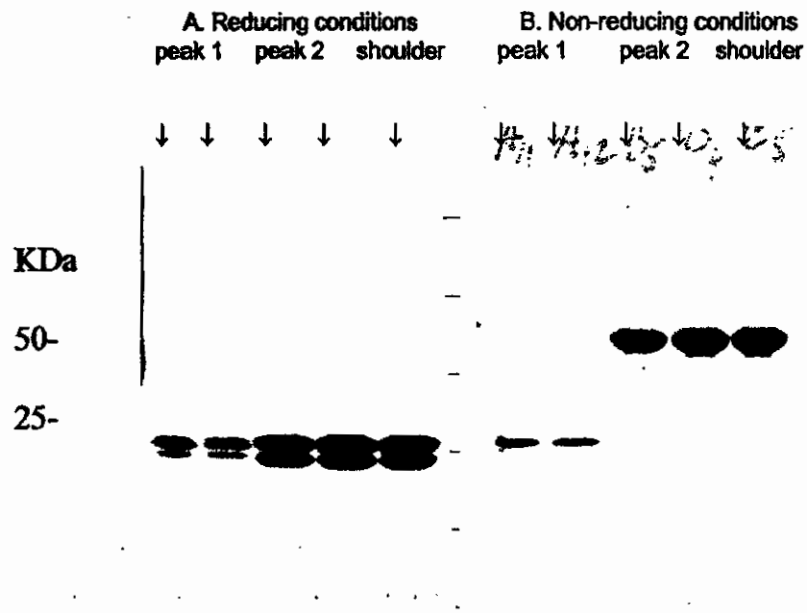


Figure 65: SDS PAGE Thr 48 / Ser 57

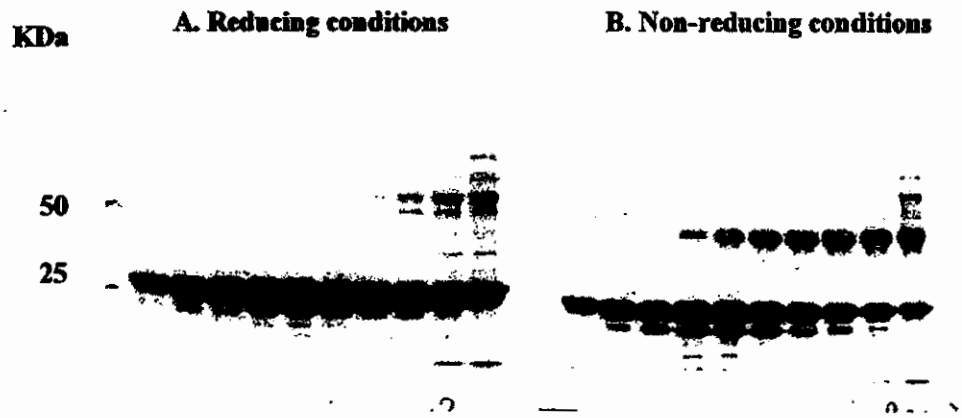


Figure 66: SDS PAGE Thr 45 / Ser 77

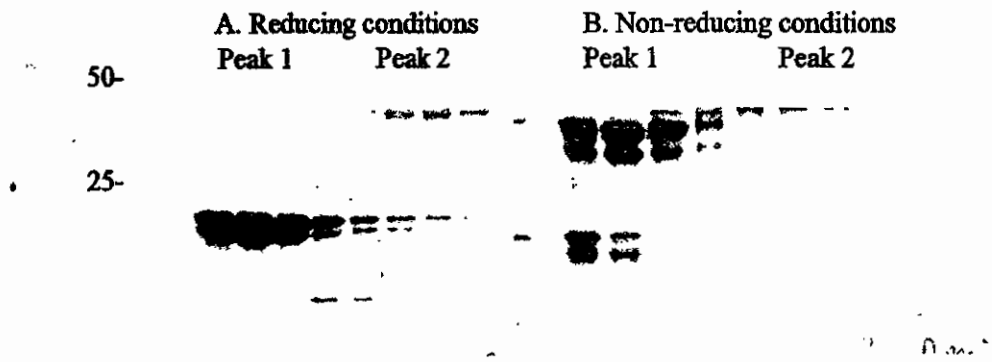


Figure 67 SDS PAGE Tyr 10 / Ser 17

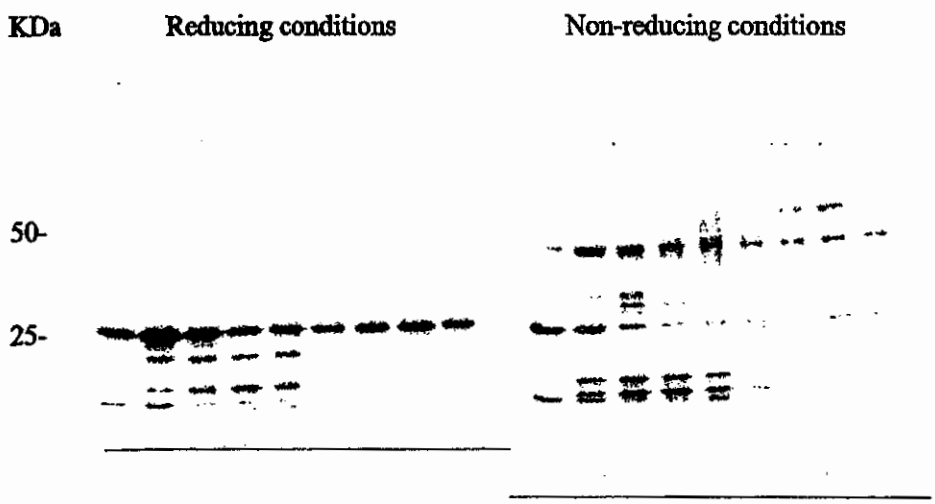


Figure 68 SDS PAGE Thr 45 / Asp 59

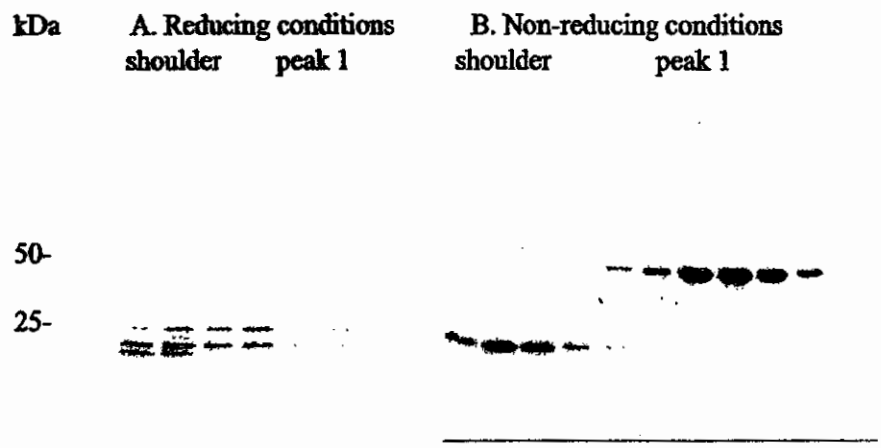


Figure 69: SDS PAGE Met52/Gly55

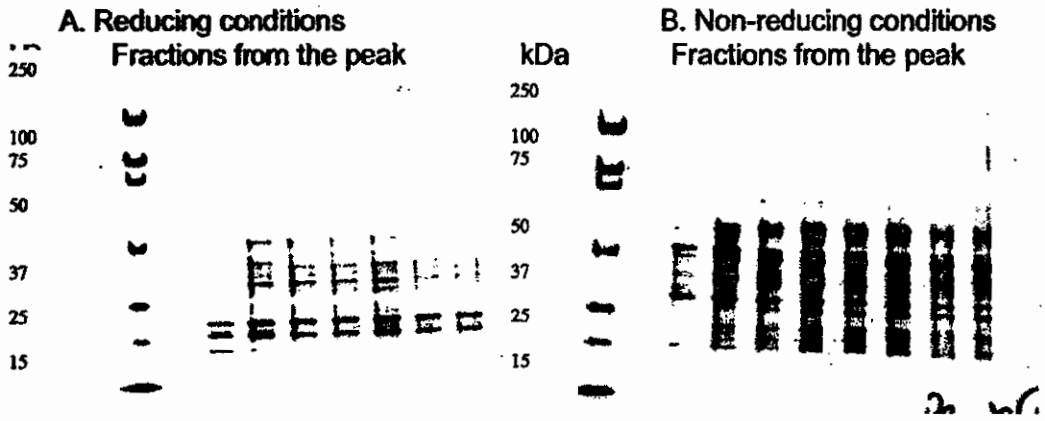


Figure 70: SDS PAGE Ser 15/Glu 15

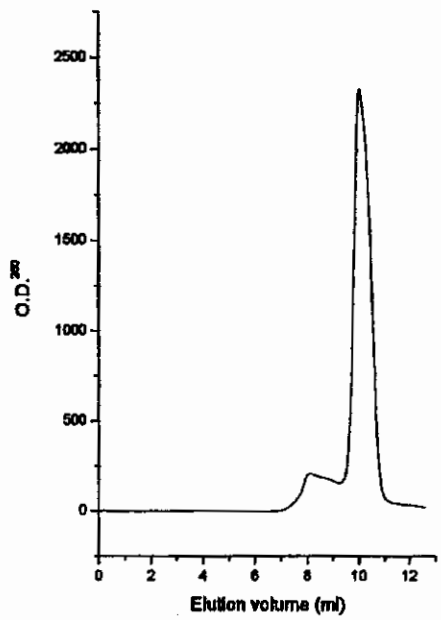


Figure 71: SEC Thr48/Ser57

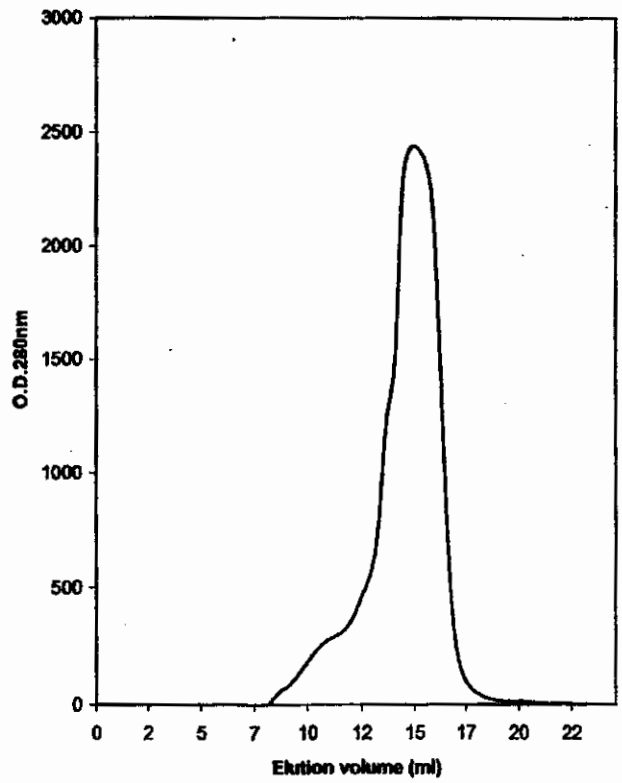


Figure 72: SEC Thr45/Ser77 (200 HR column)

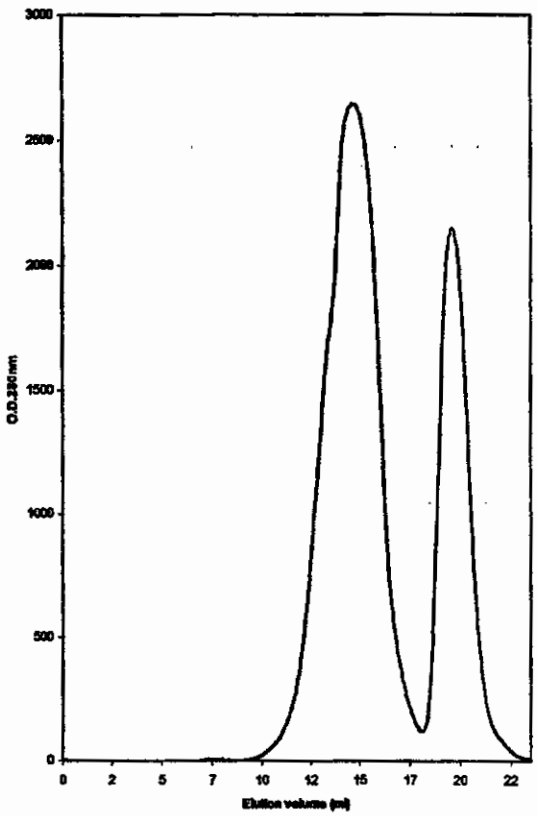


Figure 73: SEC Tyr 10 / Ser 17 (200 HR Column)

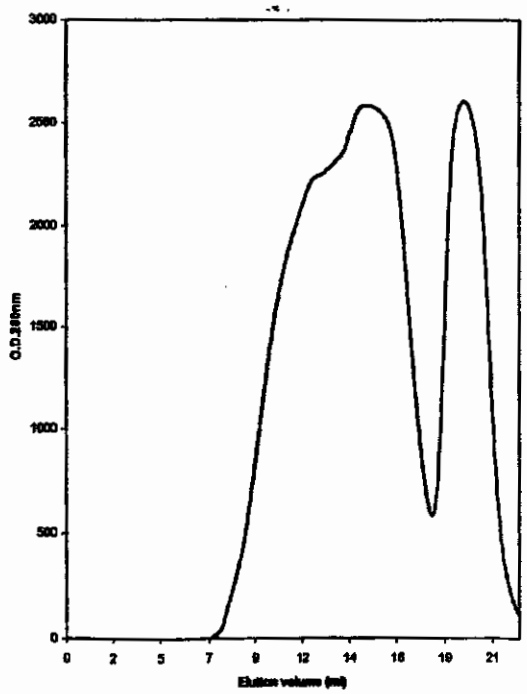


Figure 74: SEC Thr 45/Asp 59 (200 HR Column)

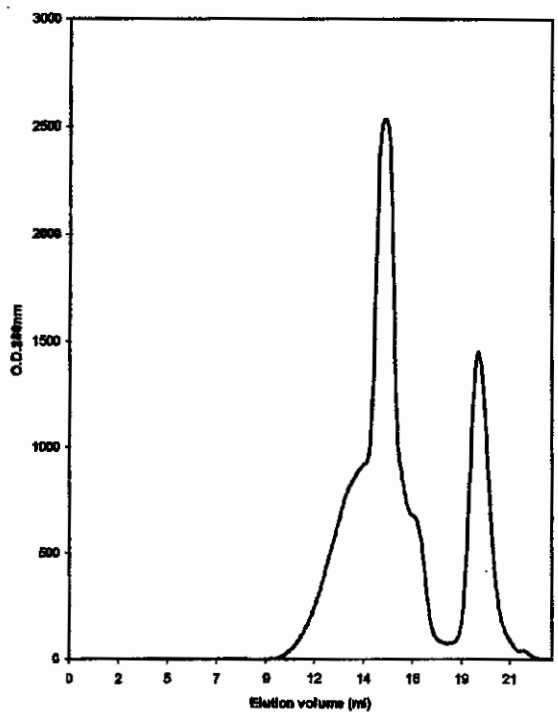


Figure 75 SEC Met 52 / Gly 55 (200 HR Column)

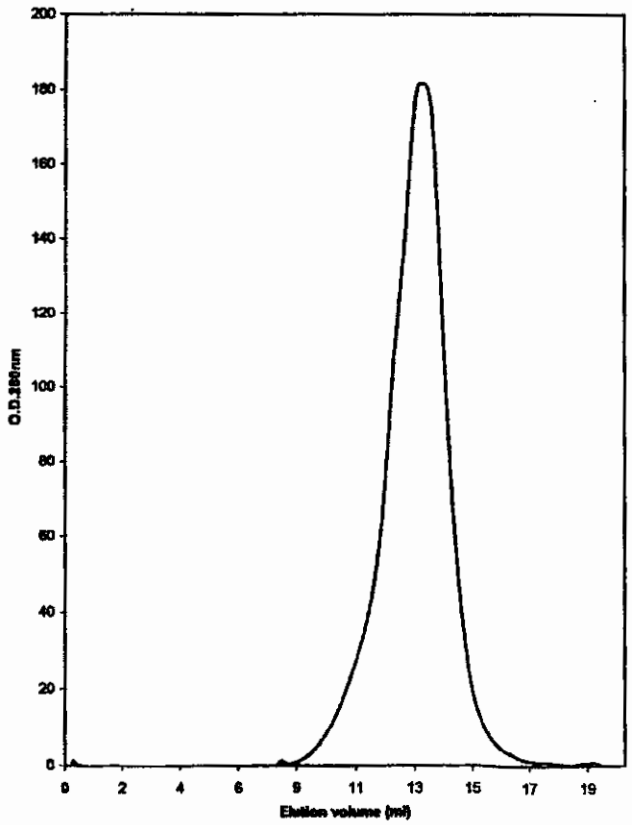


Figure 76: SEC Ser 15/Glu 15 (200 HR Column)

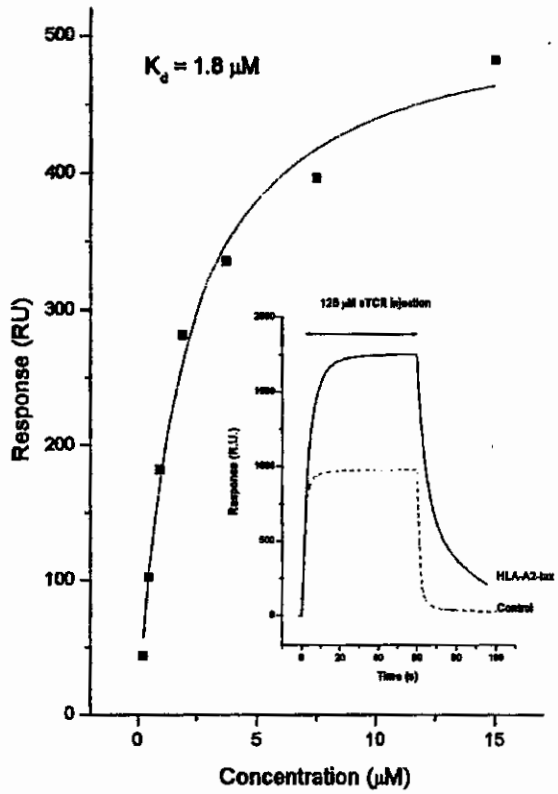


Figure 77: Thr 48/Ser 57

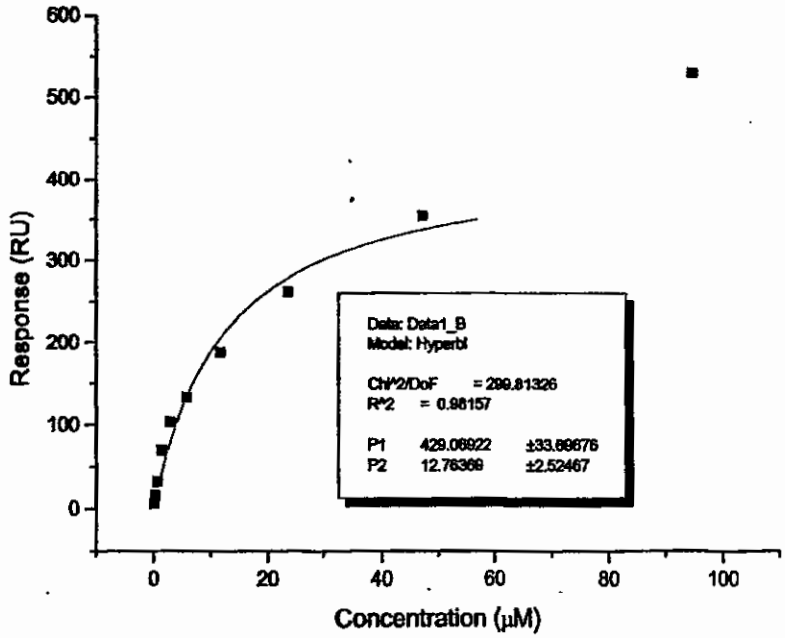


Figure 78: Thr 45/Ser 77

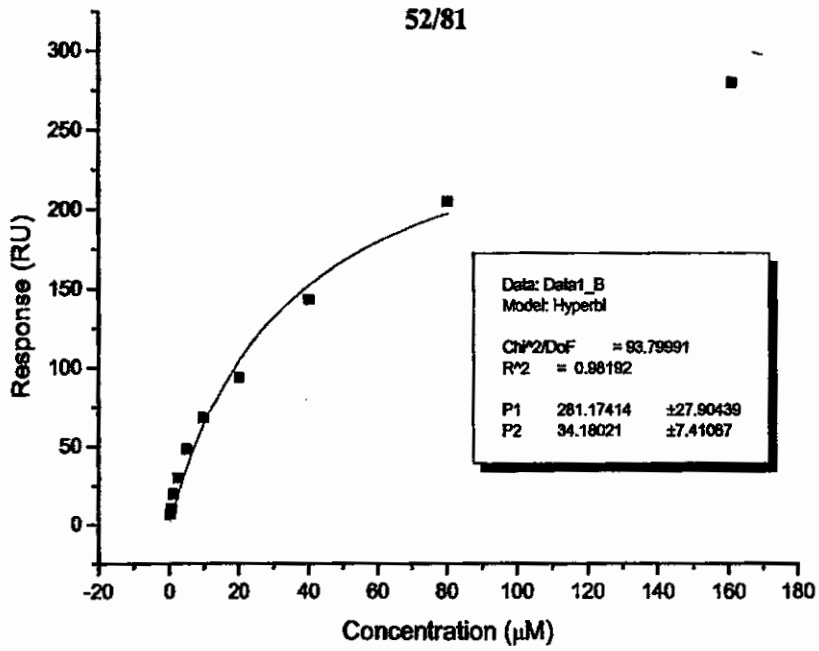


Figure 79: Tyr 10/Ser 17

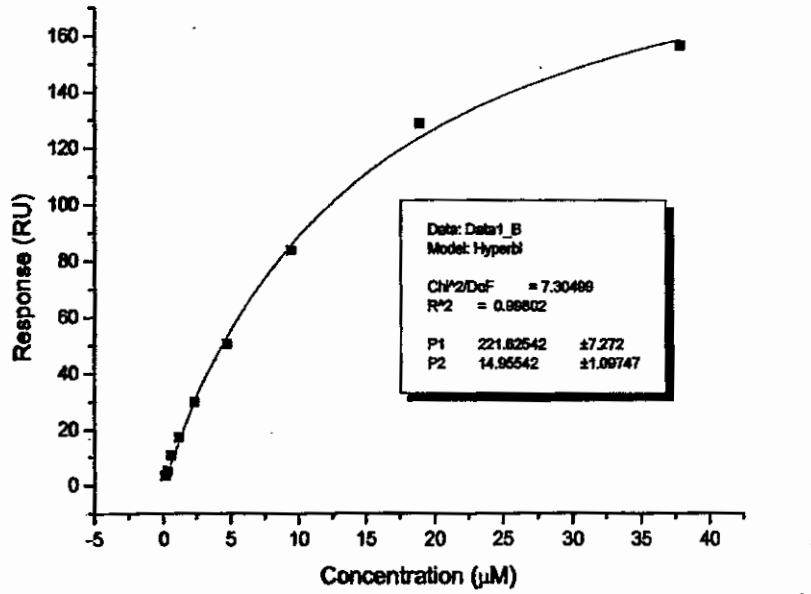


Figure 80: Thr 45/Asp 59

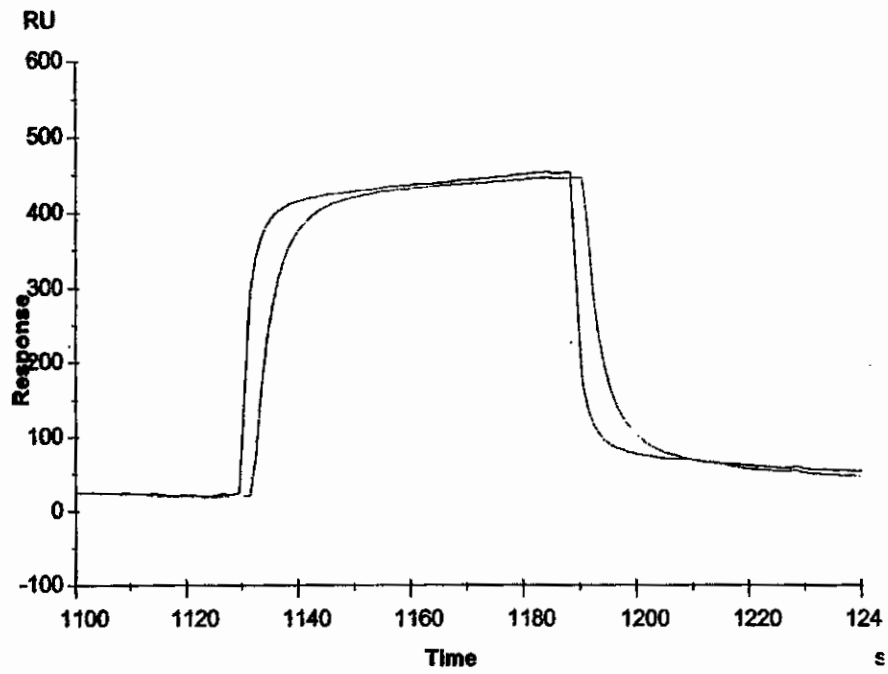


Figure 81: Met 52/Gly 55

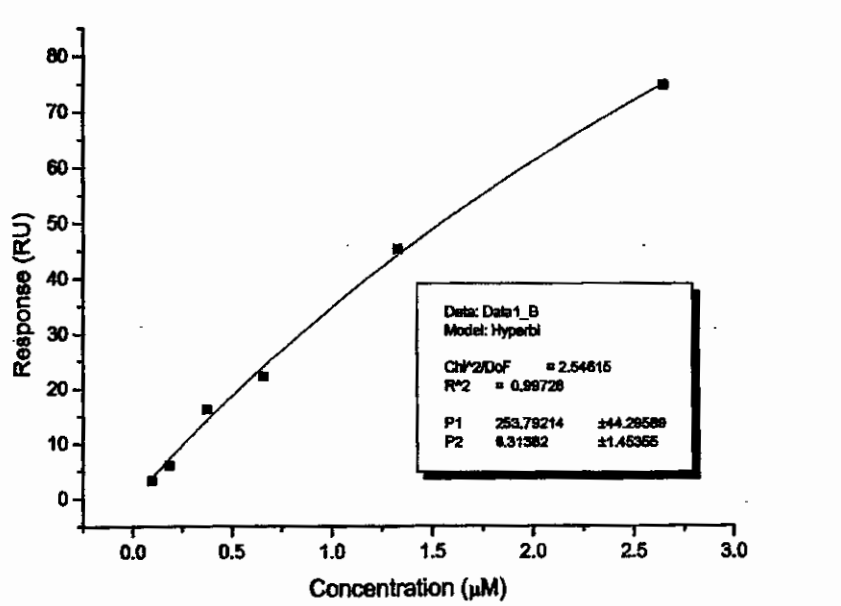


Figure 82: Ser 15/Glu 15

Figure 83a



Figure 83b

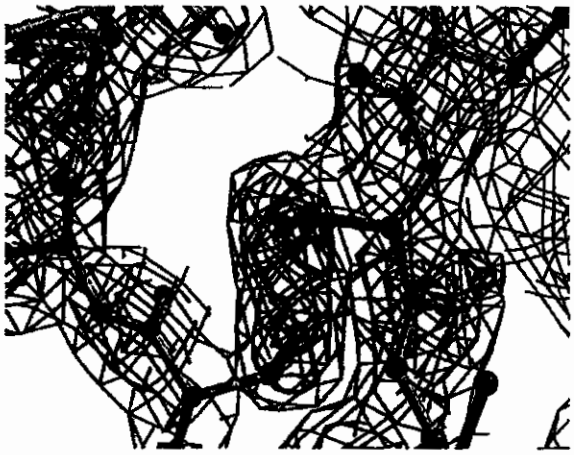


Figure 84

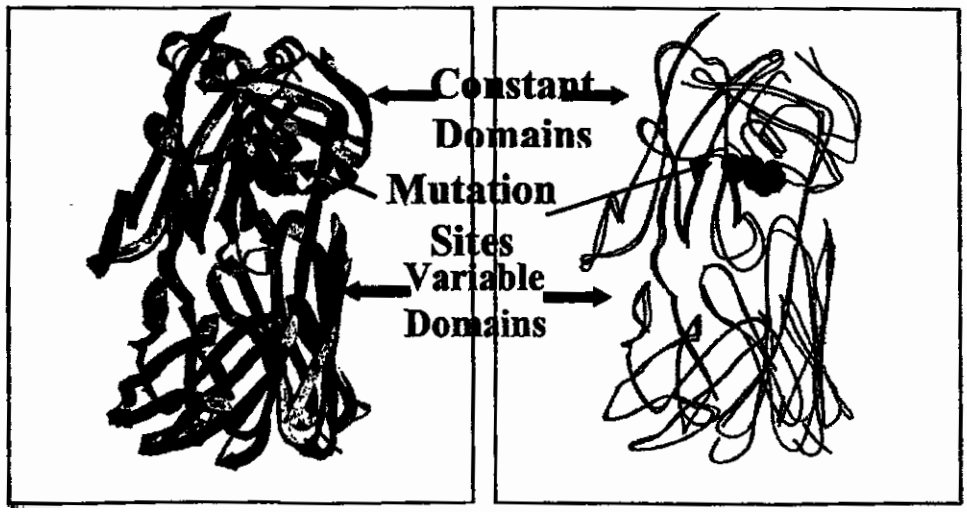


Figure 85a

```
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gaagtccccaatggctacaatgtctccagatcaaccacagaggatttcccgctcagg
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gtcacccagatcgtcagcgccgaggcctggggtagagcagacggatccggtggtggt
ctgaacgatatttttgaagctcagaaaatcgaatggcattaa
```

Figure 85b

```
M G V T Q T P K F Q V L K T G Q S M T L Q C A Q D M N H E Y M
S W Y R Q D P G M G L R L I H Y S V G A G I T D Q G E V P N G
Y N V S R S T T E D F P L R L L S A A P S Q T S V Y F C A S S
Y V G N T G E L F F G E G S R L T V L E D L K N V F P P E V A
V F E P S E A E I S H T Q K A T L V C L A T G F Y P D H V E L
S W W V N G K E V H S G V C T D P Q P L K E Q P A L N D S R Y
A L S S R L R V S A T F W Q D P R N H F R C Q V Q F Y G L S E
N D E W T Q D R A K P V T Q I V S A E A W G R A D G S G G G [redacted]
[redacted] Stop
```

Figure 86a

```
atgggtgtcactcagaccccaaaattccaggtcctgaagacaggacagagcatgaca
ctgcagtgtgcccaggatatgaaccatgaatacatgtcctggtatcgacaagaccca
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gaagtccccaatggctacaatgtctccagatcaaccacagaggatttcccgctcagg
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gtcacccagatcgtcagcgccgaggcctggggtagagcagacggatccggtggtggt
catcatcaccatcatcactaa
```

Figure 86b

```
M G V T Q T P K F Q V L K T G Q S M T L Q C A Q D M N H E Y M
S W Y R Q D P G M G L R L I H Y S V G A G I T D Q G E V P N G
Y N V S R S T T E D F P L R L L S A A P S Q T S V Y F C A S S
Y V G N T G E L F F G E G S R L T V L E D L K N V F P P E V A
V F E P S E A E I S H T Q K A T L V C L A T G F Y P D H V E L
S W W V N G K E V H S G V C T D P Q P L K E Q P A L N D S R Y
A L S S R L R V S A T F W Q D P R N H F R C Q V Q F Y G L S E
N D E W T Q D R A K P V T Q I V S A E A W G R A D G S G G G [redacted]
[redacted] Stop
```

Figure 87

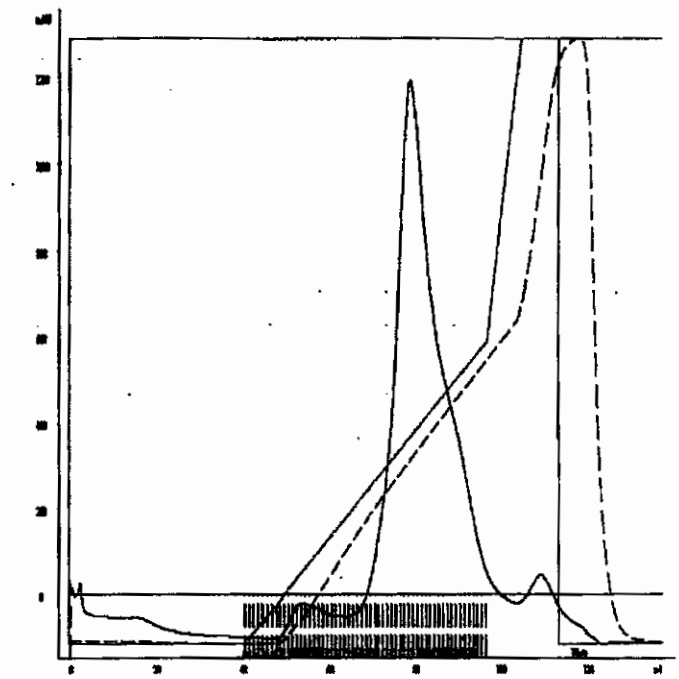


Figure 88

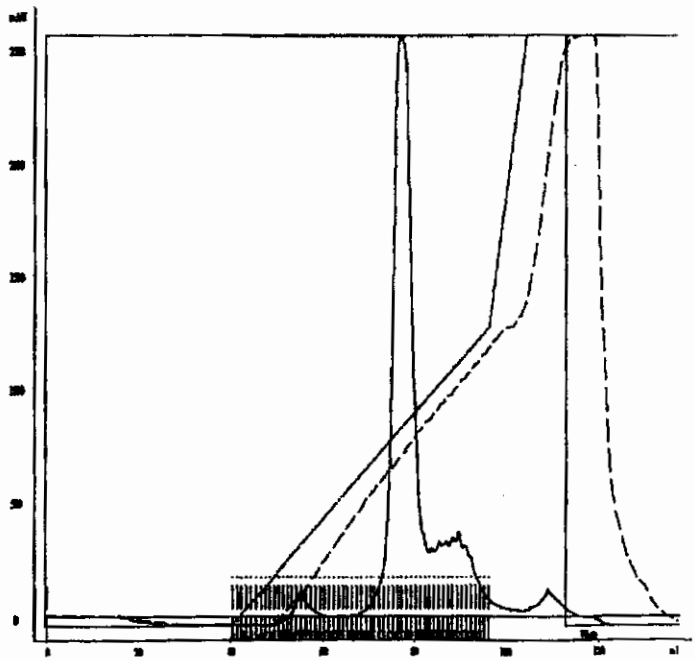


Figure 89

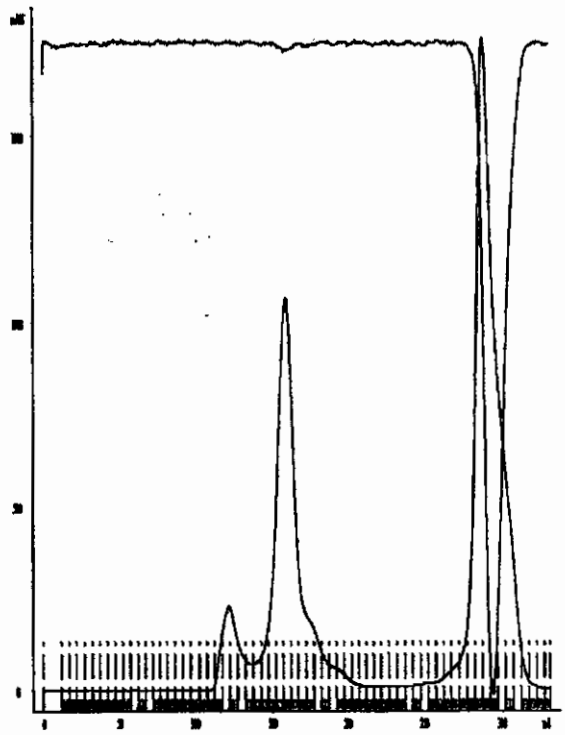
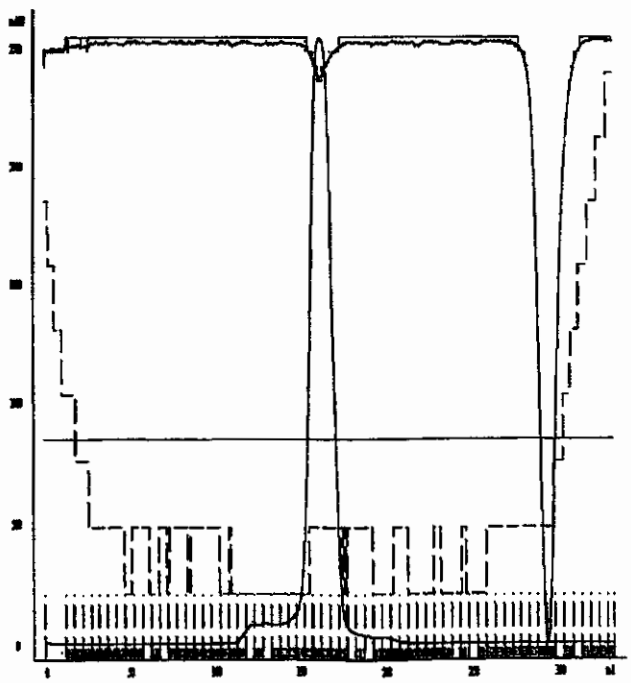


Figure 90



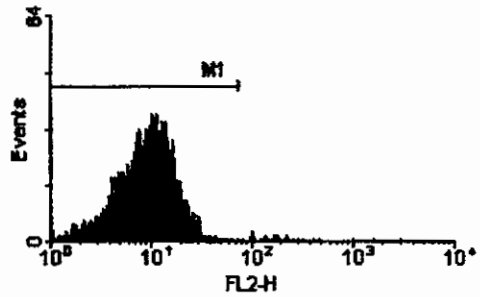


Figure 91a. PP LCL NYESO 0 TCR 5µg

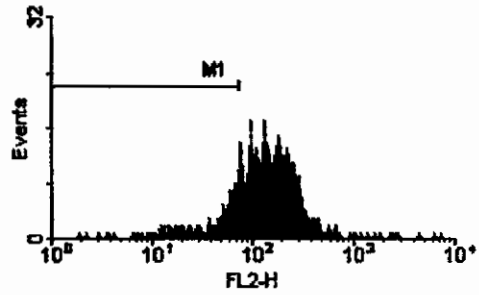


Figure 91b.PP LCL NYESO 10^{-4}M TCR 5µg

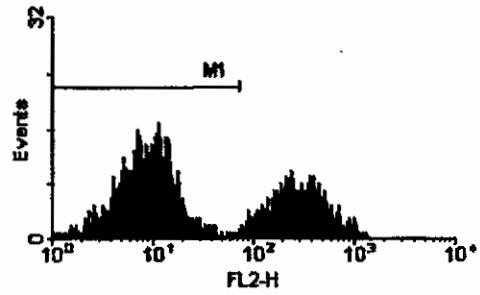


Figure 91c.PP LCL NYESO 10^{-5}M TCR 5µg

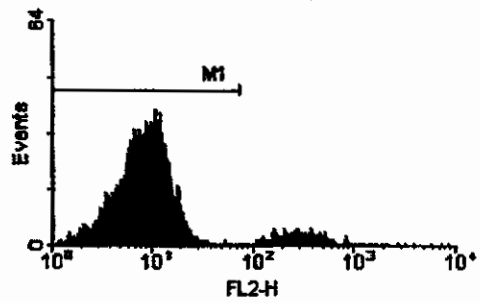


Figure 91d. PP LCL NYESO 10^{-6}M TCR 5µg

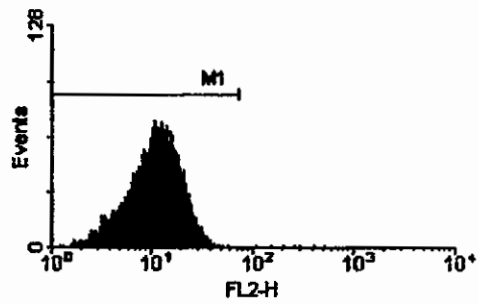


Figure 91e. PP LCL NYESO 0 TCR 10µg

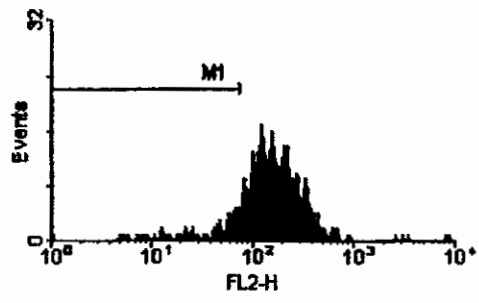


Figure 91f. PP LCL NYESO 10^{-4}M TCR 10µg

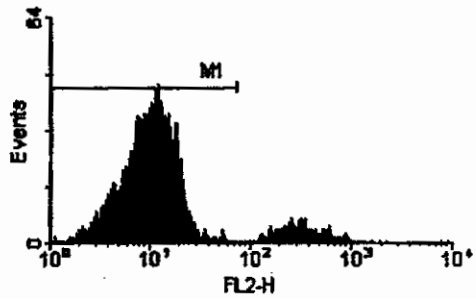


Figure 91g. PP LCL NYESO 10^{-5}M TCR 10μg

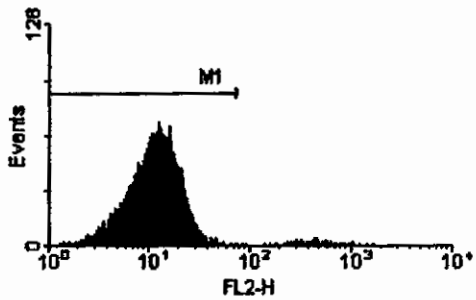


Figure 91h. PP LCL NYESO 10^{-6}M TCR 10μg

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ttccgctgtcaagtccagttctacgggctctcggagaatgacgagtggacccaggat
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Figure 92

Figure 93

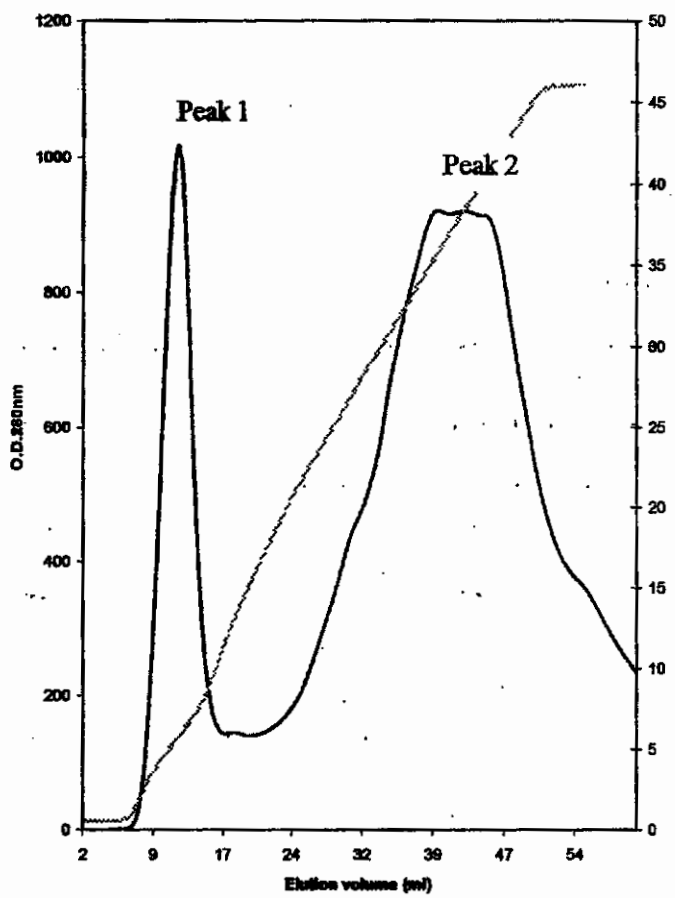


Figure 94

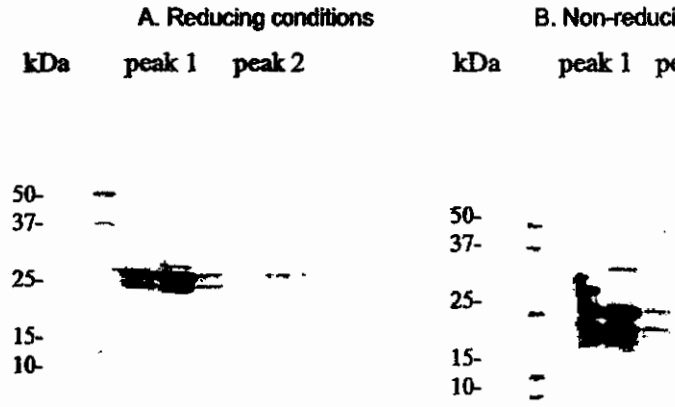


Figure 95

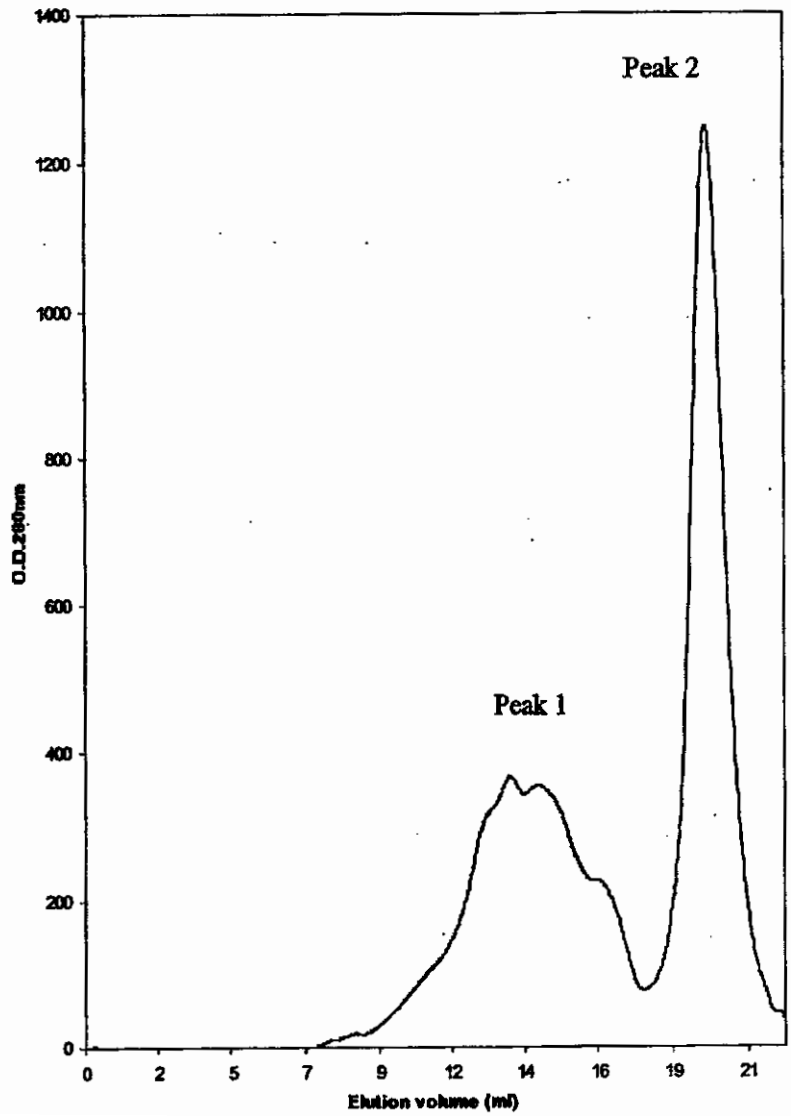
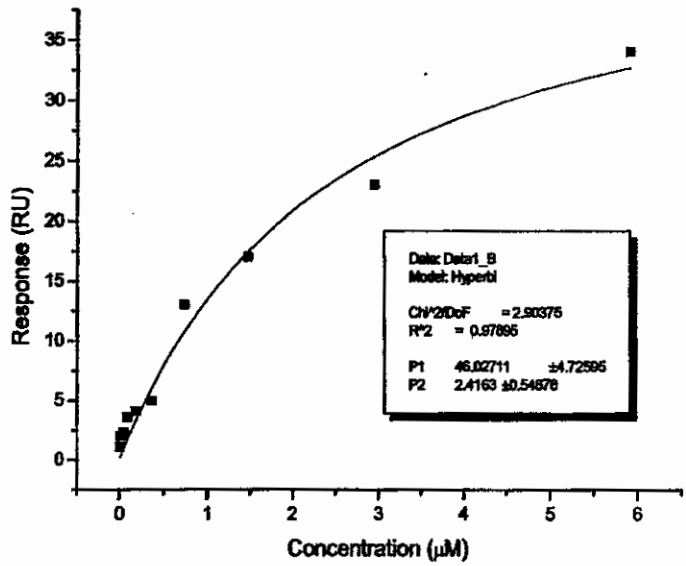

Peak 2
Peak 1
O.D.280nm
Elution volume (ml)
0
200
400
600
800
1000
1200
1400
0
2
5
7
9
12
14
16
19
21

Figure 96

A


Response (RU)
Concentration (μM)
Data: Data1_B
Model: Hyperbl
Chi^2/DoF = 2.90375
R^2 = 0.97895
P1 46.02711 ±4.72595
P2 2.4163 ±0.54878

B

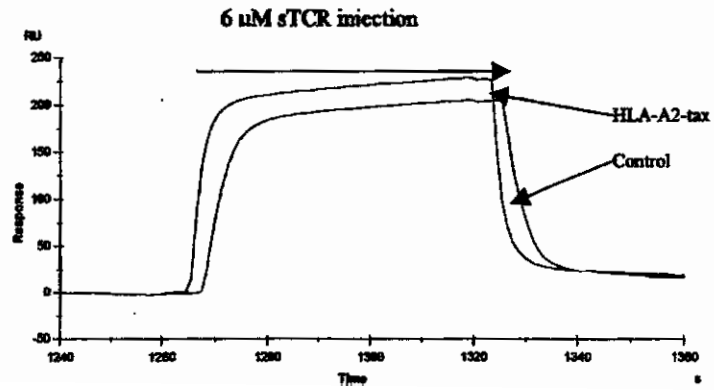

6 uM sTCR injection
HLA-A2-tax
Control
Response
Time

Figure 97

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caaggagaagtccccaatggctacaatgtctccagatcaaccacagaggatttcccg
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gtcacagaggacctgaaaaacgtgttcccacccgaggtcgctgtgtttgagccatca
gaagcagagatctcccacacccaaaaggccacactggtgtgcctggccacaggcttc
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tgtctgagcagccgcctgagggtctcggccaccttctggcaggacccccgcaaccac
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Figure 98

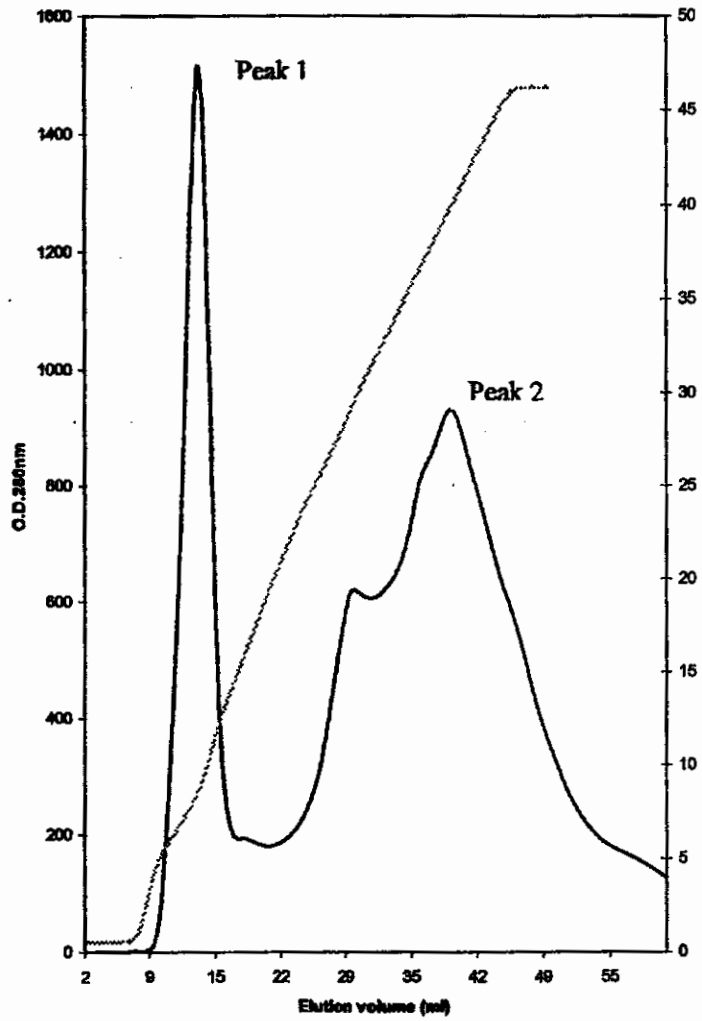


Figure 99

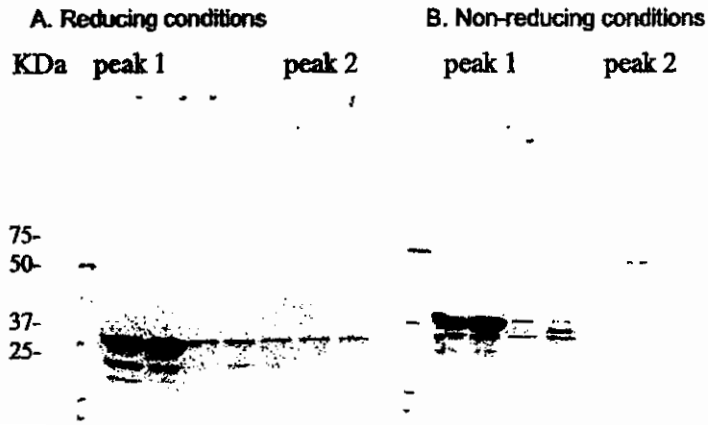


Figure 100

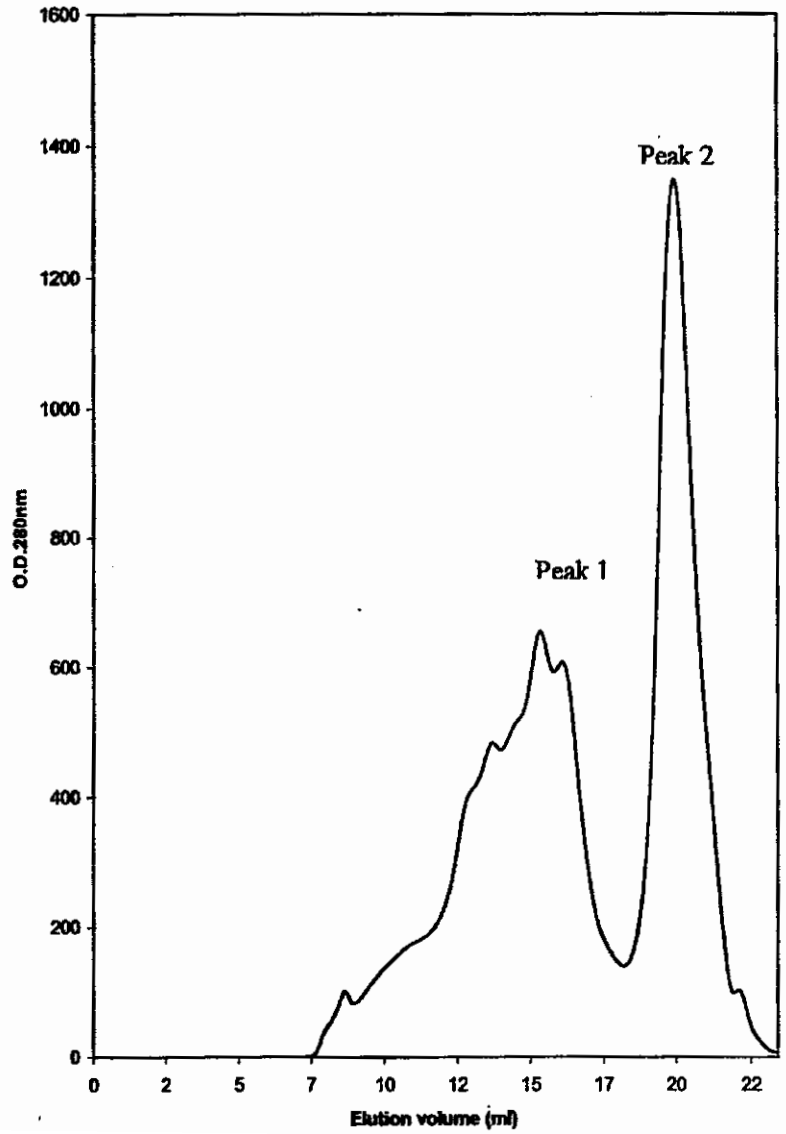
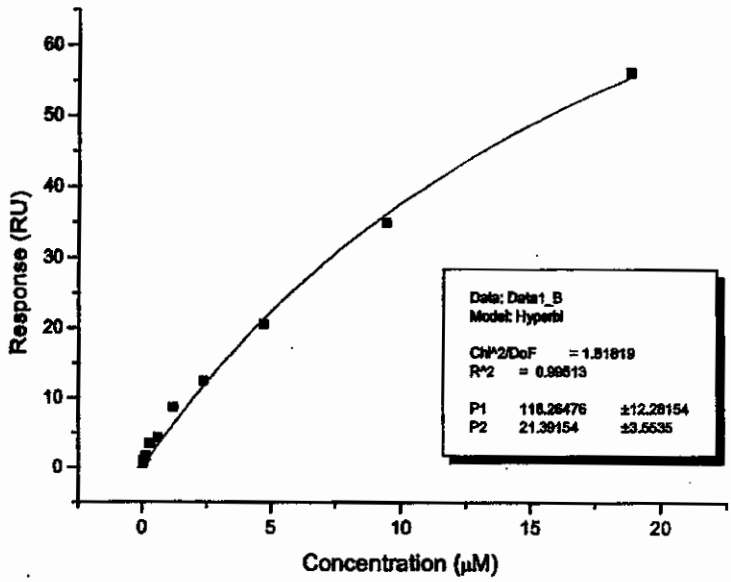

1600
1400
1200
1000
800
600
400
200
0
O.D.280nm
Peak 2
Peak 1
0
2
5
7
10
12
15
17
20
22
Elution volume (ml)

Figure 101

A



B

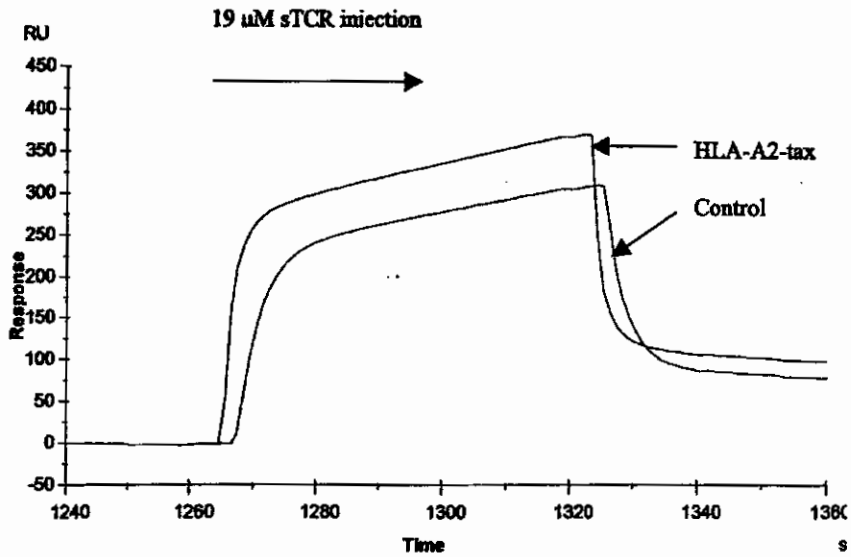


Figure 102

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gtcacagaggacctgaaaaacgtgttcccacccgaggtcgctgtgtttgagccatca
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tctctgagcagccgcctgagggtctcggccaccttctggcaggacccccgcaaccac
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Figure 103

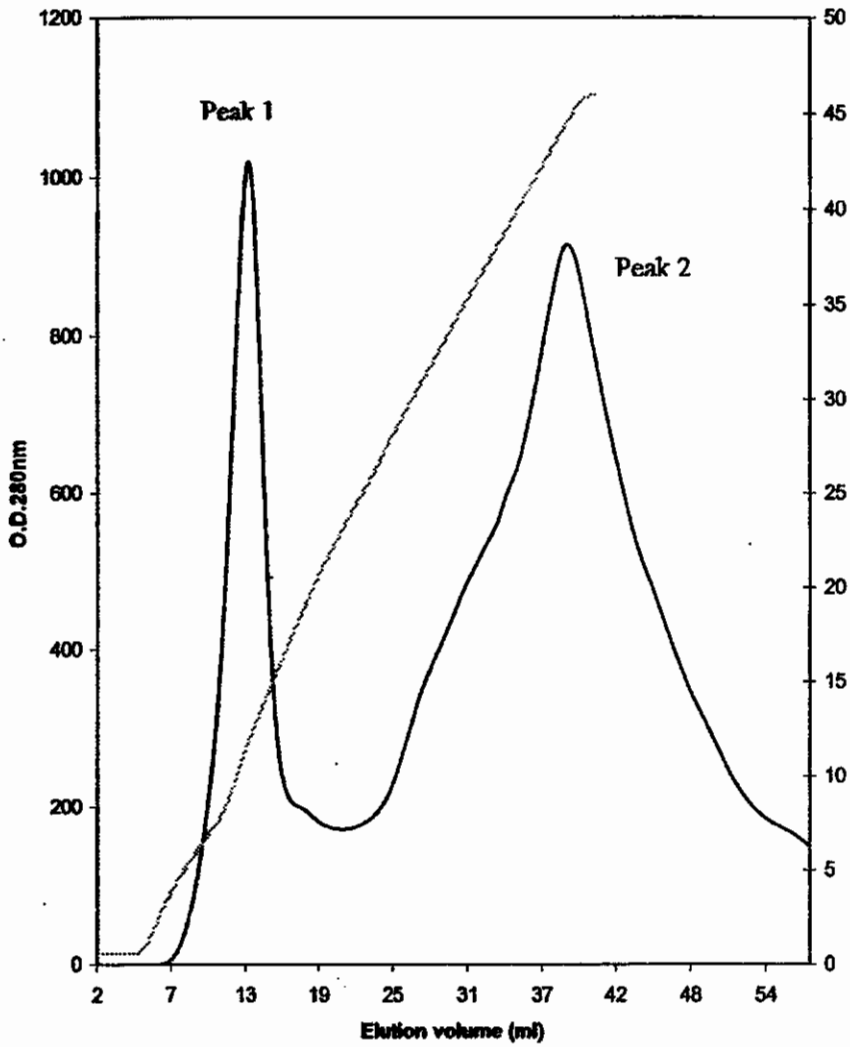


Figure 104

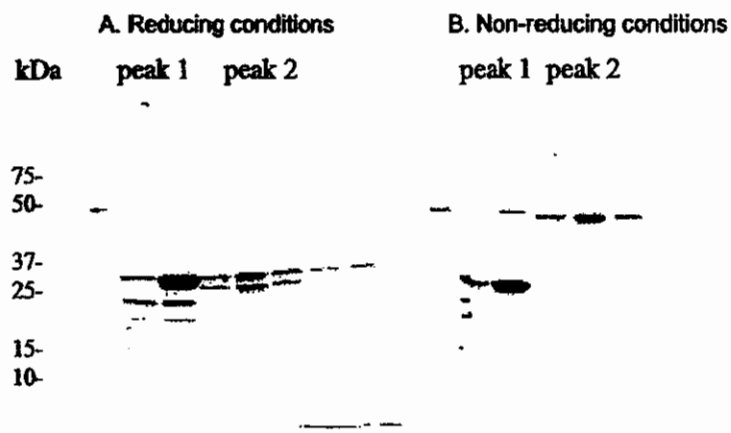


Figure 105

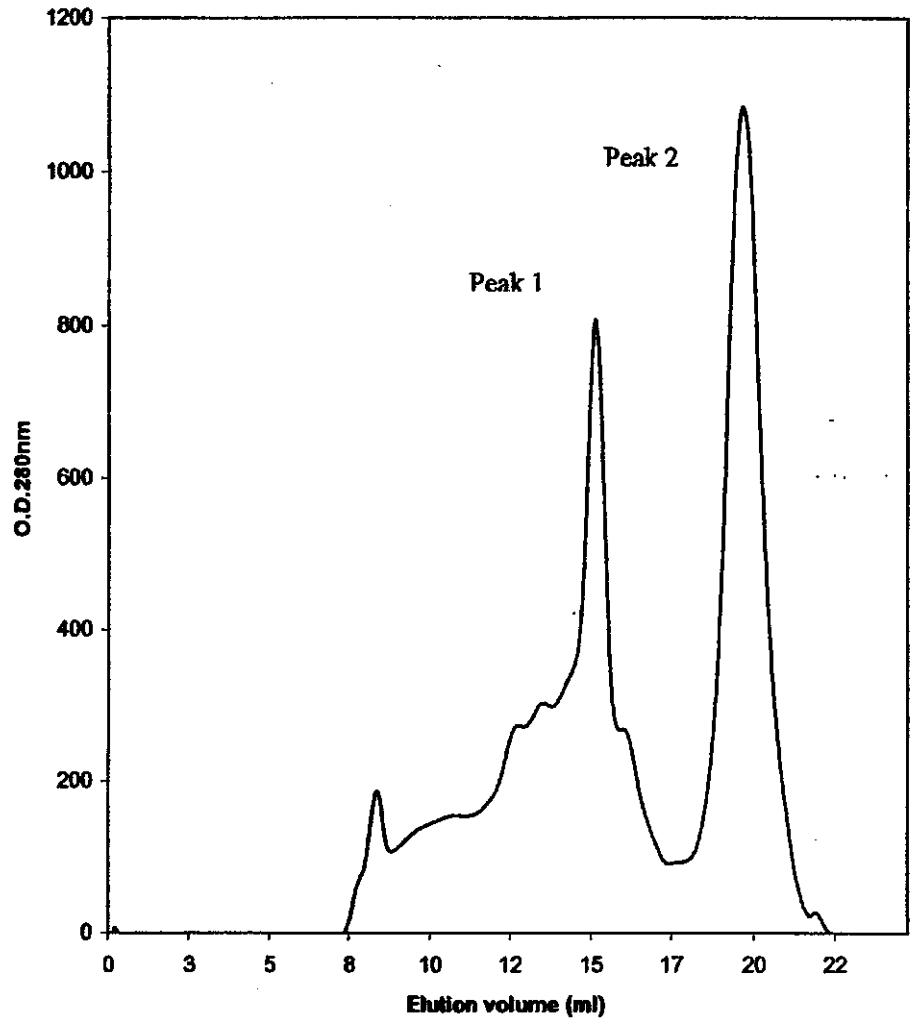
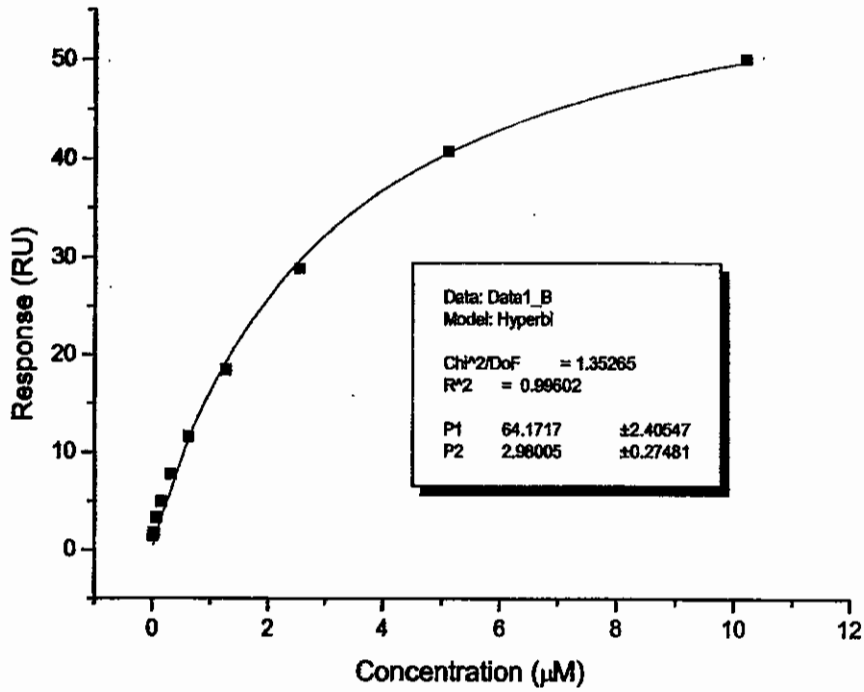

1200
1000
800
600
400
200
0
O.D.280nm
Peak 1
Peak 2
0
3
5
8
10
12
15
17
20
22
Elution volume (ml)

Figure 106

A



B

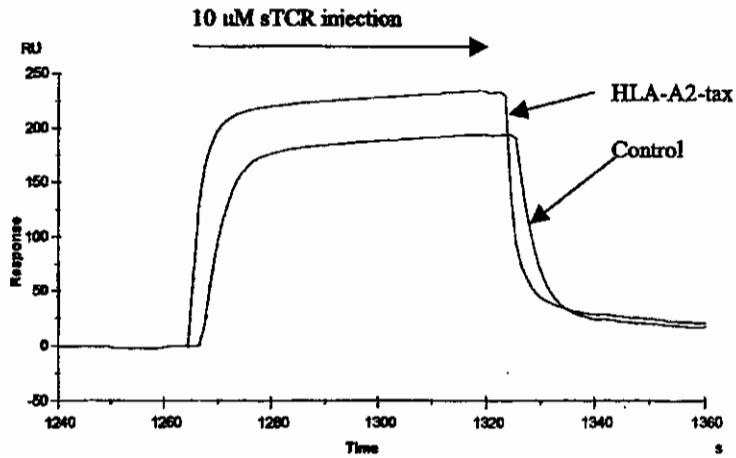


Figure 107

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101   CTGAATAAGG AACAATGAAC GTTTTTCCTT TCTCTTGTTC CTAGTATTAA TGACTGACCG ATACATCCCT TTTTTTTTTT GTCTTTGTCT AGCTCCAGCT
201   TTTGTTCCCT TTAGTGAGGG TTAATTCAAT TCACTGGCCG TCGTTTTACA ACGTCGTGAC TGGGAAAACC CTGGCGTTAC CCAACTTAAT CGCCTTGCAG
301   CACATCCCCC TTTCGCCAGC TGGCGTAATA GCGAAGAGGC CCGCACCGAT CGCCCTTCCC AACAGTTGCG CAGCCTGAAT GGCGAATGGC GCGACGCGCC
401   CTGTAGCGGC GCATTAAGCG CGGCGGGTGT GGTGGTTACG CGCAGCGTGA CCGCTACACT TGCCAGCGCC CTAGCGCCCG CTCCTTTCGC TTTCTTCCCT
501   TCCTTTCTCG CCACGTTCGC CGGCTTTCCC CGTCAAGCTC TAAATCGGGG GCTCCCTTTA GGGTTCCGAT TTAGTGCTTT ACGGCACCTC GACCCCAAAA
601   AACTTGATTA GGGTGATGGT TCACGTAGTG GGCCATCGCC CTTTTTCGCC CTTTGACGTT GGAGTCCACG TTCTTTAATA GTGGACTCTT GTTCCAAACT
701   GTTCCAAACT GGAACAACAC TCAACCCTAT CTCGGTCTAT TCTTTTGATT TATAAGGGAT TTTGCCGATT TCGGCCTATT GGTTAAAAAA TGAGCTGATT
801   TAACAAAAAT TTAACGCGAA TTTTAACAAA ATATTAACGT TTACAATTTC CTGATGCGGT ATTTTCTCCT TACGCATCTG TGCGGTATTT CACACCGCAT
901   AGGGTAATAA CTGATATAAT TAAATTGAAG CTCTAATTTG TGAGTTTAGT ATACATGCAT TTACTTATAA TACAGTTTTT TAGTTTTGCT GGCCGCATCT
1001  TCTCAAATAT GCTTCCCAGC CTGCTTTTCT GTAACGTTCA CCCTGTACCT TAGCATCCCT TCCCTTTGCA AATAGTCCTC TTCCAACAAT AATAATGTCA
1101  GATCCTGTAG AGACCACATC ATCCACGGTT CTATACTGTT GACCCAATGC GTCTCCCTTG TCATCTAAAC CCACACCGGG TGTCATAATC AACCAATCGT
1201  AACCTTCATC TCTTCCACCC ATGTCTCTTT GAGCAATAAA GCCGATAACA AAATCTTTGT CGCTCTTCGC AATGTCAACA GTACCCTTAG TATATTCTCC
1301  AGTAGATAGG GAGCCCTTGC ATGACAATTC TGCTAACATC AAAAGGCCTC TAGGTTCCTT TGTTACTTCT TCTGCCGCCT GCTTCAAACC GCTAACAATA
1401  CCTGGCCCCA GCACACCGTG TGCATTCGTA ATGTCTGCCC ATTCTGCTAT TCTGTATACA CCCGCAGAGT ACTGCAATTT GACTGTATTA CCAATGTCAG
1501  CAAATTTTCT GTCTTCGAAG AGTAAAAAAT TGTACTTGGC GGATAATGCC TTTAGCGGCT TAACTGTGCC CTCCATCGAA AAATCAGTCA ATATATCCAC
1601  ATGTGTTTTT AGTAAACAAA TTTTGGGACC TAATGCTTCA ACTAACTCCA GTAATTCCTT GGTGGTACGA ACATCCAATG AAGCACACAA GTTTGTTTGC
1701  TTTTCGTGCA TGATATTAAA TAGCTTGGCA GCAACAGGAC TAGGATGAGT AGCAGCACGT TCCTTATATG TAGCTTTCGA CATGATTTAT CTTCGTTTCC
1801  TGCAGGTTTT TGTTCTGTGC AGTTGGTTTA AGAATACTGG GCAATTTCAT GTTTCTTCAA CACTACATAT GCGTATATAT ACCAATCTAA GTCTGTGCTC
1901  CTTCCTTCGT TCTTCCTTCT GTTCGGAGAT TACCGAATCA AAAAAATTTC AAAGAAACCG AAATCAAAAA AAAGAATAAA AAAAAAATGA TGAATTGAAT
2001  TGAAAAGCTG TGGTATGGTG CACTCTCAGT ACAATCTGCT CTGATGCCGC ATAGTTAAGC CAGCCCCGAC ACCCGCTGAC ACCCGCTGAC GCGCCCTGAC
2101  GGGCTTGTCT GCTCCCGGCA TCCGCTTACA GACAAGCTGT GACCGTCTCC GGGAGCTGCA TGTGTCAGAG GTTTTCACCG TCATCACCGA AACGCGCGAG
2201  ACGAAAGGGC CTCGTGATAC GCCTATTTTT ATAGGTTAAT GTCATGATAA TAATGGTTTC TTAGGACGGA TCGCTTGCCT GTAACTTACA CGCGCCTCGT
2301  ATCTTTTAAT GATGGAATAA TTTGGGAATT TACTCTGTGT TTATTTATTT TTATGTTTTG TATTTGGATT TTAGAAAGTA AATAAAGAAG GTAGAAGAGT
2401  TACGGAATGA AGAAAAAAAA ATAAACAAAG GTTTAAAAAA TTTCAACAAA AAGCGTACTT TACATATATA TTTATTAGAC AAGAAAAGCA GATTAAATAG
2501  ATATACATTC GATTAACGAT AAGTAAAATG TAAAATCACA GGATTTTCGT GTGTGGTCTT CTACACAGAC AAGATGAAAC AATTCGGCAT TAATACCTGA
2601  GAGCAGGAAG AGCAAGATAA AAGGTAGTAT TTGTTGGCGA GTCTTTTACA TCTTCGGAAA ACAAAAACTA TTTTTCTTTT AATTTCTTTT
2701  TTTACTTTCT ATTTTTAATT TATATATTTA TATTAAATTT AATTATTTTT ATAGCACGTG ATGAAAAGGA CCCAGGTGGC ACTTTTCGGG
2801  GAAATGTGCG CGGAACCCCT ATTTGTTTAT TTTTCTAAAT ACATTCAAAT ATGTATCCGC TCATGAGACA ATAACCGTGA TAAATGCTTC AATAATATTG
2901  AAAAAGGAAG AGTATGAGTA TTCAACATTT CCGTGTCGCC CTTATTCCCT TTTTTGCGGC ATTTTGCCTT CCTGTTTTTG CTCACCCAGA AACGCTGGTG
3001  AAAGTAAAAG ATGCTGAAGA TCAGTTGGGT GCACGAGTGG GTTACATCGA ACTGGATCTC AACAGCGGTA AGATCCTTGA GAGTTTTCGC CCCGAAGAAC
3101  GTTTTCCAAT GATGAGCACT TTTAAAGTTC TGCTATGTGG CGCGGTATTA TCCCGTATTG ACGCCGGGCA AGAGCAACTC GCTCGCCGCA TACACTATTC
3201  TCAGAATGAC TTGGTTGAGT ACTCACCAGT CACAGAAAAG CATCTTACGG ATGGCATGAC AGTAAGAGAA TTATGCAGTG CTGCCATAAC CATGAGTGAT
3301  AACACTGCGG CCAACTTACT TCTGACAACG ATCGGAGGAC CGAAGGAGCT AACCGCTTTT TTGCACAACA TGGGGGATCA TGTAACTCGC CTTGATCGTT
3401  GGGAACCGGA GCTGAATGAA GCCATACCAA ACGACGAGCG TGACACCACG ATGCCTGTAG CAATGGCAAC AACGTTGCGC AAACTATTAA CTGGCGAACT
3501  ACTTACTCTA GCTTCCCGGC AACAATTAAT AGACTGGATG GAGGCGGATA AAGTTGCAGG ACCACTTCTG CGCTCGGCCC TTCCGGCTGG CTGGTTTATT
3601  GCTGATAAAT CTGGAGCCGG TGAGCGTGGG TCTCGCGGTA TCATTGCAGC ACTGGGGCCA GATGGTAAGC CCTCCCGTAT CGTAGTTATC TACACGACGG
3701  GGAGTCAGGC AACTATGGAT GAACGAAATA GACAGATCGC TGAGATAGGT GCCTCACTGA TTAAGCATTG GTAACTGTCA GACCAAGTTT ACTCATATAT
```

Figure 107 continued

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3801  ACTTTAGATT GATTTAAAAC TTCATTTTTA ATTTAAAAGG ATCTAGGTGA AGATCCTTTT TGATAATCTC ATGACCAAAA TCCCTTAACG TGAGTTTTCG
3901  TTCCACTGAG CGTCAGACCC CGTAGAAAAG ATCAAAGGAT CTTCTTTTTT CTGCGCGTAA TCTGCTGCTT GCAAACAAAA AAACCACCGC
4001  TACCAGCGGT GGTTTGTTTG CCGGATCAAG AGCTACCAAC TCTTTTTCCG AAGGTAACTG GCTTCAGCAG AGCGCAGATA CCAAATACTG TCCTTCTAGT
4101  GTAGCCGTAG TTAGGCCACC ACTTCAAGAA CTCTGTAGCA CCGCCTACAT ACCTCGCTCT GCTAATCCTG TTACCAGTGG CTGCTGCCAG TGGCGATAAG
4201  TCGTGTCTTA CCGGGTTGGA CTCAAGACGA TAGTTACCGG ATAAGGCGCA GCGGTCGGGC TGAACGGGGG GTTCGTGCAC ACAGCCCAGC TTGGAGCGAA
4301  CGACCTACAC CGAACTGAGA TACCTACAGC GTGAGCTATG AGAAAGCGCC ACGCTTCCCG AAGGGAGAAA GGCGGACAGG TATCCGGTAA GCGGCAGGGT
4401  CGGAACAGGA GAGCGCACGA GGGAGCTTCC AGGGGGAAAC GCCTGGTATC TTTATAGTCC TGTCGGGTTT CGCCACCTCT GACTTGAGCG TCGATTTTTG
4501  TGATGCTCGT CAGGGGGGCG GAGCCTATGG AAAAACGCCA GCAACGCGGC CTTTTTACGG TTCCTGGCCT TTTGCTGGCC TTTTGCTCAC ATGTTCTTTC
4601  CTGCGTTATC CCCTGATTCT GTGGATAACC GTATTACCGC CTTTGAGTGA GCTGATACCG CTCGCCGCAG GACCGCGACC GAGCGCAGCG AGTCAGTGAG
4701  CGAGGAAGCG GAAGAGCGCC CAATACGCAA ACCGCCTCTC CCCGCGCGTT GGCCGATTCA TTAATGCAGC TGGCACGACA GGTTTCCCGA CTGGAAAGCG
4801  GGCAGTGAGC GCAACGCAAT TAATGTGAGT TACCTCACTC ATTAGGCACC CCAGGCTTTA CACTTTATGC TTCCGGCTCC TATGTTGTGT GGAATTGTGA
4901  GCGGATAACA ATTTCACACA GGAAACAGCT ATGACCATGA TTACGCCAAG CTCGAAATAC GACTCACTAT AGGGCGAATT GGGTACCGGG CCGGCCGTCG
5001  AGCTTGATGG CATCGTGGTG TCACGCTCGT CGTTTGGTAT GGCTTCATTC AGCTCCGGTT CCCAACGATC AAGGCGAGTT ACATGATCCC CCATGTTGTG
5101  AAAAAAGCG GTTAGCTCTT CGGTCCTCCG ATCGTTGTCA GAAGTAAGTT GGCCGCAGTG TTATCACTCA TGGTTATGGC AGGAACTGCA TAATTCTCTT
5201  ACTGTCATGC CATCCGTAAG ATGCTTTTCT GTGACTGGTG TACTCAACCA AGTCATTCTG AGAATAGTGT ATGCGGCGAC CGAGTTGCTC TTGCCCGGCG
5301  TCAACACGGG ATAATACCGC GCCACATAGC AGAACTTTAA AAGTGCTCAT CATTGGAAAA CGTTCTTCGG GGCGAAAACT CTCAAGGATC TTACCGCTGT
5401  TGAGATCCAG TTCGATGTAA CCCACTCGTG CACCCAACTG ATCTTCAGCA TCTTTTACTT TCACCAGCGT TTCTGGGTGA GCAAAAACAG GAAGGCAAAA
5501  TGCCGCAAAA AAGGGAATAA GGGCGACACG GAAATGTTGA ATACTCATAC TCTTCCTTTT TCAATATTAT TGAAGCATTT ATCAGGGTTA TTGTCTCATG
5601  AGCGATACAT ATTTGAATGT ATTTAGAAAA ATAAACAAAT AGGGGTTCCG CGCACATTTC CCCGAAAAGT GCCACCTGAC GTCTAAGAAA CCATTATTAT
5701  CATGACATTA ACCTATAAAA ATAGGCGTAT CACGAGGCCC TTTCGTCTTC AAGAATTGGG GATCTTACGT AATGGTTCTT TCTTCAGATT CCCTCATGGA
5801  GAAGTGCGGC AGATGTATAT GACGAGTCG CCAGTTTCCA AGAGACTTTA TTCAGGCACT TCCATGATAG GCAAGAGAGA AGACCCAGAG ATGTTGTTGT
5901  CCTAGTTACA CATGGTATTT ATTCCTGATG AAATGGTTTA GATGGACATA CGAAGAGTTT GAATCGTTTA CCAATGTTCC TAACGGGAGC
6001  GTAATGGTGA TGGAACTGGA CGAATCCATC AATAGATACG TCCTGAGGAC CGTGCTACCC AAATGGACTG ATTGTGAGGG AGACCTAACT ACATAGTGTT
6101  TAAAGATTAC GGATATTTAA CTTACTTAGA ATAATGCCAT TTTTTTGAGT TATAATAATC CTACGTTAGT GTGAGCGGGA TTTAAACTGT GAGGACCTCA
6201  ATACATTCAG ACACTTCTGA CGGTATCACC CTACTTATTC CCTTCGAGAT TATATCTAGG AACCCATCAG GTTGGTGGAA GATTACCCGT TCTAAGACTT
6301  TTCAGCTTCC TCTATTGATG TTACACTCGG ACACCCCTTT TCTGGCATCC AGTTTTTAAT CTTCAGTGGC ATGTGAGATT CTCCGAAATT AATTAAAGCA
6401  ATCACACAAT TCTCTCGGAT ACCACCTCGG TTGAAACTGA CAGGTGGTTT GTTACGCATG CTAATGCAAA GGAGCCTATA TACCTTTGGC TCGGCTGCTG
6501  TAACAGGGAA TATAAAGGGC AGCATAATTT AGGAGTTTAG TGAACTTGCA ACATTTACTA TTTTCCCTTC TTACGTAAAT ATTTTTCTTT TTAATTCTAA
6601  ATCAATCTTT TTCAATTTTT TGTTTGTATT CTTTTCTTGC TTAAATCTAT AACTACAAAA AACACATACA G
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Figure 108

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1     GAATTCACCA TGGATCCTAG GGCCCACAAG CTTACGCGTC GACCCGGGTA TCCGTATGAT GTGCCTGACT ACGCATGATA TCTCGAGCTC AGCTAGCTAA
101   CTGAATAAGG AACAATGAAC GTTTTTCCTT TCTCTTGTTC CTAGTATTAA TGACTGACCG ATACATCCCT TTTTTTTTTT GTCTTTGTCT AGCTCGAGCT
201   TTTGTTCCCT TTAGTGAGGG TTAATTCAAT TCACTGGCCG TCGTTTTACA ACGTCGTGAC TGGGAAAACC CTGGCGTTAC CCAACTTAAT CGCCTTGCAG
301   CACATCCCCC TTTCGCCAGC TGGCGTAATA GCGAAGAGGC CGCCACCGAT CGCCCTTCCC AACAGTTGCG CAGCCTGAAT GGCGAATGGC GCGACGCGCC
401   CTGTAGCGGC GCATTAAGCG CGGCGGGTGT GGTGGTTACG CGCAGCGTGA CCGCTACACT TGCCAGCGCC CTAGCGCCCG CTCCTTTCGC TTTCTTCCCT
501   TCCTTTCTCG CCACGTTCGC CGGCTTTCCC CGTCAAGCTC TAAATCGGGG GCTCCCTTTA GGGTTCCGAT TTAGTGCTTT ACGGCACCTC GACCCCAAAA
601   AACTTGATTA GGGTGATGGT TCACGTAGTG GGCCATCGCC CTGATAGACG GTTTTTCGCC CTTTGACGTT GGAGTCCACG TTCTTTAATA GTGGACTCTT
701   GTTCCAAACT GGAACAACAC TCAACCCTAT CTCGGTCTAT TCTTTTGATT TATAAGGGAT TTTGCCGATT TCGGCCTATT GGTTAAAAAA TGAGCTGATT
801   TAACAAAAAT TTAACGCGAA TTTTAACAAA ATATTAACGT TTACAATTTC CTGATGCGGT ATTTTCTCCT TACGCATCTG TGCGGTATTT CACACCGCAT
901   AGATCCGTCG AGTTCAAGAG AAAAAAAAAG AAAAAGCAAA AAGAAAAAAG GAAAGCGCGC CTCGTTCAGA ATGACACGTA TAGAATGATG CATTACCTTG
1001  TCATCTTCAG TATCATACTG TTCGTATACA TACTTACTGA CATTCATAGG TATACATATA TACACATGTA TATATATCGT ATGCTGCAGC TTTAAATAAT
1101  CGGTGTCACT ACATAAGAAC ACCTTTGGTG GAGGGAACAT CGTTGGTTCC ATTGGGCGAG GTGGCTTCTC TTATGGCAAC CGCAAGAGCC TTGAACGCAC
1201  TCTCACTACG GTGATGATCA TTCTTGCCTC GCAGACAATC AACGTGGAGG GTAATTCTGC TTGCCTCTGC AAAACTTTCA AGAAAATGCG GGATCATCTC
1301  GCAAGAGAGA TCTCCTACTT TCTCCCTTTG CAAACCAAGT TCGACAACTG CGTACGGCCT GTTCGAAAGA TCTACCACCG CTCTGGAAAG TGCCTCATCC
1401  AAAGGCGCAA ATCCTGATCC AAACCTTTTT ACTCCACGCG CCAGTAGGGC CTCTTTAAAT GCTTGACCGA GAGCAATCCC GCAGTCTTCA GTGGTGTGAT
1501  GGTCGTCTAT GTGTAAGTCA CCAATGCACT CAACGATTAG CGACCAGCCG GAATGCTTGG CCAGAGCATG TATCATATGG TCCAGAAACC CTATACCTGT
1601  GTGGACGTTA ATCACTTGCG ATTGTGTGGC CTGTTCTGCT ACTGGTTCTG CCTCTTTTTC TGGGAAGATC GAGTGCTCTA TCGCTAGGGG ACCAGCCTTT
1701  AAAGAGATCG CAATCTGAAT CTTGGTTTCA TTTGTTAATAC GCTTTACTAG GGCTTTCTGC TCTGTCATCT TTGCCTTCGT TTATCTTGCC TGCTCATTTT
1801  TTAGTATATT CTTCGAAGAA ATCACATTAC TTTATATAAT GTATAATTCA TTATGTGATA ATGCCAATCG CTAAGAAAAA AAAAGAGTCA TCCGCTAGGG
1901  GAAAAAAAAA AATGAAAATC AITACCGAGG CATAAAAAAA TATAGAGTGT ACTAGAGAGG GCCAAGAGTA ATAGAAAAAG AAAATTGCGG GAAAGGACTG
2001  TGTTATGACT TCCCTGACTA ATGCCGTGTT CAAACGATAC CTGGCAGTGA CTCCTAGCGC TCACCCAAGCT CTTAAAACGG GAATTTATGG TGCACTCTCA
2101  GTACAATCTG CTCTGATGCC GCATAGTTAA GCCAGCCCCG ACACCCGCTG ACGCGCCCTG ACGGGCTTGT CTGCTCCCGG CATCCGCTTA
2201  CAGACAAGCT GTGACCGTCT CCGGGAGCTG CATGTGTCAG AGGTTTTCAC CGTCATCACC GAACGCGCGG AGACGAAAGG GCCTCGTGAT ACGCCTATTT
2301  TTATAGGTTA ATGTCATGAT AATAATGGTT TCTTAGGACG GATCGCTTGC CTGTAACTTA CACGCGCCTC GTATCTTTTA ATGATGGAAT AATTTGGGAA
2401  TTTACTCTGT GTTTATTTAT TTTTATGTTT TGTATTTGGA TTTTAGAAAG TAAATAAAGA AGGTAGAAGA GTTACGGAAT AAATAAACAA
2501  AGGTTTAAAA AATTTCAACA AAAAGCGTAC TTTACATATA TATTTATTAG ACAAGAAAAG CAGATTAAAT AGATATACAT TCGATTAACG ATAAGTAAAA
2601  TGTAAAATCA CAGGATTTTC GTGTGTGGTC TTCTACACAG ACAAGATGAA ACAATTCGGC ATTAATACCT GAGAGCAGGA AGAGCAAGAT AAAAGGTAGT
2701  ATTTGTTGGC GATCCCCCTA GAGTCTTTTA CATCTTCGGA AAACAAAAAC TATTTTTTCT TTAATTTCTT TTTTTACTTT CTATTTTTAA TTTATATATT
2801  TATATTAAAA AATTTAAATT ATAATTATTT TTATAGCACG TGATGAAAAG GACCCAGGTG GCACTTTTCG GGGAAATGTG CGCGGAACCC CTATTTGTTT
2901  ATTTTTCTAA ATACATTCAA ATATGTATCC GCTCATGAGA CAATAACCGT GATAAATGCT TCAATAATAT TGAAAAAGGA AGATGATGAG GATCAGTTGG
3001  TTCCGTGTCG CCCTTATTCC CTTTTTTGCG GCATTTTGCC TTCCTGTTTT TGCTCACCCA GAAACGCTGG TGAAAGTAAA AGATGCTGAA TATTCAACAT
3101  GTGCACGAGT GGGTTACATC GAACTGGATC TCAACAGCGG TAAGATCCTT GAGAGTTTTC GCCCCGAAGA ACGTTTTCCA ATGATGAGCA GATCAGTTGG
3201  TCTGCTATGT GGCGCGGTAT TATCCCGTAT TGACGCCGGG CAAGAGCAAC TCGGTCGCCG CATACACTAT TCTCAGAATG ACTTGGTTGA CTTTTAAAGT
3301  GTCACAGAAA AGCATCTTAC GGATGGCATG ACAGTAAGAG AATTATGCAG TGCTGCCATA ACCATGAGTG ATAACACTGC GGCCAACTTA GTACTCACCA
3401  CGATCGGAGG ACCGAAGGAG CTAACCGCTT TTTTGGACAA CATGGGGGAT CATGTAACTC GCCTTGATCG TTGGGAACCG GAGCTGAATG CTTCTGACAA
3501  AAACGACGAG CGTGACACCA CGATGCCTGT AGCAATGGCA ACAACGTTGC GCAAACTATT AACTGGCGAA CTACTTACTC TAGCTTCCCG AAGCCATACC
3601  ATAGACTGGA TGGAGGCGGA TAAAGTTGCA GGACCACTTC TGCGCTCGGC CCTTCCGGCT GGCTGGTTTA TTGCTGATAA ATCTGGAGCC GCAACAATTA
3701  GGTCTCGCGG TATCATTGCA GCACTGGGGC CAGATGGTAA GCCCTCCCGT ATCGTAGTTA TCTACACGAC GGGGAGTCAG GCAACTATGG GGTGAGCGTG
```

Figure 108 continued

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3801  TAGACAGATC GCTGAGATAG GTGCCTCACT GATTAAGCAT TGGTAACTGT CAGACCAAGT TTACTCATAT ATACTTTAGA TTGATTTAAA ACTTCATTTT
3901  TAATTTAAAA GGATCTAGGT GAAGATCCTT TTTGATAATC TCATGACCAA AATCCCTTAA CGTTGAGTTT CGTTCCACTG AGCGTCAGAC CCCGTAGAAA
4001  AGATCAAAGG ATCTTCTTGA GATCCTTTTT TTCTGCGCGT AATCTGCTGC TTGCAAACAA AAAACCACCG GCTACCAGCG GTGGTTTGTT TGCCGGATCA
4101  AGAGCTACCA ACTCTTTTTC CGAAGGTAAC TGGCTTCAGC AGAGCGCAGA TACCAAATAC TGTCCTTCTA GTGTAGCCGT AGTTAGGCCA CCACTTCAAG
4201  AACTCTGTAG CACCGCCTAC ATACCTCGCT CTGCTAATCC TGTTACCAGT GGCTGCTGCC AGTGGCGATA AGTCGTGTCT TACCGGGTTG GACTCAAGAC
4301  GATAGTTACC GGATAAGGCG CAGCGGTCGG GCTGAACGGG GGGTTCGTGC ACACAGCCCA GCTTGGAGCG AACGACCTAC ACCGAACTGA GATACCTACA
4401  GCGTGAGCTA TGAGAAAGCG CCACGCTTCC CGAAGGGAGA AAGGCGGACA GGTATCCGGT AAGCGGCAGG GTCGGAACAG GAGAGCGCAC GAGGGAGCTT
4501  CCAGGGGGAA ACGCCTGGTA TCTTTATAGT CCTGTCGGGT TTCGCCACCT CTGACTTGAG CGTCGATTTT TGTGATGCTC GTCAGGGGGG CGGAGCCTAT
4601  GGAAAAACGC CAGCAAAAGG GCCTTTTTAC GGTTCCTGGC CTTTTGCTCC ACATGTTCTT CCTGCGTTAT TCCCCTGATT CTGTGGATAA
4701  CCGTATTACC GCCTTTGAGT GAGCTGATAC CGCTCGCCGC AGCCGAACGA CCGAGCGCAG CGAGTCAGTG AGCGAGGAAG CGGAAGAGCG CCCAATACGC
4801  AAACCGCCTC TCCCCGCGCG TTGGCCGATT CATTAATGCA GCTGGCACGA CAGGTTTCCC GACTGGAAAG CGGGCAGTGA GCGCAACGCA ATTAATGTGA
4901  GTTACCTCAC TCATTAGGCA CCCCAGGCTT TACACTTTAT GCTTCCGGCT CCTATGTTGT GTGGAATTGT GAGCGGATAA CAATTTCACA CAGGAAACAG
5001  CTATGACCAT GATTACGCCA AGCTCGAAAT ACGACTCACT ATAGGGCGAA TTGGGTACCG GGCCCGGCGT CGAGCTTGAT GGCATCGTGG TGTCACGCTC
5101  GTCGTTTGGT ATGGCTTCAT TCAGCTCCGG TTCCCAACGA TCAAGGCGAG TTACATGATC CCCCATGTTG TGAAAAAAAG CGGTTAGCTC TTCGGTCCTC
5201  CGATCGTTGT CAGAAGTAAG TTGGCCGCAG TGTTATCACT CATGGTTATG GCAGGAACTG CATAATTCTC TTACTGTCAT GCCATCCGTA AGATGCTTTT
5301  CTGTGACTGG TGTACTCAAC CAAGTCATTC TGAGAATAGT GTTATGCGGC GACCGAGTTG CTCTTGCCCG GCGTCAACAC GGATAATACC GCGCCACATA
5401  GCAGAACTTT AAAAGTGCTC ATCATTGGAA AACGTTCTTC GGGGCGAAAA CTCTCAAGGA TCTTACCGCT GTTGAGATCC AGTTCGATGT AACCCACTCG
5501  TGCACCCAAC TGATCTTCAG CATCTTTTAC TTTCACCAGC GTTTCTGGGT GAGCAAAAAC AGGAAGGCAA AATGCCGCAA AAAGGGCGAC AAGGGCGACA
5601  CGGAAATGTT GAATACTCAT ACTCTTCCTT TTTCAATATT ATTGAAGCAT TTATCAGGGT TATTGTCTCA TGAGCGATAC ATATTTGAAT GTATTTAGAA
5701  AAATAAACAA ATAGGGGTTC CGCGCACATT TCCCCGAAAA GTGCCACCTG ACGTCTAAGA AACCATTATT ATCATGACAT TAACCTATAA AAATAGGCGT
5801  ATCACGAGGC CCTTTCGTCT TCAAGAATTG GGGATCTACG TATGGTCATT CTTCTTCAGA TTCCCTCATG GAGAAGTGCG GCAGATGTAT ATGACAGAGT
5901  CGCCAGTTTC CAAGAGACTT TATTCAGGCA CTTCCATGAT AGGCAAGAGA GAAGACCCAG AGATGTTGTT GTCCTAGTTA CACATGGTAT TTATTCCAGA
6001  GTATTCCTGA TGAAATGGTT TAGATGGACA TACGAAGAGT TTGAATCGTT TACCAATGTT CCTAACGGGA GCGTAATGGT GATGGAACTG GACGAATCCA
6101  TCAATAGATA CGTCCTGAGG ACCGTGCTAC CCAAATGGAC TGATTGTGAG GGAGACCTAA CTACATAGTG TTTAAAGATT ACGGATATTT AACTTACTTA
6201  GAATAATGCC ATTTTTTTGA GTTATAATAA TCCTACGTTA GTGTGAGCGG GATTTAAACT GTGAGGACCT CAATACATTC AGACACTTCT GACGGTATCA
6301  CCCTACTTAT TCCCTTCGAG ATTATATCTA GGAACCCATC AGGTTGGTGG AAGATTACCC GTTCTAAGAC TTTTCAGCTT CCTCTATTGA TGTTACACTC
6401  GGACACCCCT TTTCTGGCAT CCAGTTTTTA ATCTTCAGTG GCATGTGAGA TTCTCCGAAA TTAATTAAAG CAATCACACA ATTCTCTCGG ATACCACCTC
6501  GGTTGAAACT GACAGGTGGT TTGTTACGCA TGCTAATGCA AAGGAGCCTA TATACCTTTG GCTCGGCTGC TGTAACAGGG AATATAAAGG GCAGCATAAT
6601  TTAGGAGTTT AGTGAACTTG CAACATTTAC TATTTTCCCT TCTTACGTAA ATATTTTTCT TTTTAATTCT AAATCAATCT TTTTCAATTT TTTGTTTGTA
6701  TTCTTTTCTT GCTTAAATCT ATAACTACAA AAAACACATA CAG
```

Figure 109

```
                MetArg PheProSer IlePheThr AlaValLeuPhe AlaAlaSer SerAlaLeu AlaAlaProVal AsnThrThr ThrGluAsp GluThrAlaGln
   1  GAATTC                                                                                                    
      ··IleProAla GluAlaVal IleGlyTyrLeu AspLeuGlu GlyAspPhe AspValAlaVal LeuProPhe SerAsnSer ThrAsnAsnGly LeuLeuPhe
 101  
      ·IleAsnThr ThrIleAlaSer IleAlaAla LysGluGlu GlyValSerLeu AspLysArg GluAlaGlu AlaGlnGluVal ThrGlnIle ProAlaAla
 201  
      LeuSerValPro GluGlyGlu AsnLeuVal LeuAsnCysSer PheThrAsp SerAlaIle TyrAsnLeuGln TrpPheArg GlnAspPro GlyLysGlyLeu
 301  CTGAGTGTCC CAGAAGGAGA AAACTTGGTT CTCAACTGCA GTTTCACTGA TAGCGCTATT TACAACCTCC AGTGGTTTAG GCAGGACCCT GGGAAAGGTC
      ··ThrSerLeu LeuLeuIle GlnSerSerGln ArgGluGln ThrSerGly ArgLeuAsnAla SerLeuAsp LysSerSer GlyArgSerThr LeuTyrIle
 401  TCACATCTCT GTTGCTTATT CAGTCAAGTC AGAGAGAGCA AACAAGTGGA AGACTTAATG CCTCGCTGGA TAAATCATCA GGACGTAGTA CTTTATACAT
      ·AlaAlaSer GlnProGlyAsp SerAlaThr TyrLeuCys AlaValArgPro ThrSerGly GlySerTyr IleProThrPhe GlyArgGly ThrSerLeu
 501  TGCAGCTTCT CAGCCTGGTG ACTCAGCCAC CTACCTCTGT GCTGTGAGGC CCACATCAGG AGGAAGCTAC ATACCTACAT TTGGAAGAGG AACCAGCCTT
      IleValHisPro TyrIleGln AsnProAsp ProAlaValTyr GlnLeuArg AspSerLys SerSerAspLys SerValCys LeuPheThr AspPheAspSer
 601  ATTGTTCATC CGTATATCCA GAACCCGGAT CCTGCCGTGT ACCAGCTGAG AGACTCTAAA TCCAGTGACA AGTCTGTCTG CCTATTCACC GATTTTGATT
      ··GlnThrAsn ValSerGln SerLysAspSer AspValTyr IleThrAsp LysCysValLeu AspMetArg SerMetAsp PheLysSerAsn SerAlaVal
 701  CTCAACAAA TGTGTCACAA AGTAAGGATT CTGATGTGTA TATCACAGAC AAATGTGTGC TAGACATGAG GTCTATGGAC TTCAAGAGCA ACAGTGCTGT
      ·AlaTrpSer AsnLysSerAsp PheAlaCys AlaAsnAla PheAsnAsnSer IleIlePro GluAspThr PhePheProSer ProGluSer Ser***
 801  GGCCTGGAGC AACAAATCTG ACTTTGCATG TGCAAACGCC TTCAACAACA GCATTATTCC AGAAGACACC TTCTTCCCCA GCCCAGAAAG TTCCTAACTC
 901  GAG
```

The pre-pro mating factor alpha sequence is highlighted. *Bam*HI site is underlined.

Figure 110

```
                MetArg PheProSer IlePheThr AlaValLeuPhe AlaAlaSer SerAlaLeu AlaAlaProVal AsnThrThr ThrGluAsp GluThrAlaGln·
    1   GAATTC[redacted]
        ··IlePro Ala GluAlaVal IleGlyTyrLeu AspLeuGlu GlyAspPhe AspValAlaVal LeuProPhe SerAsnSer ThrAsnAsnGly LeuLeuPhe·
        [redacted]
  101   ·IleAsnThr ThrIleAlaSer IleAlaAla LysGluGlu GlyValSerLeu AspLysArg GluAlaGlu AlaGlyValThr GlnThrPro LysPheGln
        [redacted]GGCGTCA CTCAGACCCC AAAATTCCAG
  201   ValLeuLysThr GlyGlnSer MetThrLeu GlnCysAlaGln AspMetAsn HisGluTyr MetSerTrpTyr ArgGlnAsp ProGlyMet GlyLeuArgLeu·
  301   GTCCTGAAGA CAGGACAGAG CATGACACTG CAGTGTGCCC AGGATATGAA CCATGAATAC ATGTCCTGGT ATCGACAAGA CCCAGGCATG GGGCTGAGGC
        ··IleHisTyr SerValGly AlaGlyIleThr AspGlnGly GluValPro AsnGlyTyrAsn ValSerArg SerThrThr GluAspPhePro LeuArgLeu·
  401   TGATTCATTA CTCAGTTGGT GCTGGTATCA CTGACCAAGG AGAAGTCCCC AATGGCTACA ATGTCTCCAG ATCAACCACA GAGGATTTCC CGCTCAGGCT
        ·LeuSerAla AlaProSerGln ThrSerVal TyrPheCys AlaSerSerTyr ValGlyAsn ThrGlyGlu LeuPhePheGly GluGlySer ArgLeuThr
  501   GCTGTCGGCT GCTCCCTCCC AGACATCTGT GTACTTCTGT GCCAGCAGTT ACGTCGGGAA CACCGGGGAG CTGTTTTTTG GAGAAGGCTC TAGGCTGACC
        ValLeuGluAsp LeuLysAsn ValPhePro ProGluValAla ValPheGlu ProSerGlu AlaGluIleSer HisThrGln LysAlaThr LeuValCysLeu·
  601   GTACTGGAGG ACCTGAAAAA CGTGTTCCCA CCCGAGGTCG CTGTGTTTGA GCCATCAGAA GCAGAGATCT CCCACACCCA AAAGGCCACA CTGGTGTGCC
        ··AlaThrGly PheTyrPro AspHisValGlu LeuSerTrp TrpValAsn GlyLysGluVal HisSerGly ValCysThr AspProGlnPro LeuLysGlu·
  701   TGGCCACAGG CTTCTACCCC GACCACGTGG AGCTGAGCTG GTGGGTGAAT GGGAAGGAGG TGCACAGTGG GGTCTGCACA GACCCGCAGC CCCTCAAGGA
        ·GlnProAla LeuAsnAspSer ArgTyrAla LeuSerSer ArgLeuArgVal SerAlaThr PheTrpGln AspProArgAsn HisPheArg CysGlnVal
  801   GCAGCCCGCC CTCAATGACT CCAGATACGC TCTGAGCAGC CGCCTGAGGG TCTCGGCCAC CTTCTGGCAG GACCCCCGCA ACCACTTCCG CTGTCAAGTC
        GlnPheTyrGly LeuSerGlu AsnAspGlu TrpThrGlnAsp ArgAlaLys ProValThr GlnIleValSer AlaGluAla TrpGlyArg AlaAsp***
  901   CAGTTCTACG GGCTCTCGGA GAATGACGAG TGGACCCAGG ATAGGGCCAA ACCCGTCACC CAGATCGTCA GCGCCGAGGC CTGGGGTAGA GCAGACTAAC
 1001   TCGAG
```

The pre-pro mating factor alpha sequence is highlighted.

Figure 111



Figure 112

```
ggatccagcatggtgtgtctgaagctccctggaggctcctgcatgacagcgctgaca
gtgacactgatggtgctgagctccccactggctttgtccggagacaccggtggcgga
tctctagttccacgcggtagtggaggcggtggttccggagacacgcgttagtaggtc
gacggaggcggtgggggtagaatcgcccggctggaggaaaaagtgaaaaccttgaaa
gctcagaactcggagctggcgtccacggccaacatgctcagggaacaggtggcacag
cttaaacagaaagtcatgaactactaggatcc
```

Figure 113

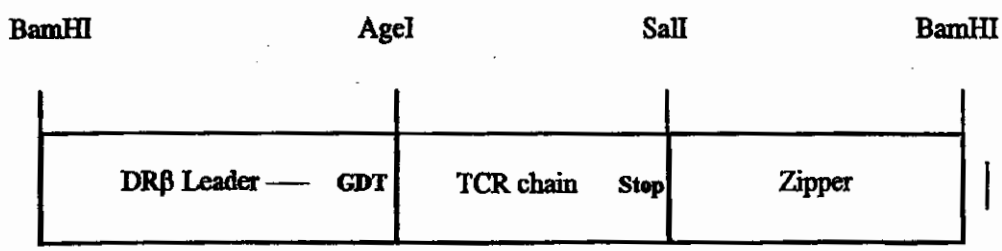


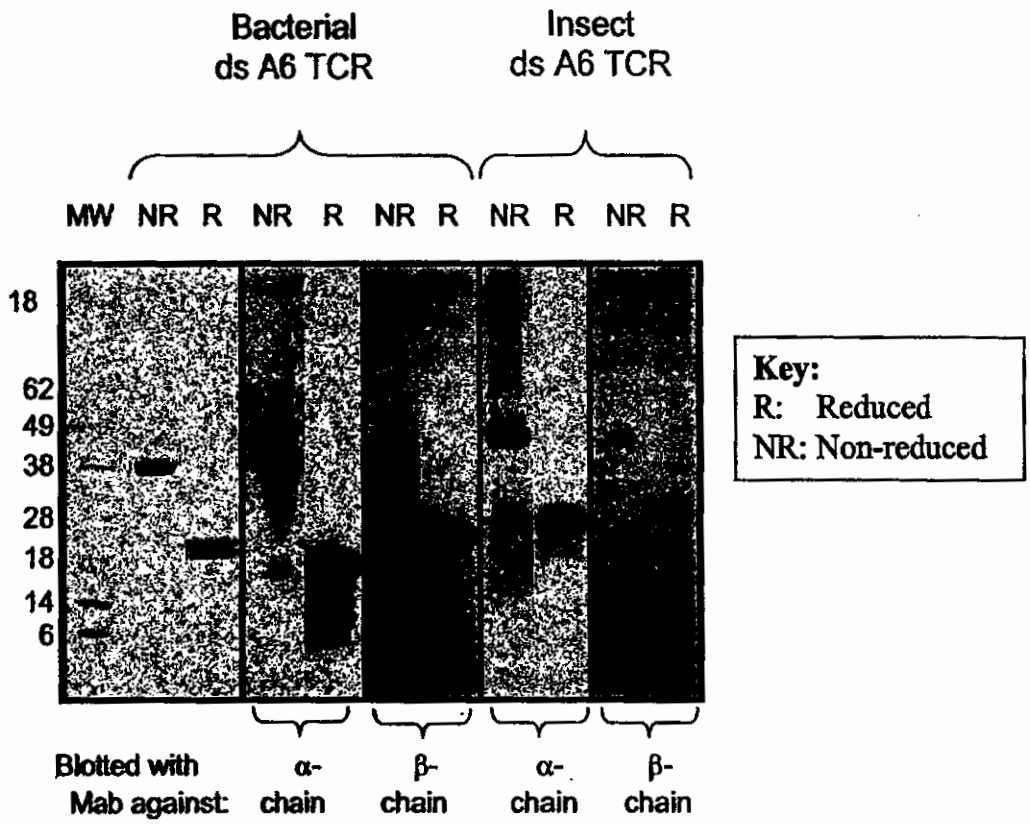
Figure 114

ggatccagcatggtgtgtctgaagctccctggaggctcctgcatgacagcgctgaca
gtgacactgatggtgctgagctccccactggctttgtccggagacaccggagacacc
ggacagaaggaagtggagcagaactctggacccctcagtgttccagagggagccatt
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gtctgcctattcaccgattttgattctcaaacaaatgtgtcacaaagtaaggattct
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aaacagaaagtcatgaactactaggatcc

Figure 115

ggatccagcatggtgtgtctgaagctccctggaggctcctgcatgacagcgctgaca
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cagcttaaacagaaagtcatgaactactaggatcc

Figure 116


Bacterial
ds A6 TCR
Insect
ds A6 TCR
MW NR R NR R NR R NR R NR R
18
62
49
38
28
18
14
6
Blotted with
Mab against:
α-
chain
β-
chain
α-
chain
β-
chain
Key:
R: Reduced
NR: Non-reduced