Figure 1

HP1 ("56") amino acid sequence (SEQ ID NO: 4)

MSSDAVEQLENFQLIKFDRFDPSTQSTIRIARSPKPIPVKVVIVGDGGCGKTCLLNVFATGTFPEAYVPTIIENV
VITLVTPTGQIAAVTLWDTAGQEEYDRLRPLSYSDVDVVLLCYSIDNLSTFHNVADKWYPEVAHFCPNTPIILVG
TKSDMRRHQKSQPHFVSPQDSSQLARQMGAVMNIECSAKEVSNVNIVFDAAVSYCLSNSRPKTRGDNDNNRSNRR
LSRAKRASMFIRGKDVSSTSGNSREELVEYDQDGLAIIPDRKKRKCSII

HP2 ("2") amino acid sequence (SEQ ID NO: 1)

MLNKLFIAILIVITAVIGETTTSSTTASLSESPTLVWVTGTDASGRLATTQSAYTQQFSQLYSSIASPSSGSIGL
GTIQGTVGIVRTYETITLAS

HP3 ("3") amino acid sequence (SEQ ID NO: 2)

MSTAIPGGQRTLAKRRAANLDKKQDEPTSARSAGAGGSSSTMLKLYTDEAQGLKVDPLIVLVLAVGFIFSVIGLH
VVAKLTGKLIN

HP4 ("27") amino acid sequence (SEQ ID NO: 3)

MTPRSHIFFDISINNQPAGRIIFELFNDIVPKTAENFRALSTGEKGIGKSGKPLHYKGSTFHRIIKDFMVQGGDF
TNGNGTGGESIYGEKFEDENFQLTHDKPFLLSMANAGPGTNGSQFFITTVPTPHLDNKHVVFGKVIAGKATVRKI
ERNSEGEAPIEPVVIEDCGELPEDADLTISDETGDKYEEVLKDNENIDIDDFEQVYQAITEIKELGTKYFKNGDT
KIAFEKYQKAANYLLEYIPSDLSEEQSSKLELLKTSVFSNVALAGLKVSKFKDTIKYATLVIEDESADAKAKSKG
YYRRGSAYSSLKDEDSAISDFQKALELSPGDPAISQSLQRTTKARKDRLAKEKAALSKFFE

HP5 ("4") amino acid sequence (SEQ ID NO: 5)

MTNWKAILTPAQYQVLRLGGTERPYTGQYVNFKKNGTYLCSGCQTPLYKSGTKFDSSCGWPAFYEALPGAVKRIE
DNSLGMRRIEIRCSKCDGHLGHVFEGEGFDTPTDSRHCVNSISLKFQGEEEN

HP6 ("54") amino acid sequence (SEQ ID NO: 7)

MSHLLLRDSFWGRTIYHLSKHRYFSFPEEKDGFIAPEKYYLNMDQVSIHAESEKNIVEGLVDTSNSSLEEVKTTR
VIVDWDEYDQKENPQNWSSLLKCFVVFEVGILTVAVYMGSAIYTPGIEDIMRDLNVSRTVATLPLTLFVIGYAVG
PMIFSPMSEHPAIGRTTIYVWTLFIFAILQIPTALTTNIAGFCILRFIGGFFASPALATGPASVGDVIAIPHLPV
GLGLWSICAVCGPSLGPLFGAIFSQLVSWRWCFWFLLITSGTLFIVLGFTLPETYVPTLLYRKARRLRALTKNEL
IISKGELDIQDRTAKEVLIECLWRPVDISFRDPVVLMINLYISMVYSIWYIWFEAFPIVFLEIYGFSLIGMGASF
AGILIGVLICSACYCYACHVTFARRIIANETIHPEFFVPGAIIGGCIMPTGIFILGWTATKSVHWIVPIIGSGLF
AAGGYLIFQTLFNYLAMSFPRYMASAFAGNDLFRSFSASVFPLFGHALYANLGSEKFPVGWGSSVLGFITVAMIA
IPVTFMRYGPRLRANSRYAGP

HP7 ("55") amino acid sequence (SEQ ID NO: 8)

MTDYVTSKRPDNVLNWTSIHVSSWIGETIPEIDPSLLQNFLEHDIAGDVLPYLKSEDLKEIGINELKHRISIKKN
IHELLVSNEKHIDTSILSDTATELGTLILTNKFITQMANRKNVVDDSTHHSNNRRLTEQFNKLRKDLLPIFKWIK
ETQPLPTPENTHFANMGSVPASPVEHTSGESTLSNPSLSTINAGEGVNSAVAGQSLGRKPTLSSRRQSHALSPTG
EHLNVSSSSPSTGNFETLNGERPNLRSASSGSQEHTENELLKPLRVKADEPCYKVIQNAMKRHGLSVDDWRKYAL
VICYGDEERVLGLHEKPGSIFKELKDQKQNPAIMLRQIDTNNDDQNHIETPGGRL

Figure 1 (cont'd)

HP8 ("40") amino acid sequence (SEQ ID NO: 6)

MTTNGQKRQK TRKPLLINAF VMGCAGLQNP GLWKHPKDSS HRFNQIDHWT YLAKLAEKGK
FNALFIADVL GGYDVYKGPE NLATPAVAGA QWPVTEPSAV VSAMAAVTTN LAFGVTFSTI
SEAPYHFARR LSTLDHLTKG RIGWNVVSSY LESAARNLLN GEKLDEHDQR YLKAEEYIQI
VYELLLSSWR DDAVVLDKKA GVYTDPTRFR KINFEGKFFK VPGPHIVDPT PQRLPVILQA
GTSKVGKEFA AKHAEIVFVI SFSPDDLKPK IAEVRQLAKE KFGRNHDDIK FVALATPVIG
ATHELAEEKY QELLSYGDIE GAQALFGGWT GIDLSQYGED EELGNVSSNA MRGAVQNWTK
AIPNEKRWTR KVIAKQITVG GLGPAFVGTP EEIADELEHW SDHAGLDGFN FTYAVNPLSF
EEIVEDLIPV LQRRGLAQKE YPNPETGSTF RKNLFGTDFV PSTHPAYNLR WRAGVSKEEF
EKSLNATTNW YSSFARSGAL GELHNTCRIL YLQIVKYKYR LRVRSEGNSI PFAKMTKENE
AKRQKTSQPK AKKQLIINAF MSGSSGNQSP GLWSYPGDKS TEYTTLDYWV ELAQKLEKAK
FHSIFIADVL GGYDVYNGPG NYSAAAKSGA QFPMIEPSAA VTAMAAATKS ITFGVTFSTI
SEAPYHFARR LGTLDLLTNG RVGWNIVSSY LDSAARNLLN GEPLPLHADR YKRAEEFLQV
VYRLFLSSWR DDAYKLDKKT RTFADPKLIR TIDHVGEFFN VPGPQFLPPT PQRLPLILQA
GTSKVGMDYA AKHAEVVFLA SFDPESLQEK IKTVRDIAET KYNRPRDSIK FLILITVVIA
DTHEDAVKRY EDLASYADLE GAQALFSGWT GIDIGKYGED EPLEHVESNA IKSHVKNWTK
FKDNKPRARK DIAKQIGVGG SGPLLVGSVQ EIADELERWA EVSDLDGFNF AYADYPQTFD
DIIEKLLPEL NKRGVFWDDY KIPGGTFRES VFGRKFVDKD HPAYDLRWRS DQTREEFEKK
LAELEKK

HP9 ("60") amino acid sequence (SEQ ID NO: 9)

MRFSNVVLTAIAAAGVQADEALYTVFYNDVTENAQEYLSYIQANTAAGFTDLLSLYTELATYTDDSYTSIFTEED
FPASELSSFVVNLPWYSSRIEPQVAAAETGESEEESETGESEEESETGEETETETGSESESESESETSATGTGTG
TSASESAETETSTDAAVSIDHPKSTLLMGLTAAVVSITFGVFAL

HP10 ("34") amino acid sequence (SEQ ID NO: 162)

MSSFRVLDLV KPFTPFLPEV ISPERKVPFQ QKLMWTGVTL LIFLVMSEIP LYGITSSDSS
DPLFWLRMML ASNRGTLMEL GISPIVTSGM VFQLLQGIQI LDVNMENKAD RELFQTAQKV
FAILLSIGQA TVYVLTGMYG PPGELGVGVC LLLVLQLVFA GIVVILLDEL LQKGYGLGSG
ISLFMATNIC EQIFWKTFAP TTVNRGRGKE FEGAFISFFH LILTKKDKKR ALLESFYRDN
APNMFQVIAT LVVFFTVVYL QGFRLEIPVK STRQRGPYGT YPIRLFYTSN MPIMLQSALT
SNIFIISQML YSHFPDNAFV KLIGTWEAQP GSAQLFAASG LAYYMQPPMS LSQALLDPIK
TVVYVVFVLT TCAIFSKTWI EISGSSPRDV AKQFKDQGLV IAGHRDATVY KELKKIIPTA
AAFGGATIGA LSVVSDLLGT LGSGTSILLA VTTIYGYYEL AVKEGGFSKG GPSGFVDL

Figure 1 (cont'd)

HP1 polynucleotide sequence (SEQ ID NO: 16)

ATGTCGTCTGATGCTGTGGAGCAACTTGAAAACTTCCAGTTGATCAAGTTCGACAGATTCGATCCTTCAACGCAA
TCGACTATCAGAATAGCGCGATCTCCCAAACCAATTCCAGTCAAGGTTGTGATAGTGGGAGATGGTGGATGTGGA
AAGACATGTCTTCTCAATGTCTTTGCCACTGGAACGTTTCCTGAGGCGTATGTCCCCACAATCATAGAAAATGTG
GTTATTACATTGGTGACCCCAACTGGCCAGATAGCTGCCGTTACTCTGTGGGATACTGCAGGGCAAGAAGAGTAC
GACAGATTGAGACCCCTAAGCTACTCCGACGTTGACGTGGTCTTGCTGTGCTACAGCATAGACAATCTGTCCACC
TTTCATAATGTGGCCCGACAAATGGTACCCAGAAGTGGCACATTTTTGTCCAAACACACCGATCATCTTGGTAGGT
ACCAAATCTGATATGCGGCGTCATCAGAAGAGTCAGCCGCACTTTGTATCTCCCCAGGATTCGTCGCAGTTGGCA
AGGCAGATGGGGGCAGTGATGAACATCGAGTGTTCTGCGAAGGAGGTTTCAAACGTCAATATCGTTTTTGATGCT
GCTGTGTCGTACTGTTTGAGTAACAGCAGGCCCAAGACCAGAGGGGATAATGACAACAATAGGAGTAACAGACGG
CTAAGTAGAGCCAAGCGAGCCAGCATGTTTATAAGGGGTAAGGATGTTAGCTCAACGTCAGGAAACTCTCGGGAA
GAACTTGTTGAATACGATCAAGATGGGTTGGCAATAATACCGGACAGAAAGAAACGCAAATGTAGCATTATTTGA

HP2 polynucleotide sequence (SEQ ID NO: 13)

ATGTTAAACAAGCTGTTCATTGCAATACTCATAGTCATCACTGCTGTCATAGGCGAGACGACTACGTCATCTACC
ACTGCCAGTCTCTCCGAAAGCCCTACTCTGGTTTGGGTGACTGGCACTGATGCAAGTGGGAGATTGGCAACTACA
CAGTCTGCTTACACTCAACAGTTTTCACAGTTATACTCATCCATAGCATCTCCATCAAGTGGTAGCATAGGCCTG
GGTACTATCCAGGGGACTGTTGGAATTGTCAGAACATATGAGACAATTACCCTTGCCAGCTAA

HP3 polynucleotide sequence (SEQ ID NO: 14)

ATGTCTACAGCAATTCCAGGAGGACAGAGAACGTTAGCTAAAAGAAGAGCAGCAAACTTGGATAAGAAACAGGAT
GAACCAACCTCCGCCAGATCTGCCGGTGCTGGAGGTTCTTCGTCTACCATGCTAAAGTTGTACACAGACGAGGCC
CAAGGTTTGAAAGTTGATCCTTTAATTGTTCTTGTTCTTGCTGTTGGTTTCATTTTCAGTGTCATTGGTTTGCAC
GTTGTTGCTAAGCTGACAGGAAAGTTGATCAACTAA

HP4 polynucleotide sequence (SEQ ID NO: 15)

ATGACTCCCCGTTCTCATATTTTCTTTGACATCTCCATCAACAACCAGCCAGCTGGCAGAATAATCTTTGAGCTC
TTCAATGACATTGTTCCTAAGACAGCAGAGAATTTTAGAGCTTTATCTACTGGTGAGAAAGGTATAGGTAAGTCT
GGGAAACCATTGCACTACAAGGGTTCTACTTTCCATAGGATCATTAAGGATTTTATGGTACAAGGTGGTCACTTT
ACCAACGGTAACGGTACTGGAGGCGAATCCATATATGGAGAAAAATTTGAAGATGAAAATTTCCAATTGACTCAT
GACAAACCGTTCCTTCTCTCTATGGCAAACGCTGGACCAGGAACTAATGGATCCCAGTTTTTTATCACCACCGTT
CCTACTCCTCATCTGGATAACAAGCATGTAGTGTTTGGAAAAGTAATTGCTGGTAAAGCCACAGTTAGAAAGATT
GAAAGAAACTCCCAAGGTGAAGCTCCAATTGAACCCGTTGTCATTGAGGACTGTGGTGAACTTCCAGAACACGCA
GATTTGACCATCTCCGACGAGACTGGAGACAAGTATGAGGAAGTTCTGAAAGATAATGAGAACATAGACATCGAT
GACTTTGAACAGGTCTACCAGGCCATCACTGAAATCAAAGAATTGGGTACAAAGTATTTCAAAAATGGTGACACC
AAAATCGCCTTCGAAAAGTATCAAAAGGCTGCTAATTATTTGCTGGAATACATACCATCAGATTTATCAGAGGAA
CAGAGCTCTAAGTTGGAGCTGCTAAAAACATCTGTCTTCTCCAACGTGGCATTGGCTGGACTGAAAGTTTCCAAG
TTCAAAGACACGATTAAGTATGCCACATTGGTCATTGAGGATGAATCTGCGGATGCAAAGGCCAAGTCCAAAGGC
TACTACCGTAGAGGAAGTGCTTACAGCTCACTGAAAGACGAAGATTCAGCCATCTCAGATTTCCAGAAAGCACTT
GAATTATCCCCAGGTGATCCTGCAATTAGCCAATCTCTACAAAGAACCACGAAGGCCAGAAAAGACCGTCTTGCC
AAAGAGAAAGCTGCTTTGTCTAAGTTCTTTGAGTAG

Figure 1 (cont'd)

HP5 polynucleotide sequence (SEQ ID NO: 17)

ATGACTAACTGGAAAGCGATATTGACTCCCGCTCAATACCAAGTCCTCCGTTTGGGCGGAACAGAAAGACCGTAT
ACCGGACAGTATGTGAACTTCAAGAAAAATGGAACCTACTTGTGTAGTGGGTGTCAAACTCCGCTTTACAAAAGT
GGCACAAAATTTGATTCATCTTGTGGTTGGCCTGCATTCTATGAAGCATTACCTGGAGCAGTTAAACGAATAGAA
GACAATTCGCTTGGAATGCGAAGAATAGAAATCAGATGCTCCAAATGTGATGGACATCTTGGCCATGTTTTTGAG
GGTGAGGGATTTGACACTCCAACAGATTCCAGACATTGTGTCAACAGCATCAGCCTAAAATTTCAAGGTGAAGAA
GAGAACTAA

HP6 polynucleotide sequence (SEQ ID NO: 19)

ATGTCTCATCTATTACTGCGTGACAGCTTTTGGGGAAGGACCATCTACCATCTGAGTAAACACAGGTATTTCTCT
TTTCCTGAAGAGAAAGATGGTTTCATTGCTCCTGAAAAGTACTACCTGAATATGGACCAAGTATCGATACATGCT
GAATCTGAGAAAAATATAGTGGAAGGTTTGGTAGACACTTCAAATTCTTCGTTGGAGGAAGTAAAGACCACTAGA
GTCATAGTCGACTGGGATGAATATGATCAGAAAGAAAATCCCCAAAACTGGAGCTCGCTTTTAAAGTGCTTCGTT
GTTTTTGAAGTGGGAATCTTAACCGTAGCTGTTTATATGGGATCTGCAATTTACACTCCCGGTATAGAAGATATT
ATGAGAGATCTCAATGTTAGCAGAACGGTGGCAACACTTCCATTAACCTTGTTTGTGATTGGATACGCTGTGGGT
CCAATGATATTCTCCCCCATGTCTGAGCATCCCGCTATCGGAAGGACAACGATATATGTGTGGACCCTGTTCATA
TTTGCTATACTACAAATCCCAACGGCCCTGACCACTAACATTGCTGGATTTTGCATTTTGAGGTTTATTGGAGGG
TTTTTTGCGTCACCAGCATTAGCTACAGGTCCAGCTTCTGTAGGTGATGTTATTGCAATCCCGCACTTGCCTGTA
GGGTTAGGCCTTTGGAGTATCTGTGCTGTTTGTGGTCCTTCTCTAGGACCACTTTTTGGAGCCATATTTTCCCAA
CTTGTGAGTTGGAGGTGGTGCTTCTGGTTTCTGTTAATTACCTCTGGGACACTATTTATAGTTCTTGGCTTCACT
TTACCAGAAACGTATGTACCAACCCTTCTTTACAGAAAGGCTAGGAGGCTACGAGCATTAACAAAAAACGAACTG
ATTATCAGCAAACGGGAGTTACATATTCAGGACAGAACTGCCAAGGAAGTTTTGATTGAATGCTTATGGAGCCCA
GTCGACATATCATTCAGAGACCCCGTTGTCTTGATGATAAATCTTTACATTTCAATGGTTTATTCTATTTGGTAC
ATTTGGTTTGAAGCGTTTCCTATTGTATTCTTAGAGATATATGGATTCAGCCTTATTGGAATGGGAGCTAGTTTT
GCCGGAATCTTAATTGGTGTCTTAATATGCTCTGCGTGCTATTGCTATGCGTGTCATGTTACTTTTGCAAGAAGA
ATAATTGCAAACCAAACCATTCATCCTGAGTTCTTTGTACCGGCGCTATTATTGGAGGTTGCATAATGCCCACT
GGAATCTTTATTTTGGGATGGACTGCCACCAAAAGTGTCCACTGGATTGTACCTATAATAGGTAGCGGTTTATTT
GCTGCTGGTGGTTATCTCATTTTCCAGACACTCTTCAACTACCTTGCAATGTCTTTCCCTAGATACATGGCATCA
GCTTTTGCCGGAAATGATCTTTTCAGGTCCTTTTCTGCCAGTGTTTTCCCACTGTTTGGACATGCACTATATGCC
AACTTGGGATCCCAAAAGTTCCCTGTTGGTTGGGGTTCTTCTGTACTGGGGTTCATCACTGTTGCAATGATCGCA
ATTCCAGTAACTTTCATGAGATATGGTCCAAGATTGCGTGCAAATTCTAGATATGCCGGGCCATGA

HP7 polynucleotide sequence (SEQ ID NO: 20)

ATGACGGACTATGTCACTTCTAAGCGGCCAGATAACGTGCTCAATTGGACAAGTATTCATGTATCGTCCTGGATA
GGGGAGACTATTCCTGAGATCGATCCAAGTCTACTCCAAAATTTTTTAGAACATGACATTGCGGGAGATGTTCTA
CCCTACTTGAAGTCTGAAGATCTGAAGGAAATTGGGATCAACGAGCTCAAGCACAGAATCTCTATAAAAAAGAAC
ATTCATGAACTTCTTGTGAGCAATGAAAAGCACATTGATACCAGTATTCTATCAGACACCGCTACCGAGCTAGGA
ACTTTGATACTGACTAATAAATTCATAACCCAGATGGCGAACAGAAAGAATGTTGTAGATGATTCCACTCATCAT
TCGAATAACAGAAGGCTCACTGAACAGTTTAATAAGCTTCGCAAAGATCTTTTGCCGATATTCAAATGGATCAAG
GAGACCCAACCATTACCCACTCCAGAGAATACACATTTCGCAAATATGGGTTCAGTACCAGCATCTCCTGTGGAG
CATACTTCAGGTGAGTCAACATTGTCTAACCCCAGTCTAAGCACCATCAATGCTGGCGAAGGAGTGAACTCTGCA
GTTGCAGGGCAATCTCTCGGGAGGAAACCTACATTATCCTCCAGAAGACAATCACATGCTTTGTCTCCAACTGGT
GAACACCTGAATGTGTCATCATCATCTCCTTCGACGGGGAATTTTGAAACTCTGAATGGAGAAAGACCCAATCTT
AGATCTGCTTCGTCAGGATCACAGGAACATACTGAGAACGAACTATTGAAGCCGTTGAGAGTTAAAGCAGATGAG
CCTTGCTATAAGGTGATTCAGAATGCCATGAAAAGACATGGCTTATCGGTAGATGATTGGCGCAAGTATGCTTTG
GTCATCTGCTATGGAGATGAAGAACGAGTACTAGGCTTACATGAAAAACCTGGGAGTATCTTCAAGGAACTCAAA
GATCAGAAACAGAATCCTGCAATCATGCTTCGTCAAATTGACACTAATAATGACGATCAGAACCATATTGAAACC
CCTGGAGGGAGATTATGA

Figure 1 (cont'd)

HP8 polynucleotide sequence (SEQ ID NO: 18)

ATGACTACAAACCGCCAGAAAAGACAAAAAACTCGCAAACCACTTTTGATCAACGCATTTGTCATGGGAT
GTGCTGGGTTACAGAATCCTGGTTTATGGAAGCATCCCAAGGACTCATCCCATAGATTTAATCAGATTGA
TCACTGGACTTATTTGGCCAAGTTAGCCGAAAAGGGGAAGTTTAATGCGCTCTTCATTGCCGACGTCTTG
GGTGGCTATGATGTCTACAAAGGACCTGAGAATTTAGCCACTCCTGCTGTGGCTGGAGCCCAGTGGCCTG
TCACCGAGCCCAGTGCTGTGGTCTCCGCCATGGCTGCAGTCACAACTAACTTGGCGTTTGGAGTGACGTT
CTCTACTATCAGCGAAGCCCCCTATCATTTTGCCAGAAGACTGTCCACTTTAGACCACTTGACCAAGGGT
AGAATAGGATGGAATGTTGTTTCATCTTACTTGGAGAGTGCTGCTCGTAACCTCTTGAATGGTGAAAAAT
TGGACGAGCATGACCAAAGATACTTGAAAGCTGAAGAGTACATTCAAATAGTTTATGAGCTGTTGTTATC
GTCTTGGAGAGATGATGCAGTAGTTTTAGACAAGAAAGCTGGTGTTTATACTGACCCAACAAGATTTCGA
AAGATCAACTTTCAAGGTAAATTTTTCAAAGTTCCGGGACCACATATTGTTGACCCCACCCCTCAAAGAC
TGCCTGTGATTCTTCAAGCTGGTACTTCTAAAGTTGGTAAGGAGTTTGCTGCTAAGCATGCCGAGATTGT
GTTTGTCATTTCATTTTCTCCAGATGATTTGAAACCCAAGATTGCAGAAGTTCGTCAACTGGCCAAAGAA
AAGTTTGGTAGAAACCACGACGATATTAAGTTTGTTGCCCTTGCAACCCCTGTTATTGGAGCCACACATG
AACTAGCTGAAGAAAAGTACCAAGAGTTACTAAGTTATGGTGATATTGAAGGTGCTCAAGCCTTATTTGG
AGGGTGGACTGGCATTGACCTCTCTCAATATGCCGAAGATGAAGAACTAGGAAATGTTAGTTCCAATGCT
ATGCGTGGCGCTGTACAAAACTGGACTAAAGCAATTCCAAATGAGAAGCGTTGGACACGTAAGGTTATTG
CTAAACAGATTACCGTTGGTGGTCTAGGTCCAGCTTTCGTTGGAACCCCAGAAGAAATCGCCGATGAGCT
GGAACACTGGTCCGACCACGCTGGTTTGGACGGATTCAACTTCACTTATGCTGTCAACCCGCTTTCTTTC
GAAGAGATAGTGCAAGACTTGATTCCAGTTCTTCAGCGAAGACGGTTGGCCCAAAAGGAATACCCAAATC
CAGAAACTGGAAGCACATTCCGTAAAAACCTTTTTGGAACAGACTTTGTACCATCTACCCACCCAGCTTA
TAACTTAAGATGGAGGGCTGGTGTGTCCAAGGAAGAATTCGAAAAGTCCCTAAACGCCACAACAAATTGG
TATTCCAGTTTCGCTAGGTCAGGTGCTCTAGGTGAATTGCATAATACATGCAGGATTCTCTATCTCCAAA
TAGTGAAATATAAATATAGGCTTCGAGTCCGTTCAGAAGGGAATAGCATCCCCTTCGCCAAAATGACCAA
GGAAAATGAAGCCAAGAGGCAGAAAACCTCTCAACCAAAAGCGAAGAAGCAATTGATTATCAATGCTTTC
ATGTCAGGCTCTTCGGGTAACCAATCGCCAGGACTGTGGTCGTACCCTGGAGACAAATCAACAGAGTATA
CTACCCTAGATTACTGGGTGGAGTTAGCTCAAAAGCTGGAAAAGGCCAAATTCCATTCTATCTTCATTGC
CGATGTTCTGGGTGGATATGACGTTTACAATGGACCTGGAAACTACAGTGCTGCTGCAAAATCTGGTGCC
CAATTTCCAATGATTGAACCAAGTGCTGCAGTTACTGCCATGGCTGCTGCTACCAAGTCAATAACGTTCG
GAGTGACTTTTTCCACTATAAGTGAGGCACCTTATCATTTTGCAAGAAGATTGGGAACTTTAGATCTGCT
GACAAACGGAAGAGTCGGCTGGAATATCGTCTCTTCGTATCTTGACAGTGCCGCCAGAAATCTTTTGAAT
GGAGAACCACTCCCTCTCCATGCAGACCGTTATAAGAGAGCCGAAGAATTCCTACAAGTTGTATATCGGT
TATTCCTTTCTTCATGGAGAGACGATGCTTATAAATTGGATAAGAAAACCAGAACCTTTGCTGACCCAAA
ACTTATTAGAACTATCGACCACGTTGGAGAGTTCTTCAATGTCCCAGGCCCCCAGTTCCTACCACCCACT
CCTCAGAGACTACCGCTGATTTTGCAGGCTGGTACTTCCAAGGTTGGTATGGATTATGCTGCAAAACATG
CAGAGGTTGTCTTTTTAGCTTCATTTGACCCAGAGTCACTCCAAGAAAAAATCAAAACAGTGAGAGATAT
CGCTGAAACCAAGTACAACAGACCAAGAGATTCAATCAAATTCTTAATTTTGATAACAGTAGTCATAGCT
GATACACACGAAGATGCCGTGAAGAGATACGAAGATCTCGCCAGTTATGCTGATCTGGAAGGGGCCCAAG
CACTGTTCAGTGGTTGGACTGGAATAGATATTGGAAAGTATGGTGAAGATGAACCTCTTGAGCATGTGGA
ATCTAACGCTATTAAGAGCCATGTTAAGAACTGGACTAAGTTCAAGGACAATAAGCCTAGAGCCAGAAAA
GATATCGCTAAACAGATTGGAGTTGGAGGCTCAGGTCCCTTACTTGTTGGATCTGTACAAGAGATAGCCG
ACGAGCTTGAGAGATGGGCAGAAGTCTCTGACCTCGATGGCTTTAACTTCGCTTACGCAGATTACCCCCA
AACTTTTGATGATATCATTGAAAAACTGCTTCCAGAGTTGAACAAGAGAGGTGTGTTCTGGGATGATTAT
AAAATTCCAGGTGGAACCTTCAGAGAGAGCGTGTTTGGAAGAAAGTTCGTTGATAAGGATCATCCTGCTT
ATGATCTGAGATGGAGAAGTGACCAAACTAGGGAGGAGTTTGAAAAGAAACTGGCTGAATTGGAGAAAAA
ATAA

Figure 1 (cont'd)

HP9 polynucleotide sequence (SEQ ID NO: 21)

ATGAGATTTTCTAACGTCGTTTTAACTGCAATTGCCGCTGCCGGCGTACAGGCAGATGAAGCCCTTTACACTGTG
TTCTACAATGATGTCACTGAGAACGCCCAAGAGTATCTGTCTTACATCCAGGCCAATACTGCGGCTGGTTTCACT
GACCTCTTGAGTCTGTACACTGAACTGGCCACTTACACCGACGATTCTTACACAAGTATCTTTACTGAGGAGGAT
TTCCCTGCGAGCGAACTTTCATCGTTCGTTGTTAACCTGCCATGGTATTCCTCCAGAATTGAGCCACAAGTTGCG
GCTGCTGAAACTGGTGAAAGTGAGGAGGAATCAGAGACTGGTGAAAGTGAGGAAGAATCAGAGACTGGTGAGGAG
ACAGAAACTGAGACTGGATCTGAGTCTGAATCTGAGTCTGAATCGGAGACCTCCGCTACTGGCACTGGCACTGGC
ACCTCCGCCTCTGAGAGCGCGGAGACTGAAACTTCTACCGACGCTGCTGTGTCTATCGATCACCCAAAGTCCACC
TTATTGATGGGTTTGACTGCCGCAGTTGTCAGTATCACTTTCGGAGTCTTTGCCTTGTAA

HP10 polynucleotide sequence (SEQ ID NO: 163)

ATGAGCAGCTTCAGAGTTCTAGACTTGGTAAAGCCCTTTACCCCATTTCTGCCTGAGGTTATCTCTCCAG
AGAGAAAGGTCCCCTTTCAACAGAAGTTGATGTGGACTGGAGTCACTCTTCTGATCTTCTTGGTCATGAG
TGAAATTCCCCTGTATGGTATCACTTCAAGTGACTCCTCTGACCCTTTGTTTTGGCTGCGTATGATGTTG
GCCTCTAACAGAGGAACGCTGATGGAGTTAGGTATCTCTCCTATTGTCACTTCTGGAATGGTGTTCCAAC
TGTTGCAGGGAATCCAAATCTTGGACGTGAACATGGAAAACAAAGCAGACAGAGAGTTGTTCCAAACTGC
TCAAAAAGTGTTCGCCATTTTGCTGAGTATCGGACAAGCTACTGTTTATGTTTTAACTGGAATGTATGGC
CCCCCTGGTGAACTAGGAGTTGGTGTCTGTCTTTTGTTGGTTCTTCAATTGGTGTTTGCAGGTATTGTGG
TCATTTTGTTGGATGAACTCTTACAAAAAGGTTACGGTTTAGGAAGTGGAATTTCTCTTTTCATGGCCAC
CAACATTTGTGAGCAGATTTTTTGGAAGACTTTTGCTCCTACCACCGTTAACCGTGGAAGAGGTAAGGAA
TTTGAAGGAGCTTTCATTTCTTTCTTTCACCTGATCTTGACCAAGAAGGACAAGAAGAGAGCTCTGTTGG
AATCATTTTACAGAGACAACGCTCCAAACATGTTCCAAGTTATTGCTACTCTTGTCGTCTTTTTCACCGT
TGTCTATCTTCAGGGCTTCCGTTTGGAGATTCCAGTTAAGTCTACCCGTCAAAGAGGTCCTTACGGAACT
TACCCAATCAGATTGTTCTACACATCCAACATGCCAATCATGTTACAATCCGCTTTGACCTCAAACATTT
TCATTATTTCCCAGATGTTGTATTCACACTTCCCTGACAATGCCTTTGTTAAGCTCATTGGAACTTGGGA
AGCTCAACCTGGTTCAGCACAACTGTTTGCTGCCTCGGGATTAGCCTACTACATGCAGCCTCCAATGTCC
CTGAGTCAAGCTTTATTAGACCCTATCAAGACTGTCGTCTACGTTGTGTTTGTTTTGACCACTTGTGCCA
TCTTCTCCAAGACATGGATTGAGATTTCGGGATCTTCCCCAAGAGACGTTGCTAAGCAATTCAAAGACCA
AGGATTGGTTATTGCTGGACACAGAGATGCTACTGTTTACAAGGAGTTGAAGAAGATTATACCAACAGCC
GCTGCATTTGGAGGTGCCACAATTGGTGCACTTTCCGTTGTTTCCGACCTTTTGGGTACTTTAGGTTCGG
GAACCTCCATCCTTTTGGCTGTTACAACCATCTATGGTTACTACGAGTTGGCTGTTAAGGAAGGTGGTTT
TTCAAAGGGTGGACCCTCTGGATTCGTTGATCTGTAA

Figure 1 (cont'd)

KO1 amino acid sequence (SEQ ID NO: 10)

MNKPNGSEQQPPSRGMKQESGGPVTSSTTPGTNTGLENSHSMGADMEPDVGATSPRHLLNGYIYDYLVKSNMQNL
ADQFAQETELLETDLTVPMDTPSGYLLEWWMVFWDLFNARLKQRGSQKAHQYIQLNMLRQQQQRTMRNTARVQKV
PLRPHTQSSPSMSQTFIPQQPQQQAQGQQHAQAQAQVQAHQQAQHHAQAQVPVQPQQHQLGGQTQQQQSINTGSP
AGPNAINSRVQHLAQQQMNHLRQQATATTQQPIPQQNIPSNQQGPTGPYPTSPSRRPRLLSNESGASAPSVMTKS
QLQGVPPSQQPHQQQGQQVGPPNQHQGQSSSFYSGMPPQGVVVPHQFNPQQYANMLARQQHVQAQQQVQLQQVQH
VQQRQQQDQQQHRLSAGSPGHPSFGVFQQPPPMSNHNQVMINQQGETFFDPHSPYAQPNGYPQPQQQQQQQQQQQ
QQQQPQQQQQQQQQQKQQPPPPPRQPQRQQAMAMAPLPHSTSAAGTPHSSTTPRFSQPGPVYQQPLPASQPQHSP
PSSIQQPELVPTPGSQHQQIAQPQSQSQHQQSQQSQSSASKIVGIQEYQKELMMLEKQNKQRHDMACKKGSGHFS
NFDPIPEHTPPEPKFNVNVMLPPQNSAVVTKNTPGTSPGTQTQNTAHSTGNTSAGSTPNNVAPVRKKKEPAKKKA
KKATEPPTPTTPQTPIAARTHQNSTGGIPGNNAATKRRKREPLVDQTVSPNLNEASKSTKTGKISSQTDFTGSDN
GFLQDFGDGTGPPTGTDDMEFDFNSFLNNETGEPNSSTIHFDNVFNWGEGTEAGDL

KO2 amino acid sequence (SEQ ID NO: 11)

MVVHNPNNWHWVDKNCLPWAKSYFQEVLPNTTQKNDAYEIVVTSVDLVDGDCDVTQRKGVTKCIFDLKIQVSATV
KVNTNSEVEEISYTVTLPELVHDQDEDEYEYVIEGNLDHKSQIRKLLTPLLTEKLSKFQQALIDAHTQDVQHST

KO3 amino acid sequence (SEQ ID NO: 12)

MKIWLVLLLVFATVFAETDYYKVLGVAKNADEKDIKKAYRSLSKKFHPDKNPGDDEAAQKFIQVGEAYDVLGDPE
KRQRYDRFGAEGLDSRQEQFHDPFDMFQQFFGGGGQQHRGKPKGKSSLLHLEFSLQDFYNGASNDFRIEMQNICE
TCSGSGSQDGKVHQCDTCKGHGRVVQTRQFGGGMQQRFETICPKCSGTGNLITHKCKKCQGNRVVRGPRIHNVHL
GAGTSRNHVEILEGQGDQSPDWIAGDLQIMFKEKAEGNMGYRRIGNNLYRDEALTLKEALHGGWERQIAFLDKIE
NTITLSKKKGEVVVDGQVDTIKGRGMPLHDHYDEHGDLFIKYHIIYPQQIRDEL

KO1 polynucleotide sequence (SEQ ID NO: 22)

ATGAACAAGCCAAACGGGTCTGAACAACAACCACCGTCACGCGGAATGAAGCAAGAGTCAGGAGGCCCAGTTACT
TCATCTACGACGCCGGGTACCAATACTGGCCTAGAAAACTCTCATTCCATGGGGGCGGATATGGAGCCTGATGTT
GGTGCTACCTCTCCTCGCCATCTTCTTAATGGGTACATTTACGATTATTTAGTCAAATCTAACATGCAAAATTTG
GCTGATCAATTTGCCCAAGAGACGGAGCTCTTAGAAACAGACTTGACAGTACCAATGGATACGCCTTCAGGCTAT
CTTCTAGAATGGTGGATGGTATTCTGGGACCTTTTCAATGCCCGCCTAAAGCAACGGGGTTCACAGAAGGCCCAC
CAGTATATTCAGTTGAACATGCTACGACAACAGCAACAGAGGACCATGCGAAATACAGCCCGTGTTCAAAAAGTC
CCGTTGAGGCCACACACCCAATCATCTCCTTCAATGTCACAGACTTTTATTCCACAGCAGCCTCAACAGCAAGCA
CAGGGACAACAGCACGCCCAGGCTCAAGCCCAAGTGCAAGCACATCAGCAAGCCCAACACCACGCGCAGGCACAA
GTGCCAGTGCAACCGCAACAGCACCAGCTAGGAGGCCAAACTCAACAGCAGCAATCCATTAACACTGGGTCTCCT
GCGGGTCCAAATGCTATCAACTCGCGTGTTCAACACTTAGCACAACAACAGATGAATCACCTTCGCCAGCAGGCG
ACTGCCACTACGCAACAACCTATCCCGCAACACAATATCCCATCAAACCAACAGGGTCCTACAGGCCCTTATCCT
ACTTCCCCTTCAAGAAGACCGAGATTACTGTCTAACGAATCGGGTGCAAGTGCACCCTCTGTAATGACAAAGTCA
CAGCTCCAAGGAGTCCCTCCCTCACAACAACCACACCAGCAGCAAGGTCAGCAGGTAGGCCCCCCTAATCAACAT
CAAGGTCAATCTTCTTCCTTTTATTCGGGCATGCCTCCTCAAGGGGTCGTGGTTCCTCATCAGTTCAATCCTCAG
CAGTATGCCAATATGCTAGCAAGACAACAGCATGTACAAGCTCAACAACAGGTTCAGTTACAACAGGTCCAACAT
GTACAACAGAGACAACAGCAAGACCAACAACAACACCGCCTGTCCGCCGGTTCACCGGGGCACCCTTCATTTGGC
GTTTTTCAACAACCTCCTCCGATGTCAAACCATAATCAGGTCATGATCAATCAGCAGGGAGAAACTTTTTTTGAT
CCACATTCTCCATATGCTCAACCTAACGGGTACCCCCAGCCACAGCAACAACAACAACAACAGCAACAACAACAA
CAACAGCAGCAACCGCAACAGCAGCAGCAGCAGCAGCAACAGAAGCAGCAACCACCACCACCACCACGACAG
CCTCAGCGCCAACAAGCGATGGCCATGGCTCCTCTGCCTCACTCTACTTCTGCCGCCGGTACTCCTCACTCGTCC
ACCACACCTAGATTCTCGCAACCTGGTCCTGTTTATCAGCAGCCTTTACCTGCATCTCAACCGCAACATTCTCCG
CCTTCTTCTATTCAGCAGCCGGAGCTAGTTCCAACTCCAGGGTCACAACATCAGCAAATAGCACAACCACAATCA
CAGAGCCAACACCAGCAATCGCAACAGTCTCAATCAAGTGCTTCTAAAATTGTAGGTATACAGGAGTATCAGAAA
GAGCTAATGATGCTTGAGAAACAGAACAAACAGCGTCATGACATGGCATGTAAGAAGGGAAGCGGGCATTTTTCT
AACTTTGATCCAATTCCAGAGCACACACCGCCCGAACCAAAATTTAATGTGAATGTAATGCTCCCTCCCCAGAAC

TCTGCAGTGGTCACGAAGAATACTCCCGGAACTTCACCTGGTACACAAACTCAAAACACTGCACATAGTACTGGT
AACACTTCTGCGGGGTCTACACCAAATAATGTCGCACCTGTACGAAAGAAAAAGGAGCCAGCTAAAAAGAAGGCA
AAGAAAGCTACTGAGCCCCCGACTCCCACTACTCCACAGACTCCAATTGCAGCTAGGACACATCAAAACTCTACA
GGCGGCATTCCTGGTAATAATGCTGCTACTAAGCGACGAAAACGGGAGCCGCTGGTTGATCAAACTGTTTCACCT
AACCTTAACGAACCTTCCAAGTCAACAAAGACCGGAAAAATTTCATCTCAAACTGACTTTACAGGTTCTCACAAT
GGATTCTTACAGGATTTTGGCGATGGAACTGGTCCTCCCACTGGAACCGATGATATGGAATTTGATTTTAACAGT
TTTCTTAATAACGAAACTGGCGAACCTAATAGTTCAACCATTCATTTTGACAATGTATTCAATTGGGGAGAAGGT
ACCGAAGCCGGAGATTTATAG

KO2 polynucleotide sequence (SEQ ID NO: 23)

ATGGTGGTGCACAACCCTAATAACTGGCACTGGGTCGACAAGAACTGCCTTCCTTGGGCCAAAAGCTACTTTCAG
GAAGTCCTTCCAAACACCACTCAGAAGAATGACGCCTATGAAATAGTGGTAACATCTGTGGACCTTGTAGATGGA
GACTGCGATGTCACTCAACGTAAAGGTGTTACCAAATGTATTTTTGATCTGAAGATACAGGTATCTGCAACCGTC
AAAGTCAACACGAACAGTGAAGTAGAGGAGATCAGTTATACAGTGACATTACCTGAACTGGTGCACGACCAGGAC
GAGGATGAATATGAATACGTAATAGAGGGAAATTTGGATCACAAGTCTCAAATTAGAAAGCTACTCACTCCTCTG
TTGACCGAGAAGTTATCAAAGTTTCAACAAGCTTTGATAGACGCTCATACTCAGGATGTTCAGCATAGTACCTAG

KO3 polynucleotide sequence (SEQ ID NO: 24)

ATGAAGATATGGCTGGTACTTCTTTTAGTTTTTGCCACGGTGTTTGCCGAGACAGATTATTATAAAGTTCTTGGA
GTAGCTAAAAATGCGGATGAAAAAGATATCAAGAAGGCCTACAGATCGTTGAGTAAGAAGTTTCATCCAGATAAG
AACCCGGGTGATGATGAAGCCGCTCAAAAGTTCATTCAAGTTGGAGAAGCTTATGATGTGCTTGGTGATCCCGAG
AAGCGTCAAAGGTATGACAGATTTGGAGCAGAAGGACTGGACTCAAGACAGGAACAATTCCATGATCCATTTGAC
ATGTTTCAACAGTTCTTCGGAGGAGGTGGACAGCAACACAGAGGCAAACCAAAGGGTAAGAGTTCCTTGTTACAT
TTAGAATTCAGTCTACAAGACTTTTACAATGGTGCTAGTAACGACTTTAGAATCGAAATGCAGAATATCTGTGAA
ACTTGTTCTGGATCAGGTTCACAAGACGGGAAAGTTCATCAATGTGACACTTGCAAAGGGCACGGGCGTGTTGTT
CAAACGAGACAGTTTGGTGGTGGCATGCAACAGAGGTTTGAAACAATTTGCCCAAAATGTTCAGGAACAGGAAAT
CTGATCACTCACAAGTGTAAGAAATGCCAAGGAAACCGTGTAGTTAGAGGACCCAGAATTCACAATGTGCATTTG
GGGGCGGGAACTAGTAGGAACCATGTTGAGATCCTGGAAGGTCAGGGAGACCAGTCTCCAGACTGGATTGCAGGT
GATCTACAAATCATGTTCAAGGAGAAAGCCGAAGGCAACATGGGGTATAGAAGAATAGGAAACAACCTGTACAGA
GACGAAGCATTAACGCTGAAAGAGGCATTGCATGGTGGCTGGGAGAGACAAATTGCGTTTTTGGATAAAATAGAG
AACACGATTACTCTTTCCAAGAAGAAAGGAGAGGTGGTAGTTGACGGCCAAGTAGACACCATCAAGGGTAGAGGG
ATGCCATTACATGACCACTATGACGAACATGGTGATCTCTTTATCAAGTACCATATCATTTACCCGCAACAAATT
AGAGACGAATTGTGA

Figure 2

SDZ-Fab HC amino acid sequence (SEQ ID NO: 25)

MRFPSIFTAVLFAASSALAAPVNTTTEDETAQIPAEAVIGYSDLEGDFDVAVLPFSNSTNNGLLFINTTIASIAA
*KEEGVSLEKR*EVQLVQSGGGLVQPGGSLRLSCAASGFTFSHYWMSWVRQAPGKGLEWVANIEQDGSEKYYVDSVK
GRFTISRDNAKNSLYLQMNSLRAEDTAVYFCARDLEGLHGDGYFDLWGRGTLVTVSSASTKGPSVFPLAPCSRST
SESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTCNVDHKPSNTK
VDKRVESKYGPP

SDZ-Fab LC amino acid sequence (SEQ ID NO: 26)

MRFPSIFTAVLFAASSALAAPVNTTTEDETAQIPAEAVIGYSDLEGDFDVAVLPFSNSTNNGLLFINTTIASIAA
*KEEGVSLEKR*AIQLTQSPSSLSASVGDRVILTCRASQGVSSALAWYQQKPGKAPKLLIYDASSLESGVPSRFSGS
GSGPDFTLTISSLQPEDFATYFCQQFNSYPLTFGGGTKLEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFY
PREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

SDZ-Fab HC polynucleotide sequence(SEQ ID NO: 27)

ATGAGATTCCCATCTATTTTCACCGCTGTCTTGTTCGCTGCCTCCTCTGCATTGGCTGCCCCTGTTAACACTACC
ACTGAAGACGAGACTGCTCAAATTCCAGCTGAAGCAGTTATCGGTTACTCTGACCTTGAGGGTGATTTCGACGTC
GCTGTTTTGCCTTTCTCTAACTCCACTAACAACGGTTTGTTGTTCATTAACACCACTATCGCTTCCATTGCTGCT
*AAGGAAGAGGGTGTCTCTCTCGAGAAGAGA*GAGGTCCAATTGGTCCAATCTGGTGGAGGATTGGTTCAACCAGGT
GGATCTCTGAGATTGTCTTGTGCTGCTTCTGGTTTCACCTTCTCTCACTACTGGATGTCATGGGTTAGACAAGCT
CCTGGTAAGGGTTTGGAATGGGTTGCTAACATCGAGCAAGATGGATCAGAGAAGTACTACGTTGACTCTGTTAAG
GGAAGATTCACTATTTCCCGTGATAACGCCAAGAACTCCTTGTACCTGCAAATGAACTCCCTTAGAGCTGAGGAT
ACTGCTGTCTACTTCTGTGCTAGAGACTTGGAAGGTTTGCATGGTGATGGTTACTTCGACTTATGGGGTAGAGGT
ACTCTTGTCACCGTTTCATCTGCCTCTACCAAAGGACCTTCTGTGTTCCCATTAGCTCCATGTTCCAGATCCACC
TCCGAATCTACTGCAGCTTTGGGTTGTTTGGTGAAGGACTACTTTCCTGAACCAGTGACTGTCTCTTGGAACTCT
GGTGCTTTGACTTCTGGTGTTCACACCTTTCCTGCAGTTTTGCAGTCATCTGGTCTGTACTCTCTGTCCTCAGTT
GTCACTGTTCCTTCCTCATCTCTTGGTACCAAGACCTACACTTGCAACGTTGACCATAAGCCATCCAATACCAAG
GTTGACAAGAGAGTTGAGTCCAAGTATGGTCCACCTtaa

SDZ-Fab LC polynucleotide sequence (SEQ ID NO: 28)

ATGAGATTCCCATCTATTTTCACCGCTGTCTTGTTCGCTGCCTCCTCTGCATTGGCTGCCCCTGTTAACACTACC
ACTGAAGACGAGACTGCTCAAATTCCAGCTGAAGCAGTTATCGGTTACTCTGACCTTGAGGGTGATTTCGACGTC
GCTGTTTTGCCTTTCTCTAACTCCACTAACAACGGTTTGTTGTTCATTAACACCACTATCGCTTCCATTGCTGCT
*AAGGAAGAGGGTGTCTCTCTCGAGAAGAGA*GCTATCCAGTTGACTCAATCACCATCCTCTTTGTCTGCTTCTGTT
GGTGATAGAGTCATCCTGACTTGTCGTGCATCTCAAGGTGTTTCCTCAGCTTTAGCTTGGTACCAACAAAAGCCA
GGTAAAGCTCCAAAGTTGCTGATCTACGACGCTTCATCCCTTGAATCTGGTGTTCCTTCACGTTTCTCTGGATCT
GGATCAGGTCCTGATTTCACTCTGACTATCTCATCCCTTCAACCAGAAGACTTTGCTACCTACTTCTGTCAACAG
TTCAACTCTTACCCTTTGACCTTTGGAGGTGGAACTAAGTTGGAGATCAAGAGAACTGTTGCTGCACCATCAGTG
TTCATCTTTCCTCCATCTGATGAGCAACTGAAGTCTGGTACTGCATCTGTTGTCTGCTTACTGAACAACTTCTAC
CCAAGAGAAGCTAAGGTCCAATGGAAGGTTGACAATGCCTTGCAATCTGGTAACTCTCAAGAGTCTGTTACTGAG
CAAGACTCTAAGGACTCTACTTACTCCCTTTCTTCCACCTTGACTTTGTCTAAGGCTGATTACGAGAAGCACAAG
GTTTACGCTTGTCAGGTTACTCACCAAGGTTTGTCTTCTCCTGTTACCAAGTCTTTCAACACAGGTGAATGCTAA

Figure 2 (cont'd)

HyHEL-Fab HC amino acid sequence (SEQ ID NO: 29)

MRFPSIFTAVLFAASSALAAPVNTTTEDETAQIPAEAVIGYSDLEGDFDVAVLPFSNSTNNGLLFINTTIASIAA
*KEEGVSLEKR*DVQLQESGPSLVKPSQTLSLTCSVTGDSITSDYWSWIRKFPGNRLEYMGYVSYSGSTYYNPSLKS
RISITRDTSKNQYYLDLNSVTTEDTATYYCANWDGDYWGQGTLVTVSSASTKGPSVFPLAPSSKSTSGGTAALGC
LVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKS
CDK

HyHEL-Fab LC amino acid sequence (SEQ ID NO: 30)

MRFPSIFTAVLFAASSALAAPVNTTTEDETAQIPAEAVIGYSDLEGDFDVAVLPFSNSTNNGLLFINTTIASIAA
*KEEGVSLEKR*DIVLTQSPATLSVTPGNSVSLSCRASQSIGNNLHWYQQKSHESPRLLIKYASQSISGIPSRFSGS
GSGTDFTLSINSVETEDFGMYFCQQSNSWPYTFGGGTKLEIKRTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFY
PREAKVQWKVDNALQSGNSQESVTEQDSKDSTYSLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

HyHEL-Fab HC polynucleotide sequence (SEQ ID NO: 31)

ATGAGATTCCCATCTATTTTCACCGCTGTCTTGTTCGCTGCCTCCTCTGCATTGGCTGCCCCTGTTAACACTACC
ACTGAAGACGAGACTGCTCAAATTCCAGCTGAAGCAGTTATCGGTTACTCTGACCTTGAGGGTGATTTCGACGTC
GCTGTTTTGCCTTTCTCTAACTCCACTAACAACGGTTTGTTGTTCATTAACACCACTATCGCTTCCATTGCTGCT
*AAGGAAGAGGGTGTCTCTCTCGAGAAGAGA*GACGTTCAATTGCAAGAATCTGGTCCATCCTTGGTTAAGCCATCC
CAGACTTTGTCCTTGACTTGTTCCGTTACTGGTGACTCCATCACTTCTGACTACTGGTCCTGGATCAGAAAGTTC
CCAGGTAACAGATTGGAGTACATGGGTTACGTTTCTTACTCCGGTTCCACTTACTACAACCCATCCTTGAAGTCC
AGAATCTCCATCACTAGAGACACTTCCAAGAACCAGTACTACTTGGACTTGAACTCCGTTACTACTGAGGACACT
GCTACTTACTACTGTGCTAACTGGGACGGTGACTATTGGGGTCAAGGTACTTTGGTTACTGTTTCCTCCGCTTCC
ACTAAGGGTCCATCTGTTTTTCCATTGGCTCCATCCTCCAAGTCTACTTCAGGTGGTACTGCTGCTTTGGGTTGT
TTGGTTAAGGACTACTTCCCAGAGCCAGTTACTGTTTCTTGGAACTCCGGTGCTTTGACTTCCGGTGTTCACACT
TTCCCAGCTGTCTTGCAATCCTCCGGTCTGTACTCCTTGTCCTCCGTTGTTACTGTTCCTTCTTCCTCCTTGGGT
ACTCAAACTTACATCTGTAACGTTAACCACAAGCCATCCAACACTAAGGTTGACAAGAGAGTTGAGCCAAAGTCC
TGTGACAAGTAATAG

HyHEL-Fab LC polynucleotide sequence (SEQ ID NO: 32)

ATGAGATTCCCATCTATTTTCACCGCTGTCTTGTTCGCTGCCTCCTCTGCATTGGCTGCCCCTGTTAACACTACC
ACTGAAGACGAGACTGCTCAAATTCCAGCTGAAGCAGTTATCGGTTACTCTGACCTTGAGGGTGATTTCGACGTC
GCTGTTTTGCCTTTCTCTAACTCCACTAACAACGGTTTGTTGTTCATTAACACCACTATCGCTTCCATTGCTGCT
*AAGGAAGAGGGTGTCTCTCTCGAGAAGAGA*GACATCGTTTTGACTCAATCCCCAGCTACTTTGTCCGTTACTCCA
GGTAACTCCGTTTCCTTGTCCTGTAGAGCTTCCCAGTCCATCGGTAACAACTTGCACTGGTATCAGCAGAAGTCT
CACGAGTCCCCAAGACTGTTGATCAAGTACGCTTCCCAATCCATCTCCGGTATCCCATCTAGATTCTCTGGTTCT
GGTTCCGGTACTGACTTCACTTTGTCCATCAACTCCGTTGAGACTGAGGACTTCGGTATGTACTTCTGTCAGCAA
TCCAACTCCTGGCCATACACTTTTGGTGGTGGTACTAAGTTGGAGATCAAGAGAACTGTTGCTGCTCCATCCGTT
TTCATCTTCCCACCATCTGACGAGCAGTTGAAGTCTGGTACTGCTTCCGTTGTTTGTTTGTTGAACAACTTCTAC
CCAAGAGAAGCTAAGGTTCAGTGGAAGGTTGACAACGCCTTGCAATCCGGTAACTCCCAAGAGTCCGTTACTGAA
CAAGACTCCAAGGACTCTACTTACTCCTTGTCCTCCACTTTGACTTTGTCCAAGGCTGACTACGAGAAGCACAAG
GTTTACGCTTGTGAGGTTACTCACCAGGGTTTGTCCTCCCCAGTTACTAAGTCCTTCAACAGAGGTGAGTGTTAA
TAG

(Underlined and italics: S. cerevisiae-alfa mating factor prepro leader)