```
                                             10        20        30        40        50        60        70        80        90        100       110       120
_hMUC2_protein_LT200503         ----CCL-----WSDWINEDHP-SSGSDDGDRE---------PFDGVCGAPE---DIECRSVKDPHLSLEQH----GQKVQCDVSVGFICKNEDQFGNGP--FGLCYDYKIRVNCCWPMDKC--
18_mMuc2_protein_LT200504       --VPCCF-----WSDWINKYHP-TK-ENGGDRE---------TFTHVCSAPE---DIECRAATDPKLSWEEL----GQKVQCNVSTGLICNNEDQYGIGE--FELCYDYEIRVNCCYPMEYC--
54_xMuc5c_protein_LT200606      -CSPGCY-----WSPWFNLNSP-SPGISDGDFENLKSIQ---SVAQICTNPD---DIECRAVMFPNTSLNEL----GQNVICDVSDGLQCLNMDQTS------QMCYDYEIRFHCCDDYSKC--
hMUC5AC_I2                      CLQELCT-----WTEWIDGSYP-APGINGGDFDTFQNLR--DEGYTFCESPR---SVQCRAESFPNTPLADL----GQDVICSHTEGLICLNKNQ---L---PPICYNYEIRIQCCETVNVC--
hMUC5AC_I4                      CLQELCT-----WTEWIDGSYP-APGINGGDFDTFQNLR--DEGYTFCESPR---SVQCRAESFPNTPLGRL----GQDVICSHTEGLICLNKNQ---L---PPICYNYEIRIQCCETVNVC--
22_mMuc5ac_protein              CKQELCN-----WTNWLDGSYP-GSGRNSGDFDTFVNLR--SKGYKFCEKPR---NVECRAQFFPNTPLEEL----GQNVTCSREEGLICLNKNQ---L---PPMCYNYEIRIECCTVVNNC--
2_hMUC5AC_protein_LT200503      CG-EKCL-----WSPWMDVSRP-GRGTDSGDFDTLENLR--AHGYRVCESPR---SVECRAEDAPGVPLRAL----GQRVQCSPDVGLTCRNREQ---A---SGLCYNYQIRVQCCTPLPCS--
20_mMuc5ac_protein              CR-EECL-----WSPWMDVSRP-GRGIDSGDFDTLENLR--AHGYPICQVPK---AVECRAEASPGVPLPEL----QQHLECSTTVGLICYNSDQ---L---SGLCDNYQIKVQCCTPVSCP--
hMUC5B_I1                       CVREVCR-----WSSWYNGHRP-EPGLGGGDFETFENLR--QRGYQVCPVLA---DIECRAAQLPDMPLEEL----GQQVDCDRMRGLMCANSQQ---S---PPLCHDYELRVLCCEYVPC---
11_hMUC5B_protein_LT200503      -VREVCR-----WSSWYNGHRP-EPGLGGGDFETFENLR--QRGYQVCPVLA---DIECRAAQLPDMPLEEL----GQQVDCDRMRGLMCANSQQ---S---PPLCHDYELRVLCCEYVPCG--
mMUC5B_I1                       CVHEVCQ-----WSIWYDESHP-EAGMSGGDFETFENLR--KKGHQVCQTPV---GIECRAVKFPSMDLEKL----GQKVNCDPSSGLSCFNSEQ---S---PPLCHDYELRVLCCDYVPC---
24_mMuc5b_protein_LT200504      -VHEVCQ-----WSIWYDESHP-EAGMSGGDFETFENLR--KKGHQVCQTPV---GIECRAVKFPSMDLEKL----GQKVNCDPSSGLSCFNSEQ---S---PPLCHDYELRVLCCDYVPCG--
38_cMuc5ac_protein_LT200511     -VHEVCQ-----WSEWYDGSPL-IPGFDGGDFETFSDLR--AKGYEVCRDPK---AVQCRAEKFPNIPLKDL----GQRVECNTQSGLICYNKDQ---I---STMCYNYEIRILCCVFVPCS--
56_xMuc5e_protein_LT200606      -LEEVCK-----WSTWYDATCP-KYGENDGDFETFEKIR--ETGHTVCKVPS---DVECRAQKFPKIPVRDL----GQIIQCNKSVGLVCRNKDQ---F---SQLCFNYEIRILCCSYVPCG--
41_cMuc5b_protein_LT200604      -VKYVCE-----WSQWYDGTQL-E---NEK--ETIQNIA--GKGINTCNNTS---IIECRVHERSDKTINYL----NQTIQCNKTNEVKCNNEDQ---D---DKKCYNYEIRTTTTST------
59_xMuc5f_protein_LT200606      -----CT-----WSDWYDVSRP-GLGPNDGDFETFDNIK--AKGFDVCKNPT---KVECRAKEYPYQAIKEL----NQNVSCSKKDGLICVNTKN--------AICHNFEIRVECCEYRKC---
57_xMuc5e_protein_LT200606      CKNQICT-----WTPWYDVHFP-SIASSDGDFETFENIK--AAGNSICQKPE---NIECRAERFPTKNITEI----GQVVTCNVKNGLICKNQDQ---DW-NFPLCYNYQVRVLCCSLEDC---
60_xMuc5g_protein_LT200606      --APICT-----LTPWIDVSYP--VYGGTGDDESFDNIR--RHGISICNDTMSIVSVDCRAKDFPSASLQDL----SQTITCNTEVGLICLNTD-------NFPKCDNYEIQIQCCSP------
53_xMuc5c_protein_LT200606      -VFEQCE-----WSQWFDVSNP-AT-QNGDDDETYQNIR--NNGYNICENPK---DIHCEADNSSTVPFG-L----KNNIICNVSIGLFCNNSNQ---P--PDVTCLNYQIQVLCCSFVPCE--
58_xMuc5e_protein_LT200606      -CKPICD-----WSQWFDVSFP-NE-ETNGDFETYENIR--NSGFSICEEPS---DIQCRPADFPEIPIEDL----QQNLQCNVSSGLTCYNDEQ--NG-PFAFCFNYEIRIFCCS--KC--
6_hMUC5AC_protein_LT200503      -CHPRC-----TWTTWFDVDFP-SPGPHGGDKETYNNII--RSGEKICRRPEEITRLQCRAKSHPEVSIEHL----GQVVQCSREEGLVCRNQDQ---QG-PFKMCLNIEVRVLCCETPKGC--
8_hMUC5AC_protein_LT200503      -CHPRC-----TWTKWFDVDFP-SPGPHGGDKETYNNII--RSGEKICRRPQEITRLQCRAKSHPEVSIEHL----GQVVQCSREEGLVCRNQDQ---QG-PFKMCLNYEVRVLCCETPKGC--
7_hMUC5AC_protein_LT200503      -CHLRC-----TWTKWFDVDFP-SPGPHGGDKETYNNII--RSGEKICRRPEEITRLQCRAESHPEVSIEHL----GQVVQCSREEGLVCRNQDQ---QG-PFKMCLNYEVRVLCCETPKGC--
9_hMUC5AC_protein_LT200503      -CHPRC-----TWTKWFDVDFP-SPGPHGGDKETYNNII--RSGEKICRRPEEITRLQCRAESHPEVSIEHL----GQVVQCSREEGLVCRNQDQ---QG-PFKMCLNYEVRVLCCETPKGC--
4_hMUC5AC_protein_LT200503      -CHPRC-----TWTKWFDVDFP-SPGPHGGDKETYNNII--RSGEKICRRPEEITRVQCRAKSHPEVSIEHL----GQVVQCSREEGLVCRNQDQ---QG-PFKMCLNYEVRVLCCETPRGC--
10_hMUC5AC_protein_LT200503     -CHPLC-----AWTKWFDVDFP-SPGPHGGDKETYNNII--RSGEKICRRPEEITRLQCRAESHPEVNIEHL----GQVVQCSREEGLVCRNQDQ---QG-PFKMCLNYEVRVLCCETPRGC--
23_mMuc5ac_protein              -CQLQC-----NWTKWFDTDFP-VPGPHGGDLETYSNIE--RSGERLCHR-EEITQLQCRAKNYPEREMEDL----GQVVKCDPSVGLVCNNRDQ---GG-DSGMCLNYEVRLLCCHIPEDC--
O35888_RAT/49149                -----C-----NWTKWLDTDFP-VPGPHGGDLETYGNIK--KSRERLCPWPEEITRLECRAKDYPERAMEDL----GQVVQCDPRVGLVCKNSDQ---GP-TFGMCLNYEVRLLCCHVPEDC--
33_mMuc5b_protein_LT200504      -CTPRC-----KWTEWFDADYP-NPGPRGGDFEVYAVFR--EVGYIFCDQPKDIE---CRSEKEPDRPLETL----EQVVQCDVRFGLICKNINQ---SG-PLQYCDNYHVRLLCCDNYSHC--
28_mMuc5b_protein_LT200504      -CQPQC-----QWTKWIDVDYP-SSSINGGDIETYENIR--ANGEKICEKPQDIR---CMAQNHPGVNVDEL----GQKVKCDVSSGLVCYNKDQ---GG-TFQMCYNYLIKVLCCS-VSHC--
31_mMuc5b_protein_LT200504      -CQPQC-----QWTKWIDVDYP-SSSINGGDIETYENIR--TNGEKICEKPQDIR---CMAQNHPGVNVDEL----GQKVKCDVNSGLVCYNKDQ---GG-TFQMCYNYLIKVLCCS-VSHC--
27_mMuc5b_protein_LT200504      -CQPQC-----QWTKWIDVDYP-SSSINGGDIETYENIR--ANGEKICEKPQDIR---CMAQNYPGVNVDKL----GQKVKCDVSSGLVCYNKDQ---GG-TFPMCYNYLIKVLCCS-VSHC--
30_mMuc5b_protein_LT200504      -CQPQC-----QWTRWINVDYP-SSSINGGDIETYENIR--ANGEKICEKPQDIR---CMAQNYPGVNVDEL----GQKVKCDVNSGLVCYNKDQ---GG-TFKMCYNYLIKVLCCS-VSHC--
12_hMUC5B_protein_LT200503      -CQPRC-----QWTEWFDEDYP-KSEQLGGDVESYDKIR--AAGGHLCQQPKDIE---CQAESFPNWTLAQV----GQKVHCDVHFGLVCRNWEQ---EG-VFKMCYNYRIRVLCCS-DDHC--
16_hMUC5B_protein_LT200503      -CEPQC-----AWSEWLDYSYP-MPGPSGGDFDTYSNIR--AAGGAVCEQPLGLE---CRAQAQPGVPLREL----GQVVECSLDFGLVCRNREQ---VG-KFKMCFNYEIRVFCCN-YGHC--
17_hMUC5B_protein_LT200503      -CEPQC-----AWSEWLDYSYP-MPGPSGGDFDTYSNIR--AAGGAVCEQPLGLE---CRAQAQPGVPLGEL----GQVVECSLDFGLVCRNREQ---VG-KFKMCFNYEIRVFCCN-YGHC--
13_hMUC5B_protein_LT200503      -CQPKC-----EWTEWFDVDFP-TSGVASGDMETFENIR--AAGGKMCWAPKSIE---CRAENYPEVSIDQV----GQVLTCSLETGLTCKNEDQ---TG-RFNMCFNYNVRVLCCDDYSHC--
32_mMuc5b_protein_LT200504      -CQPKC-----KWTEWFDVDSP-TSGSVKGDMETYENIR--ASGKTLCQAPEKIE---CRAENYPAVSIDKV----GQVVSCNLETGLVCKNEDQ---KD-DFKMCFNYNIRVLCCDDYSHC--
39_cMuc5ac_protein_LT200511     -CQPKC-----KWSKWYDVHFP-TLHN-KGDYETYQDIR--SAGKAICRNPEKIQ---CRAEKYPHKSIEEI----GQVVHCNVTYGLICRNEDQ---KG-ELHICLNYQVKVFCCDDYSHC--
50_xMuc5a_protein_LT200606      QLPPKCYNYEIRWTDWIDVDEP---GKSKGDFETYENIR--AAGKIICKKPDDIQ---CRAKKFPKVPLSSI----GQVVHCNVTVGLVCKDEEQ---ES-DSKECLNYEVKVLCCDDYSHC--
51_xMuc5a_protein_LT200606      -CEPQC-----KWTDWIDVDEP---GKSKGDFETYENIR--AAGKNICKKPDDIQ---CRAKKSPEVPLSSI----GQVVHCNITVGLVCKDEEQ---ES-DFKECLNYEVKVLCCDDISHC--
61_fMuc2_protein_LT200608       -CNVVC-----EWSAWMNNDYP-DVNDG-GDFELIENIP----GLDLCRQPLEIE---CRAKSFPDQPLDYL----GQNVTCDPKVGLKCYNKDQ---S--RPRICLDYEIRVKCC----IC--
62_fMuc2_protein_LT200608       -CNVVC-----EWSAWTNNDYP-DVNDG-GDFELIENIP----GLDLCRQPLEIE---CRAKSFPDQPLDYL----GQNVTCDPKVGLKCYNKDQ---S--RPRICLDYEIRVKCC----IC--
52_xMuc5b_protein_LT200606      -VEGHC-----EWSDWIDSSYP-GSTPGSGDFETYKNIR--AKGYPICNQPEELE---CRAHRFPDTSLSDL----GQDVQCNVSFGLICNNKDQ------LPPICYNYEIRVKCCD-FRPC--
34_cMuc2_protein_200604         -LVLICD-----WSEWFDVSNP-EE--DGGDYETYDAIRI-EHGNKICAAPE---NIECRAKDSPDKTLEEL----GQKVECNVTYGLICKNEEQ--DAS-IWHLCYNYEIRVNCCEWHEIPC-
43_xMuc2a_protein_LT200606      VSGWICE-----WSQWYDVNKP-QEGPDGGDLETYDEIR--RHGFTICQKPE---DIQCRAASAPDVSLDQI----GQTVHCDASYGLICRNSEQKEDAS-LWQRCFNYEIRVSCCVWDC----
29_mMuc5b_protein_LT200504      CK-SQCT-----WTDWLDSDKP-QPGQFEGDIETYYHIQN-KTGIKICKKPV---DIECEAVLFPNISFQKL----GQEVVCNVDFGLICRNSKQ----S-DNQICFNYHIRVLCCEEDTSC--
55_xMuc5d_protein_LT200606      CTPEVCT-----WSDWIDSSTP-TTDKYGGDYETIEAIRL-K-GYKICDEPR---DIRCQTVAFPSTP-AEM----GQIAICSPKIGLICHNEKQ----T-YGQ-CFDYKIKVLCCTPGT-C--
1_hMUC2_protein_LT200503        -CVPLCN-----WTGWLDSGKP-NFHKPGGDTELIGDVC--G--PGW-----AAN-ISCRATMYPDVPIGQL----GQTVVCDVSVGLICKNEDQKPGGVIPMAFCLNYEINVQCCE--C----
19_mMuc2_protein_LT200504       -CIDDCK-----WTGWLDSGKP-TYDIKSGDFELIKGVC--E--PHW-----EVQNISCRAVMHSNIPLDQL----GQIVVCNKEVGLVCKNEDQEIGGIIPMRMCLNYEINVYCCNPIC----
36_cMuc2_protein_200604         ---EDCI-----WTDWIDVSYP-QFGPEGGDDETFETIQ--NKIPSWNC--TKVENVSCRAEKFPDIPIEDL----GQKVECDVNTGLICKNKDQTTGGVIPMPVCLNYQIKVCCAPPLSPEC-
37_cMuc2_protein_200604         ---EDCI-----WTDWIDVSYP-WFGPEGGDDETFETIQ--NKIPSWNC--TKVENVSCRAEKFPDIPIEDL----GQKVECDVNTGLICKNKDQTTGDQSLLCSTIKSRVHNSC---------
35_cMuc2_protein_200604         ---CECT-----WTDWIDSSQPDRSDVNSGDYETIDKIN--N--SSFVC--VKAENISCRAKDYPNISLEEL----GQKVECSVNTGLICNNKDQENNG--HVSYCHNYEINVCCTP-NKPEC-
44_xMuc2a_protein_LT200606      -CAPICW-----WTEWFDESYP-AYETNGGDFETYENIR--KA-GKEIC--EKPENISCRAERFPDTPLDQL----GQKVTCEVSNGLTCYNKDQ--TG--FLPVCYNYQISVYCCEP-GC---
45_xMuc2a_protein_LT200606      -C--VCW-----WTEWFDESYP-SYEPSGGEYETYENIR--NA-GKEIC--EKPENISCRAEKFPDTPLDQL----GQKVTCDVSNGLTCYNKDQ--TG--FLPVCYNYQISVYCCNPPGC---
48_xMuc2d_protein_LT200606      CVCR--------WTDWI-SLYNVTSGVDGGDFEEFYKGM--GG-NGYCTGDEDAVNISCRAEAYPSIPLELL----GQEVTCDIITGLICRNSDQTYGQ-----QCFDYEINVQCCSINC----
49_xMuc2d_protein_LT200606      CVCR--------WTDWT-SLYNVTSGVDGGDFEEFYKGM--GG-NGYCTGDEDAVNISCRAEAYPSIPLDLL----GQKVTCDIITGLICRNSDQTYGQ-----QCLDYEINVQCCSINC----
47_xMuc2c_protein_LT200606      -------------TDWI-NAT-VTPGPDGGTELSFDKNL--SASDMYCAGNMTVVAITCRAVQDPSATLQELRV-KGQLVNCDIFSGLYCKNSNQT---------CYDYEIQLECCSATC----
73_zMuc5f_protein_LT200608      CQQQFLL-----WSDWV-NFGSPTTGPQGGELITVKLIT--DIYPTICS---KPQKIECRAKFYPGLALSQL----GQTVKCNLEDGLVCLNKNQNITQ-----QCFDYEIRLLCCHEEC----
74_zMuc5f_protein_LT200608      CK----------WSDWM-DFGSPTTGPEGGEIVPMTNIT--NTYSNICP---APTEAECRAKHYPGVQLSQL----GQVVTCNSQEGLVCLNKNQLVTQ-----QCFDYEIKVLCCQGLC----
63_zMuc5a_protein_LT200608      ---PICD-----WSEWFDSNQP-STDVDGQEIESIVELW--EMRKITCEKPS---QIEC-MTNYDDQNYTDENWKFNQVVSCNTSFGLLCSNQDN---SY---EVCYNHLIRVFCCPTSTST--
64_zMuc5a_protein_LT200608      ---PICD-----WSEWFDSNQP-STDVDGQEIESIEELW--EMRKITCEKPN---QIEC-MTNYDDQNYTDENWKFNQVVSCNTSFGLLCSNQDN---SY---EVCYNHLIRVFCCPT------
67_zMuc5c_protein_LT200608      -CVPRCE-----WSDWIDSNKP-NTEPEGFETESIPLLW--NSKRITCQSPE---EVECRAVNYPQKTLED----LGQTVYCNTSFGLSCSNEDN---AEGLPPICYNYEIRVYCCKENC----
69_zMuc5c_protein_LT200608      -CVPKCE-----WSDWIDSNKP-NTEPEGFETESIPLLW--NSKRITCQSPE---EVECRAVNYPQKTLED----LGQTVYCNTSFGLSCSNEDN---AEGLPPICYNYEIRVYCCKENC----
71_zMuc5c_protein_LT200608      -CVPRCE-----WSDWIDSNKP-NTEPEGFETESIPLLW--NSRRITCQSPE---EVECRAVNYPQKTLED----LGQTVYCNTSFGLSCSNEDN---AEGLPPICYNYEIRVYCCKENC----
68_zMuc5c_protein_LT200608      -CVPKCE-----WSDWIDSNKP-NTEPEGFETESIPLLW--NSKRITCQSPE---EVECRAVNYPQKTLED----LGQTVYCNTSFGLSCSNEDN---AEGLPPICYNYEIRVYCCKYNC----
72_zMuc5c_protein_LT200608      -CVPRCE-----WSDWIDSNKP-NTEPEGFETESIPLLW--NTKRITCQSPE---EVECRAVNYPQKTLED----LGQTVYCNTSFGLSCSNEDN---AEGLPPICYNYEIRVYCCKDNC----
Spurp                           CVEKYVN--YCVWYGWINQNSGLQIEQDGDEVELLEDAK--HIPGFPDDCAFPKDVECRTADTHIFSNETD-----DDVTCDKSTGLLCRNHPN-------MPRCPDYEVRYLCCGRHYTVTC
CILP1_HUMAN/55139               -----------EWTTLFNIDYP---GG-KGDYERLDAIRFYYG-DRVCARPL---RLEARTTDWTPAGSTGQV------VHGSPREGFWCLNREQR-----PGQNCSNYTVRFLC---------
CILP2_HUMAN/58143               -----------EWTSWFNVDHP---GG-DGDFESLAAIRFYYGPARVCPRPL---ALEARTTDWALPSAVGER------VHLNPTRGFWCLNREQP-----RGRRCSNYHVRFRC---------
Q95Z81_OIKDI/16241701           -----------EWTQWLDRDDP---IG-EGDYETRFSY----PQGSVCEDPT---AIQAQART----AGSTSF------CHVDLAYGFWCDNSEQP-----NGAQCADFEVRYCC---------
Q95Z81_OIKDI/17161799           ------------WTVWLDRDDP---IE-SGDWENKDGF----PAYIVCKDPL---AVEAAVVTGS--DGSTAV------THLDNDQGFWCINDEQP-----RDEVCADFEVRFCCPNEYT----
Q95Z81_OIKDI/15341615           -----------EWTPWMNEDSP---LSGTGDWETIQSQ----TELKVCSNPT---AIQAFPAG----AGATQN------THIDVEIGFWCLNEE-------NSADCADFEVRWCCPTYED----
Q95Z81_OIKDI/806880             ------------WSNWLNGDDP---AG-EGDYETLAKF----NRMDVCGNPT---GVQARTRG-----NDTDA------IHLNLESGFWCVNDEN------TDNGCNDYEVRFCC---------
Q95Z81_OIKDI/609691             -----------EWADWLNMDDP---QN-DGDWETLRMA----DMTQACINPK---AVEAQRVDSA--DTTPMV------AHISRELGFWCINNEQ------AGGLCVDYEVRFCCEKYS-----
Q95Z81_OIKDI/13521425           -----------NWTDWYNNDDN---LE-SGDWEMR--------TDDMCAKPA---ALQVRTLDG---SPLNNV------IHMDNDVGFWCINEEN------MPEACADYQVSFCC---------
Q95Z81_OIKDI/12631347           ------------WSSWFNVDTA---DA-EGDFEILSSL----DAHTVCANPT---GLRAQALDT---GLGAWP------VHADLDIGFWCVNGEQ------DGGQCEDFSIQVCCPVFATGDC-
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