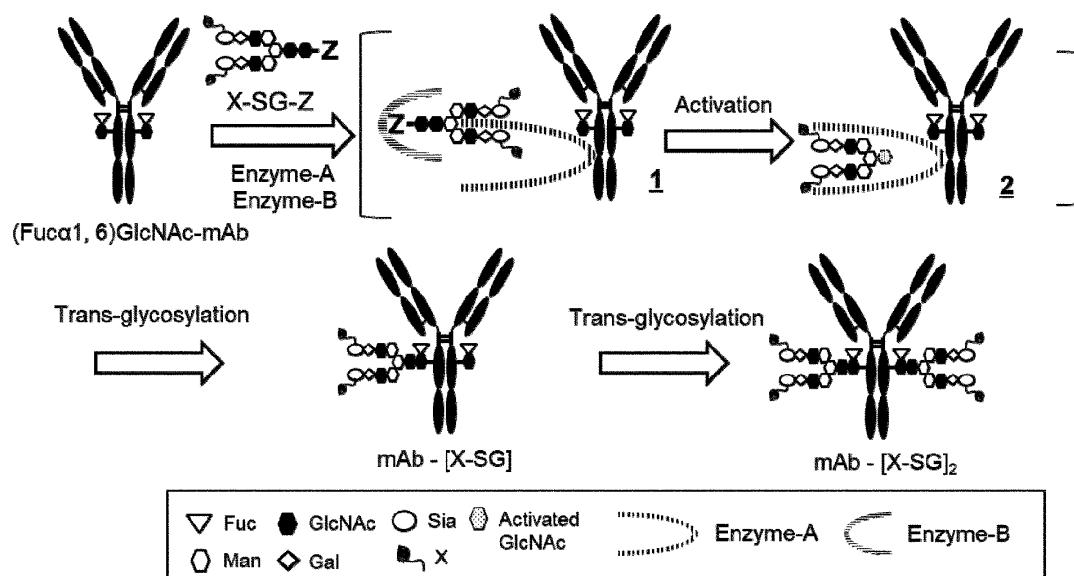
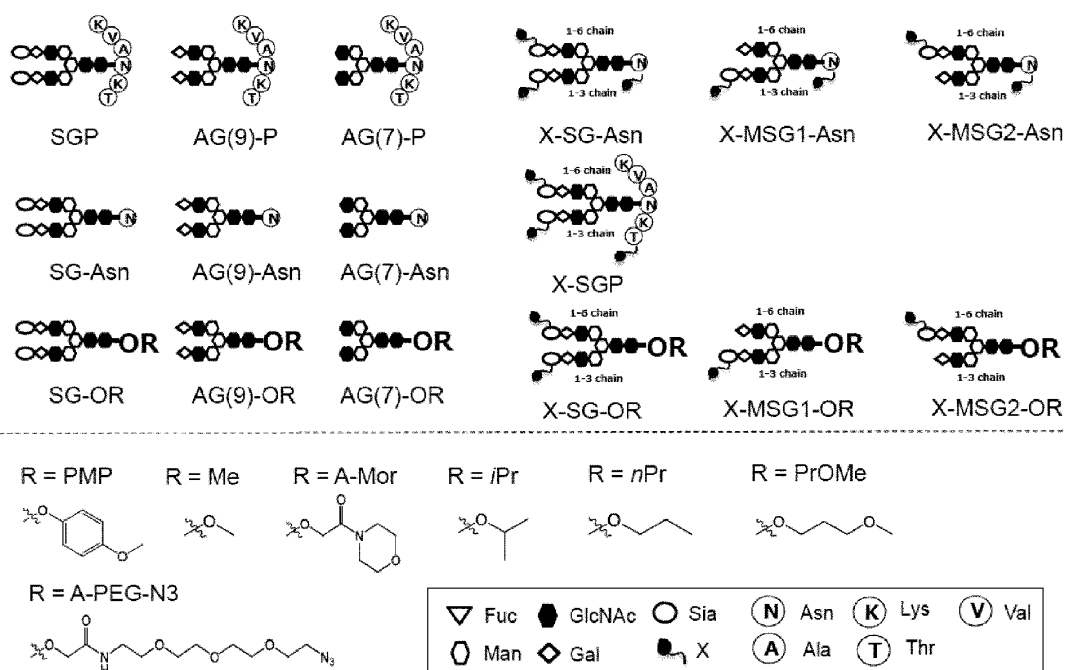


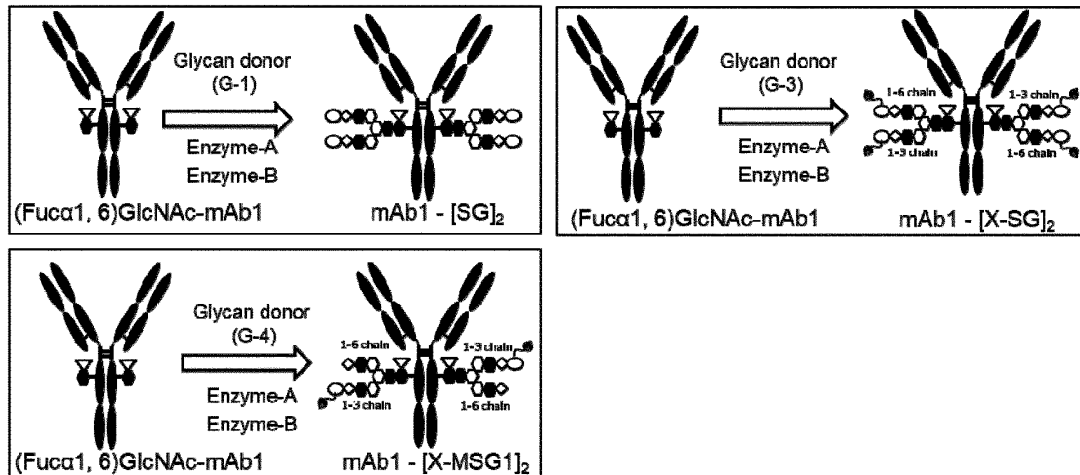
[図1]



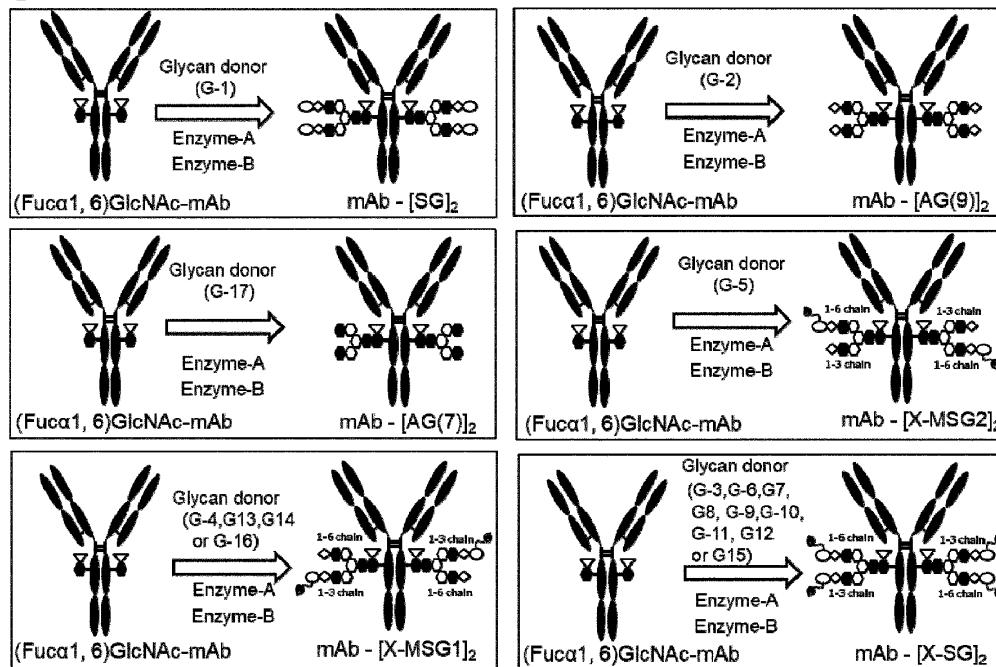
[図2]



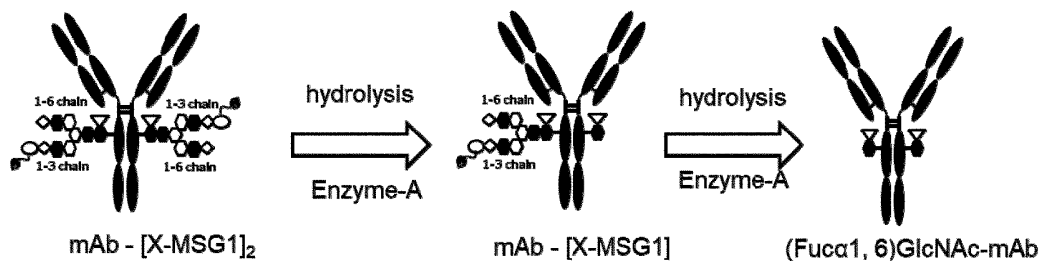
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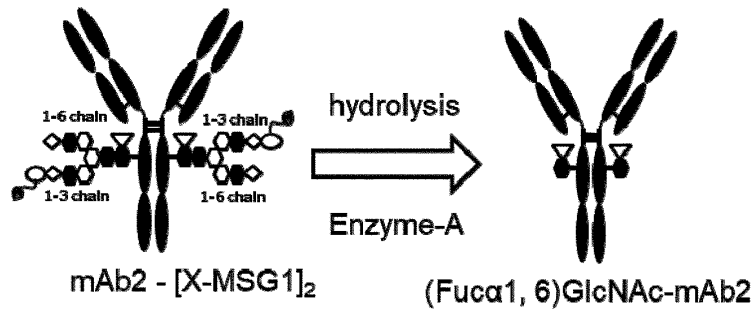
[図4]



[図5]



[図6]



[図7]

配列番号69 野生型Endo-Sのアミノ酸配列 NCBI Accession number: AAK34539.1

```

1   MDKHLIVKRT LGCVCAATLM GAALATHHDS LNTVKAEEKT VQVQKGLPSI 50
51  DSLHYLSSENS KKEFKEELSK AGQESQKVKE ILAKAQQADK QAQELAKMKI 100
101 PEKIPMKPLH GPLYGGYFRT WHDKTSDPTE KDKVNSMGEL PKEVDLAFIF 150
151 HDWTKDYSLF WKELATKHVP KLNKQGTRVI RTIPWRFLAG GDNSGIAEDT 200
201 SKYPNTPEGN KALAKAIVDE YVYKYNLDGL DVQVEHDSIP KVDKKEDTAG 250
251 VERSIQVFEE IGKLIGPKGV DKSRLFIMDS TYMADKNPLI ERGAPYINLL 300
301 LVQVYGSQGE KGGWEPVSNR PEKTMEERWQ GYSKYIRPEQ YMIGFSFYEE 350
351 NAQEGNLWYD INSRKDEDKA NGINTDITGT RAERYARWQP KTGGVKGGIF 400
401 SYAIDRDGVA HQPKKYAKQK EFKDATDNIF HSDYSVSKAL KTVMLKDKEY 450
451 DLIDEKDFPD KALREAVMAQ VGTRKGDLEF FNGTLRLDNP AIQSLEGLNK 500
501 FKKLAQLDLI GLSRITKLDR SVLPANMKPG KDTLETVLET YKKDNKEEPA 550
551 TIPPVSLKVS GLTGLKELDL SGFDRETLA LDAATLTSLE KVDISGNKLD 600
601 LAPGTENRQI FDTMLSTISN HVGSNEQTVK FDKQKPTGHY PDTYGKTSLR 650
651 LPVANEKVVDL QSQLLFGTVT NQGTILINSEA DYKAYQNHKI AGRSFVDSNY 700
701 HYNNEFKVSYE NYTVKVTDSF LGTTTDTKTLA TDKEETYKVD FFSPADKTKA 750
751 VHTAKVIVGD EKTMMVNLAE GATVIGGSAD PVNARKVFDG QLGSETDNIS 800
801 LGWDSKQSII FKLKEDGLIK HWRFFNDSAR NPETTNKPIQ EASLQIFNIK 850
851 DYNLDNLLN PNKFDDEKYW ITVDTYSAQG ERATAFSNTL NNITSKYWRV 900
901 VFDTKGDRYS SPVVPQLQIL GYPLPNADTI MKTVTTAKEL SQQKDKFSQK 950
951 MLDELKIKEM ALETSLNSKI FDVTAIINANA GVLKDCIEKR QLLKK 995

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[図8]

配列番号70 野生型Endo-S2のアミノ酸配列 NCBI Accession number: ACI61688.1

```

1   MDKHL LVKRT  LGCVCAATLM GAALATHHDS LNTVKAEEKT VQTGKTDQQV 50
51  GAKLVQEIRE GKRGP LYAGY  FRTWHDRAS T GIDGKQQHPE NTMAEVPKEV 100
101 DILFVFHDHT ASDSPFWSEL KDSYVHKLHQ QGTALVQTIG VNELNGRTGL 150
151 SKDYPDTPEG NKALAAAIKV AFVTD RGV DG LDIDIEHEFT NKRTPEEDAR 200
201 ALNVFKEIAQ LIGKNGSDKS KLLIMDTTL S VENNPIFKGI AEDLDYLLRQ 250
251 YYGSQGGEAE VDTINS DWNQ YQNYIDASQF MIGFSFFES ASKGNLWFDV 300
301 NEYDPNNPEK GKDIEGTRAK KYAEWQPSTG GLKAGIFS YA IDR DGV AHVP 350
351 STYKNRTSTN LQRHEVDNIS HTDYTVSRKL KTLMTEDKRY DVIDQKDIPD 400
401 PALREQIIQQ VGQYKGDLE R YNKT LVLTGD KIQNLKGLEK LSKLQKLELR 450
451 QLSNVKEITP ELLPESMKKD AELVMVGMTG LEKLNLSGLN RQTL DGDIVN 500
501 SITHLTSFDI SHNSLDLSEK SEDRKLLMTL MEQVSNHQKI TVKN TAFENQ 550
551 KPKGYYPQTY DTKEGHYDVD NAEHDILTDF VFGTVTKRNT FIGDEEAF AI 600
601 YKEGAVDGRQ YVSKDYTYEA FRKDYKGYKV HLTASN LG ET VTSKVTATTD 650
651 ETYLVDVSDG EKV VHHMKLN IGSGAIMMEN LAKGAKVIGT SGDFEQAKKI 700
701 FDGEKSDRFF TWGQTNWIAF DLGEINLAKE WRLFNAETNT EIKTDSSLNV 750
751 AKGRLQILKD TTIDLEKMDI KNRKEYLSND ENWTDVAQMD DAKAIFNSKL 800
801 SNVLSRYWRF CVDGGASSYY PQYTELQILG QRLSNDVANT LKD 843

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[図9]

配列番号71 野生型Endo-Siのアミノ酸配列 NCBI Accession number: EKB52062.1

```

1   MNKRL LVKRT  FGCVCAAAIL GVAPLSHPTI VEAREELKMP NGLEQSIADV 50
51  EAKIDALTYL SKNSKDEFKH SMYEIPSNRE HKPVSPKQAL QNAKKADAQA 100
101 ERLAKMTIPK KEELKALEGP LYGGYFRTWQ DKTS DPTETN KVNSFGELPK 150
151 EVDLAFVFHD YTKDYSLFEW ELATKQVPKL NKQGTRVIRT IPWRFLSGAD 200
201 HSDISADKEK FPNT EAGNKA LAKAIVDEYV YKYNLDGLDI DIERDSVPKV 250
251 NDKEDPEALA RTVEVFKEIG KLI GANGADK SRLLIMDTTY TAEENPLIKE 300
301 TAQYLNLLL V QVYGFSGENG NYLHHKNILD ETSSMEGRWQ GYSKYIRPEQ 350
351 YMVGF SFYEE KDFNNRWKDI NEEDPSDPHI GEKI QGTRAE RYAKWQPKTG 400
401 GLKGG LFSYA IDR DGV AQPK QKTEHPEL DK IVKSEYKVSK ALKKLMMTDD 450
451 QYQPIDQSDF PDKALRESII KQVGTRRGDL ERFKGT LRLD NPEIKDLTGL 500
501 NKLKRVAKLE LINLPKITKI DKDDL PQNLK PLTDNQKSNL EIKGT YDDSK 550
551 LYKDIPAFDL VISGLSGLES LDISGHQRDT LSGIDASTLP SLKAINISDN 600
601 HFDLAQG TEN RHILD TILAT LAKNGASTAS FDKQKPKGLY PESYSTAPLH 650
651 LQVGQ GKINV IDDLIFGTRT NQNTLINTEN DFEAYKEQTI QGKPF IAPDY 700
701 LYDNFKVSYK EYSASIVDST LAETTDKTID TAKAETYQVT VSNKDGKTVH 750
751 SVKVIVGDEK PMMVNLAQDA KIIGTDNMTQ SAKVFDGQKD QFLLSWNKDS 800
801 SVIFELKTPG TAKHWRFFDD GKND SVTL SV FKGDASNFET EKDKAENWVE 850
851 ITKDSRKND KVFSSPLEVD NAKYLKVTIK KEAKYIYFNE LQILGYPGVV 900
901 AKKTADDLRP TEADKSDDKS DKNDTEAK 928

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[図10]

配列番号72 野生型Endo-Mのアミノ酸配列 NCBI Accession number: BAB43869.1

```

1   MPSLQLQPDD KLAPVSFALK SMNELRDWTP DEKIKFNVSS VALQPRVKNA 50
51  LKPQLLLTHD MAGGYKEDKN IQGNNYKDIY NIQYWHLADT FVYFSHERVS 100
101 IPPVNWTNAC HRNGVKCLGT FLVEGNNQMH EMEALLHGPP LLNNTDDPMR 150
151 LWSPYYADQL VAIKHYGFD GWLFNIECEF FPFPTNPKFK AEELAKFLHY 200
201 FKEKLHNEIP GSQLIWYDSM TNEGEIHWQN QLTWKNELFF KNTDGIFLNY 250
251 WWKKEYPEMA RRVAEGIGRS GLEVYFGTDV WGRHTYGGGG FKSYPGVKTA 300
301 YSAMTSSALF GMAWTYEHFE KSEFEKMDRL FWCCKYSDY PPPPKNPDD 350
351 EKEVESDDSE DELMYGHKKG IADTVESIPV PGTDWFTNF DRGFGNRFYY 400
401 RGKRLLSQPW SHLSHQAILP NKSYPNPEIY PTDQNIKITS SLDCDHGAFL 450
451 GGTSLIIGQ RFNHRESHDV ETEISIPYK LSLDASKGCS LRYIYRTLLM 500
501 KDVKLTVACH FSLKTND SVN FFKVWQPDEN FSFEYDDGMR ATVTTENSTE 550
551 SRCFLRTTE EDTGENDWIT KTINVPAPVE GSQLYITRLE VSVVLDTAGL 600
601 VGLVNQVIAC LGYISIIPTI NSGIKTSSR IIQDLFWKDQ KYTKIGKESL 650
651 DDIAQEEVHR YYGTLNWENT ANVVNAWEEI DYYNVFYKES DDSATRIFLG 700
701 TAFCNQFRVS GLDIILSKLP KIVIEAVNKE GYISSSGSID LSLN 744

```

[図11]

配列番号73 野生型Endo-Rpのアミノ酸配列 NCBI Accession number: 未登録*

```

1   MPSLELQQAA DTRLFESMPL QTMNELGSWE PSNASRANIA TIPLHQRSNL 50
51  DPAEPRLIVT HDMAGGYKED SNIQGNTYDT IYSCQYWQYV DTFIYFSHR 100
101 VTIPPVNWIN ACHRNGVKTL GTFIVEGAAG MFALERFVYG PEPGQRNSWS 150
151 PYYADKLVDI AEFYGF DGWL LNIESDFFPL YRNPSLKAIH LAKLLRYLKN 200
201 AMHARVPGSE IIWYDSMTTN GSVQWQNNIT PKNSIFFEAA DGIFLNYWWN 250
251 ATVPPLALQV AHRLGRQGS VYFGTDVWGR GTFGGGGFDS YLAVGTARAF 300
301 KTSSALFGTA WIYEHFGKKD FELMDRLLWL GGDQSEYPAQ EGEQNRTVKV 350
351 TSHLGRHPGI ADVSPVRSAP GKTWFATWFD RGYGTGFYYQ GKKLLSQPWS 400
401 HLSHQSIIPP LIARLQREEN HGLSYFLADD DAYIGGTSLL IAAEITQERQ 450
451 LPLYQLEYDV TEGCEVQFIY KSPEPDMQ GK IDIYLNQVT DILPDELAFY 500
501 WQDVT DASSQ ADATTAMRLY LNENTVIYK PSRKQELAEG WLLCSVRVPP 550
551 TYPLGIATIK ELGIHVDGKE TVLFRLGLLT IIPLGDAPSA LSRITQVQLQ 600
601 RDEDIHSKCP SSSCELWATL SWMMEHNSKE DWDQVDHYMI FFKNVDSKAE 650
651 PIFLGTSFST EYRISGLEIK KHGNSIEIWA VNRLGTVIAR QDIDIQ 696

```

[図12]

配列番号74 野生型Endo-CCのアミノ酸配列 NCBI Accession number: EAU82416.1

```

1   MPIAGKKFHP RALPEFWRTF REMDEWRATQ TGPQARPAEG ILKYVPRKIR 50
51  PADIAGKGRL LVSHDYKGGY VEDPFSKSYS FNWWFSTDSE NYFAHHRITI 100
101 PPPEWINAAH RQGVPILGTI IFEGGSDEDI LRMVIGKTPG STSNFHAERN 150
151 AEYTVPVSSY YAELEFADLAV ERGFDGWLLN VEIGLQGGSE QARGLAAWVA 200
201 LLQQEVLKKV GPHGLVIWYD SVTVRGDLWW QDRLNAFNLP FFLNSSGIFT 250
251 NYWWYNDAPO KQIDFLSRVD PNLTGQTAEP HQYNLQKTIQ DIYIGVDVWG 300
301 RSGHGGGGFG AYKAIEHADP KGLGFSVALF AQGWTWETEE EKPGWNWAQF 350
351 WDYDSKLWVG PPGVVEAPDH TVKPGEYPCV HGPFQPISSF FLTYPDPDPL 400
401 DLPPFYTNFCP GIGDAWFVEG KEVFRSETGW TDMDKQTTVG DLVWPRPKIY 450
451 DLPSQNASQA TLNAAFNFND AWNGGNSLQI NLTVPGGATT YGAYWVPIQT 500
501 FTFSSRRQYE ASIVYKPGLS GKTRFDAKYE VGIRTITGED QGKIISNTTT 550
551 EVGNGWRKVH ILFEIETPVE GGSIIVPSSI GLVIAVSNSV TTEQFEFPFL 600
601 VGQITIHPLH PDRYKEFKPA LLWLLFTPSA GTNSLDGTLT WDVVAAIERP 650
651 PPVEINNPDQ AQIPWNLQPT KQEWFPDFLY FNVYVLELLD GGGQGPPQWI 700
701 GTTGVDGEKK RFFIYDESLP PTSGLRRTFT QIEGVLETGE STHWYDAPAA 750
751 PSATAGGEQK RTRRTSLKSV LSPLRRKKSK GDISVAK 787

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[図13]

配列番号75 野生型Endo-Omのアミノ酸配列 NCBI Accession number: BAN20080.1

```

1   MAQSQLLGGA VRPVFFDKLE ELRRWHTQSA NLSRESELDL LNVATEPFSS 50
51  YERAQTGSGS RSSEPVPBGD EDPPIKLMVC HDEFKGGYQDY EDAQPLGYFP 100
101 HPTGSRYFLQ YPQLIDQFVY FSHHRVTVPV VNWINFCHRN GIKCFGTVIF 150
151 EGNASKDFEE LDRLVSRDEK GDFVFVDALI KLAHYGFDDG YLLNIETTFE 200
201 NTKIAADLEP FAEQLKSGLE CLDSKNELEW YDSYVFPANK VSYTNGVTES 250
251 NYNFFSLSDA FFSNYWWNIK NLQENIKNVG VLGVSQKKIYV GYDVWGRGTL 300
301 VGKGGFDSSL ACKMIAKFKS NVALFAPAWT YESLGPKDFN QNDARFWIGL 350
351 FENESSISST VPPHSSAVYK INESSFIFYT NFSSGEGNRF FSKGSEVYRK 400
401 NWVNGSLQFD LPIDLHRKDK NGLQWALDKS DAFHGGACLE IKYSEIKDEN 450
451 GYQIFNNQMV SDFTLFNFTK ECHFTVNVK VTYKLNHKTG STFKIKIKYI 500
501 IERRFRSVQT VRTGYLTIPL LSTSGKWFTV EESFQINLQT SHEYIVLESA 550
551 HVTYDEDRSA DSFFRSYIVE DSAITSVIDN EEYEKLINSE IYNDDEDEDW 600
601 ILVPSDVSIS SSESQSNDSE TQYLGRKLFG NKSTPKTRTL EGTAPLLRIG 650
651 EFAIISANNY PSSNFLAVTS VKSIESSRLD GDSLVLNWNQ VEGHQKGVK 700
701 YYIIYVNGAV VGLSVAPKFI YQDTELASN SASARSNYKK SGLGSSSDRK 750
751 SKVRVDSVDE LGNVFTGSEV WV 772

```

[図14]

抗CD70抗体1軽鎖のアミノ酸配列（配列番号1）

DIVMTQSPDSLAVSLGERATINCRASKSVSTSGYSFMHWYQQKPGQPPKLLIYLASNLES
GVPDRFSGSGSGTDFTLTISSLQAEDVAVYYCQHSREVPWTFGGGTKVEIKRTVAAPSVF
IFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYSLS
STLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

抗CD70抗体1重鎖のアミノ酸配列（配列番号2）

QVQLVQSGAEVKKPGASVKVSCKASGYTFTNYGMNWVRQAPGQGLKWMGWINTYTGEPTY
ADAFKGRVTMTRDTSISTAYMELSRRLSDDTAVYYCARDYGDYGMDYWGQGTTTVTVSSAS
TKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGL
YSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPEAAAGGP
SVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNS
TYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEM
TKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQ
QGNVFSCSVMHEALHNHYTQKSLSLSPGK

（下線は、L A L A 変異部分を示す。）

[図15]

抗CD70抗体2軽鎖のアミノ酸配列（配列番号3）

EIVLTQSPATLSLSPGERATLSCRASQSVSSYLAWYQQKPGQAPRLLIYDASNRATGIPA
RFSGSGSGTDFTLTISSLEPEDFAVYYCQQR TNWPLTFGGGTKVEIKRTVAAPSVFIFPP
SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYSLSSTLT
LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

抗CD70抗体2重鎖のアミノ酸配列（配列番号4）

QVQLVESGGGVVQPGRSLRLSCAASGFTFSSYIMHWVRQAPGKGLEWVAVISYDGRNKYY
ADSVKGRFTISRDN SKNTLYLQMNSLRAEDTAVYYCARDTDGYDFDYWGQGLTVTVSSAS
TKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGL
YSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPEAAGGP
SVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNS
TYRVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEM
TKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSRWQ
QGNVFSCSVMEALHNHYTQKSLSLSPGK

（下線は、LALA変異部分を示す。）

[図16]

抗TROP2抗体1軽鎖のアミノ酸配列（配列番号5）

DIQMTQSPSSLSASVGDRTITCKASQDVSTAVAWYQQKPGKAPKLLIYSASYRYTGVP
RFSGSGSGTDFTLTISSLPEDFAVYYCQQHYITPLTFGQGTKLEIKRTVAAPSVFIFPP
SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYSLSSTLT
LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

抗TROP2抗体1重鎖のアミノ酸配列（配列番号6）

QVQLVQSGAEVKKPGASVKVSCKASGYTFITAGMQWVRQAPGQGLEWMGWINTHSGVPKY
AEDFKGRVTISADTSTSTAYLQLSSLKSEDTAVYYCARSGFGSSYWFYDVWGQGLTVTVS
SASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQS
SGLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPELLG
GPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQY
NSTYRVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRE
EMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSKLTVDKSR
WQQGNVFSCSVMEALHNHYTQKSLSLSPGK

[図17]

抗 T R O P 2 抗体 2 軽鎖のアミノ酸配列（配列番号 7）

DIQMTQSPSSLSASVGDRVTITCKASQDVSTAVAWYQQKPGKAPKLLIYSASYRYTGVP
RFSGSGSGTDFTLTISLQPEDFAVYYCQQHYITPLTFGQGTKLEIKRTVAAPSVFIFPP
SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKSTYSLSTLT
LSKADYEEKHKVYACEVTHQGLSSPVTKSFNRGEC

抗 T R O P 2 抗体 2 重鎖のアミノ酸配列（配列番号 8）

QVQLVQSGAEVKKPGASVKVSCKASGYTFTTAGMQWVRQAPGQGLEWMGWINTHSGV
PKY AEDFKGRVTISADTSTSTAYLQLSSLKSEDTAVYYCARGSGFGSSYWFYFDVWGQGT
LTVS SASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPA
VLQS SGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPA
PEAA GGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTK
PREEQ YNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVY
TLPPSR EEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSK
LTVDKS RWQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

（下線は、L A L A 変異部分を示す。）

[図18]

抗 E G F R 抗体 1 軽鎖のアミノ酸配列（配列番号 9）

DIQMTQSPSSLSASVGDRTITCQASQDISNYLNWYQQKPGKAPKLLIYDASNLETGVPS
RFSGSGSGTDFTFTISSSLQPEDIATYFCQHFDHLPLAFGGGTKVEIKRTVAAPSVFIFPP
SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYSLSSTLT
LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

抗 E G F R 抗体 1 重鎖のアミノ酸配列（配列番号 10）

QVQLQESGPGLVKPSETLSLTCTVSGGSVSSGDYYWTWIRQSPGKGLEWIGHIYYSGNTN
YNPSLKSRLTISIDTSKTQFSLKLSSVTAADTAIYYCVRDRVTGAFDIWGGGTMTVSSA
STKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSG
LYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPEAAGG
PSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN
STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREE
MTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRW
QQGNVFSCSVMHEALHNHYTQKSLSLSPGK

（下線は、L A L A 変異部分を示す。）

[図19]

抗 E G F R 抗体 2 の軽鎖のアミノ酸配列（配列番号 1 1）

DILMTQSPSSMSVSLGDTVSITCHSSQDINSNIGWLQQRPGKSFKGLIYHGTNLDDEVPS
RFSGSGSGADYSLTISSESEDFADYYCVQYAQFPWTFGGGTKLEIKRTVAAPSVFIFPP
SDEQLKSGTASVVCLLNFPYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTYLSSTLT
LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

抗 E G F R 抗体 2 の重鎖のアミノ酸配列（配列番号 1 2）

DVQLQESGPSLVKPSQSLSLTCTVTGYSITSDFAWNWIRQFPGNKLEWMGYISYSGNTRY
NPSLSKRISITRDTSKNQFFLQLNSVTIEDTATYYCVTAGRGFPYWGQGTLVTVSAASTK
GPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYS
LSSVVTVPSSSLGTQTYICNVNHKPSNTKYDKRVEPKSCDKTHTCPPCPAPEAAGGPSV
FLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNSTY
RVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEMTK
NQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTTTPVLDSDGSFFLYSKLTVDKSRWQQG
NVFSCSVMEALHNHYTQKSLSLSPGK

（下線は、L A L A 変異部分を示す。）

[図20]

抗 C D 7 0 抗体 1 の C D R L 1 アミノ酸配列（配列番号 1 3）

RASKSVSTSGYSFMH

抗 C D 7 0 抗体 1 の C D R L 2 アミノ酸配列（配列番号 1 4）

LASNLES

抗 C D 7 0 抗体 1 の C D R L 3 アミノ酸配列（配列番号 1 5）

QHSREVPWT

抗 C D 7 0 抗体 1 の C D R H 1 アミノ酸配列（配列番号 1 6）

GYTFTNYGMN

抗 C D 7 0 抗体 1 の C D R H 2 アミノ酸配列（配列番号 1 7）

WINTYTGEPTYADAFKG

抗 C D 7 0 抗体 1 の C D R H 3 アミノ酸配列（配列番号 1 8）

DYGDYGM DY

[図21]

抗CD70抗体2のCDRL1アミノ酸配列（配列番号19）

RASQSVSSYLA

抗CD70抗体2のCDRL2アミノ酸配列（配列番号20）

DASNRAT

抗CD70抗体2のCDRL3アミノ酸配列（配列番号21）

QQR TNWPLT

抗CD70抗体2のCDRH1アミノ酸配列（配列番号22）

SYIMH

抗CD70抗体2のCDRH2アミノ酸配列（配列番号23）

VISYDGRNKYYADSVKG

抗CD70抗体2のCDRH3アミノ酸配列（配列番号24）

DTDGYDFDY

[図22]

抗TROP2抗体1のCDRL1アミノ酸配列（配列番号25）

KASQDVSTAVA

抗TROP2抗体1のCDRL2アミノ酸配列（配列番号26）

SASYRYT

抗TROP2抗体1のCDRL3アミノ酸配列（配列番号27）

QQHYITPLT

抗TROP2抗体1のCDRH1アミノ酸配列（配列番号28）

TAGMQ

抗TROP2抗体1のCDRH2アミノ酸配列（配列番号29）

WINTHSGVPKYAEDFKG

抗TROP2抗体1のCDRH3アミノ酸配列（配列番号30）

SGFGSSYWYFDV

[図23]

抗 T R O P 2 抗体 2 の C D R L 1 アミノ酸配列（配列番号 3 1）

KASQDVSTAVA

抗 T R O P 2 抗体 2 の C D R L 2 アミノ酸配列（配列番号 3 2）

SASYRYT

抗 T R O P 2 抗体 2 の C D R L 3 アミノ酸配列（配列番号 3 3）

QQHYITPLT

抗 T R O P 2 抗体 2 の C D R H 1 アミノ酸配列（配列番号 3 4）

TAGMQ

抗 T R O P 2 抗体 2 の C D R H 2 アミノ酸配列（配列番号 3 5）

WINTHSGVPKYAEDFKG

抗 T R O P 2 抗体 2 の C D R H 3 アミノ酸配列（配列番号 3 6）

SGFGSSYWYFDV

[図24]

抗 E G F R 抗体 1 の C D R L 1 アミノ酸配列（配列番号 3 7）

QASQDISNYLN

抗 E G F R 抗体 1 の C D R L 2 アミノ酸配列（配列番号 3 8）

DASNLET

抗 E G F R 抗体 1 の C D R L 3 アミノ酸配列（配列番号 3 9）

QHFDHLPLA

抗 E G F R 抗体 1 の C D R H 1 アミノ酸配列（配列番号 4 0）

SGDYIWT

抗 E G F R 抗体 1 の C D R H 2 アミノ酸配列（配列番号 4 1）

GHIYYSGNTNYPNPSLKS

抗 E G F R 抗体 1 の C D R H 3 アミノ酸配列（配列番号 4 2）

DRVTGAFDI

[図25]

抗EGFR抗体2のCDRL1アミノ酸配列（配列番号43）

HSSQDINSNIG

抗EGFR抗体2のCDRL2アミノ酸配列（配列番号44）

HGTNLDD

抗EGFR抗体2のCDRL3アミノ酸配列（配列番号45）

VQYAQFPWT

抗EGFR抗体2のCDRH1アミノ酸配列（配列番号46）

GYSITSDFAWN

抗EGFR抗体2のCDRH2アミノ酸配列（配列番号47）

GYISYSGNTRYNPSLK

抗EGFR抗体2のCDRH3アミノ酸配列（配列番号48）

VTAGRGFPY

[図26]

トラスツズマブ軽鎖のアミノ酸配列（配列番号49）

DIQMTQSPSSLSASVGDRVTITCRASQDVNTAVAWYQQKPGKAPKLLIYSASFLYSGVPS
RFGSGRSGTDFLTITSSLPEDFATYYCQQHYTTPPTFGQGTKVEIKRTVAAPSVFIFPP
SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKDSSTLSSTLT
LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

トラスツズマブ重鎖のアミノ酸配列（配列番号50）

EVQLVESGGGLVQPGGSLRLSCAASGFNIKDTYIHWVRQAPGKGLEWVARIYPTNGYTRY
ADSVKGRFTISADTSKNTAYLQMNSLRAEDTAVYYCSRWGGDGFYAMDYWGQGLTVTVSS
ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSS
GLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPPELLGG
PSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN
STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREE
MTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRW
QQGNVFSCSVMHEALHNHYTQKSLSLSPGK

[図27]

改変抗HER2抗体の軽鎖のアミノ酸配列（配列番号49）

DIQMTQSPSSLSASVGDRVTITCRASQDVNTAVAWYQQKPGKAPKLLIYSASFLYSGVPS
RFSGSRSGTDFTLTISLQPEDFATYYCQQHYTTPPTFGQGTKVEIKRTVAAPSVFIFPP
SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKSTYLSSTLT
LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

改変抗HER2抗体の重鎖のアミノ酸配列（配列番号51）

EVQLVESGGGLVQPGGSLRLSCAASGFNIKDTYIHWVRQAPGKGLEWVARIYPTNGYTRY
ADSVKGRFTISADTSKNTAYLQMNSLRAEDTAVYYCSRWGGDGFYAMDYWGQGTLLTVSS
ASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSKVHTFPAVLQSS
GLYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPEAAG
GPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQY
NSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSRE
EMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSR
WQQGNVFSCSVMHEALHNHYTQKSLSLSPGK

（下線は、LALA変異部分を示す。）

[図28]

ベルツズマブ軽鎖のアミノ酸配列（配列番号52）

DIQMTQSPSSLSASVGDRVTITCKASQDVSIGVAWYQQKPGKAPKLLIYSASYRTGVPS
RFSGSGSGTDFTLTISLQPEDFATYYCQQYYIYPYTFGQGTKVEIKRTVAAPSVFIFPP
SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKSTYLSSTLT
LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

ベルツズマブ重鎖のアミノ酸配列（配列番号53）

EVQLVESGGGLVQPGGSLRLSCAASGFTFTDYTMDWVRQAPGKGLEWVADVNPNSGGSIY
NQRFKGRFTLSVDRSKNTLYLQMNSLRAEDTAVYYCARNLGPSFYFDYWGQGTLLTVSSA
STKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSKVHTFPAVLQSSG
LYSLSSVTVPSSSLGTQTYICNVNHKPSNTKVDKKVEPKSCDKTHTCPPCPAPELLGGP
SVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYNS
TYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREEM
TKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRWQ
QGNVFSCSVMHEALHNHYTQKSLSLSPGK

[図29]

改変抗HER2抗体2の軽鎖のアミノ酸配列（配列番号52）

DIQMTQSPSSLSASVGDRVTITCKASQDVSIGVAWYQQKPGKAPKLLIYSASYRYTGVPS
RFSGSGSGTDFLTITSSLPEDFATYYCQQYYIYPYTFGQGTKVEIKRTVAAPSVFIFPP
SDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKSTYLSSTLT
LSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

改変抗HER2抗体2の重鎖のアミノ酸配列（配列番号54）

EVQLVESGGGLVQPGGSLRLSCAASGFTFTDYTMDWVRQAPGKGLEWVADVPNSGGSIY
NQRFKGRFTLSVDRSKNTLYLQMNSLRAEDTAVYYCARNLGPSFYFDYWGQGTLLTVSSA
STKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSG
LYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPEAAGG
PSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQYN
STYRVVSVLTVLHQDWLNGKEYKCKVSNKALPAPIEKTISKAKGQPREPQVYTLPPSREE
MTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKSRW
QQGNVVFSCVMHEALHNHYTQKSLSLSPGK

（下線は、K214R変異及びLALA変異部分を示す。）

[図30]

抗CDH6抗体の軽鎖のアミノ酸配列（配列番号55）

DIQMTQSPSSLSASVGDRVTITCKASQNIYKNLAWYQQKPGKAPKLLIYDANTLQTGVPS
RFSGSGSGSDFTLTITSSLPEDFATYFCQQYYSGWAFGQGTKVEIKRTVAAPSVFIFPPS
DEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKSTYLSSTLT
SKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

抗CDH6抗体の重鎖のアミノ酸配列（配列番号56）

EVQLVQSGAEVKKPGASVKVSCKASGYTFTRNFMHWVRQAPGQGLEWMGWIYPGDGETEY
AQKFQGRVTITADTSTSTAYMELSSLRSEDVAVYYCARGVYGGFAGGYFDWGGQGTLLTV
SSASTKGPSVFPLAPSSKSTSGGTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQ
SSGLYSLSSVVTVPSSSLGTQTYICNVNHKPSNTKVDKRVEPKSCDKTHTCPPCPAPEAA
GGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYVDGVEVHNAKTKPREEQ
YNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALGAPIEKTISKAKGQPREPQVYTLPPSR
EEMTKNQVSLTCLVKGFYPSDIAVEWESNGQPENNYKTPPVLDSDGSFFLYSKLTVDKS
RWQQGNVVFSCVMHEALHNHYTQKSLSLSPGK

[図31]

ペルツズマブのCDRL1アミノ酸配列（配列番号57）

QDVSI G

ペルツズマブのCDRL2アミノ酸配列（配列番号58）

SAS

ペルツズマブのCDRL3アミノ酸配列（配列番号59）

QQYYIYPYT

ペルツズマブのCDRH1アミノ酸配列（配列番号60）

GFTFTDYT

ペルツズマブのCDRH2アミノ酸配列（配列番号61）

VNPNSGGS

ペルツズマブのCDRH3アミノ酸配列（配列番号62）

ARNLGPSFYFDY

[図32]

抗CDH6抗体のCDRL1のアミノ酸配列（配列番号63）

KASQNIYKNLA

抗CDH6抗体のCDRL2のアミノ酸配列（配列番号64）

DANTLQT

抗CDH6抗体のCDRL3のアミノ酸配列（配列番号65）

QQYYSGWA

抗CDH6抗体のCDRH1のアミノ酸配列（配列番号66）

RNFMH

抗CDH6抗体のCDRH2のアミノ酸配列（配列番号67）

WIYPGDGETEYAQKFQG

抗CDH6抗体のCDRH3のアミノ酸配列（配列番号68）

GVYGGFAGGYFDF

[図33]

配列番号 7 6 野生型Endo-Sdのアミノ酸配列 GenBank Accession number: ANI26082

1	MDKRLLVKRT	LGCVCSATLM	GTILGTHHDS	LISVKAEEKI	TQVSQTSTSI	50
51	DDLHYLSENS	KKEFKEELSK	EKVPEKVKEI	LSKAQQANKQ	AQELAEMKVP	100
101	DKIPMKPLNG	PLYGGYFRTW	HDKTSDPLEK	DKVNSMGELP	KEVDLAFVFH	150
151	DWTKDYSLFW	KELATKHVPK	LNKQGTRVIR	TIPWRFLAGG	DNSGIAEDAS	200
201	KYPNTPEGNK	ALAKAIVDEY	VYKYNLDGLD	VDIEHDSIPK	VNGEASDENL	250
251	KRSIDVFEEI	GKLIGPKGAD	KSRLFIMDST	YMADKNPLIE	RGAPYIDLLL	300
301	VQVYGSQGEQ	GEFQNDTKSV	TKTPEERWQG	YSKYIRPEQY	MIGFSFYEEK	350
351	AGSGNLWYDI	NARKDEDTAN	GINDDITGTR	AERYARWQPK	TGGVKGKIFS	400
401	YAIRDRGVAH	QPKQIAEKDK	QSVKNNRPLI	SEITDNIFHS	NYSVSKTLKT	450
451	VMLKDKAYDL	IDEKDFPDKA	LREAVMAQVG	TRKGDLERFN	GTLRLDNPAI	500
501	QSLEGLNKF	KLAQLDLIGL	SRIIKLDQSV	LPANMKPGKD	PLETVLETYK	550
551	KNGKEEPAII	PPVSLTVSGL	TGLKELDLSG	FDRETLAGID	AATLTSLEKV	600
601	DISDNKDLA	PKTENRQIFD	VMLSTVNNNA	GISEQSIKFD	NQKPAGNYPQ	650
651	TYGATNLQLP	VRQEKIDLQH	QLLFGTITNQ	GTLINEADY	KTYRNQKIAG	700
701	RNFVDPDYPY	NNFKVSHDNY	TVKVTDSLGL	TTTDKMLATD	KEETVKVDFE	750
751	SPTDKTKAVH	TAKVIVGDEK	TMMVNLAEGA	TVIKSENDEN	AQKVFNGIME	800
801	YNPLSFNNKS	SIIFEIKDPS	LAKYWRFLND	SSKDKKDYIK	EAKLEVFTGQ	850
851	LNAEADVTKI	LEKPDNWVT	STYSGEEKVF	SHSLDNISAK	YWRVTVDNKK	900
901	DQYGYVSLPE	LQILGYPLPN	ADTIMKTVTV	AKELSQQKDK	FPQQLDEST	950
951	AKEAVVEASL	NSKLFDTGVI	NTNVEALKNV	VDECLAYEKN	KETAFAKATED	1000
1001	YRAAVNGVKA	ESVTVEEMAQ	LKDLIGKAAH	LNSKIDAKLA	DREYDKDLLG	1050
1051	LIGELTNITR	TVKSFVK				1067

[図34]

配列番号 7 7 野生型Endo-Szのアミノ酸配列 GenBank Accession number: KIS14581.1

1	MEKQVLVKKT	LKCVCAAALM	VAILAAQHDS	LIRVKAEDKL	VQTSPTSVAI	50
51	DALHYLSENS	KKEFKEELSK	VEKAQPEKLE	EIVSKAQQAD	KQAKTLAEMK	100
101	VPEKIPMKPL	KGPLYGGYFR	TWHDKTSDEP	EKDKVNSMGE	LPKEVDLAFV	150
151	FHDWTKDYSL	FWQELATKHV	PTLNKQGTRV	IRTIPWRFLA	GGDHSGIAED	200
201	AQKYPNTPEG	NKALAKAIVD	EYVYKYNLDG	LDVVDIERDSI	PKVNKEESKE	250
251	GIERSIQVFE	EIGKLIGPKG	ADKSRLFIMD	STYMADKNPL	IERGAPYIDL	300
301	LLVQVYGTQG	EKGGFNANH	KAVDTEERW	ESYSKYIRPE	QYMGVFSFYE	350
351	EKANSGNLWY	DVNVEDDTNP	NIGSEIKGTR	AERYAKWQPK	TGGVKGKIFS	400
401	YGIDRDGVAH	PKKNGPKTPD	LDKIVKSDYK	VSKALKKVME	NDKSYELIDQ	450
451	KDFPDKALRE	AVIAQVGSRR	GNLERFNGTL	RLDNPDIKSL	EGLNKLKKLA	500
501	KLELIGLSQI	TKLDSSVLPE	NIKPTKDTLV	SVLETYKNDD	RKEEAKAIPQ	550
551	VALTISGLTG	LKELNLAGFD	RDSLAGIDAA	SLTSLEKVDL	SSNKLDLAAG	600
601	TENRQILDIM	LATVTKHGGV	SEKTFVFDHQ	KPTGLYPDTY	GTKSLQLPVA	650
651	NDTIDLQAKL	LFGTVTNQGT	LINSEADYKA	YQEQEIAGHR	FVDSSYDYKA	700
701	FAVTYKDYKI	KVTDSTLGV	DHKDLSTSKE	ETKVEFFSP	INSTKPVHEA	750
751	KIVVGEEKTM	MVNLAEGATI	IGGDADPTNA	KKVFDGLLNN	DTTTLSTSNK	800
801	ASIIIFELKEP	GLVKHWRFFN	DSKISKADYI	KEAKLEAFVG	HLEDSSKVKD	850
851	SLEKSTEWVT	VSDYSGEAQE	FSQPLNNIGA	KYWRITIDNK	KSQYGYVSLP	900
901	ELQIIGHRLP	EAATVMTTMA	AAEELSQQKD	KFSQEQLEKL	EVKVAALKAA	950
951	LDNKMFNADT	INASFADVKA	YIDKLLADAA	GKKTGKATK	EAQPVATDAK	1000
1001	EKAESENPKA	D				1011

[図35]

配列番号 7 8 野生型Endo-Seのアミノ酸配列 GenBank Accession number: CAW92602.1

1	MEKQVLVKKT	LKCVCAAALM	VAILAAQHDS	LIRVKAEDKV	VQTSPSVSAI	50
51	DDLHYLSENS	KKEFK EGLSK	AGEVPEK LKD	ILSKAQQADK	QAKVLAEMKV	100
101	PEKIAMKPLK	GPLYGGYFRT	WHDKTS DP AE	KDKVNSMGEL	PKEVDLAFVF	150
151	HDWTKDYSFF	WQELATKHVP	TLNKQGTRVI	RTIPWRFLAG	GDHSGIAEDT	200
201	QKYPNTPEGN	KALAKAIVDE	YVYKYNLDGL	DVDIERDSIP	KVNGKESNEN	250
251	IQRSAIVFEE	IGKLIGPKGA	DKSRLFIMDS	TYMADKNPLI	ERGAQYIDLL	300
301	LVQVYGTQGE	KGDWDPVARK	PEKTMEERWE	SYSKYIRPEQ	YMGVFSFYEE	350
351	NAGSGNLWYD	INERKDDHNP	LNSEIAGTRA	ERYAKWQPKT	GGVKGGIFSY	400
401	AIDRDGVAHQ	PKKVS DDEKR	TNKAIKDITD	GIVKSDYKVS	KALKKVMEND	450
451	KSYELIDQKD	FPDKALREAV	IAQVGSRRGD	LERFNGTLRL	DNPDIKSLEG	500
501	LNKLKKLAKL	ELIGLSQITK	LDSLVL PANA	KPTKDTLANV	LEAYDSAKKE	550
551	ETKAIPQVAL	TISGLTGLKE	LNLAGFDRDS	LAGIDAASLT	SLEKVDLSSN	600
601	KDLAAGTEN	RQILD TMLAT	VTKHGGVSEK	TFVFDHQKPT	GLYPDTYGTK	650
651	SLQLPVANDT	IDLQAKLLFG	TVTNQGTLIN	SEADYKAYQE	QEIAGHRFVD	700
701	SSYDYKAFAV	TYKDYKIKVT	DSTLGVT DHK	DLSTSKEETY	KVEFFSPTNS	750
751	TKPVHEAKVV	VGA EKTMMVN	LAEGATVIGG	DADPTNAKKV	FDGLLNNDTT	800
801	ILSTSNKASI	IFELKEPGLV	KYWRFFNDSK	ISKADCIKEA	KLEAFVGHLE	850
851	AGSKVKDSLE	KSSKWVTVSD	YSGEDQEFSQ	PLNNIGAKYW	RITVDTKGGR	900
901	YNWPSLP ELQ	IIGYQLPAAD	LVMAMLATAE	ELSQQKDKFS	QEQLKELEVK	950
951	IAALKAALDS	KMFNADAINA	STADLKAYVD	KLLADRTDQE	KVAKAAKVEQ	1000
1001	PVATDIKENT	EPENPKTD				1018

[図36]

配列番号 7 9 Endo-Si D241Q/Q311L_Endo-Rp N172Vのアミノ酸配列

1	MREELKMPNG	LEQSIADVEA	KIDALTYLSK	NSKDEFKHSM	YEIPSNREHK	50
51	PVSPKQALQN	AKKADAQAER	LAKMTIPKKE	ELKALEGPLY	GGYFRTWQDK	100
101	TSDPTETNKV	NSFGELPKEV	DLAFVFHDYT	KDYSLFWHEEL	ATKQVPKLNK	150
151	QGTRVIRTIP	WRFLSGADHS	DISADKEKFP	NTEAGNKALA	KAIVDEYVYK	200
201	YNLDGLDIQI	ERDSVPKVND	KEDPEALART	VEVFKEIGKL	IGANGADKSR	250
251	LLIMDTTYTA	EENPLIKETA	QYLNLLLVLV	YGFSGENGNY	LHHKNILDET	300
301	SSMEGRWQGY	SKYIRPEQYM	VGFSFYEEKD	FNNRWKDINE	EDPSDPHIGE	350
351	KIQGTRAERY	AKWQPKTGGL	KGGLFSYAID	RDGVAQPKQK	TEHPELDKIV	400
401	KSEYKVSAL	KKLMMTDDQY	QPIDQSDFPD	KALRESIIKQ	VGTRRGDLER	450
451	FKGTLRLDNP	EIKDLTGLNK	LKRVAKLELI	NLPKITKIDK	DDLQNLKPL	500
501	TDNQKSNLEI	KGTYYDDSKLY	KDIPAFDLVI	SGLSGLESLE	ISGHQRTSL	550
551	GIDASTLPSL	KAINISDNHF	DLAQGTENRH	ILDTILATLA	KNGASTASFD	600
601	KQKPKGLYPE	SYSTAPLHLQ	VGQKINVID	DLIFGTRTNQ	NLTINTENDF	650
651	EAYKEQTIQG	KPFIAPDYLY	DNEKVSKEY	SASIVDSTLA	ETTDKTIDTA	700
701	KAETYQVTVS	NKDGGTVHVS	KVIVGDEKPM	MVNLAQDAKI	IGTDNMTQSA	750
751	KVFDGQKQDF	LLSWNKDSSV	IFELKTPGTA	KHWRFFDDGK	NDSVTLVSVK	800
801	GDASNFEKTE	DKAENWVEIT	KDSRKNDKDV	FSSPLEVDNA	KYLKVTIKKE	850
851	AKYIYFNEHQ	ILGYPGVVAK	KTADDLRPTE	ADKSDDKSDK	NDTEAKGGGG	900
901	SGGGGSGGGG	SHHHHHHEFG	GGGSGGGGSG	GGGSPSLELQ	QAADTRLFES	950
951	MPLQTMNELG	SWEPSNASRA	NIATIPHLQR	SNLDPAPRL	IVTHDMAGGY	1000
1001	KEDSNIQNT	YDTIYSCQYW	QYVDTFIYFS	HHRVTIPPVN	WINACHRNGV	1050
1051	KTLGTFIVEG	AAGMFALERF	VYGPEPGQRN	SWSPYYADKL	VDIAEFYGF	1100
1101	GWLLVIESDF	FPLYRNPSLK	AIHLAKLLRY	LKNAMHARVP	GSEIIWYDSM	1150
1151	TTNGSVQWQN	NITPKNSIFF	EAADGIFLNY	WWNATVPPLA	LQVAHRLGRQ	1200
1201	GSDVYFGTDV	WGRGTFGGGG	FDSYLAVGTA	RAFKTSSALF	GTAWIYEHFG	1250
1251	KKDFELMDRL	LWLGGDQSEY	PAQEGEQNRT	VKVTSHLGRH	PGIADVSPVR	1300
1301	SAPGKTWFAT	WFDRGYGTGF	YYQGKKLLSQ	PWSHLHQSI	PPNLIARLQR	1350
1351	EENHGLSYFL	ADDDAYIGGT	SLLIAAEITQ	ERQLPLYQLE	YDVTEGCEVQ	1400
1401	FIYKSPEPDM	QGKIDIYLN	QVTDILPDEL	AFYWQDVTD	SSQADATTAM	1450
1451	RLYLNENTVI	YLKPSRKQEL	AEGWLLCSVR	VPPTYPLGIA	TIKELGIHVD	1500
1501	GKETVLFRLG	LLTIIPLGDA	PSALSRTQV	QLQRDEDIHS	KCPSSSCELW	1550
1551	ATLSWMEHN	SKEDWDQVDH	YMIFFKNVDS	KAEPFLGTS	FSTEYRISGL	1600
1601	EIKKHGNSIE	IWAVNRLGTV	IARQDIDIQ			1629

[図37]

配列番号 80 Endo-Rp N172V_Endo-Si D241Q/Q311Lのアミノ酸配列

1	MPSLELQQAA	DTRLFESMPL	QTMNELGSWE	PSNASRANIA	TIPLHQRSNL	50
51	DPAEPRLIVT	HDMAGGYKED	SNIQGNTRYDT	IYSCQYWQYV	DTFIYFSHHR	100
101	VTIPPVNWIN	ACHRNGVKTL	GTFIVEGAAG	MFALERFVYG	PEPGQRNSWS	150
151	PYYADKLVDI	AEFYGFDGWL	LVIESDFFPL	YRNPSLKAIH	LAKLLRYLKN	200
201	AMHARVPGSE	IIWYDSMTTN	GSVQWQNNIT	PKNSIFFEAA	DGIFLNYWWN	250
251	ATVPPLALQV	AHRLGRQGSD	VYFGTDVWGR	GTFGGGGFDS	YLAVGTARAF	300
301	KTSSALFGTA	WIYEHFGKGD	FELMDRLLWL	GGDQSEYPAQ	EGEQNRTVKV	350
351	TSHLGRHPGI	ADVSPVRSAP	GKTWFATWFD	RGYGTGFYYQ	GKKLLSQPWS	400
401	HLSHQSIIPP	LIARLQREEN	HGLSYFLADD	DAYIGGTSLL	IAAEITQERQ	450
451	LPLYQLEYDV	TEGCEVQFIY	KSPEPDMQOK	IDIYLNQVLT	DILPDELAFY	500
501	WQDVTDAASSQ	ADATTAMRLY	LNENTVIYLK	PSRKQELAEG	WLLCSVRVPP	550
551	TYPLGIATIK	ELGIHVDGKE	TVLFRLGLLT	IIPLGDAISA	LSRITQVQLQ	600
601	RDEDIHISKCP	SSSCELWATL	SWMMEHNSKE	DWDQVDHYMI	FFKNVDSKAE	650
651	PIFLGTSFST	EYRISGLEIK	KHGNSIEIWA	VNRLGTVIAR	QDIDIQGGGG	700
701	SGGGGSGGGG	SHHHHHHEFG	GGGSGGGGSG	GGGSREELKM	PNGLEQSIAD	750
751	VEAKIDALTY	LSKNSKDEFK	HSMYEIPSNR	EHKPVSPKQA	LQNAKKADAQ	800
801	AERLAKMTIP	KKEELKALEG	PLYGGYFRTW	QDKTSDPTET	NKVNSFGELP	850
851	KEVDLAFVFH	DYTKDYSLFW	EELATKQVPK	LNKQGTRVIR	TIPWRFLSGA	900
901	DHSDISADKE	KFPNTEAGNK	ALAKAIVDEY	VYKYNLDGLD	IQIERDSVPK	950
951	VNDKEDPEAL	ARTVEVFKEI	GKLIGANGAD	KSRLIMDDT	YTAEENPLIK	1000
1001	ETAQYLNLLL	VLVYGFSGEN	GNYLHHKNIL	DETSSMEGRW	QGYSKYIRPE	1050
1051	QYMVGFsfYE	EKDFNNRWKD	INEEDPSDPH	IGEKIQGTRA	ERYAKWQPKT	1100
1101	GGLKGGLFSY	AIDRDGVAQP	KQKTEHPELD	KIVKSEYKVS	KALKKLMMTD	1150
1151	DQYQPIDQSD	FPDKALRESI	IKQVGTRRGD	LERFKGTLRL	DNPEIKDLTG	1200
1201	LNKLKRVAKL	ELINLPKITK	IDKDDLPONL	KPLTDNQKSN	LEIKGTYDDS	1250
1251	KLYKDIPAFD	LVISGLSGLE	SLDISGHQRD	TLSGIDASTL	PSLKAINISD	1300
1301	NHFDLAQGTE	NRHILDTILA	TLAKNGASTA	SFDKQKPKGL	YPESYSTAPL	1350
1351	HLQVGQGKIN	VIDDLIFGTR	TNQNTLINTE	NDFEAYKEQT	IQGKPFPIAPD	1400
1401	YLYDNFKVSY	KEYSASIVDS	TLAETTDKTI	DTAKAETYQV	TVSNKDGKTV	1450
1451	HSVKVIVGDE	KPMNVNLAQD	AKIIGTDNMT	QSAKVFDGQK	DQFLLSWNKD	1500
1501	SSVIFELKTP	GTAKHWRFFD	DGKNDSVTLS	VFKGDASNFE	TEKDKAENWV	1550
1551	EITKDSRKND	DKVFSSPLEV	DNAKYLKVTI	KKEAKYIYFN	ELQILGYPGV	1600
1601	VAKKTADDLR	PTEADKSDDK	SDKNDTEAK			1629

[図38]

配列番号 8 1 Endo-Rp N172H_Endo-Si D241M/Q311Lのアミノ酸配列

1	MPSLELQQAA	DTRLFESMPL	QTMNELGSWE	PSNASRANIA	TIPLHQRSNL	50
51	DPAEPRLIVT	HDMAGGYKED	SNIQGNTYDT	IYSCQYWQYV	DTFIYFSHHR	100
101	VTIPPVNWIN	ACHRNGVKTL	GTFFIVEGAAG	MFALERFVYG	PEPGQRNSWS	150
151	PYYADKLVDI	AEFYGFDGWL	LHIESDFFPL	YRNPSLKAIH	LAKLLRYLKN	200
201	AMHARVPGSE	IIWYDSMTTN	GSVQWQNNIT	PKNSIFFEAA	DGIFLNYWWN	250
251	ATVPPLALQV	AHRLGRQGS	DVYFGTDVWGR	GTFTGGGGFDS	YLAVGTARAF	300
301	KTSSALFGTA	WIYEHFGKKD	FELMDRLWL	GGDQSEYPAQ	EGEQNRTVKV	350
351	TSHLGRHPGI	ADVSPVRSAP	GKTWFATWFD	RGYGTGFYYQ	GKKLLSQPWS	400
401	HLSHQSIIPP	NLIARLQREEN	HGLSYFLADD	DAYIGGTSLL	IAAEITQERQ	450
451	LPLYQLLEYDV	TEGCEVQFIY	KSPEDMQGK	IDIYLNQVLT	DILDELAFY	500
501	WQDVTDASSQ	ADATTAMRLY	LNENTVIYLK	PSRKQELAEG	WLLCSVRVPP	550
551	TYPLGIATIK	ELGIHVDGKE	TVLFRLGLLT	IIPLGDAPSA	LSRITQVQLQ	600
601	RDEDIHSCKP	SSSCELWATL	SWMMEHNSKE	DWDQVDHYMI	FFKNVDSKAE	650
651	PIFLGTSFST	EYRISGLEIK	KHGNSIEIWA	VNRLGTVIAR	QDIDIQGGGG	700
701	SGGGSGGGGG	SHHHHHHEFG	GGGSGGGGSG	GGGSREELKM	PNGLEQSIAD	750
751	VEAKIDALTY	LSKNSKDEFK	HSMYEIPSNR	EHKPVSPKQA	LQNAKKADAQ	800
801	AERLAKMTIP	KKEELKALEG	PLYGGYFRTW	QDKTSDPTET	NKVNSFGELP	850
851	KEVDLAFVFH	DYTKDYSLEW	EELATKQVPK	LNKQGTRVIR	TIPWRFLSGA	900
901	DHSDISADKE	KFPNTEAGNK	ALAKAIVDEY	VYKYNLDGLD	IMIERDSVPK	950
951	VNDKEDPEAL	ARTVEVFKEI	GKLIGANGAD	KSRLIMDTT	YTAEENPLIK	1000
1001	ETAQYLNLLL	VLVYGFSGEN	GNYLHHKNIL	DETSSMEGRW	QGYSKYIRPE	1050
1051	QYMGVFSFYE	EKDFNNRWKD	INEEDPSDPH	IGEKIQGTRA	ERYAKWQPKT	1100
1101	GGGLKGLFSY	AIDRDGVAQP	KQKTEHPELD	KIVKSEYKVS	KALKKLMMTD	1150
1151	DQYQPIDQSD	FPDKALRESI	IKQVGTRRGD	LERFKGTLRL	DNPEIKDLTG	1200
1201	LNKLKRVAKL	ELINLPKITK	IDKDDLQPNL	KPLTDNQKSN	LEIKGTYYDS	1250
1251	KLYKDIPAFD	LVISGLSGLE	SLDISGHQRD	TLSGIDASTL	PSLKAINISD	1300
1301	NHFDLAQGTE	NRHILDITLA	TLAKNGASTA	SFDKQKPKGL	YPESYSTAPL	1350
1351	HLQVGQGKIN	VIDDLIFGTR	TNQTNLINTE	NDFEAYKEQT	IQGKPFIAPD	1400
1401	YLYDNFKVSY	KEYSASIVDS	TLAETTDKTI	DTAKAETYQV	TVSNKDGKTV	1450
1451	HSVKVIVGDE	KPMNVNLAQD	AKIIGTDNMT	QSAKVFDGQK	DQFLLSWNKD	1500
1501	SSVIFELKTP	GTAKHWRFFD	DGKNDSVTLS	VFKGDASNFE	TEKDKAENWV	1550
1551	EITKDSRKND	DKVFSSPLEV	DNAKYLVKTI	KKEAKYIYFN	ELQILGYPGV	1600
1601	VAKKTADDLR	PTEADKSDDK	SDKNDTEAK			1629