MAVEGGMKCVKFLLYVLLLAFCACAVGLIAIGVAVQVVLKQAMHGSLAEAKVLANR
ELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPGSELREGVELCPGNKYEMRRH
GTTHSLVIHDDSGSPFPAAVILRDALHMARGLKYLHQELMHITHETTAGSLLPVVIIA
VGAFLFLVAFVGCCGACKENYCLMITFAIFLSLIMLVEVAVAIAGYVFRDQVKSEFNK
SFQQQMQNYLKDNKTATILDKLQKENNCCGATRRTQHDEAVDANSLAEAKVLANR
ELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPRTCTSGVYDFFVWLGRGHLLG
RLAAIVGKQVLLGRKVVVVRSHCHWNDLAVIPAGVVHNWDFEPRKVSCTPSKPSF
QEFVDWENVSPELNSTDQPFLSGTRSNYTDWENIPGMAKDRVPDSCCINITVGCG
NDFKESTIHTQGCVETIAIWLRKNILLVAAAALGIAFVEVLGIIFSCCLVKSIRSGYEVM
GSGSGSGSGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRI
VLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVT
PNMIDYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGW
RLCERILAHHHHHH*

SEQ ID NO:10 mCD63-ABDX2-Mut30-Nanoluc (SEQ ID NO: 39)

MAVEGGMKCVKFLLYVLLLAFCACAVGLIAIGVAVQVVLKQAMHGSLAEAKVLANR
ELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPGSELMHITHETTAGSLLPVVIIA
VGAFLFLVAFVGCCGACKENYCLMITFAIFLSLIMLVEVAVAIAGYVFRDQVKSEFNK
SFQQQMQNYLKDNKTATILDKLQKENNCCGATRRTQHDEAVDANSLAEAKVLANR
ELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPRTCTPSKPSFQEFVDWENVSP
ELNSTDQPFLSGTRSNYTDWENIPGMAKDRVPDSCCINITVGCGNDFKESTIHTQG
CVETIAIWLRKNILLVAAAALGIAFVEVLGIIFSCCLVKSIRSGYEVMGSGSGSGSGSV
FTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIH
VIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYE
GIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILAHHHH
HH*

SEQ ID NO:11 mCD9-Nluc (SEQ ID NO: 40)

PSYNJJVNFIN\OOIJIQIIIZODJIDYODLJOZOUIGVTWNVPKIIHTHQQKVVI\WJY\IOLJDJDO
PPOYJIOJFIJDYTHVTFPOJOIIJIOOYIIDIHIDDDYZJ\WKNGHYINHOTHI\NGW\TNOUVNGH
STUHWONDIKPDOGFFJIWUDJSOHTIIVGWFSNNTOOHVITYNSFSHDIVHYIQQNIKILJDYJLJIDYY
PIIJPIIVPIOFFDIIJUVUHPYJVYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSIT
UIYOVJIQJONIGIKYIS\HJOVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS
\HJIDYIGJNNIWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:12 mCD9-ABDX2-Nluc (SEQ ID NO: 41)

P SYNJ J VNF IN \ OOIJ IQ III Z ODJ IDYODLJ OZ OU IGVT WNVP KODHDNYODQUHOGN \ J YVGI \ NU
OIQNDNWYHJ YHDONOKIODDOSP KIIHT HQQKVVI \ WJ Y \ IOLJ DJ DOP P OYJ IOJ F FJ DYT HVT F P O
J OIIJ IOOYIIDIHIDDDYZ J \ WKNGHYINHOT HI \ NGW \ T NOUVNGHST UHWONDIKP DOGF F J IWUT K
GHDYGDQVODHDNYODQUHOGN \ J YVGI \ NUOIQNDNWYHJ YHDONOKIODDOSWUDJ SOHT IIVGWF S
NNT OOHVIT YNSF SHDIVHYIQQNIKILJ DYJ LJ IDYYP IIJ P IIVP IOF F DIIJUVUHP YJ VYIWOHGIYJ
GZ UTWDJ \ QOGT YOHT J J YVVOIT QOJ YVYWSIT UIYOVJ HQJ ONIGIKYIS \ HJ OVJ GT P JT IHNII
NYY \ SYGGKK INYIOK \ J WOYIGJ YWSQP IG \ IJ US \ HJ IDYIGJ NNIWYWJ WOZ QJ QNIIGHUOIQSGJ
VOOIUYWIQJ YWJ Z UOF HUIOD#

SEQ ID NO:13 mCD9-ABD 1 st-Nluc (SEQ ID NO: 42)

P SYNJ J VNF IN \ OOIJ IQ III Z ODJ IDYODLJ OZ OU IGVT WNVP KODHDNYODQUHOGN \ J YVGI \ NU
OIQNDNWYHJ YHDONOKIODDOSP KIIHT HQQKVVI \ WJ Y \ IOLJ DJ DOP P OYJ IOJ F FJ DYT HVT F P O
J OIIJ IOOYIIDIHIDDDYZ J \ WKNGHYINHOT HI \ NGW \ T NOUVNGHST UHWONDIKP DOGF F J IWUDJ
SOHT IIVGWF SNNT OOHVIT YNSF SHDIVHYIQQNIKILJ DYJ LJ IDYYP IIJ P IIVP IOF F DIIJUVUHP Y
J VYIWOHGIYJ GZ UTWDJ \ QOGT YOHT J J YVVOIT QOJ YVYWSIT UIYOVJ HQJ ONIGIKYIS \ HJ OV
J GT P JT IHNIINYY \ SYGGKK INYIOK \ J WOYIGJ YWSQP IG \ IJ US \ HJ IDYIGJ NNIWYWJ WOZ QJ Q
NIIGHUOIQSGJ VOOIUYWIQJ YWJ Z UOF HUIOD#

SEQ ID NO:14 mCD9-ABD 2 nd-Nluc (SEQ ID NO: 43)

P SYNJ J VNF IN \ OOIJ IQ III Z ODJ IDYODLJ OZ OU IGVT WNVP KIIHT HQQKVVI \ WJ Y \ IOLJ DJ DO
P P OYJ IOJ F FJ DYT HVT F P OJ OIIJ IOOYIIDIHIDIDDYZ J \ WKNGHYINHOT HI \ NGW \ T NOUVNGH
STUHWONDIKP DOGF F J IWUT KGHDYGDQVODHDNYODQUHOGN \ J YVGI \ NUOIQNDNWYHJ YHDON
OKIODDOSWUDJ SOHT IIVGWF SNNT OOHVIT YNSF SHDIVHYIQQNIKILJ DYJ LJ IDYYP IIJ P IIVP IO
F F DIIJUVUHP YJ VYIWOHGIYJ GZ UTWDJ \ QOGT YOHT J J YVVOIT QOJ YVYWSIT UIYOVJ HQJ ON
IGIKYIS \ HJ OVJ GT P JT IHNIINYY \ SYGGKK INYIOK \ J WOYIGJ YWSQP IG \ IJ US \ HJ IDYIGJ NN
IWYWJ WOZ QJ QNIIGHUOIQSGJ VOOIUYWIQJ YWJ Z UOF HUIOD#

SEQ ID NO:15 mCD81-Nluc (SEQ ID NO: 48)

P J YHJ F WNF IN \ OOIYIQ IYIZ ODJ J YIOJ YDOZ OUKGST WWVOO \ P KOHOJ QNSDSQWI \ YJ I \ IOID
YJ DYP P IYJ IOJ F \ J DIT HVT F OOJ WIIWF OYIOIDF HYDDJ IZ J IYQNGT IDNGYNT I \ GT DOT T D
YP GGGDQQDNDYYNWIKHWOQ F F J VWUQDOWWOWWWIOUQVOF SVJ J QIOWSOOT T GF KT NIGHOIVJ
NO \ OLJ IDDIYYDYIP IIHP IOVP YOF F J IJQVVY \ J VYIWOHGIYJ GZ UTWDJ \ QOGT YOHT J J YVVOI
T QOJ YVYWSIT UIYOVJ HQJ ONIGIKYIS \ HJ OVJ GT P JT IHNIINYY \ SYGGKK INYIOK \ J WOYIGJ Y
WSQP IG \ IJ US \ HJ IDYIGJ NNIWYWJ WOZ QJ QNIIGHUOIQSGJ VOOIUYWIQJ YWJ Z UOF HUIOD#

SEQ ID NO:16 mCD81-ABDX2-Nluc (SEQ ID NO: 49)

P J YHJ F WNF IN \ OOIYIQ IYIZ ODJ J YIOJ YDOZ OUKGST WWVOO \ P KODHDNYODQUHOGN \ J YVG
I \ NUOIQNDNWYHJ YHDONOKIODDOSP KOHOJ QNSDSQWI \ YJ I \ IODYJ DYP P IYJ IOJ F \ J DIT HV
T F OOJ WIIWF OYIOIDF HYDDJ IZ J IYQNGT IDNGYNT I \ GT DOT T DYP GGGDQQDNDYYNWIKHWO
QF F J VWUT KGHDYGDQVODHDNYODQUHOGN \ J YVGI \ NUOIQNDNWYHJ YHDONOKIODDOSWUQDO
WWOWWWIOUQVOF SVJ J QIOWSOOT T GF KT NIGHOIVJ NO \ OLJ IDDIYYDYIP IIHP IOVP YOF F J IJQVV
Y \ J VYIWOHGIYJ GZ UTWDJ \ QOGT YOHT J J YVVOIT QOJ YVYWSIT UIYOVJ HQJ ONIGIKYIS \ HJ

OVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS\HJIDYIGJNNIWYWJWOZQ
JQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:17 mCD81-ABD 1 st-Nluc (SEQ ID NO: 50)

PJYHJFWNFIN\OOIYIQIYIZODJJYIOJYDOZOUKGSTWWVOO\PKODHDNYODQUHOGN\JYVG
I\NUOIQNDNWYHJYHDONOKIODDOSPKOHOJQNSDSQWI\YJI\IODYJDYPPIYJIOJF\JDITHV
TFOOJWIIWFOYIOIDFHYDDJIZJIYQNGTIDNGYNTI\GTDOTTDYPGGGDQQDNDYYNWIKHWO
QFFJVWUQDOWWOWWWIOUQVOFSVJJQIOWSOOTTGFKTNIGHOIVJNO\OLJIDDIYYDYIPIIHPIOVP
YOFFJIJQVVY\JVYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSITUIYOVJHQJO
NIGIKYIIS\HJOVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS\HJIDYIGJN
NIWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:18 mCD81-ABD 2 nd-Nluc (SEQ ID NO: 51)

PJYHJFWNFIN\OOIYIQIYIZODJJYIOJYDOZOUKGSTWWVOO\PKOHOJQNSDSQWI\YJI\IOID
YJDYPPIYJIOJF\JDITHVTFOOJWIIWFOYIOIDFHYDDJIZJIYQNGTIDNGYNTI\GTDOTTD
YPGGGDQQDNDYYNWIKHWOQFFJVWUTKGHDYGDQVODHDNYODQUHOGN\JYVGI\NUOIQNDNW
YHJYHDONOKIODDOSWUQDOWWOWWWIOUQVOFSVJJQIOWSOOTTGFKTNIGHOIVJNO\OLJIDDIYYD
YIPIIHPIOVPYOFFJIJQVVY\JVYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSIT
UIYOVJHQJONIGIKYIIS\HJOVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS
\HJIDYIGJNNIWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:19 hCD9-Nluc (SEQ ID NO: 52)

PSYNJJWNFIN\OOIJIQIIIZODJIDYODLJOZOUIGVTWNVIPKIHTHWQQQQVVI\WJY\IOLJDJD
OPPOYJIOJFFJDYTHVTFPOJOIIJIOOYIIDIHIDDDIZJ\VKNGHYINHYTHI\NGW\QNONWNGH
STUHWONDIK\DOQFFJOWUDJJYHTIIVGIFSNNGYOHWIWYNVFSGDINHYIGQNIKIIJDYJLJIDYY
PIIJPIIVPIOFFDIJUQUHPYJVYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSIT
UIYOVJHQJONIGIKYIIS\HJOVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS
\HJIDYIGJNNIWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:20 hCD9-ABDX2-Nluc (SEQ ID NO: 53)

PSYNJJWNFIN\OOIJIQIIIZODJIDYODLJOZOUIGVTWNVIPKODHDNYODQUHOGN\JYVGI\NU
OIQNDNWYHJYHDONOKIODDOSPKIHTHWQQQQVVI\WJY\IOLJDJDOPPOYJIOJFFJDYTHVTF
POJOIIJIOOYIIDIHIDDDIZJ\VKNGHYINHYTHI\NGW\QNONWNGHSTUHWONDIK\DOQFFJOWU
TKGHDYGDQVODHDNYODQUHOGN\JYVGI\NUOIQNDNWYHJYHDONOKIODDOSWUDJJYHTIIVGL
FSNNGYOHWIWYNVFSGDINHYIGQNIKIIJDYJLJIDYYPIIJPIIVPIOFFDIJUQUHPYJVYIWOHGI
YJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSITUIYOVJHQJONIGIKYIIS\HJOVJGTPJTIH
NIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS\HJIDYIGJNNIWYWJWOZQJQNIIGHUOIQS
GJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:21 hCD9-ABD 1 st-Nluc (SEQ ID NO: 54)

PSYNJJWNFIN\OOIJIQIIIZODJIDYODLJOZOUIGVTWNVIPKODHDNYODQUHOGN\JYVGI\NU
OIQNDNWYHJYHDONOKIODDOSPKIHTHWQQQQVVI\WJY\IOLJDJDOPPOYJIOJFFJDYTHVTF
POJOIIJIOOYIIDIHIDDDIZJ\VKNGHYINHYTHI\NGW\QNONWNGHSTUHWONDIK\DOQFFJOWU

DJJYHTILVGIFSNNGYOHWIWYNVFSGDINHYIGQNIKILWDYJLWIDYYPLIJPLIVPLOFFDLWUQUH
PYJVYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSITULYOVJHQJONIGIKYIS\HJ
OVJGTPJTIHNLINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS\HJIDYIGJNNIWYWJWOZQ
JQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:22 hCD9-ABD 2 nd-Nluc (SEQ ID NO: 55)

PSYNJJWNFIN\OOIJIQIIIZODJIDYODLWOZOUIGVTWNVIPKIHTHWQQQQVVI\WJY\IOLWDJD
OPPOYJIOJFFJDYTHVTFPOJOIIJIOOYLIDIHIDDDIZJ\VKNGHYINHYTHI\NGW\QNONWNGH
STUHWONDIK\DOQFFJOWUTKGHDYGDQVODHDNYODQUHOGN\JYVGI\NUOIQNDNWYHJYHDON
OKIODDOSWUDJJYHTILVGIFSNNGYOHWIWYNVFSGDINHYIGQNIKILWDYJLWIDYYPLIJPLIVPIO
FFDLWUQUHPYJVYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSITULYOVJHQJON
IGIKYIS\HJOVJGTPJTIHNLINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS\HJIDYIGJNN
IWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:23 hCD63-Nluc (SEQ ID NO: 56)

PDYHJJPNFYNIOO\YOOODIFDFDYJOIDYJYJDTOYOVTWJWITJDWSJVOOSYYIIDYJYIOIOYD
IYJFFJDFNHQ\FOPIWIDIIOVOIPOYHYDDDIDJ\YIUGNYPVHIQQQIUTTPHQ\SNQQKWDVIO
GUPTDGINFFJDJVDQ\WGZHNISVPVNQUYSGVFFIQYWYJFJIQIQHNDIKNHJFYHNLWJJZOU
NQYOYYDDDDOJIDIYHYOJIYIDFFOYNVIWVJ\HYPYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVV
OITQOJYVYWSITULYOVJHQJONIGIKYIS\HJOVJGTPJTIHNLINYY\SYGGKKINYIOK\JWOYIG
JYWSQPIG\IJUS\HJIDYIGJNNIWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:24 hCD63-ABDX2-Nluc (SEQ ID NO: 57)

PDYHJJPNFYNIOO\YOOODIFDFDYJOIDYJYJDTOYOVTWJWODHDNYODQUHOGN\JYVGI\NUO
IQNDNWYHJYHDONOKIODDOSJWITJDWSJVOOSYYIIDYJYIOIOYDIYJFFJDFNHQ\FOPIWIDIIO
VOIPOYHYDDDIDJ\YIUGNYPVHIQQQIUTTPHQ\SNQQKWDVIOGUPTDGINFFJDJVTKGHDY
GDQVODHDNYODQUHOGN\JYVGI\NUOIQNDNWYHJYHDONOKIODDOSJVDQ\WGZHNISVPVNQU
YSGVFFIQYWYJFJIQIQHNDIKNHJFYHNLWJJZOUNQYOYYDDDDOJIDIYHYOJIYIDFFOYNVIWVJ
\HYPYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSITULYOVJHQJONIGIKYIS\HJ
OVJGTPJTIHNLINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS\HJIDYIGJNNIWYWJWOZQ
JQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:25 hCD63-ABD 1 st-Nluc (SEQ ID NO: 58)

PDYHJJPNFYNIOO\YOOODIFDFDYJOIDYJYJDTOYOVTWJWODHDNYODQUHOGN\JYVGI\NUO
IQNDNWYHJYHDONOKIODDOSJWITJDWSJVOOSYYIIDYJYIOIOYDIYJFFJDFNHQ\FOPIWIDIIO
VOIPOYHYDDDIDJ\YIUGNYPVHIQQQIUTTPHQ\SNQQKWDVIOGUPTDGINFFJDJVDQ\WGZ
HNISVPVNQUYSGVFFIQYWYJFJIQIQHNDIKNHJFYHNLWJJZOUNQYOYYDDDDOJIDIYHYOJIYI
DFFOYNVIWVJ\HYPYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSITULYOVJHQJ
ONIGIKYIS\HJOVJGTPJTIHNLINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS\HJIDYIGJ
NNIWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:26 hCD63-ABD 2 nd-Nluc (SEQ ID NO: 59)

PDYHJJPNFYNIOO\YOOODIFDFDYJOIDYJYJDTOYOVTWJWITJDWSJVOOSYYIIDYJYIOIOYD
IYJFFJDFNHQ\FOPIWIDIIOVOIPOYHYDDDIDJ\YIUGNYPVHIQQQIUTTPHQ\SNQQKWDVIO
GUPTDGINFFJDJVTKGHDYGDQVODHDNYODQUHOGN\JYVGI\NUOIQNDNWYHJYHDONOKIODD
DOSJVDQ\WGZHNISVPVNQUYSGVFFIQYWYJFJIQIQHNDIKNHJFYHNIJJZOUNQYOYYDDDDO
JIDIYHYOJIYIDFFOYNVIIVJ\HYPYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYW
SITUIYOVJHQJONIGIKYIS\HJOVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\I
JUS\HJIDYIGJNNIWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:27 hCD63-RC 2 nd-Nluc (SEQ ID NO: 60)

PDYHJJPNFYNIOO\YOOODIFDFDYJOIDYJYJDTOYOVTWJWITJDWSJVOOSYYIIDYJYIOIOYD
IYJFFJDFNHQ\FOPIWIDIIOVOIPOYHYDDDIDJ\YIUGNYPVHIQQQIUTTPHQ\SNQQKWDVIO
GUPTDGINFFJDJVJNJFN\YNONFIKSIGVIJOIQNSIINYWQSIOINISIVT\IVIJTDYVI\VOIPO
JVDQ\WGZHNISVPVNQUYSGVFFIQYWYJFJIQIQHNDIKNHJFYHNIJJZOUNQYOYYDDDDOJID
IYHYOJIYIDFFOYNVIIVJ\HYPYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSIT
UIYOVJHQJONIGIKYIS\HJOVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS
\HJIDYIGJNNIWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:28 hCD81-Nluc (SEQ ID NO: 61)

PJYHJFWNFIN\OOIYIQIYIZODJJYIOJYDOZOUKGSTWWQOO\OHPKOJGNSDSQWI\YJI\IOID
YJDYPPIYJIOJF\JDITHVTFOOJWIIWFOYIOIDFHYDDJIZJIYQNGTIDNGYNTI\GTDOTTD
YYGGGDQQDNDYYNWIKHWOGFFJVWUVWOWDOWWVYONQQOFSVJVQIIVQOINHGFKTNIGGOIVJN
O\OLJIDDIYYDYIPIIHPIOVPYOFFJIJQVVY\JVYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOI
TQOJYVYWSITUIYOVJHQJONIGIKYIS\HJOVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJY
WSQPIG\IJUS\HJIDYIGJNNIWYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:29 hCD81-ABDX2-Nluc (SEQ ID NO: 62)

PJYHJFWNFIN\OOIYIQIYIZODJJYIOJYDOZOUKGSTWWQOO\OHPKODHDNYODQUHOGN\JYV
GI\NUOIQNDNWYHJYHDONOKIODDOSPKOJGNSDSQWI\YJI\IOIDYJDYPPIYJIOJF\JDITHVT
FOOJWIIWFOYIOIDFHYDDJIZJIYQNGTIDNGYNTI\GTDOTTDYYGGGDQQDNDYYNWIKHWOGF
FJVWUTKGHDYGDQVODHDNYODQUHOGN\JYVGI\NUOIQNDNWYHJYHDONOKIODDOSWUVWOWDO
WWVYONQQOFSVJVQIIVQOINHGFKTNIGGOIVJNO\OLJIDDIYYDYIPIIHPIOVPYOFFJIJQVVY\J
VYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSITUIYOVJHQJONIGIKYIS\HJOVJ
GTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS\HJIDYIGJNNIWYWJWOZQJQN
IIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:30 hCD81-ABD 1 st-Nluc (SEQ ID NO: 63)

PJYHJFWNFIN\OOIYIQIYIZODJJYIOJYDOZOUKGSTWWQOO\OHPKODHDNYODQUHOGN\JYV
GI\NUOIQNDNWYHJYHDONOKIODDOSPKOJGNSDSQWI\YJI\IOIDYJDYPPIYJIOJF\JDITHVT
FOOJWIIWFOYIOIDFHYDDJIZJIYQNGTIDNGYNTI\GTDOTTDYYGGGDQQDNDYYNWIKHWOGF
FJVWUVWOWDOWWVYONQQOFSVJVQIIVQOINHGFKTNIGGOIVJNO\OLJIDDIYYDYIPIIHPIOVPYO
FFJIJQVVY\JVYIWOHGIYJGZUTWDJ\QOGTYOHTJJYVVOITQOJYVYWSITUIYOVJHQJONL
GIKYIS\HJOVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQPIG\IJUS\HJIDYIGJNNL
WYWJWOZQJQNIIGHUOIQSGJVOOIUYWIQJYWJZUOFHUIOD#

SEQ ID NO:31 hCD81-ABD 2 nd-Nluc (SEQ ID NO: 64)

PJYHJFWNFIN\OOIYIQIYIZ ODJJYIOJYDOZ OUKGSTWWQOO\OHP KOJGNSDSQWI\YJIL\IDD
YJDYP P IYJ IOJF\JDITHVTFOOJWIIWFOYIOIDFHYDDJIZ J IYQNGTIDNGYNTI\GTDQTTD
YYGGGDQQDNDYYNWIKHWOGFFJVWUTKGHDYGDQVODHDNYODQUHOGN\JYVGI\NUOIQNDNW
YHJYHDONOKIODDOSWUVWOWDOWWVYONQQOFSVJVQIIVQOINHGFKTNIGGOIVJNO\OIIDDIYYD
YIP IIHP IOVP YOFFJIJQVVY\JVYIWOHGIYJGZ UTWDJ\QOGTYOHTJJYVVOITQOJYVYWSIT
UIYOVJHQJONIGIKYIS\HJOVJGTPJTIHNIINYY\SYGGKKINYIOK\JWOYIGJYWSQP IG\IJUS
\HJIDYIGJNNIWYWJWOZ QJQNIIGHUOIQSGJVOOIUYWIQJYWJZ UOFHUIOD#

SEQ ID NO:32 Lamp2B-Nluc (SEQ ID NO: 65)

PYFIUOISYSJVJOYOYFOYOJDYUV\DONIHWJJDSPKIVTDYKDDKDHIQHDJUVIIQIHNOFWVY\
GIIYZ OJUJKOOJUODDIYJNTYOOJUNYYYYUVKFKZ QGODYISDJYYKQZ GIHSUNYVSVNSVI
THIYGZ HQYVSHOQVWGTSIOFWJVJVJVJVJVONSDJIOISIIYJDJOVJOIIYIYID\YIJUUNV\DJD
TWOJJJJV\ISHDSUGJTD\YUNGJHZ YOOVWIOVSDQJWSWSWSWSWJUVO\SVOHGONYGNYITD
TWDIVDQSDQSDIOVHDVDSISKGJQO\SUO\SHOVT\PJOVOHJJTOJWSWSWSWSWJJVYIWOHGI
YJGZ UTWDJ\QOGTYOHTJJYVVOITQOJYVYWSITUIYOVJHQJONIGIKYIS\HJOVJGTPJTIH
NIINYY\SYGGKKINYIOK\JWOYIGJYWSQP IG\IJUS\HJIDYIGJNNIWYWJWOZ QJQNIIGHUOIQS
GJVOOIUYWIQJYWJZ UOFHUIOD#

SEQ ID NO:33 Lamp2B-ABD-Nluc (SEQ ID NO: 66)

PYFIUOISYSJVJOYOYFOYOJDYUV\DONIHTKGHDYGDQVODHDNYODQUHOGN\JYVGI\NUOIQ
NDNWYHJYHDONOKIODDOSIHWJJDSPKIVTDYKDDKDHIQHDJUVIIQIHNOFWVY\GIIYZ OJUJK
OOJUODDIYJNTYOOJUNYYYYUVKFKZ QGODYISDJYYKQZ GIHSUNYVSVNSVITHIYGZ HQYV
SHOQVWGTSIOFWJVJVJVJVJVONSDJIOISIIYJDJOVJOIIYIYID\YIJUUNV\DJDTWOJJJJV\L
SHDSUGJTD\YUNGJHZ YOOVWIOVSDQJWSWSWSWSWJUVO\SVOHGONYGNYITDTWDIVDQSDQ
SDIOVHDVDSISKGJQO\SUO\SHOVT\PJOVOHJJTOJWSWSWSWSWJJVYIWOHGIYJGZ UTWDJ
\QOGTYOHTJJYVVOITQOJYVYWSITUIYOVJHQJONIGIKYIS\HJOVJGTPJTIHNIINYY\SYGG
KKINYIOK\JWOYIGJYWSQP IG\IJUS\HJIDYIGJNNIWYWJWOZ QJQNIIGHUOIQSGJVOOIUYWIQ
JYWJZ UOFHUIOD#

MAVEGGMKCVKFLLYVLLLAFCACAVGLIAIGVAVQVVLKQAMHGSLAEAKVLANR
ELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPGSELREGVELCPGNKYEMRRH
GTTHSLVIHDDSGSPFPAAVILRDALHMARGLKYLHQELMHITHETTAGSLLPVVIIA
VGAFLFLVAFVGCCGACKENYCLMITFAIFLSLIMLVEVAVAIAGYVFRDQVKSEFNK
SFQQQMQNYLKDNKTATILDKLQKENNCCGATRRTQHDEAVDANSLAEAKVLANR
ELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPRTCTSGVYDFFVWLGRGHLLG
RLAAIVGKQVLLGRKVVVVRSHCHWNDLAVIPAGVVHNWDFEPRKVSCTPSKPSF
QEFVDWENVSPELNSTDQPFLSGTRSNYTDWENIPGMAKDRVPDSCCINITVGCG
NDFKESTIHTQGCVETIAIWLRKNILLVAAAALGIAFVEVLGIIFSCCLVKSIRSGYEVM
GSGSGSGSGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRI
VLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVT
PNMIDYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGW
RLCERILAHHHHHH*

SEQ ID NO:10 mCD63-ABDX2-Mut30-Nanoluc (SEQ ID NO: 39)

MAVEGGMKCVKFLLYVLLLAFCACAVGLIAIGVAVQVVLKQAMHGSLAEAKVLANR
ELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPGSELMHITHETTAGSLLPVVIIA
VGAFLFLVAFVGCCGACKENYCLMITFAIFLSLIMLVEVAVAIAGYVFRDQVKSEFNK
SFQQQMQNYLKDNKTATILDKLQKENNCCGATRRTQHDEAVDANSLAEAKVLANR
ELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPRTCTPSKPSFQEFVDWENVSP
ELNSTDQPFLSGTRSNYTDWENIPGMAKDRVPDSCCINITVGCGNDFKESTIHTQG
CVETIAIWLRKNILLVAAAALGIAFVEVLGIIFSCCLVKSIRSGYEVMGSGSGSGSGSV
FTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIH
VIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYE
GIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILAHHHH
HH*

SEQ ID NO:11 mCD9-Nluc (SEQ ID NO: 40)

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MPVKGGSKCIKYLLFGFNFIFWLAGIAVLAIGLWLRFDSQTKSMHIFEQENNHSSFYTGVYILIGAGA
LMMLVGFLGCCGAVQESQCMLGLFFGFLLVIFAIEIAAAVWGYTHKDEVIKELQEFYKDTYQKLRSKD
EPQRETLKAIHMALDCCGITRAGPLEQFISDTCPKKQLLESFQVKPCPEAISEVFNNKFHIIGAVGIG
IAVVMIFGMIFSMILCCAIRRSREMVGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVT
PIQRIVLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMI
DYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA
```

SEQ ID NO:12 mCD9-ABDX2-Nluc (SEQ ID NO: 41)

MPVKGGSKCIKYLLFGFNFIFWLAGIAVLAIGLWLRFDSQTKSMHLAEAKVLANRELDKYGVSDFYKR
LINKAKTVEGVEALKLHILAALPMHIFEQENNHSSFYTGVYILIGAGALMMLVGFLGCCGAVQESQCM
LGLFFGFLLVIFAIEIAAAVWGYTHKDEVIKELQEFYKDTYQKLRSKDEPQRETLKAIHMALDCCGIT
RQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPTRAGPLEQFIS
DTCPKKQLLESFQVKPCPEAISEVFNNKFHIIGAVGIGIAVVMIFGMIFSMILCCAIRRSREMVGSVF
TLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIHVIIPYEGLSGDQ
MGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGIAVFDGKKITVTGTLWNGNKI
IDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:13 mCD9-ABD 1 st-Nluc (SEQ ID NO: 42)

MPVKGGSKCIKYLLFGFNFIFWLAGIAVLAIGLWLRFDSQTKSMHLAEAKVLANRELDKYGVSDFYKR
LINKAKTVEGVEALKLHILAALPMHIFEQENNHSSFYTGVYILIGAGALMMLVGFLGCCGAVQESQCM
LGLFFGFLLVIFAIEIAAAVWGYTHKDEVIKELQEFYKDTYQKLRSKDEPQRETLKAIHMALDCCGIT
RAGPLEQFISDTCPKKQLLESFQVKPCPEAISEVFNNKFHIIGAVGIGIAVVMIFGMIFSMILCCAIR
RSREMVGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIHVI
IPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGIAVFDGKKITV
TGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:14 mCD9-ABD 2 nd-Nluc (SEQ ID NO: 43)

MPVKGGSKCIKYLLFGFNFIFWLAGIAVLAIGLWLRFDSQTKSMHIFEQENNHSSFYTGVYILIGAGA
LMMLVGFLGCCGAVQESQCMLGLFFGFLLVIFAIEIAAAVWGYTHKDEVIKELQEFYKDTYQKLRSKD
EPQRETLKAIHMALDCCGITRQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVEGVEAL
KLHILAALPTRAGPLEQFISDTCPKKQLLESFQVKPCPEAISEVFNNKFHIIGAVGIGIAVVMIFGMI
FSMILCCAIRRSREMVGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGE
NGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGI
AVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:15 mCD81-Nluc (SEQ ID NO: 48)

MGVEGCTKCIKYLLFVFNFVFWLAGGVILGVALWLRHDPQTTSLLYMHLELGNKPAPNTFYVGIYILI
AVGAVMMFVGFLGCYGAIQESQCLLGTFFTCLVILFACEVAAGIWGFVNKDQIAKDVKQFYDQALQQA
VMDDDANNAKAVVKTFHETLNCCGSTRNALTTLTTTILRNSLCPSGGNILTPLLQQDCHQKIDELFSG
KLYLIGIAAIVVAVIMIFEMILSMVLCCGIRNSSVYGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSS
LFQNLGVSVTPIQRIVLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTL
VIDGVTPNMIDYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCE
RILA

SEQ ID NO:16 mCD81-ABDX2-Nluc (SEQ ID NO: 49)

MGVEGCTKCIKYLLFVFNFVFWLAGGVILGVALWLRHDPQTTSLLYMHLAEAKVLANRELDKYGVSDF
YKRLINKAKTVEGVEALKLHILAALPMHLELGNKPAPNTFYVGIYILIAVGAVMMFVGFLGCYGAIQE
SQCLLGTFFTCLVILFACEVAAGIWGFVNKDQIAKDVKQFYDQALQQAVMDDDANNAKAVVKTFHETL
NCCGSTRQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPTRNAL
TTLTTTILRNSLCPSGGNILTPLLQQDCHQKIDELFSGKLYLIGIAAIVVAVIMIFEMILSMVLCCGI
RNSSVYGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIHVI
IPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGIAVFDGKKITV
TGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:17 mCD81-ABD 1 st-Nluc (SEQ ID NO: 50)

MGVEGCTKCIKYLLFVFNFVFWLAGGVILGVALWLRHDPQTTSLLYMHLAEAKVLANRELDKYGVSDF
YKRLINKAKTVEGVEALKLHILAALPMHLELGNKPAPNTFYVGIYILIAVGAVMMFVGFLGCYGAIQE
SQCLLGTFFTCLVILFACEVAAGIWGFVNKDQIAKDVKQFYDQALQQAVMDDDANNAKAVVKTFHETL
NCCGSTRNALTTLTTTILRNSLCPSGGNILTPLLQQDCHQKIDELFSGKLYLIGIAAIVVAVIMIFEM
ILSMVLCCGIRNSSVYGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGE
NGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGI
AVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:18 mCD81-ABD 2 nd-Nluc (SEQ ID NO: 51)

MGVEGCTKCIKYLLFVFNFVFWLAGGVILGVALWLRHDPQTTSLLYMHLELGNKPAPNTFYVGIYILI
AVGAVMMFVGFLGCYGAIQESQCLLGTFFTCLVILFACEVAAGIWGFVNKDQIAKDVKQFYDQALQQA
VMDDDANNAKAVVKTFHETLNCCGSTRQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTV
EGVEALKLHILAALPTRNALTTLTTTILRNSLCPSGGNILTPLLQQDCHQKIDELFSGKLYLIGIAAI
VVAVIMIFEMILSMVLCCGIRNSSVYGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVT
PIQRIVLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMI
DYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:19 hCD9-Nluc (SEQ ID NO: 52)

MPVKGGTKCIKYLLFGFNFIFWLAGIAVLAIGLWLRFDSQTKSIMHFEQETNNNNSSFYTGVYILIGA
GALMMLVGFLGCCGAVQESQCMLGLFFGFLLVIFAIEIAAAIWGYSHKDEVIKEVQEFYKDTYNKLKT
KDEPQRETLKAIHYALNCCGLTRAGGVEQFISDICPKKDVLETFTVKSCPDAIKEVFDNKFHIIGAVG
IGIAVVMIFGMIFSMILCCAIRRNREMVGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVS
VTPIQRIVLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPN
MIDYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:20 hCD9-ABDX2-Nluc (SEQ ID NO: 53)

MPVKGGTKCIKYLLFGFNFIFWLAGIAVLAIGLWLRFDSQTKSIMHLAEAKVLANRELDKYGVSDFYK
RLINKAKTVEGVEALKLHILAALPMHFEQETNNNNSSFYTGVYILIGAGALMMLVGFLGCCGAVQESQ
CMLGLFFGFLLVIFAIEIAAAIWGYSHKDEVIKEVQEFYKDTYNKLKTKDEPQRETLKAIHYALNCCG
LTRQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPTRAGGVEQF
ISDICPKKDVLETFTVKSCPDAIKEVFDNKFHIIGAVGIGIAVVMIFGMIFSMILCCAIRRNREMVGS
VFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIHVIIPYEGLSG
DQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGIAVFDGKKITVTGTLWNGN
KIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:21 hCD9-ABD 1 st-Nluc (SEQ ID NO: 54)

MPVKGGTKCIKYLLFGFNFIFWLAGIAVLAIGLWLRFDSQTKSIMHLAEAKVLANRELDKYGVSDFYK
RLINKAKTVEGVEALKLHILAALPMHFEQETNNNNSSFYTGVYILIGAGALMMLVGFLGCCGAVQESQ
CMLGLFFGFLLVIFAIEIAAAIWGYSHKDEVIKEVQEFYKDTYNKLKTKDEPQRETLKAIHYALNCCG
LTRAGGVEQFISDICPKKDVLETFTVKSCPDAIKEVFDNKFHIIGAVGIGIAVVMIFGMIFSMILCCA
IRRNREMVGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIH
VIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGIAVFDGKKI
TVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:22 hCD9-ABD 2 nd-Nluc (SEQ ID NO: 55)

MPVKGGTKCIKYLLFGFNFIFWLAGIAVLAIGLWLRFDSQTKSIMHFEQETNNNNSSFYTGVYILIGA
GALMMLVGFLGCCGAVQESQCMLGLFFGFLLVIFAIEIAAAIWGYSHKDEVIKEVQEFYKDTYNKLKT
KDEPQRETLKAIHYALNCCGLTRQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVEGVE
ALKLHILAALPTRAGGVEQFISDICPKKDVLETFTVKSCPDAIKEVFDNKFHIIGAVGIGIAVVMIFG
MIFSMILCCAIRRNREMVGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLS
GENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYE
GIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:23 hCD63-Nluc (SEQ ID NO: 56)

MAVEGGMKCVKFLLYVLLLAFCACAVGLIAVGVGAQLVLSQTGTIIQGATPGSLLPVVIIAVGVFLFL
VAFVGCCGACKENYCLMITFAIFLSLIMLVEVAAAIAGYVFRDKVMSEFNNNFRQQMENYPKNNHTAS
ILDRMQADFKCCGAGSANYTDWEKIPSMSKNRVPDSCCINVTVGCGINFNEKAIHKEGCVEKIGGWLR
KNVLVVAAAALGIAFVEVLGIVFACCLVKSIRSGYEVMVFTLEDFVGDWRQTAGYNLDQVLEQGGVSS
LFQNLGVSVTPIQRIVLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTL
VIDGVTPNMIDYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCE
RILA

SEQ ID NO:24 hCD63-ABDX2-Nluc (SEQ ID NO: 57)

MAVEGGMKCVKFLLYVLLLAFCACAVGLIAVGVGAQLVLSQTGTLAEAKVLANRELDKYGVSDFYKRL
INKAKTVEGVEALKLHILAALPGTIIQGATPGSLLPVVIIAVGVFLFLVAFVGCCGACKENYCLMITF
AIFLSLIMLVEVAAAIAGYVFRDKVMSEFNNNFRQQMENYPKNNHTASILDRMQADFKCCGAGSQHDE
AVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPGSANYTDWEKIPSMSK
NRVPDSCCINVTVGCGINFNEKAIHKEGCVEKIGGWLRKNVLVVAAAALGIAFVEVLGIVFACCLVKS
IRSGYEVMVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIHVI
IPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGIAVFDGKKITV
TGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:25 hCD63-ABD 1 st-Nluc (SEQ ID NO: 58)

MAVEGGMKCVKFLLYVLLLAFCACAVGLIAVGVGAQLVLSQTGTLAEAKVLANRELDKYGVSDFYKRL
INKAKTVEGVEALKLHILAALPGTIIQGATPGSLLPVVIIAVGVFLFLVAFVGCCGACKENYCLMITF
AIFLSLIMLVEVAAAIAGYVFRDKVMSEFNNNFRQQMENYPKNNHTASILDRMQADFKCCGAGSANYT
DWEKIPSMSKNRVPDSCCINVTVGCGINFNEKAIHKEGCVEKIGGWLRKNVLVVAAAALGIAFVEVLG
IVFACCLVKSIRSGYEVMVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGE
NGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGI
AVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:26 hCD63-ABD 2 nd-Nluc (SEQ ID NO: 59)

MAVEGGMKCVKFLLYVLLLAFCACAVGLIAVGVGAQLVLSQTGTIIQGATPGSLLPVVIIAVGVFLFL
VAFVGCCGACKENYCLMITFAIFLSLIMLVEVAAAIAGYVFRDKVMSEFNNNFRQQMENYPKNNHTAS
ILDRMQADFKCCGAGSQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVEGVEALKLHIL
AALPGSANYTDWEKIPSMSKNRVPDSCCINVTVGCGINFNEKAIHKEGCVEKIGGWLRKNVLVVAAAA
LGIAFVEVLGIVFACCLVKSIRSGYEVMVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVT
PIQRIVLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMI
DYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:27 hCD63-RC 2 nd-Nluc (SEQ ID NO: 60)

MAVEGGMKCVKFLLYVLLLAFCACAVGLIAVGVGAQLVLSQTGTIIQGATPGSLLPVVIIAVGVFLFL
VAFVGCCGACKENYCLMITFAIFLSLIMLVEVAAAIAGYVFRDKVMSEFNNNFRQQMENYPKNNHTAS
ILDRMQADFKCCGAGSGKGCKYVKLKCFHPFDSFGLINKPFIKVTNPILIKFPISQYFSFGQAVSIYS
LIMLGSANYTDWEKIPSMSKNRVPDSCCINVTVGCGINFNEKAIHKEGCVEKIGGWLRKNVLVVAAAA
LGIAFVEVLGIVFACCLVKSIRSGYEVMVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVT
PIQRIVLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMI
DYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:28 hCD81-Nluc (SEQ ID NO: 61)

MGVEGCTKCIKYLLFVFNFVFWLAGGVILGVALWLRHDPQTTNLLYLEMHLGDKPAPNTFYVGIYILI
AVGAVMMFVGFLGCYGAIQESQCLLGTFFTCLVILFACEVAAGIWGFVNKDQIAKDVKQFYDQALQQA
VVDDDANNAKAVVKTFHETLDCCGSTRSTLTALTTSVLKNNLCPSGSNIISNLFKEDCHQKIDDLFSG
KLYLIGIAAIVVAVIMIFEMILSMVLCCGIRNSSVYGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSS
LFQNLGVSVTPIQRIVLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTL
VIDGVTPNMIDYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCE
RILA

SEQ ID NO:29 hCD81-ABDX2-Nluc (SEQ ID NO: 62)

MGVEGCTKCIKYLLFVFNFVFWLAGGVILGVALWLRHDPQTTNLLYLEMHLAEAKVLANRELDKYGVS
DFYKRLINKAKTVEGVEALKLHILAALPMHLGDKPAPNTFYVGIYILIAVGAVMMFVGFLGCYGAIQE
SQCLLGTFFTCLVILFACEVAAGIWGFVNKDQIAKDVKQFYDQALQQAVVDDDANNAKAVVKTFHETL
DCCGSTRQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPTRSTL
TALTTSVLKNNLCPSGSNIISNLFKEDCHQKIDDLFSGKLYLIGIAAIVVAVIMIFEMILSMVLCCGI
RNSSVYGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIHVI
IPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGIAVFDGKKITV
TGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:30 hCD81-ABD 1 st-Nluc (SEQ ID NO: 63)

MGVEGCTKCIKYLLFVFNFVFWLAGGVILGVALWLRHDPQTTNLLYLEMHLAEAKVLANRELDKYGVS
DFYKRLINKAKTVEGVEALKLHILAALPMHLGDKPAPNTFYVGIYILIAVGAVMMFVGFLGCYGAIQE
SQCLLGTFFTCLVILFACEVAAGIWGFVNKDQIAKDVKQFYDQALQQAVVDDDANNAKAVVKTFHETL
DCCGSTRSTLTALTTSVLKNNLCPSGSNIISNLFKEDCHQKIDDLFSGKLYLIGIAAIVVAVIMIFEM
ILSMVLCCGIRNSSVYGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGE
NGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGI
AVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA

SEQ ID NO:31 hCD81-ABD 2 nd-Nluc (SEQ ID NO: 64)

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MGVEGCTKCIKYLLFVFNFVFWLAGGVILGVALWLRHDPQTTNLLYLEMHLGDKPAPNTFYVGIYILIAVGAVM
MFVGFLGCYGAIQESQCLLGTFFTCLVILFACEVAAGIWGFVNKDQIAKDVKQFYDQALQQAVVDDDANNAKAV
VKTFHETLDCCGSTRQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVEGVEALKLHILAALPTRS
TLTALTTSVLKNNLCPSGSNIISNLFKEDCHQKIDDLFSGKLYLIGIAAIVVAVIMIFEMILSMVLCCGIRNSS
VYGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENGLKIDIHVIIPYEGLSGDQ
MGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLI
NPDGSLLFRVTINGVTGWRLCERILA
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SEQ ID NO:32 Lamp2B-Nluc (SEQ ID NO: 65)

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MVCFRLFPVPGSGLVLVCLVLGAVRSYALKFETGGAPMHISQAVHAAHAEINEAGRSIINFEKLCTSVYDFFVW
LGRGHLLGRLAAIVGKQVLLGRKVVVVRSHCHWNDLAVIPAGVVHNWDFEPRKVSPSKPSFQEFVDWENVSPEL
NSTDQPFLCTGSGSGSGSGSLKPAGILIPIIVGAGLSGLIIVIVIAYVIGRRKSYAGAQTLGGGGSYIPEAPRD
GQAYVRKDGEWVLLSTFLSPANGTPTPTPTPTGRSLYPSLEDLKVDKVIQAQTAFSANPANPAILSEASAPIPH
DGNLYPRLYPELSQYMGLSLEGGQLGTPTPTPTPTGGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLG
VSVTPIQRIVLSGENGLKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDY
FGRPYEGIAVFDGKKITVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA
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SEQ ID NO:33 Lamp2B-ABD-Nluc (SEQ ID NO: 66)

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MVCFRLFPVPGSGLVLVCLVLGAVRSYALKFEQHDEAVDANSLAEAKVLANRELDKYGVSDFYKRLINKAKTVE
GVEALKLHILAALPFETGGAPMHISQAVHAAHAEINEAGRSIINFEKLCTSVYDFFVWLGRGHLLGRLAAIVGK
QVLLGRKVVVVRSHCHWNDLAVIPAGVVHNWDFEPRKVSPSKPSFQEFVDWENVSPELNSTDQPFLCTGSGSGS
GSGSLKPAGILIPIIVGAGLSGLIIVIVIAYVIGRRKSYAGAQTLGGGGSYIPEAPRDGQAYVRKDGEWVLLST
FLSPANGTPTPTPTPTGRSLYPSLEDLKVDKVIQAQTAFSANPANPAILSEASAPIPHDGNLYPRLYPELSQYM
GLSLEGGQLGTPTPTPTPTGGSVFTLEDFVGDWRQTAGYNLDQVLEQGGVSSLFQNLGVSVTPIQRIVLSGENG
LKIDIHVIIPYEGLSGDQMGQIEKIFKVVYPVDDHHFKVILHYGTLVIDGVTPNMIDYFGRPYEGIAVFDGKKI
TVTGTLWNGNKIIDERLINPDGSLLFRVTINGVTGWRLCERILA
```