

	1	10	20	30	40	50	60
ZM4	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
B23394	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
Z6	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
B4492	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
ATCC10988	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
CU1	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
CU1rif2	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
uvs51	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
NCIMB1163	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
PROIMIA1	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
CP3	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
B12526	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
CP4	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
CP1	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
B1960	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				
ATCC31822	MKRIK	GITLASSLAGAMMLGSLAVDPLPASVSKNPTPDNKTGATQTG	TTAGSGSAIQLLR				

	70	80	90	100	110	120
ZM4	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
B23394	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
Z6	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
B4492	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
ATCC10988	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
CU1	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
CU1rif2	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
uvs51	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
NCIMB1163	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
PROIMIA1	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
CP3	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
B12526	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
CP4	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
CP1	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
B1960	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			
ATCC31822	HQAI	FWKNRGRNDLAANAWORLLEIDPNNKMAKQALQESTFVPAAPESDS	SSPNNAPTKIV			

	130	140	150	160	170	180
ZM4	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
B23394	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
Z6	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
B4492	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
ATCC10988	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
CU1	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
CU1rif2	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
uvs51	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
NCIMB1163	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
PROIMIA1	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
CP3	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
B12526	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
CP4	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
CP1	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
B1960	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		
ATCC31822	TGQGGRSFPTGLTPSARAGR	IRLEGFNAFKNNOLDIAEQRFRRAL	E	LYAHDKDALGGLGI		

	190	200	210	220	230	240
ZM4	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
B23394	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
Z6	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
B4492	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
ATCC10988	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
CU1	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
CU1rif2	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
uvs51	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
NCIMB1163	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
PROIMIA1	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
CP3	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
B12526	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
CP4	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
CP1	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
B1960	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	
ATCC31822	IRLKQHR	YAEAIRYLEEASSDK	D	CYRWANALSSARFYGRFEEAQAAT	IRANQLDKAQSILE	

250 260 270 280 290 300
ZM4 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
B23394 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
Z6 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
B4492 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
ATCC10988 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
CU1 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
CU1rif2 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
uvs51 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
NCIMB11163 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
PROIMIA1 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
CP3 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
B12526 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
CP4 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
CP1 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
B1960 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR
ATCC31822 QLQNQQGGDANVSNALLADIYARQGQFDKAMALYDKLGN SADAVTVARLRSQENSIKARR

310 320 330 340 350 360
ZM4 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
B23394 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
Z6 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
B4492 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
ATCC10988 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
CU1 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
CU1rif2 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
uvs51 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
NCIMB11163 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
PROIMIA1 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
CP3 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
B12526 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
CP4 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
CP1 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
B1960 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA
ATCC31822 ALSQGDYAHAEQYFRTAIANDIANPWLRLDYARLLLKEGHRPEAVSLIRPLEDQASSEEA

370 380 390 400 410 420
ZM4 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
B23394 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
Z6 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
B4492 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
ATCC10988 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
CU1 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
CU1rif2 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
uvs51 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
NCIMB11163 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
PROIMIA1 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
CP3 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
B12526 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
CP4 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
CP1 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
B1960 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD
ATCC31822 IYAASLFWQEMGDNRRHVISLIERIPDDARTPLINQIAESADINIALARAKRMSLYGRRGD

430 440 450 460 470 480
ZM4 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
B23394 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
Z6 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
B4492 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
ATCC10988 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
CU1 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
CU1rif2 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
uvs51 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
NCIMB11163 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
PROIMIA1 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
CP3 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
B12526 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
CP4 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
CP1 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
B1960 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL
ATCC31822 AIGLLRSLANDPNRSISQLGMIADGLLQLGDVEDAAFLAEHSLSLPLGEANDYQASLSVL

	490	500	510	520	530	540
ZM4	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
B23394	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
Z6	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
B4492	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
ATCC10988	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
CU1	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
CUIrif2	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
uvs51	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
NCIMB11163	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
PROIMIA1	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
CP3	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
B12526	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
CP4	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
CP1	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
B1960	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			
ATCC31822	IRTGHYDTASDFISQ	IASEMSRHDQNGYKMLNRTLAI	ARADMMRQKKLYMPAFDVLHQAW			

	550	560	570	580	590	600
ZM4	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
B23394	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
Z6	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
B4492	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
ATCC10988	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
CU1	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
CUIrif2	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
uvs51	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
NCIMB11163	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
PROIMIA1	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
CP3	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
B12526	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
CP4	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
CP1	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
B1960	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				
ATCC31822	EETGGGDNILPVLAR	IYQDAGLTDKAQSLYHYMLRNHPRDASALLNSLTIAQQQGNDDRA				

	610	620	630	640	650	660
ZM4	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
B23394	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
Z6	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
B4492	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
ATCC10988	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
CU1	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
CUIrif2	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
uvs51	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
NCIMB11163	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
PROIMIA1	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
CP3	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
B12526	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
CP4	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
CP1	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
B1960	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			
ATCC31822	EQALRRLKKVAPSNP	VYVYLASARFEKSKSDDEK	ALKDLKKAHRVYQRMVROGRSADLPSP			

	670	680	690	700	710	720
ZM4	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
B23394	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
Z6	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
B4492	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
ATCC10988	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
CU1	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
CUIrif2	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
uvs51	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
NCIMB11163	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
PROIMIA1	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
CP3	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
B12526	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
CP4	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
CP1	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
B1960	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			
ATCC31822	AANDDNSPIVVDAPNLE	IRDNYHPPFALNEEDFRLQTRSQVEMASSDSDAD	MDRDDYHYNR			

	730	740	750	760	770	780
ZM4	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKS	QOSE	VKQPSGFS	SSHPLF	FASSDEENF	
B23394	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKS	QOSE	VKQPSGFS	SSHPLF	FASSDEENF	
Z6	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKS	QOSE	VKQPSGFS	SSHPLF	FASSDEENF	
B4492	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKS	QOSE	VKQPSGFS	SSHPLF	FASSDEENF	
ATCC10988	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOP	AVKQPSGFS	SSHPLF	FASSDEENF	
CU1	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOP	AVKQPSGFS	SSHPLF	FASSDEENF	
CUIrif2	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOP	AVKQPSGFS	SSHPLF	FASSDEENF	
uvs51	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOP	AVKQPSGFS	SSHPLF	FASSDEENF	
NCIMB11163	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOS	AVKQPSGFS	SSHPLF	FASSDEENF	
PROIMIA1	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOS	AVKQPSGFS	SSHPLF	FASSDEENF	
CP3	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOS	AVKQPSGFS	SSHPLF	FASSDEENF	
B12526	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOS	AVKQPSGFS	SSHPLF	FASSDEENF	
CP4	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOS	AVKQPSGFS	SSHPLF	FASSDEENF	
CP1	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOP	AVKQPSGFS	SSHPLF	FASSDEENF	
B1960	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOP	AVKQPSGFS	SSHPLF	FASSDEENF	
ATCC31822	DDYDDGFGQTSSYHSARSSGGNDRFANGTSYOKP	QOP	AVKQPSGFS	SSHPLF	FASSDEENF	

	790	800	810	820	830
ZM4	HNRSEEEKPASHHSYS	SRQALA	ADT	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT
B23394	HNRSEEEKPASHHSYS	SRQALA	ADT	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT
Z6	HNRSEEEKPASHHSYS	SRQALA	ADT	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT
B4492	HNRSEEEKPASHHSYS	SRQALA	ADT	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT
ATCC10988	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT	
CU1	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT	
CUIrif2	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT	
uvs51	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT	
NCIMB11163	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT	
PROIMIA1	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT	
CP3	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT	
B12526	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT	
CP4	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	..SSRKTQTSQPLLANNFT	
CP1	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	SSSRKTQTSQPLLANNFT	
B1960	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	SSSRKTQTSQPLLANNFT	
ATCC31822	HNRSEEEKASRHSYS	SRQGLAADN	TDYNEGRKAAHTVSS	SSSRKTQTSQPLLANNFT	

	840	850	860	870	880	890
ZM4	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
B23394	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
Z6	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
B4492	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
ATCC10988	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
CU1	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
CUIrif2	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
uvs51	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
NCIMB11163	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
PROIMIA1	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
CP3	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
B12526	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
CP4	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
CP1	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
B1960	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			
ATCC31822	STONALPFPNQTGSRSSGNGLDSL	LNTRVFPDRNLSNDYD	DEDERQEKIKRDMAEQRKYD			

	900	910	920	930	940	950
ZM4	SWNIFAPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
B23394	SWNIFAPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
Z6	SWNIFAPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
B4492	SWNIFAPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
ATCC10988	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
CU1	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
CUIrif2	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
uvs51	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
NCIMB11163	SWNIFAPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
PROIMIA1	SWNIFAPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
CP3	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
B12526	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
CP4	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
CP1	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
B1960	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	
ATCC31822	SWNIFSPGSAFGQSTMLEAPSYT	SI	AVADP	INYPAAARLHGGSHDP	LLRDINDGIDHLSL	

960 970 980 990 1000 1010
ZM4 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
B23394 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
Z6 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
B4492 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
ATCC10988 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
CU1 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
CU1rif2 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
uvs51 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
NCIMB11163 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDKY
PROIMIA1 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
CP3 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
B12526 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
CP4 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
CP1 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
B1960 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY
ATCC31822 NTGTVLEGTPEFRQHSQNGLSRLNEYAFNAKVSTNLGSRVRGFFSVTPVYLTAGOPDQY

1020 1030 1040 1050 1060 1070
ZM4 AAPYFGIINPLKSTSSIASGGTAQYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
B23394 AAPYFGIINPLKSTSSIASGGTAQYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
Z6 AAPYFGIINPLKSTSSIASGGTAQYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
B4492 AAPYFGIINPLKSTSSIASGGTAQYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
ATCC10988 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
CU1 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
CU1rif2 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
uvs51 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
NCIMB11163 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
PROIMIA1 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
CP3 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
B12526 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
CP4 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
CP1 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
B1960 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT
ATCC31822 AAPYFGSINPLVSNASIAAGGKAMYAPVKDQASGVALDAGIKIKDIRLDIGTTPIGFRKKT

1080 1090 1100 1110 1120 1130
ZM4 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
B23394 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
Z6 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
B4492 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
ATCC10988 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
CU1 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
CU1rif2 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
uvs51 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
NCIMB11163 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
PROIMIA1 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
CP3 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
B12526 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
CP4 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
CP1 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
B1960 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY
ATCC31822 NIOGGVSWSPQIIDHLTGHIEMERRPVMDSLIAYAGTVDFVMGLTWGSMVMTGGGGGLSY

1140 1150 1160 1170 1180 1190
ZM4 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
B23394 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
Z6 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
B4492 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
ATCC10988 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
CU1 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
CU1rif2 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
uvs51 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
NCIMB11163 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
PROIMIA1 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
CP3 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
B12526 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
CP4 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
CP1 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
B1960 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO
ATCC31822 DVNGSGLYAQGNRYVNGTRVQKNHAVEANVGGYYSLLNTPTSNFSIGVNVNYQHYLNNO

	1200	1210	1220	1230	1240	1250
ZM4	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
B23394	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
Z6	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
B4492	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
ATCC10988	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
CU1	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
CU1rif2	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
uvs51	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
NCIMB11163	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
PROIMIA1	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
CP3	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
B12526	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
CP4	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
CP1	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
B1960	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					
ATCC31822	YFFSFAQGGYFSPNHFISVAFPLRYTGTLGRWKLNAELAPGYQNFYERSNYIFANEHDLO					

	1260	1270	1280	1290	1300	1310
ZM4	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
B23394	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
Z6	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
B4492	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
ATCC10988	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
CU1	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
CU1rif2	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
uvs51	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
NCIMB11163	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
PROIMIA1	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
CP3	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
B12526	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
CP4	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
CP1	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
B1960	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					
ATCC31822	NQMNKYNLANNSLANKFPPGOHHSAGYEGRLDVSYRLSRSAVLGGETIRATTFGPYSEYRE					

	1320	1330
ZM4	LLSIHYAMDADKPKDKH	.....
B23394	LLSIHYAMDADKPKDKH	.....
Z6	LLSIHYAMDADKPKDKH	.....
B4492	LLSIHYAMDADKPKDKH	.....
ATCC10988	LLSIHYAMDADKPKDKH	.....
CU1	LLSIHYAMDADKPKDKH	.....
CU1rif2	LLSIHYAMDADKPKDKH	.....
uvs51	LLSIHYAMDADKPKDKH	.....
NCIMB11163	LLSIHYAMDADKPKDKH	.....FILSTLVSVPLLACRKGKAAEADNWTLFKSRFFKDGRI SDSGN
PROIMIA1	LLSIHYAMDADKPKDKH	.....
CP3	LLSIHYAMDADKPKDKH	.....
B12526	LLSIHYAMDADKPKDKH	.....
CP4	LLSIHYAMDADKPKDKH	.....
CP1	LLSIHYAMDADKPKDKH	.....
B1960	LLSIHYAMDADKPKDKH	.....
ATCC31822	LLSIHYAMDADKPKDKH	.....

ZM4	.....
B23394	.....
Z6	.....
B4492	.....
ATCC10988	.....
CU1	.....
CU1rif2	.....
uvs51	.....
NCIMB11163	GNISHSEGGYGMIAQEA AHDKATFDALWQWTKTHLMRPDMALFAWRFDPSQSNPVSQDN
PROIMIA1	.....
CP3	.....
B12526	.....
CP4	.....
CP1	.....
B1960	.....
ATCC31822	.....

ZM4
B23394
Z6
B4492
ATCC10988
CU1
CU1rif2
uvs51
NCIMB11163 NATDGDILIAWALLRAEKRWPKNGYGQDSEAIRKSIGKKLVLSGGGETILLPGLQGFTGT
PROIMIA1
CP3
B12526
CP4
CP1
B1960
ATCC31822

ZM4
B23394
Z6
B4492
ATCC10988
CU1
CU1rif2
uvs51
NCIMB11163 DYVILNFSYYIWPALKAFNEADNGAWHNVIESGKKLLAKAKFGLPQLPTDWWAFKNNGNL
PROIMIA1
CP3
B12526
CP4
CP1
B1960
ATCC31822

ZM4
B23394
Z6
B4492
ATCC10988
CU1
CU1rif2
uvs51
NCIMB11163 EPAADKQPYFGFDAVRIPLYLIWGGEDALAAPFAIYWNSYLSHNQPVPAWVDVNSQAIAP
PROIMIA1
CP3
B12526
CP4
CP1
B1960
ATCC31822

ZM4
B23394
Z6
B4492
ATCC10988
CU1
CU1rif2
uvs51
NCIMB11163 YPLSKGGMAILDLAMNKPITAKIADQDDYYSALLALSEIAAKERPHNR
PROIMIA1
CP3
B12526
CP4
CP1
B1960
ATCC31822