

logo

MLRHSCVMPQQKLKRRFFFLRR.LRKILRYFFTCNFLNLFFINREYNIENTLSYLK..KERTPVWKTSDMSNVVRKWWMFHRTQTLE.....  
TrEFV.....MKTTTQQ.FN.....LTIYRLYLPC.....YRNYIIQNIKNDELESLQSSAEICTSAEITDITKRWWSLAKAKRRQ.....  
ThEFV.....MKNIKNDLDLEAFQSSVEICTSDELMNITKRWWSLAKAKRPQ.....  
RhEFV.....  
LhEFV.....  
LcEFV.....  
LbEFV.....  
LhFV.....  
LbFV.....  
EfFV.....MEYRVRSCLKLSLE..KEDFPPIIRSDEISEYSSLFWEKCEPRSTVSSSSSTNAAVASAVAAATAATTTTTTTTTTTITNAIANAMFYEG  
PcFV.....MIKILNSWWLRKKPIKN.....  
PoFV.....MLTIVKNDNNNNNNNNNNNNNNNNNTAKYSN...FIESYMIKKCTIPYIN..ANGWTLHTHQYAFNLKLTWWLRKIKHPSREI.....  
CcFV1.....MLRLSSWWLRKRGSDSETT.....  
CcFV2.....MEDENKKN...FMIGMAGSLGTNYSN...ITLNN....ITQLEK..KKKHIRVTSLEMIRLKTWWLRKRYDDD.SV.....

logo

DNDDDDDGGGGGGGGGGGSGNGKYENRQNASRRDIVKSNIQGFVKTINYPYVYKRTKTQK.....  
TrEFV.....QQDN.....IG.....NKNKSGFFVRTINYPYVYKRTKTQK.....  
ThEFV.....EQGK.....SD.....DENVNGFFVRTINYPYVYKRCKAQK.....  
RhEFV.....  
LhEFV.....  
LcEFV.....  
LbEFV.....  
LhFV.....MYVYKKSRR.....  
LbFV.....DNIE.....IKKDIQLYHFFYNGLFIKINYPYVYHIDKKKK.....  
EfFV.....DNDDDDDGGGGGGGGGGGSGNGKYENRQNASRRDIVKSNIQGFVKTINYPYFKNLQKRVNSNRFADT.....ET  
PcFV.....KQIIIEAQNTHGYIVFTINYPYLYRKSLSKTMK.....  
PoFV.....QELIKLQDDLPGYYIKTNYPYDYNNNKIITVDKMAILKYGLSSSSDDDTDVDDNNNDNIIVVEKKENDKKSKKKSKDELKKKRKKCTIKAKLSKNEKMN  
CcFV1.....NTLIREQDTIDGYLVKTKYPPYVYKMTKKKASL.....FL  
CcFV2.....KKIIKKQDNLKAYLVYTNVNYIYNITKKKIIVS...FL.....

logo

MLMRDIKMPYFGLAALDIDTHDIKSTTKIYKILQLYLRR...QERE.....YYD.EARK...NVPTQQLYYQMCEK.....NWF  
TrEFV......LIKDKNRHFIYIPPLHLHTHESVYEIYKMLMRDIKMPYFGLMAALGINIDKNSLEKIYKILINLRRNRSQND.....EANK...IDRSQLYYQMCEK.....NWF  
ThEFV......LMKDVNRHFIYIPPLHLHTHESVYEYKMLTRDIKMPYFGLMAALGINIDKNSLEKIYKILQISLRKRLOHKNK...CYD.DARK...AIBPSQLYYQMCEK.....NWF  
RhEFV......MMRDIKMPYFGLMAALGIDINDKNSLEKIYKILQLHLRQNRFDNKK...YYD.VARK...IIDNRQLYYHMF EK.....NWF  
LhEFV......MDKNLHFIYIPPLHLHTRESTIYEVYKMIMRDIKMPYFGLMASLGIDIDYDNKNSLEKIYKILQIHLRRNRFKRQK...FYD.VARK...NIDIRQLYYHMF EK.....NWF  
LbEFV......MDKNRHFIYIPPLQLHTRDSIYEVHKKMMIRDIKMPYFGLMAALGIDINDKNSLEKIYKILKINLRRNHFGHE...ITK...NIDTARLYYQMCEK.....NWH  
LhFV......E.QSEAAKLIYIAPLHMHSRESIEFEYKMLLRDVKMYYYGILNFLQVPTNDSTKMHRRLARKIVVFLKT...TEK...VPLKNKLCYEMLEC.....NQ  
LbFV......Y.DFNDMKVIYLPALHMHSSKGSIYBYQKIFKDEKEMFFLALIDLKINENCSKSVYRFILKMKMYLKKKNLIL...YMK.YLNE...EIKYKDCENFLYI...THE  
EfFV.....FFKTFADRKCIYVPPFEKQSRASVLEFKKIFDNDMKMPYHALLALSIDYKSAPSYGLWCVTIIAKKRG...IR.R...SFV.YNKF...LKBEGNTIYYSMTVT...QWK  
PcFV......INEILNHRLLYIPNLKESADTIKSyrKVLMSDEKAYYIALKMLNIDFNDEQMLNL...ALNVGGGGD...DGDGSSDN.RKLQISQQFCDRQILYYIRYK...KWR  
PoFV.....IQMRLENLRRIFIPSLKMHSEETVHFYQKLLSTDEKAYFIEKLGIFKLSSSQHCMETFNFHTFCLQENLATIKFQNLDCITDFTKKMTIPFRNVI...TQLYRYMEYDSPTEESTKHFYNSFNILHQQ  
CcFV1.....TPDILKNHRVLVIPSMKSHRESIKAYKNLITLDTLANFVEFCKLHLPEYEGYDLKKKKMDYFEVTITTS.NKVILYKKILNLWARG.KTYFV...PNKIAHYLQ...  
CcFV2.....NNN..NDNKLLVIPSLKYHESKESIRTFINILITDCNAACLELCNALKFNTVSPTFKKIDIFSFTNNLKSQYNSXIIILEKIFNKYKNNRKNDKYL....SIDLYMYILKC..LKCITILNYNNVFIETIN

logo

MWYRVLPHWITSNWKLLR.....RRESIKSEVVKRLYGWIREKWAITQQLQBYRPLTTVKLANGSIVKQIQGRDSSLIRRQILSPKIFMLRSQISL  
TrEFV.....LWYRLLFDWIIITQWQLT.....Q.....KEPNSESAKTIFIKRLSKWIKETWAVTQQLQBYRPLTMNIKLNGSIIQQTQGRDSSLRRQILSPKIFMLRSQISL  
ThEFV.....LWYQLLFDWIIITKWQSD.....QKRSKSVKTFKLKLSKWIKEKWVVTTQLQBYRPLTTIKLANGSIIKQTQGRNSLIRRQILSPKIFMLRSQISL  
RhEFV.....PWYRLTFDWIITKNHEK.....RSGAMKIFLNNLCKWIKETWVTTQLQBYRPLTMNIKLNGSIVKQIQGRDSSLIRRQILSPKIFMLRSQISL  
LhEFV.....LWYRLIFDWIITKKCHLK.....Q.....GQKQPESIKFLVNLKWIRETWVTTQLQBYRPLTMNIKLNGSIVKQIQGRDSSLIRRQILSPKIFMLRSQISL  
LcEFV.....LWYRLLFDWIIITK.CQLK.....L.....KLHQPE SINFLISLQWIKEKWVVTTQLQBYQPLTTIKLTNGPIIKQIQGRDSFIRRQILSPKIFMLRSQISL  
LbEFV.....LWYRLLFDWIIITK.CQLK.....L.....KLHQPE SINFLISLQWIKEKWVVTTQLQBYQPLTTIKLTNGPIIKQIQGRDSFIRRQILSPKIFMLRSQISL  
LhFV.....KWSYSLCKYVVVEKYTKYF.....PETRKLQCC.....DNNNDGGALEIPQGIFFWIQEVLWLRNLIBYKNLTLINMRNGSIMKQIQGRDSIMRRQILSPKIKMFRSQICL  
LbFV.....KNYGFLYKILLLFIKDAF.....DFDKK.....KKFKIHSLQTVINNVANKNKIKIKNLTTIKMKNDSIVKQIQGRDSTMRRQILSPKIMTLRSQINL  
EfFV.....VWYQLVFDHAFWELCKKN.....NLTS.....RKQKFAALKRLRAYIGDVVSTQRKRFHDYSDVRLANDSIIKQIQGRDSQLRRNILSPKILSFRAQLQC  
PcFV.....LENELLFNIVEYVRV..Q...Y..KKYTSKVLYYCYLVKKLF.GGN.....VKACPYQLDQTLESQSKSLVMLDIKVAYTTGCLKEFMNLFHGTIKTQLGGKNSQMRRKILSPKIVAIRCQIAL  
PoFV.....NWMQLDLTILMT...LN...YDNDKLFKYLLNCTRDTYLMTALLRQKQQRRRIICN...MSSPYKLFNDFVHLSVITCIGITRNCINTLTFKQGTLKEDLQGRKSTMRRNHLSPKIKLMCRAQISL  
CcFV1.....Y..LITFSLIDG.....DKPPPQSFLE.....EYN.....KFNEN...ETITFKNIQQLFDYKVSEQHDFKDIITVPLRNGTIKSQVQGRSSHIRRKILSPKIKYHRLQIL  
CcFV2.....NN..IIDNNIIDNNMVLVDKNDHDDTKRLVNFIK.....EYFFNND.....THVLEK...KQATMNDVDNIIINLVNKHIDQFKDLINIPLRNGSVKNQIQGRSSHMRRLKILSPKIKCHRGQISL

logo

RFDLRLNQLVLVPSMMRRHPTAAAVNWNRSINLFRDYPGGQLEKFTRLPSGIACIIKRDVPVLCKNSIVYIDELAFADIDLFHIGPYSIVGQNADFDGDAENCCFIENSL.ASMELQLNTSPAVAMYLG  
TrEFV.....RFDLRLNQLVLVPSMMRRHPTAAAVNWNRSINLFRDYPGGQLEKFTRLPSGIACIIKRDVPVLCKNSIVYIDELAFADIDLFHIGPYSIVGQNADFDGDAENCCFIENSL.ASMELQLNTSPAVAMYLG  
ThEFV.....RFDLRLNQLILPKSMRRHVPPAAAIANYNH...NLFGDLDPFQQAQKFSRLSQGFACIIKRDVPVLCKNSIVYIDELAFADIDLFHIGPYSIIIGQNADFDGDAENCCFIENSL.ASSELQLNTSPSTAMYLG  
RhEFV.....RFDLRLNQLILPKSMRRNPAAAIANYNHGENNLFRLDQPVQQLDKFTRLSRGFACIIKRDVPVLCKNSIVYIDELAFADIDLFHIGPYSIIIGQNADFDGDAENCCFIENSL.ASMELQLNTSPSTAMYLG  
LhEFV.....RFDLRLNQLVLVPSMMRHIPPAAFADCNDD.QNLFQLDQPNQQLDKFTRLSQGFACIIKRDVPVLCKSSIVYIDELAFADIDLFHIGPYSIIIGQNADFDGDAENCCFIENSL.ASSELQLNTSPSTAMYLG  
LcEFV.....RFDLRLNQLVLVPSMMRHIPPAAIKYNQ.KNLFQLDQPNQQLDKFTRLSKGFACIIKRDVPVLCKSSIVYIDELAFADIDLFHIGPYSIIIGQNADFDGDAENCCFIENSL.ASSELQLNTSPSTAMYLG  
LbEFV.....RFDLRLNQLVLVPSMMRHIPAAAIANYNHSNSLFLQNLQPIQPEKFIPLSQGFACVIKRDVPVLCKSSIVYIDELAFADIDLFHIGPYSIIIGQNADFDGDAENCCFIENSL.ASMELQLNTSPSAAMYLG  
LhFV.....RFDLQANELLIPHSMLPEIKKSI..AVDN..VSFFNLHDPGRGDARFITLPEHVTITMKRDVPVLCKNSILFINRIAFVKSDFLYISSLATVGGNADFDGDAENATINDDLK.SSELSLTMSPELSTIYLG  
LbFV.....RFDLQSNBVIIMPISMINELNIYI..NLSKCLDNLDYDENPMYQKECFIDLSVEIFGCMKRDVPVLCKNSILISRIAFAKIDLFFITGPYNIIGQNADFDGDAENCCILQNL.T.SGLEGRLYLASEYNIYLG  
EfFV.....RCDLNSDEVILPISWRSQMQLCT.GTDLRKFPVYDLSNPNYQPKAFATLDSTSVGFIKRDVPVLNLSIIQFVKRIAFATNMIHISAAGLTSLGADFDGDAMNVKILMNFCDVMIEMTLNLAFCTCKLATG  
PcFV.....RYDLNSDTIILPISLLSLKIKIMFN...LNVKLFDLISLYNENQDDKIIDLEFFSCIIKRDVPVISKNSVVCIKKIGFANTDNLVISPYILHGGNADFDGDAEHVNLIFDLK.SSIEKMLMLPNYNTIYNS  
PoFV.....RFDLRSDELIIPNGILQKFK.ILDITDEAFLQNNLYDLTLATRQEKKEFKKIPKSCVGVSKRPDVIPHNSVIGISKIATAETTMVHVSSVILSGNADFDGDAENFFIIFGR.LPASETKLSYLECNAYNA  
CcFV1.....CWCLLYNEIILPIEFKLYFGHLLQ.KEELKNLQLYDLTDPNSQPGKFIDLGERAAATIIKRDVPIDLNSAVLVKRVAFAKTDLHLHISPYILTGQNADFDGDAENFYILCDRL.SVTESSLRMSAENNIYNG  
CcFV2.....RFELDHNQIILPTFFLIHFYKLLGHGNRYGSKNLFNLSNSSNQNECFYKLRNDYGLILKRDVPIDVNSVVFINVAFATELELIYTSPIYILIDQNADFDGDAENFCIFSNIKLSIIESTLRLSADCQFSTP

logo





QMKMRCNFTETHILYMHQRQLPSISE.....RHRKRYEEILKLATVNWLSCTENVTSLSLRKK.....FPPTHLNVDFDIEPTNSALATLMLSIIYVDYGSAAETLRLFEEIN  
TrEFV.....QMKRLCTFTETHILYMHQRQLPPRSL.....RHQERYQEILKLVTVNWLSCTENISSLSLQKM.....FPNDLNLFEFIEPTNHALAVLMLSIIYVDYGSAAETLKVFEEN  
ThEFV.....QMTLRCFTETHILYMHQRQLPPQLQ.....RHRRYEEILKLVTVNWLSCTENVTSLLNLEKK.....FPDLDNYFEFIEPTNYALSILMLSIIYVDYGSSETLRVFEEN  
RhEFV.....LMKLRCTFTETHILYMHQRQLPTESQ.....RHRERYKEILKLSTVNWLSCTENVTSLLNLMNK.....YPTNLMLFHFIEPTNSALAILMLSIIYVDYGSAAETLKLFEEN  
LhEFV.....LMKLRCNFTETHILYMHQRPLPSESQ.....RHCQRYQEILKLTTLNWLSCTENITSLFNLMQK.....CPTNLNLFDIEPTNSALITILMLSIIYVDYGSAAETLKLFEEN  
LbEFV.....QMKLRCTETHILYMHQRQLPLQSQ.....RHHQRYEEILKLSTVNWLSCTENVTSLFNLEKK.....YPTNLNIFNIEPTNALSILMLSIIYVDYGSAAETLKLFEEN  
LhFV.....YFDMRLDFTETHILYMHQRRLFPQDP.....YHDRYNWCQVISNIMWLSQENLDAIMKPHKLQNDAIATNS...NRQQSSLYKKFNIFKYIEHTKCAKLLINSIIYVDYGSKETFNLFNQIN  
LbFV.....YLKCLKLFTETHILYMHQRGLPKPHK.....FKKRFDNLTLSISFLKWFNSQENIDAFVSFKK.....QYPNVIEFKYIEPTRIALELLMLSIIYVDYGSGETHSFFNEIN  
EfFV.....HNNTRIHSETHIYVVMFKRAFPDEHR.....FKRRYDLIRNICTRNYLCQSENVEAIFRAFLKSNDKYF...SRQPTNIFDIEPTNEVLSSQISINYDYGSSEGVKMTNEIN  
PcFV.....FISLKLVPSETHIYMHNRKMAEIFHKACGGSLDVGVDIYNIELNWFSSKQDNIEINTLFFKKYSHLFD...ISKAQQLFDYVEPTLVILNKCALLLYVLCGNRVQNRFFEMIN  
PoFV.....FLAKLKYSETHIYLMHKRNLP..KNH.....IYYNIYERKILYTNQWLADNLNRELIVSFAKKYCYNLKNTAIVKNFVERKYNPKIALNTLIKNIIEPTNVILETFSLYLYLNFSGRAAVAFFNQVN  
CcFV1.....FESLKLQFTETHIYFMHKVQLP..ESC.....KYKKVYDANRNYSTVWFSDKNMIIITLVEFFKDFPGS...KKVVLNIEPTKEILEVEFSLYLYVKYGSYTTLMFFNQIN  
CcFV2.....YQILKLSQVTETHIMFMHKKQWFADSSF.....QFKDIYDKIRLTCTLDWFGNSENISSLNTFIEKYPNW.....KEKILKLEPTNITILQSFLVLYIYNGSLTASNFLRDLIS

logo

CAILEMSNNNH...NG.....N.....EKLPNQYIVPLDECI NGKIEPTLLRMVMSGAGSLQHYINFLGKTASVNTIPTT...STRVEHFQKQDLRENLSVSHVDIYEKSLDAL  
TrEFV.....DYILELSNNK...SN.....D.....GKLPNLYIIPASECISGKIEPTLLRMVMSGAGSLQHYINFLKTTKPAVDSVTPVD...TIEEKIAIKDLRENRIKSHLDIYDKSLEAL  
ThEFV.....DYILAIASNNNV..NT.....G.....GKLPNLYIIPVDECI NGKIEPTLLRMVMSGAGSLQHYINFLNATKPSDDSAVPV.NETQGDQKLEVQDLRENRIKSHLEIYDKSLEAL  
RhEFV.....DNIVEISNNGMMNAN.....N.....EKLPNLYTIPLDECI NGKIEPTLLRMVMSGAGSLQHYINFLDATNASFNNIENI.KSTGDNKEFAIRDLRENSKVSNFVYKSIIEAL  
LhEFV.....NNIILKISNNGR..ND.....N.....EKLPNLYTIPLDECI NGRIEPTLLRMVMSGAGSLQHYINFLNATKTSFNMMADNTNLPTGDKFETTVDLRENSKISNFDIYNKSIEAL  
LcEFV.....NSVLEISNNGK.....N.....INNLYTIPLDECI NGKIEPTLLRMVMSGAGSLQHYINFLDATKSSVNTMPNIN..VTNDKIFTHDLRENSKISNFDIYNKSLEAL  
LbEFV.....NDILNLSNGQLRDTY.....N.....SHLPSQYLTGT...SVFDETLMRITLSGAKGTCDHYISLIEALKPPSQQQQREQQDDQASEYMCVDARENIIETDNMEYKKSVAL  
LhFV.....LNIIVKLSNNENCDFK.....V.....SHLPNQYIIEIN...AFLDITLLKIVLSGATGSLDHYILQILNTVNE...KKEMTNVDIYQASTIAL  
LbFV.....SVVVGLSNIENWVQHYGGGQDFRSSAEFARLDWRWRRGTSSKYLVKQDYVVS..KDFNFYFDITLLVIALSGSRGSLMHYNQIMSFIETGKQKQRESL...KRKTEH..TERDTADSL  
EfFV.....EYVILIESKNLENSH.....N.....NYGLHCNLLFRIAICGAKGTLYHYNQLLALNEAATLSGNSHLY...DNNEKEIYYSIINDTM  
PcFV.....EKLELNDGKTRNDW.....Y.....DENLDNFSMGARCISKDVLCENSIKLVLSGSKGSLGHLKELLDNISLHRNAEYGEISTKNGMPV.NVNVA...RNVSLRISRVQNASL  
PoFV.....DEINKCSNFE.KSAW.....F.....RKPPTRFVE...VSDNFFNVCLFKTVLSGAKGSLQHYRDLKNTINGLTKQKQL...TGEKI.LETYL...TD..NCEKELITENV  
CcFV1.....HKINVEISNGH.KNDW.....F.....SELPELITVD...YDEQFINTCFLKTVLSGAKGSLQHYIDLLGKLHEYDN.NKF...DNKQIILQQYI...SNY.DSLEDNALTDL  
CcFV2.....

logo

REVGQAASVVPANGHESFKITIEFNGITFTTEQIEYNGACILPVPSAELEFFSHMSLSPHLVQLHFNHYHNK.....  
TrEFV.....NEIGQAASVVPANGHESFKITIEFNGITFTTEQIEYNGACILPVPSAELEFFSHMSLSPHLVQLHFNHYHNK.....RLRD.....  
ThEFV.....SEIGQAASVVPANGHESFKITIEFNGITFTTEQIEYNGACILPVPSAELEFFSHMSLSPHLVQLHFNHYHNK.....GLKRNQV.....  
RhEFV.....REIGQAASVVPANGHESFKITIEFNGITFTTEQIEYNGACILPVPSAELEFFSHMSLSPHLVQLHFNHYHNK.....GLTRN.....  
LhEFV.....REIGQAASVVPANGHESFKITIEFNGITFTTEQIEYNGACILPVPSAELEFFSHMSLSPHLVQLHFNHYHNK.....GLTRNAK.....  
LcEFV.....REIGQAASVVPANGHESFKITIEFNGITFTTEQIEYNGACILPVPSAELEFFSHMSLSPHLVQLHFNHYHNK.....ELRR.....  
LbEFV.....KSGIGAASVVPANGHESFKITIEFNGITFTTEQIEYNGACILPVPSAELEFFSHMSLSPHLVQLHFNHYHNK.....  
LhFV.....SNIGIAASVVPANGHESFKITIEFNGITFTTEQIEYNGACILPVPSAELEFFSHMSLSPHLVQLHFNHYHNK.....  
LbFV.....KVIAKSVKALPNQGHEYYKSIVEYNNYSFTDDKLYHNNTPMSDKNLRIIDFDEIC..PVYLBAWFEQNGCTIGAEISENLSSRVVSD  
EfFV.....RDIGKTVKQVPKLGHEFSKSLIEWNGIELINNKVYENRVIL.DNLDLCLCFDQCVFDKNTCLALLNRYKKKRRGRRV.....  
PcFV.....CNICNAVKNIPQICHEAFKAMIEWNLRNLLHNDNILI.DNVQEFLEPSLVESDNNVILHDLIR.....  
PoFV.....TTISNCGQELPKKHGAMFKATIEFNGFVFNNDIYYKNIKVV.RGLRNLFTSFQIFSYRLISAWLLDDAGIF.....  
CcFV1.....KALANNVLIKIPQNGHDSFKSAIEFFCFSLNDNKIYYKKKIAV.NSIQQFNHHTHIPPFAIFNKLFNKI.....  
CcFV2.....

-  acidic (−)
-  basic (+)
-  polar uncharged
-  hydrophobic nonpolar