

```

                *           20           *           40
Human   : MSSNSFPYN-EQSGGGEATELGQEATSTISPSGAFGLFSSDL : 41
Mouse   : MSSNSFAYN-EQSGGGEAAELGQEATSTISPSGAFGLFSSDW : 41
Rat     : MSSNSFAYN-EQSGGGEAAELGQEATSTISSGAFGLFSSDW : 41
Dog     : MSGNSFAYS-EQAGGGEATELGQEATSTVSPSGAFGLFSSDL : 41
Fruitfly : MQONSASNPFAMSTYVERPQMGLDVEFGADPASGAAFQSDG : 42
Yeast   : MVDSIHRIASALDTAKVITREAAAVA TSKLGESSYTYYSQN- : 41
        M ns e g 5ss1

```

```

                *           60           *           80
Human   : KKNEDLKQMLESNKDSA KLDAMKRIVGMIAGKGN---ASEL F : 80
Mouse   : KKNEDLKQMLESNKDSA KLDAMKRIVGMIAGKGN---ASEL F : 80
Rat     : KKNEDLKQMLESNKDSA KLDAMKRIVGMIAGKGN---ASEL F : 80
Dog     : KKNEDLKQMLESNKDSA KLDAMKRIVGMIAGKGN---ASEL F : 80
Fruitfly : RKHDDLKQMLDSNKDGLKLEAMKR IIGMIARGRD---ASDL F : 81
Yeast   : INPQQLVTL LNSRNSREVRDAMKR IISIMASDDDSIDVQLY F : 83
        k dLkq6L Snkd kldAMKRI6g66A g 1 as lF

```

```

                *           100           *           120
Human   : PAVVKNVASKNIEIKKLVVYLVRYAE EQQDLALLSISTFQR : 122
Mouse   : PAVVKNVASKNIEIKKLVVYLVRYAE EQQDLALLSISTFQR : 122
Rat     : PAVVKNVASKNIEIKKLVVYLVRYAE EQQDLALLSISTFQR : 122
Dog     : PAVVKNVASKNIEIKKLVVYLVRYAE EQQDLALLSISTFQR : 122
Fruitfly : PAVVKNVASKNIEVKKLVVYLVRYAE EQQDLALLSISTFQR : 123
Yeast   : ADVVKNIT TNDTKVKRLIHLYLLRFAENDPNL TLLSINSLQK : 125
        paVVKN6 3k1ie6K4L6y6YL6R5AEeqq1LaLLSIs3fQ4

```

```

                *           140           *           160
Human   : ALKDPNQLIRASALRVLSSIRVPI IVPIMMLAIKEASADLSP : 164
Mouse   : ALKDPNQLIRASALRVLSSIRVPI IVPVMMLAIKEASADLSP : 164
Rat     : ALKDPNQLIRASALRVLSSIRVPI IVPVMMLAIKEASADLSP : 164
Dog     : ALKDPNQLIRASALRVLSSIRVPI IVPIMMLAIKEASADLSP : 164
Fruitfly : ALKDPNQLIRASALRVLSSIRVSMIVPIVMLAIRDSAADLSP : 165
Yeast   : SLSDSNSELRCFALSALS DMKMSSLAP IILHTVKKLVTDP SA : 167
        aLkDpNql6RasALrvLsS646 6vP6661a64 aDlSp

```

```

                *           180           *           200           *
Human   : YVRKNAAHAIQKLYSLDP-EQKEMLIEVIEKLLKDKSTLVAG : 205
Mouse   : YVRKNAAHAIQKLYSLDP-EQKEMLIEVIEKLLKDKSTLVAG : 205
Rat     : YVRKNAAHAIQKLYSLDP-EQKEMLIEVIEKLLKDKSTLVAG : 205
Dog     : YVRKNAAHAIQKLYSLDP-EQKEMLIEVIEKLLKDKSTLVAG : 205
Fruitfly : YVRKTAHAHAI PKLYSLDA-DQKDELVMVIEKLLSDRTTLVVG : 206
Yeast   : MVRGEVALAI IKLYRAGKNDYHELLDILKELMADTPKVIS : 209
        yVRk aAhAI KLYsld qke L6 66ekL6 D tlv g

```

```

                220                *                240                *
Human   : SVVMAFEVCPDRIDLIHKNYRKLNCNLLVDVFEWGQVVIHMH : 247
Mouse   : SVVMAFEVCPDRIDLIHRNYRKLNCNLLVDVFEWGQVVIHMH : 247
Rat     : SVVMAFEVCPDRIDLIHRNYRKLNCNLLVDVFEWGQVVIHMH : 247
Dog     : SVVMAFEVCPDRIDLIHKNYRKLNCNLLVDVFEWGQVVIHMH : 247
Fruitfly : SAVMAFDEVCPERVDLIHKNYRKLNCNLLVDVFEWGQVVIHMH : 248
Yeast   : CAVLAYKECYADHLELLHGHFRFYCRIIKQLDSWSQSYLIEL : 251
        s V6A5 Evcpcdr6dL6H n5R4lCn 6 d6 eWgQv 6I 6

```

```

                260                *                280                *
Human   : LTRYARTQFVSPWKEGDELEDN-----GKNFYE----- : 275
Mouse   : LTRYARTQFVSPWREDGGLEDN-----EKNFYE----- : 275
Rat     : LTRYARTQFVSPWREDDGVEDN-----EKNFYD----- : 275
Dog     : LTRYARTQFVSPWKEDDGLEDN-----EKNFYE----- : 275
Fruitfly : LTRYARTQFVDPNADDEDLVNDGLGETPVSERFYDESSHSSS : 290
Yeast   : LIKYCKQYLPKPTVVDKSSSEGS-----PRSCPLP----- : 280
        Lt4Ya4tqfv P d e fy

```

```

                300                *                320                *
Human   : -----SDDQKEK-TDKKKK-----PYTMDPD : 296
Mouse   : -----SEEEEEKEKSSRKK-----SYAMDPD : 297
Rat     : -----SDDEEK---KSGKKK-----PYSMDPD : 294
Dog     : -----SDDEQKEK-TDQKKK-----PYAMDPD : 296
Fruitfly : HSDDGSSDDEKKNKSSSTNNKNNGGNGSRTTPSSPSNSYHIDVD : 332
Yeast   : -----DKYNEIEYPSYEVVN-----DPD : 298
        s 2 k y DpD

```

```

                340                *                360                *                3
Human   : HRLLIRNTKPLLQSRNAAVVMAVAQLYWHISPKEAG--IIS : 336
Mouse   : HRLLIRNTKPLLQSRNAAVVMAVAQLYWHISPKEAG--VIS : 337
Rat     : HRLLIRNTKPLLQSRNAAVVMAVAQLYWHISPRSEAG--VIS : 334
Dog     : HRLLIRNTKPLLQSRNAAVVMAVAQLYWHISPKEAG--IIS : 336
Fruitfly : HRLLRQTKPLLQSRNASVVMVAQLYHHVAPKNEVQ--LIA : 372
Yeast   : LDLFLLQSLNCLLIYSSNPTVILSCCNALYQLASPLQMKNTKFI : 340
        hrLl6r tkpL6qSrNa V66avaqly h6 p 2 i

```

```

                80                *                400                *                420
Human   : KSLVR--LLRSNREVQYIVLQNIATMSIQRKGMFEPYLKSFY : 376
Mouse   : KSLVR--LLRSNREVQYIVLQNIATMSIERKGMFEPYLKSFY : 377
Rat     : KSLVR--LLRSHREVQYIVLQNIATMSIQRKGMFEPYLKSFY : 374
Dog     : KSLVR--LLRSNREVQYIVLQNIATMSIQRKGMLEPYLKSFY : 376
Fruitfly : KALIR--LLRSHKEVQSVVLNCIASMSTKRKAIFEPHLKSFY : 412
Yeast   : EALVRTVTMTENQGNKEMLLQAIHFLSILDQTLFLPYTKKFEY : 382
        k L6R 16rs evq 66Lq Ia 6Si rk 6fePylKsF5

```

```

                *           440           *           460
Human   : VRSTDPTMIKTLKLEILTNLANEANISTLLREFQTYVKSQDK : 418
Mouse   : VRSTDPTMIKTLKLEILTNLANEANISTLLREFQTYVRSQDK : 419
Rat     : VRSTDPTMIKTLKLEILTNLANEANISTLLREFQTYVRSQDK : 416
Dog     : VRSTDPTMIKILKLEILTNLANEANISTLLREFQTYVKSQDK : 418
Fruitfly : VRTSDPTHIKLLKLDILTNLASAGSISLILREFQTYISSDR : 454
Yeast   : VFPKDPITVASIWKIQILSTLTINESNVKEIFKELKYYVASAHF : 424
        Vr Dpt ik lK6 IL3nLane n6s 6l4EfqtY6 S d

```

```

                *           480           *           500
Human   : --QFAAATIQTIGRCATNILEVTDTCINGLVCLLSNR--DEI : 456
Mouse   : --QFAAATIQTIGRCATSISEFTETCFNGLVCLLSNR--DEI : 457
Rat     : --QFAAATIQTIGRCATSIAEVDTCINGLVCLLSNR--DEI : 454
Dog     : --QFAAATIQTIGRCATSISEVTDTCISGLVCLLSNR--DEI : 456
Fruitfly : --SFVAATIQAIGRCASSIKEVTEETCLSGLVHLLSNH--DEH : 492
Yeast   : PENVVIMAVKSLSRCGQLSTSWESHVMKWLIDHMESHNLSAS : 466
        f aat6q 6gRCa i e t tc gL6 l6sn de

```

```

                *           520           *           540
Human   : VVAESVVVIKLLQMQPAQHGEI IKHMAKL L DSIT--VPVAR : 496
Mouse   : VVAESVVVIKLLQMQPAQHGEI IRHMAKF L DSIT--VPVAR : 497
Rat     : VVAESVVVIKLLQMQPAQHGEI IKHMAKL L DSIT--VPVAR : 494
Dog     : VVAESVVVIKLLQMQPAQHGEI IKHMAKL L DSIT--VPVAR : 496
Fruitfly : VVAESVVVIKRLLOTKAAEHFEIITQMAKLIDYIN--VPAAR : 532
Yeast   : VLDAYVNVIRMLVQKNP TKHLRIIFKLADLLTVQ TSLADNAR : 508
        V6aesVvVI4 L6Q pa H eII 6Akl6d it vp AR

```

```

                *           560           *           580
Human   : ASILWLI GENCERVPKIAPDVL R KMAKSFTSEDDL V KLQILN : 538
Mouse   : ASILWLI GENCERVPKIAPDVL R KMAKSFTSEDDL V KLQILN : 539
Rat     : ASILWLI GENCERVPKIAPDVL R KMAKSFTSEDDL V KLQILN : 536
Dog     : ASILWLI GENCERVPKIAPDVL R KMAKSFTNEDDL V KLQILN : 538
Fruitfly : AAIWLI GEYNEKVPLIAPDVL R KMAKS FVDEQDVV KLQVLN : 574
Yeast   : AGIVWLFGEIASIEFKICPDVLRRLIQNF SNEGPETRCQILV : 550
        A I6WLiGE e vpkIaPDVLR46aksF E d v4lQ6Ln

```

```

                *           600           *           620           *
Human   : LGAKLYLTNSKQTKLLTQYILNLGKYDQNYDIRDRTRFIRQL : 580
Mouse   : LAAKLYLTNSKQTKLLTQYILNLGKYDQNYDIRDRTRFIRQL : 581
Rat     : LGAKLYLTNSKQTKLLTQYILNLGKYDQNYDIRDRTRFIRQL : 578
Dog     : LGAKLYLTNSKQTKLLTQYILNLGKYDQNYDIRDRTRFIRQL : 580
Fruitfly : LGVKLYLTNPEQTSLLCQYVFTLARYDPNYDVRDRARFLRQI : 616
Yeast   : LSAKLLSYDIDNFKQAQVTGSEENNQNPPYYDFSGSRIS--- : 589
        L aKLyLtl1 qtkll1 qy 1 y1 nYd rdr Rf rq

```

```

                640          *          660          *
Human   : IVPNV-KSGALSKYAKKIFLAQKPAPLESPFKDRDHFQLGT : 621
Mouse   : IVPNE-KSGALSKYAKKIFLAPKPAPLESPFKDRDRFQLGT : 622
Rat     : IVPNE-KSGALSKYAKKIFLAQKPAPLESPFKDRDHFQLGT : 619
Dog     : IVPNE-KSGALSKYAKKIFLAQKPAPLESPFKDRDHFQLGT : 621
Fruitfly : IFPASGTSSVLSQHARQVFLASKPAPVPESKYRDGNNFQLGS : 658
Yeast   : -----QMYNAVLYLAKYDDEFDIRDRARMIS : 615
        i p      s l s a 651A kpap es 5 dr1 fq6g3

```

```

                680          *          700          *
Human   : LSHTLNIKATGYLELSNWPEVAPDPSVRNVE--VIEL-AKEW : 660
Mouse   : LSHTLNIKASGYLELSNWPEVAPDPSVRNVE--VIES-AKEW : 661
Rat     : LSHTLNVKASGYLELSNWPEVAPDPSVRNVE--VIES-AKEW : 658
Dog     : LSHTLNTKATGYLELSNWPEVAPDPSVRNVE--VIELQAKEW : 661
Fruitfly : LSHYLNMPAAGYKELPAFPVIPPDSSVRNIAGFMQDKLPGED : 700
Yeast   : -----SLFDSGKYEIVSLLLQAPKPTARSDD-FIVSARLETH : 651
        lsh ln a Gy E6 p aPdp3vRn 6 e

```

```

                720          *          740          *
Human   : TPAGKAK-----QENSA--KKFYSESEEEEEEDS----- : 685
Mouse   : TPLGKTK-----KEKPM--KKFYSESEEEEEEDEDEDEDE : 692
Rat     : TPLGKTK-----KEKPE--KKFYSESEEEEEE----- : 683
Dog     : TPAGKAK-----KENPA--RKFYSDSEEEEEEDS----- : 686
Fruitfly : SPSGHSKDKSGREGGKEKGAGGEKGFLESSDDKSSAYS---- : 738
Yeast   : TP-----EIKEEFRMLP----- : 663
        3P g k e 4 F s s

```

```

                760          *          780          *          8
Human   : -----SDSSDSESESGSE-SGEQGESGEEGDSNEDSSSEDS : 720
Mouse   : EEEKEDEDEDENPSDSSDSE-SGSGSESGDTG--TEDSSSEDS : 731
Rat     : EEEDEEDEEEDPSDSSDSE-SGSGRESGDSGSSSEDSSEDS : 724
Dog     : -----SDSSDSESESGSA-SGEQD---EEGDSSEDSSEDS : 718
Fruitfly : --ESGSSSGSGTSDSESSDSGSGSSDEEEEEVQKQPTKVSS : 778
Yeast   : -----WNTEITEVGETGNDIREGAELKDYNKYKKSF : 694
                s s 3 s 3G s

```

```

                800          *          820          *          840
Human   : SSEQDSESGRESGLENKRTAKRNSKAKGKSDSEDGEKENEKS : 762
Mouse   : SSGQDSETGSQAEAERQKVAKRNSKTKRKSDSENREKKNENS : 773
Rat     : SSGQDSETGSEAEAEHQRVAKTNSKTKRKSASEDREKKNGKS : 766
Dog     : SSEHRSDSESVSEVGDKRTAKRNSKSKGKSDSEDEEKENEKS : 760
Fruitfly : VKERLIDAGSNELAATSSPVKATINTNNNARGSSGTSDSEDS : 820
Yeast   : SSQSFITNNSARSFTSSNAKLTGINDGDSNSISG-----KG : 731
        ss s aK s s s

```

```

                *           860           *           880
Human   : KTSDSSNDESSSIEDSSSDSESESEPESESESRRVTKEKEK : 804
Mouse   : KASESSSEESSMEDSSSESESESGSDSEPARNVAPAKERK : 815
Rat     : QASESSSEESSSTEESSESE--SGSDSEPARKTAKAKERK : 806
Dog     : KTSDSSTDSSSVEESSSDSESESESESESESESESKKVTMEKEK : 802
Fruitfly : SAYSGSSSDSASGSDNEVKKNETKTDTGTKPEKLKEKHEKQ : 862
Yeast   : NVNTFTSQNGKKYRLQSLDEFFSDIPERKSKPRKIIKVVEES : 773
                3s   s       s                               E

```

```

                *           900           *           920
Human   : TKQDRTPLTKDVSLLDLDDDFNPVSTPVALPTP-----ALSPS : 841
Mouse   : PQQERHPPSKDVFLLDLDDDFNPVSTPVALPTP-----ALSPS : 852
Rat     : PQQERHPPSKDVFLLDLDDDFNPVSTPVALPTP-----ALSPS : 843
Dog     : TKEDRN-LTKDVSLLDLDDDFNPVSTPVVLPTP-----ALSPS : 838
Fruitfly : PEQTAVKSNLDL-LLDLDDIPPIG-PVMTPSLGGFLTPGTPM : 902
Yeast   : SDEDEDESEESSDDDEYSDS----- : 793
                2       d  llldd  p   pv  p               p

```

```

                *           940           *           960
Human   : LMADLEGLHLSTSSSVISVSTPAFVPTKTHVLLHRMSGKGLA : 883
Mouse   : LIADLEGLNLSTSSSVINVSTPVFVPTKTHELLHRMHGKGLA : 894
Rat     : LIADLEGLNLSTSSSIINVSTPVFVPTKTHELLHRMRGKGLA : 885
Dog     : LIADLEGLNLSTSSSVISVNTPVFVPVKTHVLLHRMSGRGLA : 880
Fruitfly : MAGQAAPLQPQHARNRVELVGPSHIEFKHKELLNKVSGHGLH : 944
Yeast   : ---SIGTSSSGTSSSHLEL----- : 809
                1  1   tsss 6 6  p       k   ll   g  gl

```

```

                *           980           *           1000
Human   : AHYFFPRQPCIFGDKMVSIQITLNNTDRKIENIHIGEKKLP : 925
Mouse   : AHYCFPRQPCIFSDKMVSVQITLNTSDRKIENIHIGGKGLP : 936
Rat     : AHYCFPRQPCIFGDKMVSVQITLNTSDKIENIHVGGKKLA : 927
Dog     : AHYFFPRQPCIFGDKMVSIQITLNNTDRKIENIHIEGKKLP : 922
Fruitfly : LAYRFTRSPHLYSSSMCSIELQFQNRGEKEITAIRLLGOTTLP : 986
Yeast   : ----- : -
                y  f  r  p       m  s       n       i  i       l

```

```

                *           1020           *           1040           *
Human   : IGMKMHVFNPIDSLEPEGSITVSMGIDFCDSTQTASFQLC-- : 965
Mouse   : VGMQMHAFHPIDSLEPKGSVTVSVGIDFCDSTQTASFQLC-- : 976
Rat     : VGVQMHVFHPIESLEPEGSVTVSMGIDFCDSTQTASFQLWMC : 969
Dog     : MGMQMHVFNPIESLEPEGSITVSMGIDFCDSTQTASFQLC-- : 962
Fruitfly : AGMQLNEFAPITVLQPQQTASGVLGVDFNDSTHAVDLELL-- : 1026
Yeast   : ----- : -
                g       f  pi  l  p       g  df  dst       l

```

```

                1060          *          1080          *
Human      : ----- : -
Mouse     : ----- : -
Rat       : RIHLAALTVEKNLSQALLGVRVLSSARTDPHLCDFLESHFLV : 1011
Dog       : ----- : -
Fruitfly  : ----- : -
Yeast    : ----- : -

```

```

                1100          *          1120          *
Human      : -----TKDDCFNVNIQ : 976
Mouse     : -----TKDDCFNVTLQ : 987
Rat       : KEVKLIKKMGNHLWAGRATTSADWCAPGISGTKDDCFNVNIQ : 1053
Dog       : -----TKDDCFNVNIQ : 973
Fruitfly  : -----SSAGSSRLQLK : 1037
Yeast    : ----- : -

```

```

                1140          *          1160          *
Human      : PPVGELLPVAMSEKDFKKEQGVLTKGMNETSAVITIAAPQNFT : 1018
Mouse     : PPVGELLPVAMSEKDFKKEQGTLTGMNETSATLIAAPQNFT : 1029
Rat       : PPVGELLPVAMSEKDFKKEQGMLTGMNETSATLIAAPQNFT : 1095
Dog       : PPVGELLPVAMSEKDFKKEQGMLTGMNETSTVITIAAPQNFT : 1015
Fruitfly  : PPVVELVRSVQIGESCHREERAKLRGMNEHQCELRGLRQDLI : 1079
Yeast    : ----- : -
ppvgel  v  e  e  l  gmne  q

```

```

                1180          *          1200          *          12
Human      : PSVIFQKVVNVANVAVPSGQD-NIHRFAAKTVHSGSLMLV : 1058
Mouse     : PSMILQKVVNVANLAVPSSQD-NVHRFAARTVHSGSLMLV : 1069
Rat       : PSMILQKVVNVANLAVPSSQD-NIHRFAAKTVHSGSLMLV : 1135
Dog       : PSVILQKVVNIANVGVVPSGQD-NIYRFAAKTVHSGSLMLV : 1055
Fruitfly  : DVVALRQKVFESINVAHTSSSSSQQLHCFAGQTLSSKSLVLL : 1121
Yeast    : ----- : -
          qkv  n  s          fa  t  s  sl  l

```

```

                20          *          1240          *          1260
Human      : TVELKEGSTAQLIINTEKTVIGSVLLRELKPVLSQG----- : 1094
Mouse     : TVELKEGSTAQLIINTEKTVIGSVLLRELKPVLSQG----- : 1105
Rat       : TVELKEGSTAQLIINTEKTVIGSVLLRELKPVLSQG----- : 1171
Dog       : TVELKEGSTAQLIINTERTVIGSVLLRELKPVLSQG----- : 1091
Fruitfly  : TLDWKTEDALTLLVNCEKMGVIGSMVLNELRNALQLSFAM--- : 1160
Yeast    : ----- : -
t  k          l  n  e  vigs  l  el  l

```

		*	1280	*	1300		
Human	:	-----				:	-
Mouse	:	-----				:	-
Rat	:	-----				:	-
Dog	:	-----				:	-
Fruitfly	:	-----				:	-
Yeast	:	-----				:	-

		*	1320	*			
Human	:	-----				:	-
Mouse	:	-----				:	-
Rat	:	-----				:	-
Dog	:	-----				:	-
Fruitfly	:	-----				:	-
Yeast	:	-----				:	-