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28
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                                                                                                                                                                     28
                                                                                                                                                                     45
                                                                                                                                                                     29
                                                                                                                                                                     27
                                                       LGRLLVYYPWTQRFESFG.DLSSPDAVMGNPKVKAHGKVLGAFLGRLLVYYPWTQRFESFG.DLSTPDAVMGNPKVKAHGKVLGAFLGRLLVYYPWTQRFEDSFG.NLSSASAIMGNPKVKAHGKVLTSLLGRLLVYYPWTQRFDSFG.NLSSASAIMGNPKVKAHGKVLTSLLGRLLVYYPWTQRFDSFG.NLSSASAIMGNPKVKAHGKVLTSLLGRLLVYYPWTQRFDSFG.NLSSPSAILGNPKVKAHGKVLTSFLERMFLSFPTTKTYPHF.DLSH...GSAQVKGHGKKVADALLERLFLSHPQTKTYPHF.DLSH...GSAQVKGHGKVADALLERLFLSHPQTKTYPHF.DLSHP...GSAQLRAHGKVADALLRLFLYYPSTKVYPHF.DLHP...GSAQLRAHGKVADALLRLFTYYPSTKVYPHL.SACQ...DATQLLSHGQRMLAAVLVRFFVNFBSAKQYBQFK.HMEDPLEMERSPQLRKHACRVMGALLIRLFKGHPETLEKDKFK.HLKSEDEMKASEDLKKHGATVLTALFARLFALEPDLLPLQVNCRQFSSPEDCLSSPEFLDHTRKVMLVI
hemoglobin_subunit_delta
                                                                                                                                                                     72
hemoglobin_subunit_beta
                                                                                                                                                                     72
hemoglobin_subunit_gamma-2
                                                                                                                                                                     72
hemoglobin_subunit_gamma-1
                                                                                                                                                                     72
hemoglobin_subunit_epsilon
                                                                                                                                                                     72
hemoglobin_subunit_alpha
                                                                                                                                                                     67
hemoglobin_subunit_theta-1
                                                                                                                                                                     67
hemoglobin_subunit_zeta
                                                                                                                                                                     67
hemoglobin_subunit_mu
                                                                                                                                                                     66
cytoglobin
                                                                                                                                                                     89
myoglobin
                                                                                                                                                                     73
neuroglobin
                                                                                                                                                                     72
                                                      SDGLAHLDN...LKGTFSQLSELHCDKLHVDPENFRLLGNVLVCV
SDGLAHLDN...LKGTFATLSELHCDKLHVDPENFRLLGNVLVCV
GDAIKHLDD...LKGTFAQLSELHCDKLHVDPENFKLLGNVLVTV
GDAIKHLDD...LKGTFAQLSELHCDKLHVDPENFKLLGNVLVTV
GDAIKNMDN...LKPAFAKLSELHCDKLHVDPENFKLLGNVMVII
TNAVAHVDD...MPNALSALSDLHAHKLRVDPVNFKLLSHCLLVT
SLAVERLDD...LPHALSALSDLHAHKLRVDPVNFKLLSHCLLVT
GDAVKSIDD...IGGALSKLSELHAYILRVDPVNFKLLSHCLLVT
GAAVQHVDN...LRAALSPLADLHALVLRVDPANFPLLIQCFHVV
NTVVENLHDPDKVSSVLALVGKA
ALKHKVEPVFKILGSVILEV
GGILKKKGH...HEAEIKPLAQSHATKHKIPVKYLEFISECIIQV
DAAVTNVEDLSSLEEVLASLGRK R.AVGVKLSSFSTVGESSLLYM
hemoglobin_subunit_delta
                                                                                                                                                                   114
hemoglobin_subunit_beta
                                                                                                                                                                   114
hemoglobin_subunit_gamma-2
                                                                                                                                                                   114
hemoglobin_subunit_gamma-1
                                                                                                                                                                   114
hemoglobin_subunit_epsilon
                                                                                                                                                                   114
hemoglobin_subunit_alpha
hemoglobin_subunit_theta-1
                                                                                                                                                                   109
                                                                                                                                                                   109
hemoglobin_subunit_zeta
                                                                                                                                                                   109
hemoglobin_subunit_mu
                                                                                                                                                                   108
cytoglobin
                                                                                                                                                                   134
myoglobin
                                                                                                                                                                   115
                                                       DAAVTNVEDLSSLEEYLASLGRKHR.AVGWKLSSFSTVGESLLYM
neuroglobin
                                                                                                                                                                   116
                                                      LARNFGKEFTPOMQAAYQKVVAGVANALAHKYH.
LAHHFGKEFTPPVQAAYQKVVAGVANALAHKYH.
LAIHFGKEFTPEVQASWQKMVTGVASALSSRYH.
LAIHFGKEFTPEVQASWQKMVTAVASALSSRYH.
LATHFGKEFTPEVQAAWQKLVSAVAIALAHKYH.
LAHLPAEFTPAVHASLDKFLASVSTVLTSKYR.
LAHLPAEFTPAVHASLDKFLASVSTVLTSKYR.
LARHYPGDFSPALQASLDKFLSHVISALVSEVR.
LAARFPADFTAEAHAAWDKFLSVSSVLTEKYR.
LASHLQDEFTYQMQAAWDKFLTGVAVVLTEKYR.
VAEEFASDFPETQRAWAKLRGLIYSHVTAAYKEVGWVQQVPNATLQSKHPGDFGADAQGAMNKALELFRKDMASNMKELGFQG.
LEKCLGPAFTPATRAAWSQLYGAVVQAMSRGWDGE.
hemoglobin_subunit_delta
                                                                                                                                                                   147
hemoglobin_subunit_beta
                                                                                                                                                                   147
hemoglobin_subunit_gamma-2
                                                                                                                                                                   147
hemoglobin_subunit_gamma-1
                                                                                                                                                                   147
hemoglobin_subunit_epsilon
                                                                                                                                                                   147
hemoglobin_subunit_alpha
                                                                                                                                                                   142
hemoglobin_subunit_theta-1
                                                                                                                                                                   142
hemoglobin subunit zeta
hemoglobin_subunit_mu
                                                                                                                                                                  141
cytoglobin
                                                                                                                                                                  179
                                                                                                                                                                  154
myoglobin
                                                                                                                                                                   151
neuroglobin
hemoglobin_subunit_delta ......hemoglobin_subunit_beta .....
hemoglobin_subunit_gamma-2 .....hemoglobin_subunit_gamma-1 .....
                                                                                   147
142
142
142
hemoglobin_subunit_epsilon ......
hemoglobin_subunit_alpha
hemoglobin_subunit_theta-1
hemoglobin_subunit_zeta
hemoglobin_subunit_mu
                                                       cytoglobin
                                                                                    154
myoglobin
neuroglobin
                                                              non conserved
                                                              > 50% conserved
                                                              all match
                       Figure 1: Protein MSA with Identity Highlighting
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