```
 Reference sequence (1): Vitvi14g02865
 Identities normalised by aligned length.
 Colored by: identity

                            cov     pid   1 [       .         .         .         .         :         .         .         . 80
  1 Vitvi14g02865  100.0% 100.0%      ------------MKNMVINTLACIALLAMSFFLASVSDPSPLQEFCVAVNDTKTTVFVNGKVCKDLKVATANDLFFSRL
  2 Vitvi14g01108   92.1%  75.6%      ------------MESILVKHRTPLP-PALPISLA----------FTPRTFGTIALLFVNGKVCKDPKVATANDFFFSGL
  3 NA1             79.4%  72.4%      -------------MLQL---------------------------------FVNGKVCKDPKVATANDFFFSGL
  4 Vitvi14g01106   80.7%  73.8%      -------------M-------LQC-----------------------ERVFVNGKVCKDPKVATANDFFFSGL
  5 Vitvi14g01080   96.9%  84.6%      MSMSSFRWAIALRCIRRGINTLACIALLAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
  6 Vitvi14g01075   96.9%  89.6%      ------------MKKMVVNTLASIPLLAMSFFLAFASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATPNDFFFSGL
  7 Vitvi14g01113   96.9%  90.0%      ------------MKKMVVNTLACIALSAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATADDFFFSGL
  8 Vitvi14g01082   96.9%  90.5%      ------------MKKMVVNTLACIALLAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
  9 Vitvi14g04720   96.9%  92.3%      ------------MKKMVINTLACIALLAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
 10 Vitvi14g01096   96.9%  91.9%      ------------MKKMVINTLACIALSAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
 11 NA2             96.9%  91.9%      ------------MKKMVINTLACIALLAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
 12 Vitvi14g04724   96.9%  91.9%      ------------MKKMVINTLACIALLAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
 13 Vitvi14g01112   96.9%  91.9%      ------------MKKMVINTLACIALLAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
 14 Vitvi14g02863   96.9%  91.4%      ------------MKKMVINTLACIALSAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
 15 Vitvi14g02864   96.9%  91.4%      ------------MKKMVINTLACIALSAMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
    consensus/100%                    .............h.....................................FVNGKVCKD.KVATssDhFFStL
    consensus/90%                     .............M.ph....hts..........................thlFVNGKVCKDPKVATANDFFFSGL
    consensus/80%                     .............McphllNTLACIsL.AMSFFLA.sSDPSPLQ-FCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL
    consensus/70%                     .............MK+MVlNTLACIAL.AMSFFLASASDPSPLQDFCVAVNDTKTTVFVNGKVCKDPKVATANDFFFSGL

                            cov     pid  81         .         .         1         .         .         .         .         : . 160
  1 Vitvi14g02865  100.0% 100.0%      QVLGHTSNKLESMVTQANVAQIPELNTLGISLARVDYAPYGLNPPHTYPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
  2 Vitvi14g01108   92.1%  75.6%      RVPGNTSNKLGSMVTPANVAQIPDLKTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
  3 NA1             79.4%  72.4%      RVPGNTSNKLGSMVTPANVAQIPDLKTLGISLARVDYAPYGLNPPHPRDTEILTFLEGTLYVGFVTSNPDNRLISKVL
  4 Vitvi14g01106   80.7%  73.8%      RVPGNTSNKLGSMVTPANVAQIPDLKTLGISLARVDYAPYGLNPPHPRDTEILTFLEGTLYVGFVTSNPDNRLISKVL
  5 Vitvi14g01080   96.9%  84.6%      RVPGNTSNKLGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLIAKVL
  6 Vitvi14g01075   96.9%  89.6%      RVPGNTSNKVGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
  7 Vitvi14g01113   96.9%  90.0%      RVPGNTSNKVGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLICKVL
  8 Vitvi14g01082   96.9%  90.5%      RVPGNTSNKVGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLICKVL
  9 Vitvi14g04720   96.9%  92.3%      RVPGNTSNKLGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
 10 Vitvi14g01096   96.9%  91.9%      RVPGNTSNKLGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
 11 NA2             96.9%  91.9%      RVPGNTSNKVGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
 12 Vitvi14g04724   96.9%  91.9%      RVPGNTSNKVGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
 13 Vitvi14g01112   96.9%  91.9%      RVPGNTSNKVGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
 14 Vitvi14g02863   96.9%  91.4%      RVPGNTSNKVGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
 15 Vitvi14g02864   96.9%  91.4%      RVPGNTSNKVGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
    consensus/100%                    pV.GpTSNKltSMVT.ANVAQIPtLpTLGISLARVDYAPYGLNPPTaPRsTEILThLEGTLYVGFVTSNPDNRLIsKVL
    consensus/90%                     RVPGNTSNKlGSMVTPANVAQIPsLpTLGISLARVDYAPYGLNPPHPRsTEILThLEGTLYVGFVTSNPDNRLIsKVL
    consensus/80%                     RVPGNTSNKlGSMVTPANVAQIPsLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL
    consensus/70%                     RVPGNTSNKlGSMVTPANVAQIPGLNTLGISLARVDYAPYGLNPPTHPRATEILTVLEGTLYVGFVTSNPDNRLISKVL

                            cov     pid 161         .         .         .         2         .         .         .         . 240
  1 Vitvi14g02865  100.0% 100.0%      YKGDVFIFLEGLIHFQLNVRKTKAVAIAALSSQNLGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQFWTDNHT
  2 Vitvi14g01108   92.1%  75.6%      YKGDVFVFPEDLIHFQLNVEKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
  3 NA1             79.4%  72.4%      YKGDVFVFPEDLIHFQLNVEKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
  4 Vitvi14g01106   80.7%  73.8%      YKGDVFVFPEDLIHFQLNVEKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
  5 Vitvi14g01080   96.9%  84.6%      YKGDVFVFPEGLIHFHLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
  6 Vitvi14g01075   96.9%  89.6%      YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
  7 Vitvi14g01113   96.9%  90.0%      YKGDVFIFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKNVVDYLQSQF------
  8 Vitvi14g01082   96.9%  90.5%      YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
  9 Vitvi14g04720   96.9%  92.3%      YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
 10 Vitvi14g01096   96.9%  91.9%      YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
 11 NA2             96.9%  91.9%      YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
 12 Vitvi14g04724   96.9%  91.9%      YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
 13 Vitvi14g01112   96.9%  91.9%      YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
 14 Vitvi14g02863   96.9%  91.4%      YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
 15 Vitvi14g02864   96.9%  91.4%      YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF------
    consensus/100%                    YKGDVFlF.EsLIHFpLNVtKTKAVAIAALSSQN.GVITIANAVFGSKPAISADVLTKAFQVDKpVVDYLQSQF......
    consensus/90%                     YKGDVFlFPEsLIHFpLNVtKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF......
    consensus/80%                     YKGDVFVFPEGLIHFQLNVtKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF......
    consensus/70%                     YKGDVFVFPEGLIHFQLNVGKTKAVAIAALSSQNPGVITIANAVFGSKPAISADVLTKAFQVDKKVVDYLQSQF......

                            cov     pid 241 ] 241
  1 Vitvi14g02865  100.0% 100.0%      N
  2 Vitvi14g01108   92.1%  75.6%      -
  3 NA1             79.4%  72.4%      -
  4 Vitvi14g01106   80.7%  73.8%      -
  5 Vitvi14g01080   96.9%  84.6%      -
  6 Vitvi14g01075   96.9%  89.6%      -
  7 Vitvi14g01113   96.9%  90.0%      -
  8 Vitvi14g01082   96.9%  90.5%      -
  9 Vitvi14g04720   96.9%  92.3%      -
 10 Vitvi14g01096   96.9%  91.9%      -
 11 NA2             96.9%  91.9%      -
 12 Vitvi14g04724   96.9%  91.9%      -
 13 Vitvi14g01112   96.9%  91.9%      -
 14 Vitvi14g02863   96.9%  91.4%      -
```

```
  15 Vitvi14g02864   96.9%  91.4%      -
       consensus/100%                    .
       consensus/90%                     .
       consensus/80%                     .
       consensus/70%                     .
```

Consensus pattern definitions

Consensus patterns are based on equivalence classes, that is, sets of residues that share some predefined property. These classes are not mutually exclusive and the consensus mechanism will choose the most specific class that summarizes a given column at the desired percent identity.

The default for protein alignments is called `P1` and is defined by physicochemical property as follows:

```
[P1]
#Protein consensus: conserved physicochemical classes, derived from
#the Venn diagrams of: Taylor W. R. (1986). The classification of amino
acid
#conservation. J. Theor. Biol. 119:205-218.
#description =>  symbol  members
*             =>  .
A             =>  A        { A }
C             =>  C        { C }
D             =>  D        { D }
E             =>  E        { E }
F             =>  F        { F }
G             =>  G        { G }
H             =>  H        { H }
I             =>  I        { I }
K             =>  K        { K }
L             =>  L        { L }
M             =>  M        { M }
N             =>  N        { N }
P             =>  P        { P }
Q             =>  Q        { Q }
R             =>  R        { R }
S             =>  S        { S }
T             =>  T        { T }
V             =>  V        { V }
W             =>  W        { W }
Y             =>  Y        { Y }
alcohol       =>  o        { S, T }
aliphatic     =>  l        { I, L, V }
aromatic      =>  a        { F, H, W, Y }
charged       =>  c        { D, E, H, K, R }
hydrophobic   =>  h        { A, C, F, G, H, I, K, L, M, R, T, V, W, Y }
negative      =>  -        { D, E }
polar         =>  p        { C, D, E, H, K, N, Q, R, S, T }
positive      =>  +        { H, K, R }
small         =>  s        { A, C, D, G, N, P, S, T, V }
tiny          =>  u        { A, G, S }
turnlike      =>  t        { A, C, D, E, G, H, K, N, Q, R, S, T }
```

Percent Identity Matrix - created by Clustal2.1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	Protein lenght
1 Vitvi14g02865															228
2 Vitvi14g01108	79.52														210
3 NA1	88.4	97.24													181
4 Vitvi14g01106	88.59	95.65	100												184
5 Vitvi14g01080	89.59	83.81	93.37	93.48											234
6 Vitvi14g01075	89.59	85.24	93.92	93.48	94.12										221
7 Vitvi14g01113	90.05	83.33	92.27	92.39	94.12	95.93									221
8 Vitvi14g01082	90.5	84.76	93.92	94.02	95.48	97.29	98.64								221
9 Vitvi14g04720	92.31	85.24	95.03	95.11	96.83	97.29	96.83	98.19							221
10 Vitvi14g01096	91.86	85.24	95.03	95.11	96.38	96.83	97.29	98.64	99.55						221
11 NA2	91.86	84.76	94.48	94.57	96.38	97.74	97.29	98.64	99.55	99.1					221
12 Vitvi14g04724	91.86	84.76	94.48	94.57	96.38	97.74	97.29	98.64	99.55	99.1	100				221
13 Vitvi14g01112	91.86	84.76	94.48	94.57	96.38	97.74	97.29	98.64	99.55	99.1	100	100			221
14 Vitvi14g02863	91.4	84.76	94.48	94.57	95.93	97.29	97.74	99.1	99.1	99.55	99.55	99.55	99.55		221
15 Vitvi14g02864	91.4	84.76	94.48	94.57	95.93	97.29	97.74	99.1	99.1	99.55	99.55	99.55	99.55	100	221