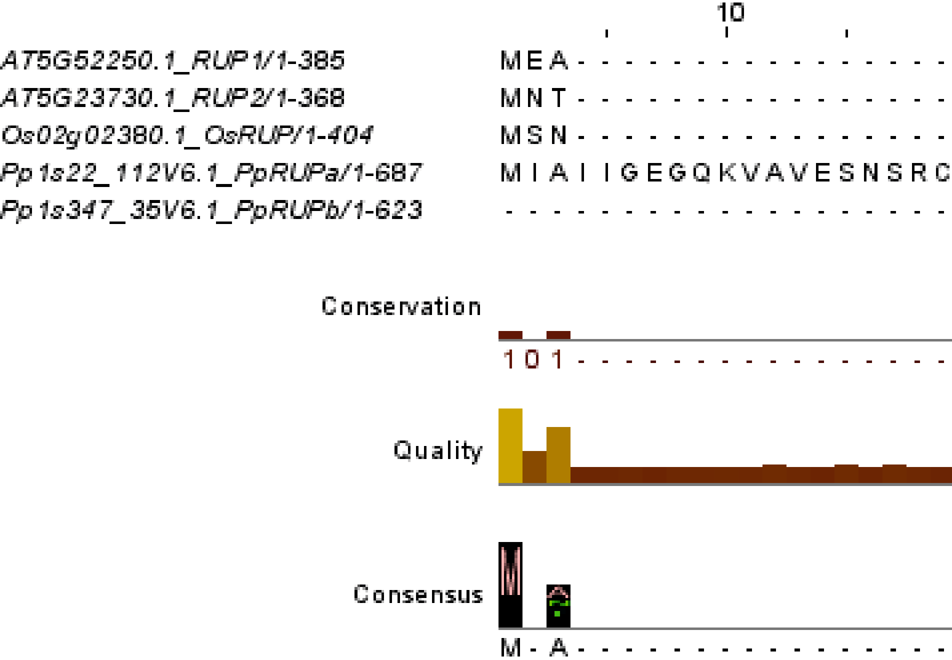
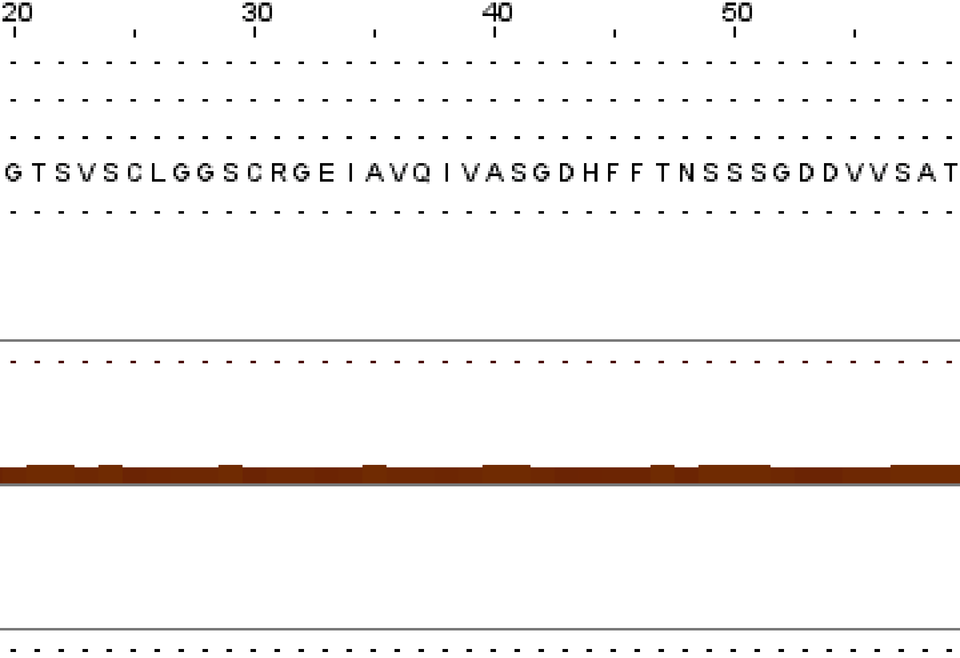
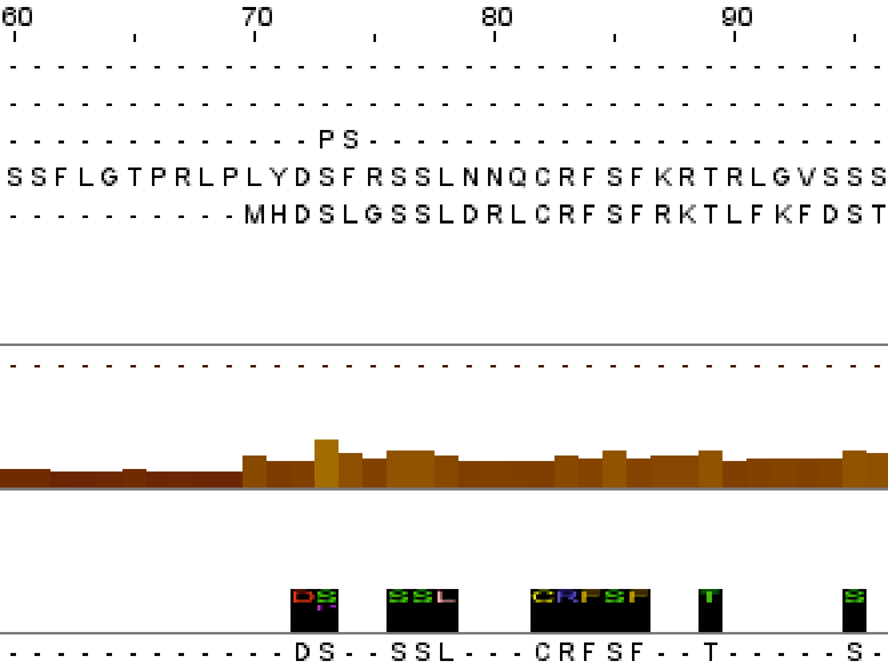
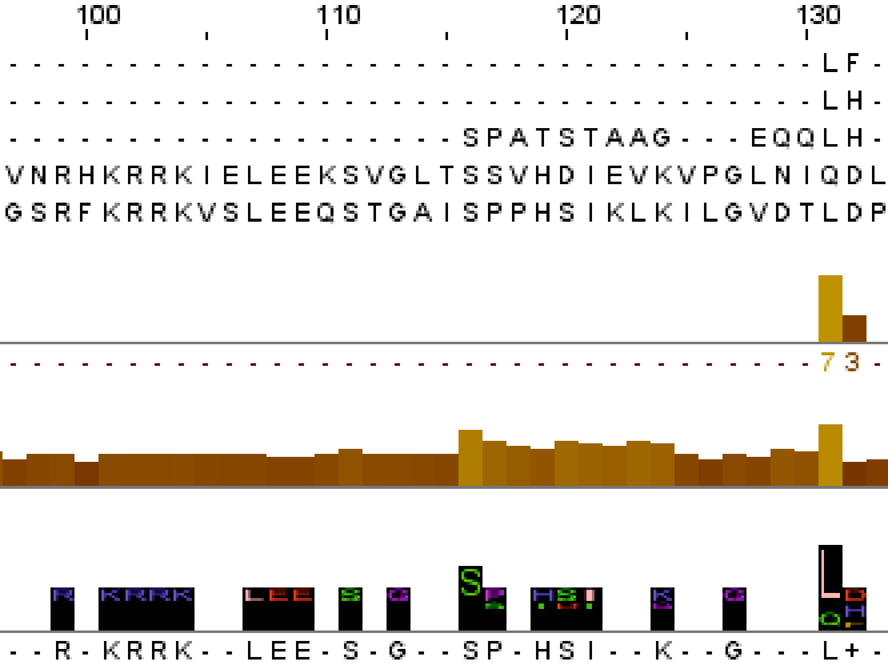

10
AT5G52250.1_RUP1/1-385 MEA-----------------
AT5G23730.1_RUP2/1-368 MNT-----------------
Os02g02380.1_OsRUP/1-404 MSN-----------------
Pp1s22_112V6.1_PpRUPa/1-687 MIAIIGEGQKVAVESNSRC
Pp1s347_35V6.1_PpRUPb/1-623 --------------------
Conservation
101-----------------
Quality
Consensus
M-A-----------------



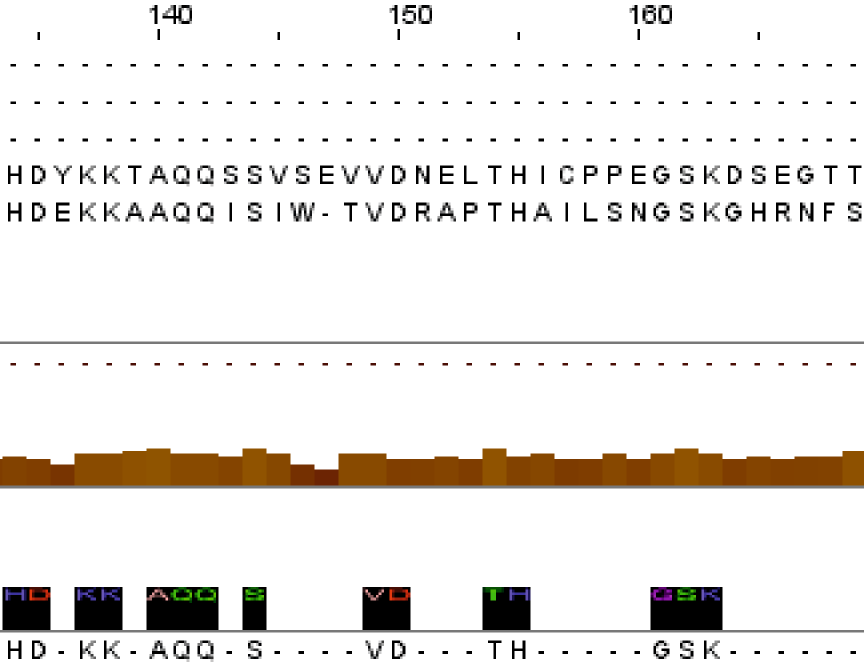
```
----------------------------------------
----------------------------------------
----------------------------------------
GTSVSCLGGSCRGEIAVQIVASGDHFFTNSSSGDDVVSAT
----------------------------------------
----------------------------------------
----------------------------------------
```



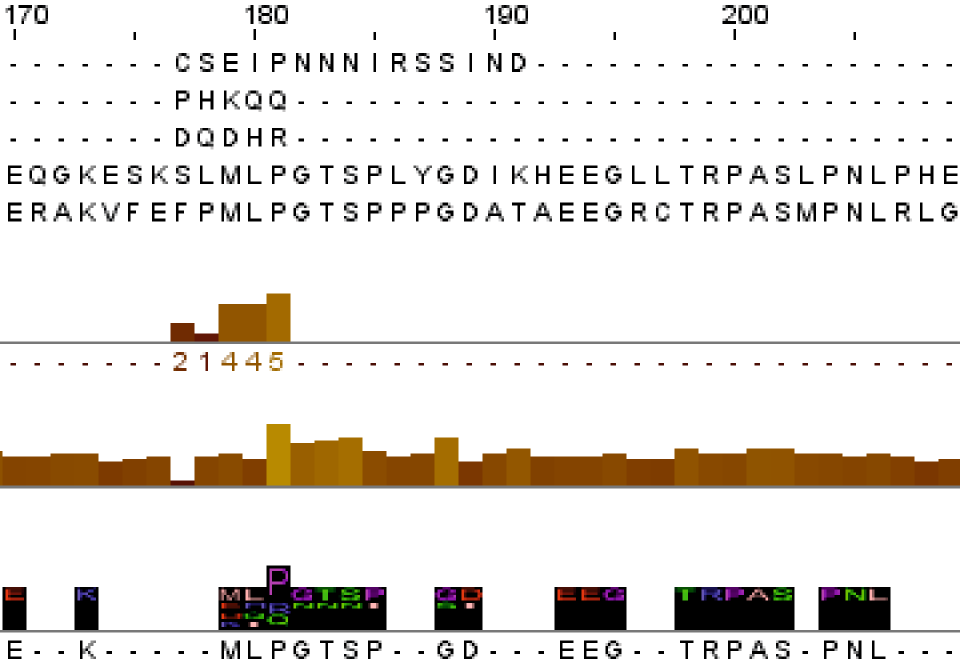
```
-------------------------------------
-------------------------------------
-------------PS----------------------
SSFLGTPRLPLYDSFRSSLNNQCRFSFKRTRLGVSSS
----------MHDSLGSSLDRLCRFSFRKTLFKFDST
-------------------------------------
------------DS--SSL---CRFSF--T-----S-
```


100
110
120
130

```
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - L F -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - L H -
- - - - - - - - - - - - - - - - - - - S P A T S T A A G - - - E Q Q L H -
V N R H K R R K I E L E E K S V G L T S S V H D I E V K V P G L N I Q D L
G S R F K R R K V S L E E Q S T G A I S P P H S I K L K I L G V D T L D P

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - 7 3 -

- - R - K R R K - - L E E - S - G - - S P - H S I - - K - - G - - - L + -
```

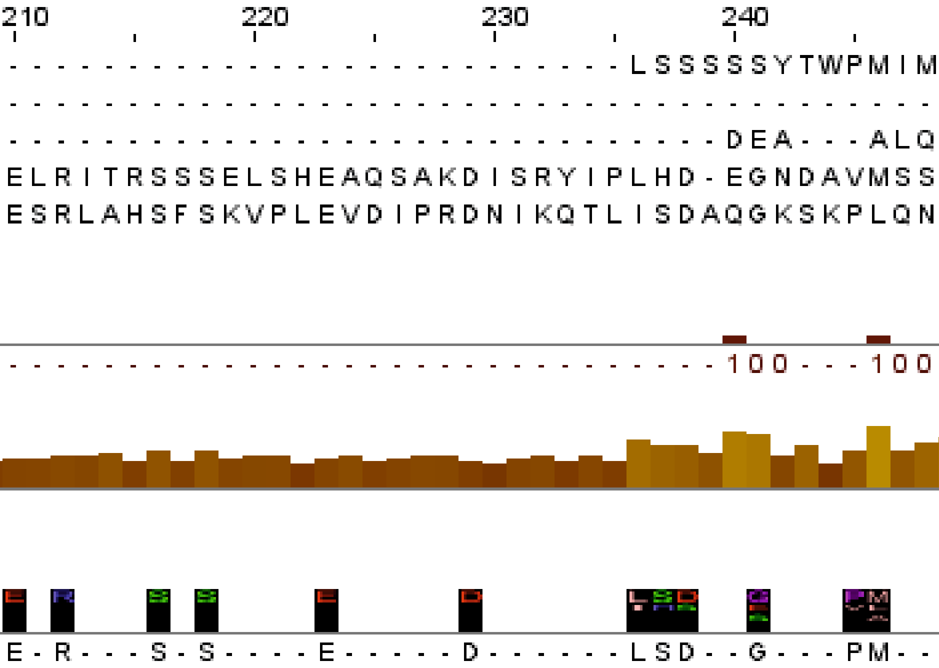


```
------------------------------------
------------------------------------
------------------------------------
HDYKKTAQQSSVSEVVDNELTHICPPEGSKDSEGTT
HDEKKAAQQISIW-TVDRAPTHAILSNGSKGHRNFS

------------------------------------

HD-KK-AQQ-S----VD---TH-----GSK------
```

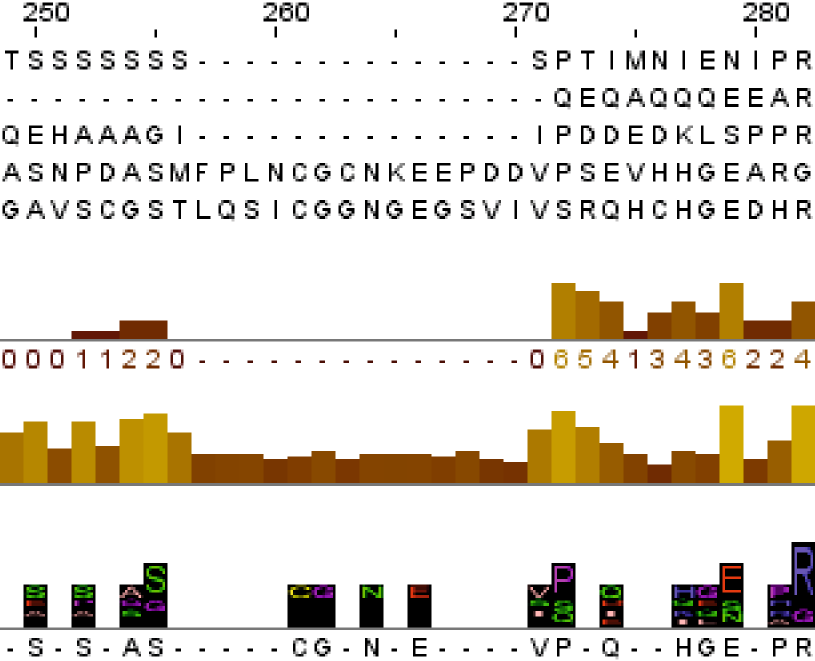


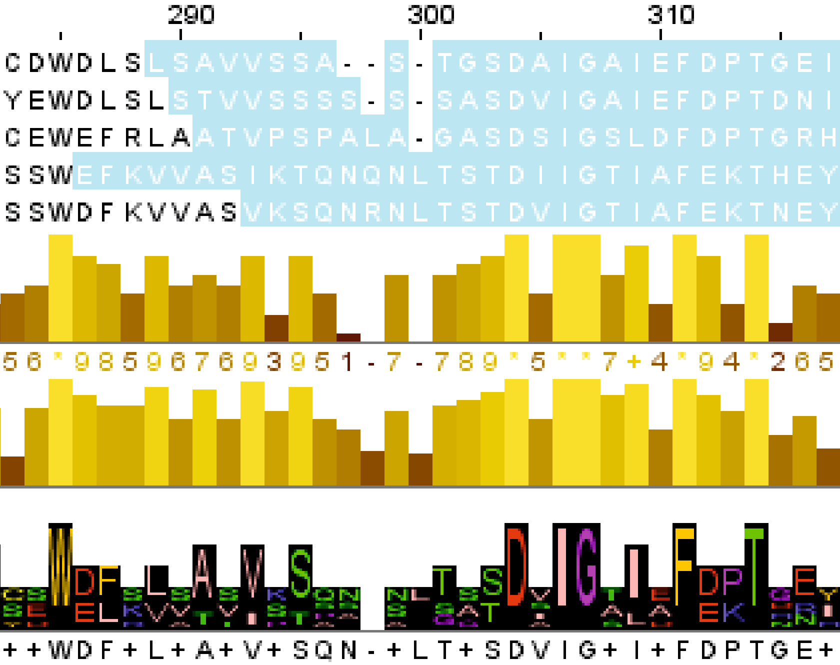
170
180
190
200

```
-------CSEIPNNNIRSSIND------------------
-------PHKQQ----------------------------
-------DQDHR----------------------------
EQGKESKSLMLPGTSPLYGDIKHEEGLLTRPASLPNLPHE
ERAKVFEFPMLPGTSPPPGDATAEEGRCTRPASMPNLRLG
-------21445----------------------------
E--K-----MLPGTSP--GD---EEG--TRPAS-PNL---
```

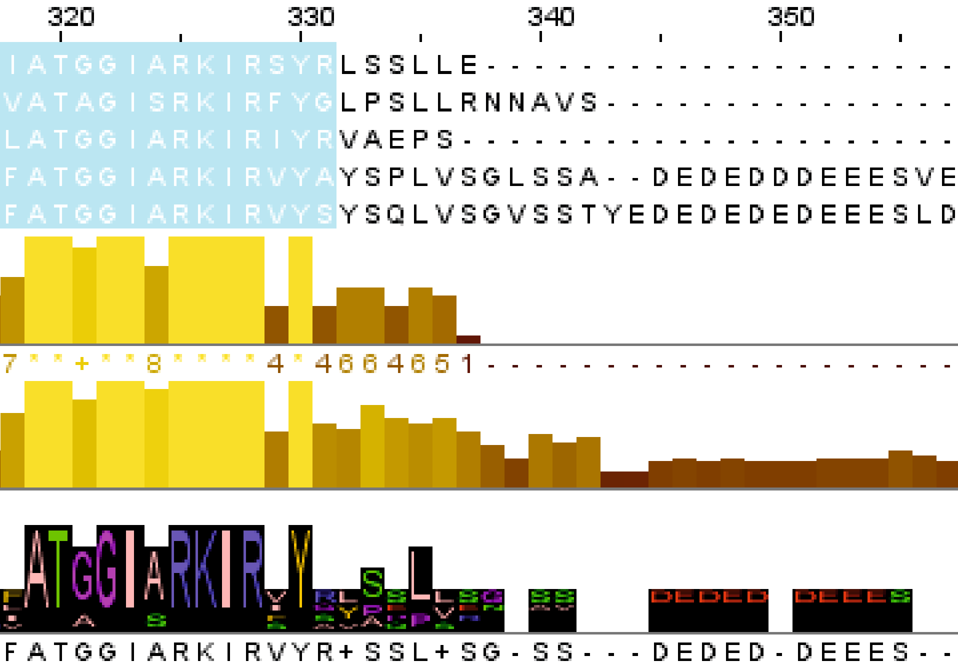

210
220
230
240

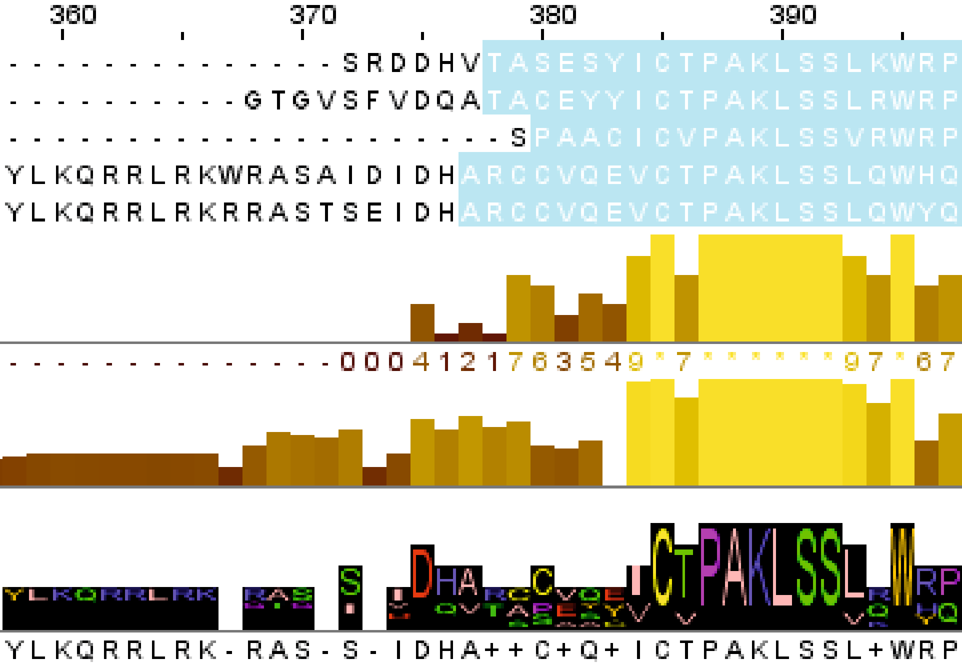
```
- - - - - - - - - - - - - - - - - - - - - - - - - - L S S S S S Y T W P M I M
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - D E A - - - A L Q
E L R I T R S S S E L S H E A Q S A K D I S R Y I P L H D - E G N D A V M S S
E S R L A H S F S K V P L E V D I P R D N I K Q T L I S D A Q G K S K P L Q N

- - - - - - - - - - - - - - - - - - - - - - - - - - - - - - 1 0 0 - - - 1 0 0

E - R - - - S - S - - - - E - - - - - D - - - - - - L S D - - G - - - P M - -
```



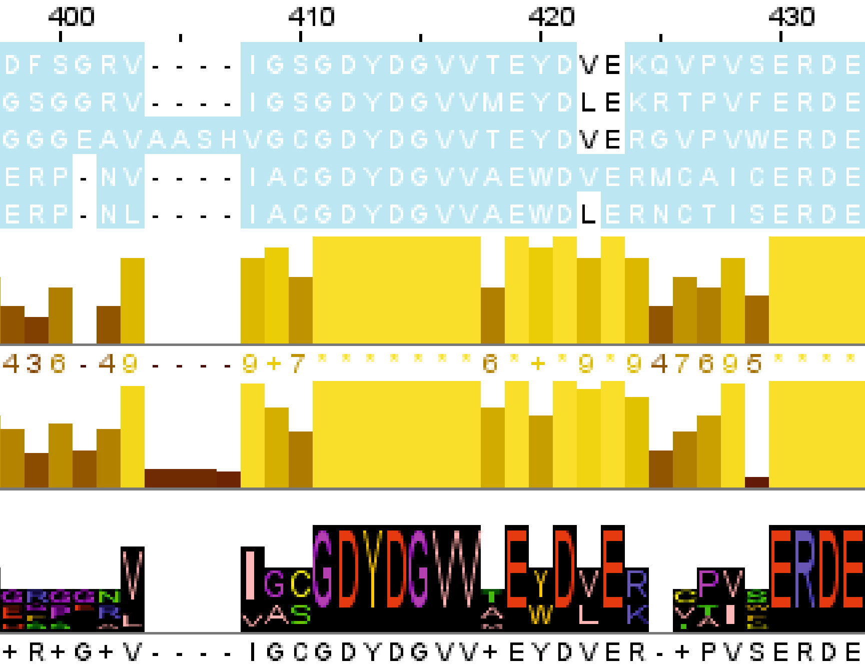


```
C D W D L S L S A V V S S A - - S - T G S D A I G A I E F D P T G E I
Y E W D L S L S T V V S S S S - S - S A S D V I G A I E F D P T D N I
C E W E F R L A A T V P S P A L A - G A S D S I G S L D F D P T G R H
S S W E F K V V A S I K T Q N Q N L T S T D I I G T I A F E K T H E Y
S S W D F K V V A S V K S Q N R N L T S T D V I G T I A F E K T N E Y
5 6 * 9 8 5 9 6 7 6 9 3 9 5 1 - 7 - 7 8 9 * 5 * * 7 + 4 * 9 4 * 2 6 5
+ + W D F + L + A + V + S Q N - + L T + S D V I G + I + F D P T G E +
```

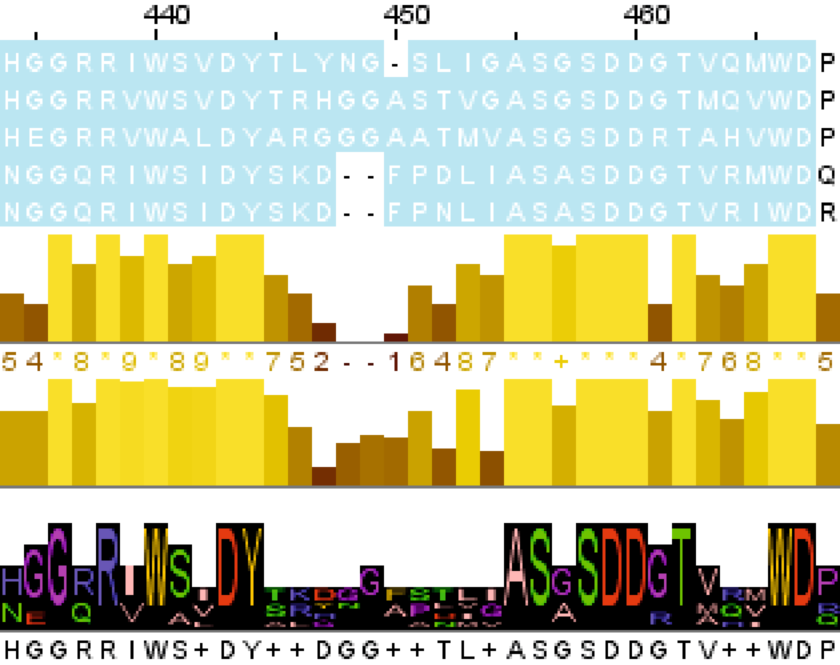

320
330
340
350
IATGGIARKIRSYRLSSLLE--------------------
VATAGISRKIRFYGLPSLLRNNAVS---------------
LATGGIARKIRIYRVAEPS---------------------
FATGGIARKIRVYAYSPLVSGLSSA--DEDEDDDEEESVE
FATGGIARKIRVYSYSQLVSGVSSTYEDEDEDEDEEESLD
7**+**8*****4*4664651-------------------
FATGGIARKIRVYR+SSL+SG-SS---DEDED-DEEES--

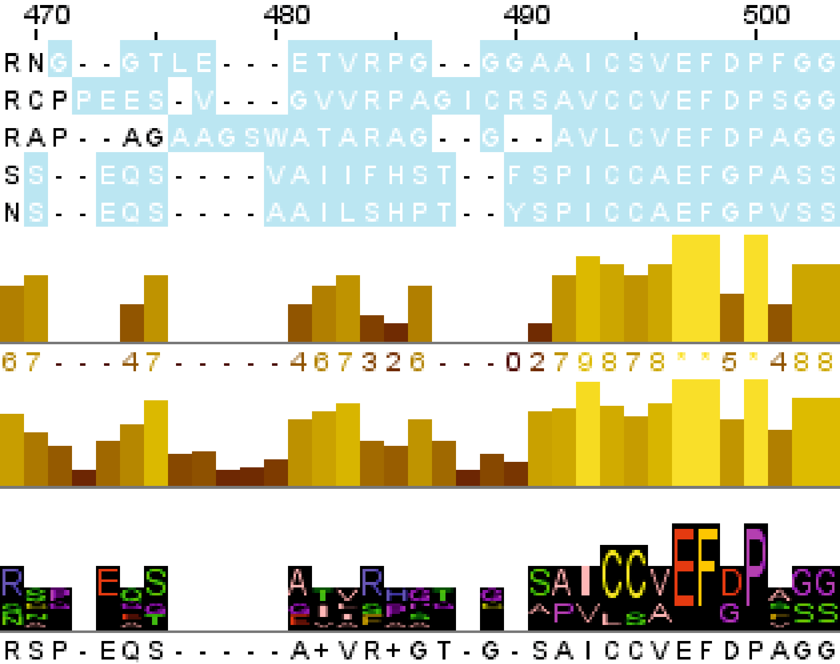


360
370
380
390
- - - - - - - - - - - - - - S R D D H V T A S E S Y I C T P A K L S S L K W R P
- - - - - - - - - - G T G V S F V D Q A T A C E Y Y I C T P A K L S S L R W R P
- S P A A C I C V P A K L S S V R W R P
Y L K Q R R L R K W R A S A I D I D H A R C C V Q E V C T P A K L S S L Q W H Q
Y L K Q R R L R K R R A S T S E I D H A R C C V Q E V C T P A K L S S L Q W Y Q
- - - - - - - - - - - - - - 0 0 0 4 1 2 1 7 6 3 5 4 9 * 7 * * * * * * 9 7 * 6 7
Y L K Q R R L R K - R A S - S - I D H A + + C + Q + I C T P A K L S S L + W R P

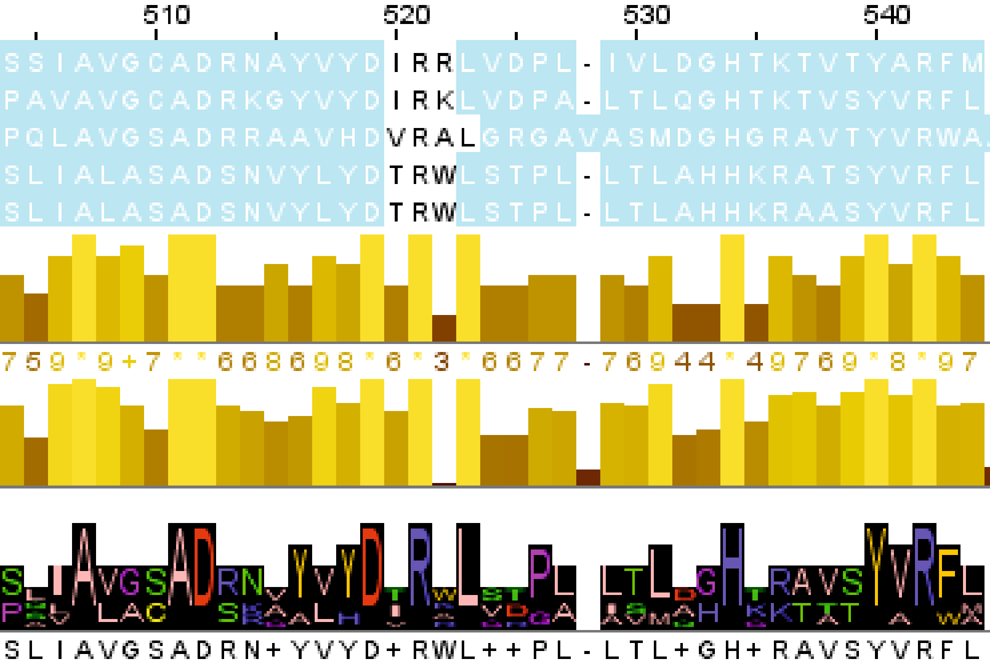

400
410
420
430

```
D F S G R V - - - - I G S G D Y D G V V T E Y D V E K Q V P V S E R D E
G S G G R V - - - - I G S G D Y D G V V M E Y D L E K R T P V F E R D E
G G G E A V A A S H V G C G D Y D G V V T E Y D V E R G V P V W E R D E
E R P - N V - - - - I A C G D Y D G V V A E W D V E R M C A I C E R D E
E R P - N L - - - - I A C G D Y D G V V A E W D L E R N C T I S E R D E
4 3 6 - 4 9 - - - - 9 + 7 * * * * * * * 6 * + * 9 * 9 4 7 6 9 5 * * * *
+ R + G + V - - - - I G C G D Y D G V V + E Y D V E R - + P V S E R D E
```


440
450
460
HGGRRIWSVDYTLYNG-SLIGASGSDDGTVQMWDP
HGGRRVWSVDYTRHGGASTVGASGSDDGTMQVWDP
HEGRRVWALDYARGGGAATMVASGSDDRTAHVWDP
NGGQRIWSIDYSKD--FPDLIASASDDGTVRMWDQ
NGGQRIWSIDYSKD--FPNLIASASDDGTVRIWDR
54*8*9*89**752--16487**+***4*768**5
HGGRRIWS+DY++DGG++TL+ASGSDDGTV++WDP



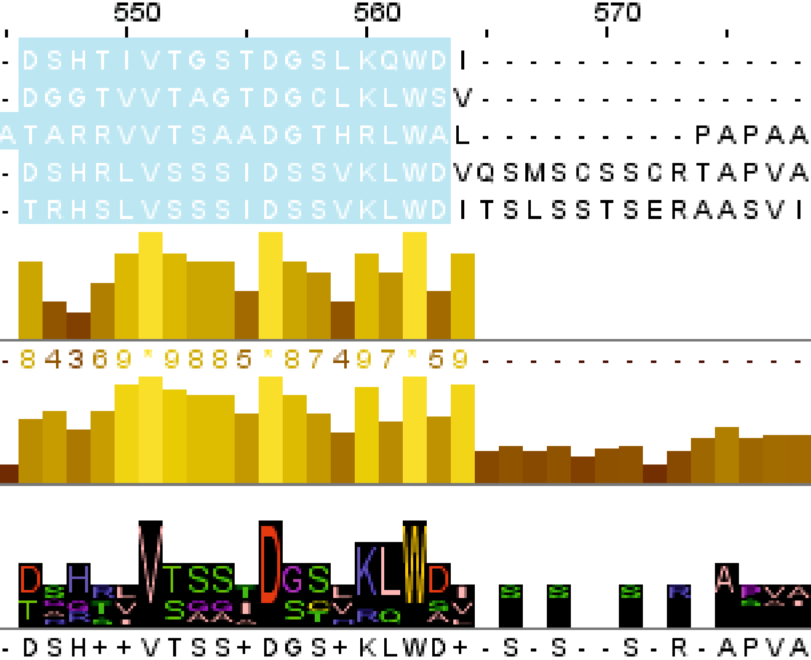
470
480
490
500
RNG--GTLE---ETVRPG--GGAAICSVEFDPFGG
RCPPEES-V---GVVRPAGICRSAVCCVEFDPSGG
RAP--AGAAGSWATARAG--G--AVLCVEFDPAGG
SS--EQS----VAIIFHST--FSPICCAEFGPASS
NS--EQS----AAILSHPT--YSPICCAEFGPVSS
67---47-----467326---027987 8**5*488
RSP-EQS-----A+VR+GT-G-SAICCVEFDPAGG

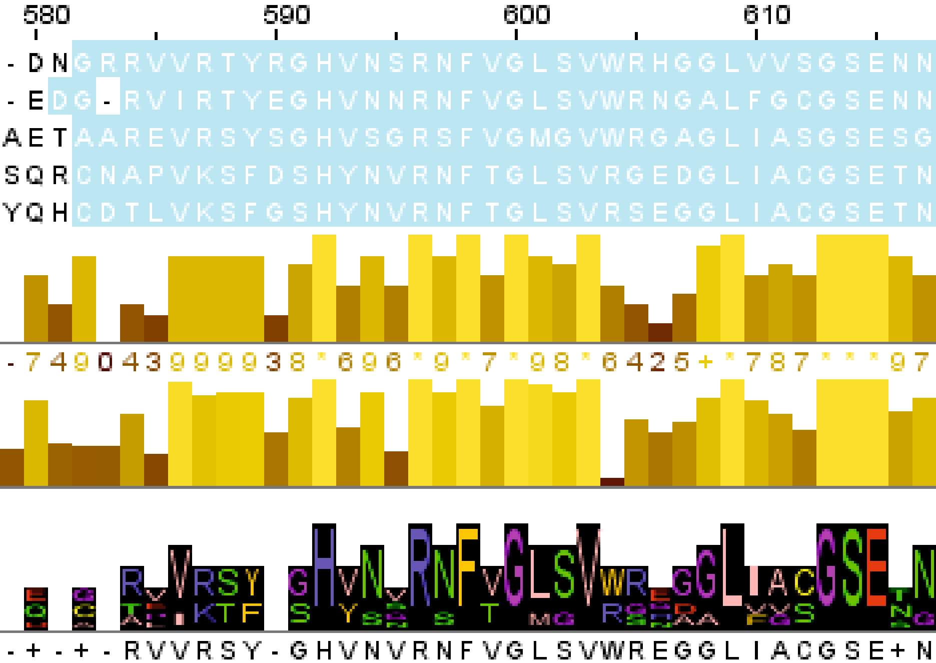

510
520
530
540

SSIAVGCADRNAYVYDIRRLVDPL-IVLDGHTKTVTYARFM
PAVAVGCADRKGYVYDIRKLVDPA-LTLQGHTKTVSYVRFL
PQLAVGSADRRAAVHDVRALGRGAVASMDGHGRAVTYVRWA
SLIALASADSNVYLYDTRWLSTPL-LTLAHHKRATSYVRFL
SLIALASADSNVYLYDTRWLSTPL-LTLAHHKRAASYVRFL

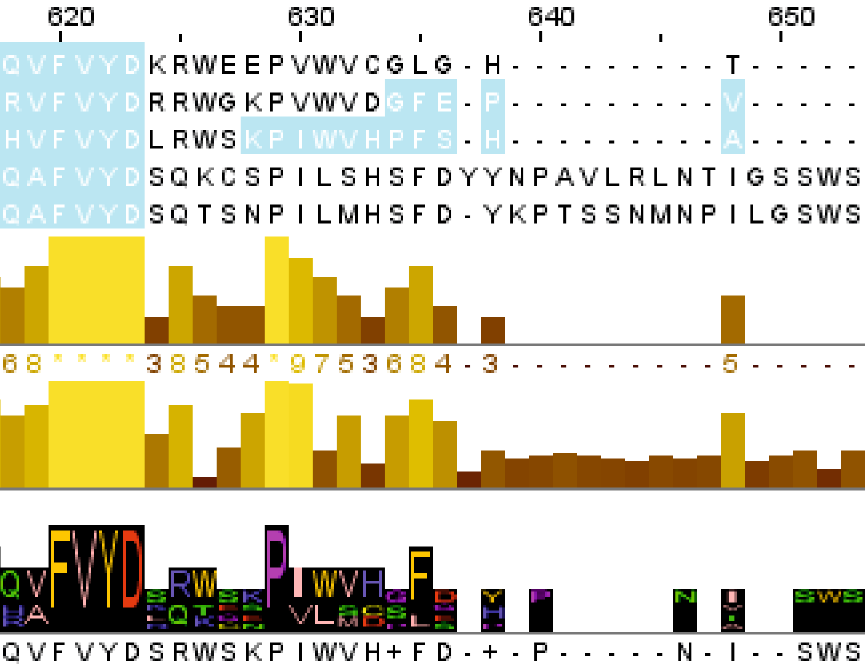
759*9+7**668698*6*3*6677-76944*49769*8*97

SLIAVGSADRN+YVYD+RWL++PL-LTL+GH+RAVSYVRFL

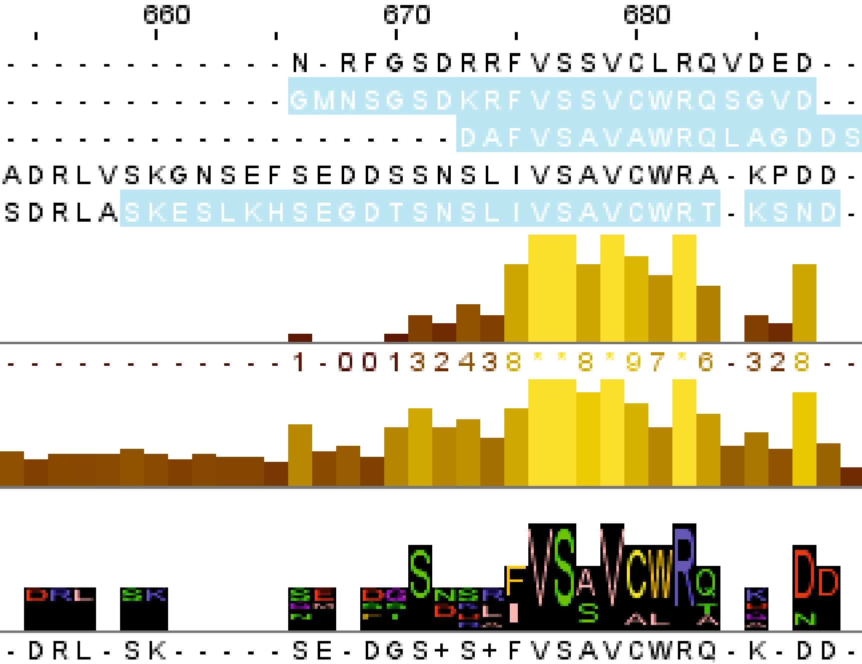

550
560
570
-DSHTIVTGSTDGSLKQWDI--------------
-DGGTVVTAGTDGCLKLWSV--------------
ATARRVVTSAADGTHRLWAL---------PAPAA
-DSHRLVSSSIDSSVKLWDVQSMSCSSCRTAPVA
-TRHSLVSSSIDSSVKLWDITSLSSTSERAASVI
-84369*9885*87497*59--------------
-DSH++VTSS+DGS+KLWD+-S-S--S-R-APVA

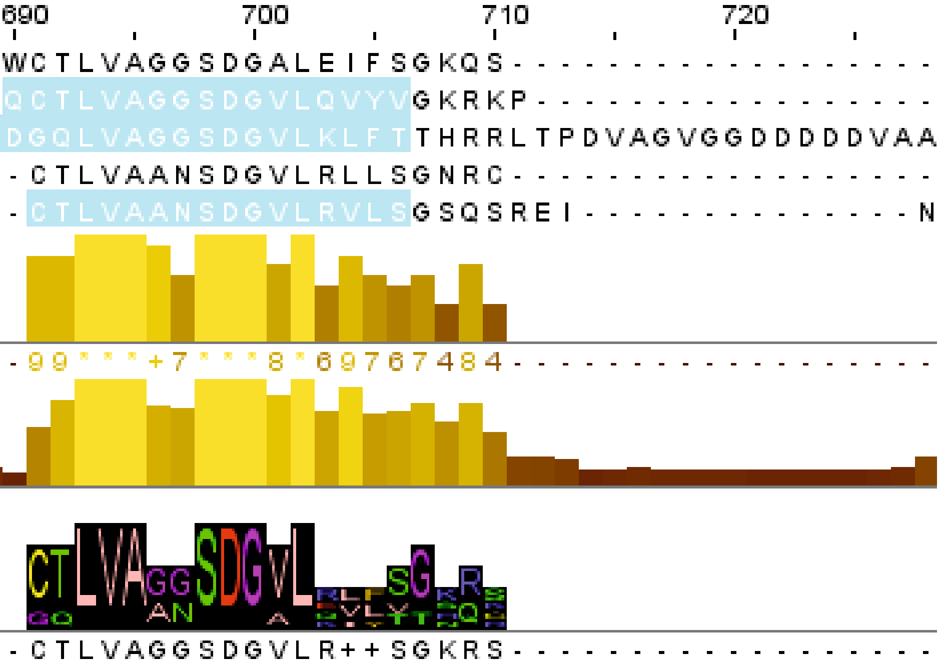


```
580                 590                 600                 610
- D N G R R V V R T Y R G H V N S R N F V G L S V W R H G G L V V S G S E N N
- E D G - R V I R T Y E G H V N N R N F V G L S V W R N G A L F G C G S E N N
A E T A A R E V R S Y S G H V S G R S F V G M G V W R G A G L I A S G S E S G
S Q R C N A P V K S F D S H Y N V R N F T G L S V R G E D G L I A C G S E T N
Y Q H C D T L V K S F G S H Y N V R N F T G L S V R S E G G L I A C G S E T N
- 7 4 9 0 4 3 9 9 9 9 3 8 * 6 9 6 * 9 * 7 * 9 8 * 6 4 2 5 + * 7 8 7 * * * 9 7
- + - + - R V V R S Y - G H V N V R N F V G L S V W R E G G L I A C G S E + N
```


620
630
640
650

```
QVFVYDKRWEEPVWVCGLG-H---------T-----
RVFVYDRRWGKPVWVDGFE-P---------V-----
HVFVYDLRWSKPIWVHPFS-H---------A-----
QAFVYDSQKCSPILSHSFDYYNPAVLRLNTIGSSWS
QAFVYDSQTSNPILMHSFD-YKPTSSNMNPILGSWS
68****38544*9753684-3---------5-----
QVFVYDSRWSKPIWVH+FD-+-P-----N-I--SWS
```


660
670
680
- - - - - - - - - - - - N - R F G S D R R F V S S V C L R Q V D E D - -
- - - - - - - - - - - - G M N S G S D K R F V S S V C W R Q S G V D - -
- - - - - - - - - - - - - - - - - - - D A F V S A V A W R Q L A G D D S
A D R L V S K G N S E F S E D D S S N S L I V S A V C W R A - K P D D -
S D R L A S K E S L K H S E G D T S N S L I V S A V C W R T - K S N D -
- - - - - - - - - - - - 1 - 0 0 1 3 2 4 3 8 * * 8 * 9 7 * 6 - 3 2 8 - -
- D R L - S K - - - - - S E - D G S + S + F V S A V C W R Q - K - D D -


690
700
710
720
WCTLVAGGSDGALEIFSGKQS------------------
QCTLVAGGSDGVLQVYVGKRKP-----------------
DGQLVAGGSDGVLKLFTTHRRLTPDVAGVGGDDDDDVAA
-CTLVAANSDGVLRLLSGNRC------------------
-CTLVAANSDGVLRVLSGSQSREI--------------N
-99***+7***8*69767484------------------
-CTLVAGGSDGVLR++SGKRS------------------