

Apicomplexan CDK subfamily vs. eukaryotic CDK

Intermediate

| | | | | |
|-----|---|---|--|-----|
| 1 | XXXVERLGGGTYGDVYKAV | E | YYY | 23* |
| 24 | ---EKLGGGTYGDVYKGVikynnnnnndlyqntnylpyD | D | YYT | 64 |
| 24 | ---EKLGGGTYGDVYKGVikynnnnnndlyqntnylpyD | D | YYT | 63 |
| 24 | ---EKLGGGTYGDVYKGVikysnssndlyqntnylpyD | D | YYT | 63 |
| 24 | ---EKLGGGTYGDVYKGV | V | VKY | 42 |
| 24 | ---EKLGGGTYGDVYKGV | V | VKY | 42 |
| 24 | ---EKLGGGTYGDVYKGV | V | VKY | 42 |
| 131 | ----- | - | --- | --- |
| 131 | ----- | - | --- | --- |
| 127 | ----- | - | --- | --- |
| 34 | ---VERLGGGTYGDVYKAV | E | EeeeeendrgsarardrpgistaeataeatngedasakegsekKTK | 95 |
| 34 | ---VERLGGGTYGDVYKAV | E | EeeeeendrgsarardrpgistaeataeatngedasakegsekKTK | 95 |
| 34 | ---VERLGGGTYGDVYKAV | E | EeeeeendrgsarardrpgistaeataeatngedasakegsekKTK | 95 |
| 34 | ---VERLGGGTYGDVYKAV | E | EEDeenqrgassslssasrdgasdgggrnveetpekegea | 90 |
| 34 | ---VERLGGGTYGDVYRAV | E | EPedgvgg | 58 |

position . 10 . 20

Background

| | | | | |
|-----|---|---|--|-----|
| 1 | XXXVERLGGGTYGDVYKAV | E | YYY | 23* |
| 24 | ---EKLGGGTYGDVYKGVikynnnnnndlyqntnylpyD | D | YYT | 64 |
| 24 | ---EKLGGGTYGDVYKGVikynnnnnndlyqntnylpyD | D | YYT | 63 |
| 24 | ---EKLGGGTYGDVYKGVikysnssndlyqntnylpyD | D | YYT | 63 |
| 24 | ---EKLGGGTYGDVYKGV | V | VKY | 42 |
| 24 | ---EKLGGGTYGDVYKGV | V | VKY | 42 |
| 24 | ---EKLGGGTYGDVYKGV | V | VKY | 42 |
| 131 | ----- | - | --- | --- |
| 131 | ----- | - | --- | --- |
| 127 | ----- | - | --- | --- |
| 34 | ---VERLGGGTYGDVYKAV | E | EeeeeendrgsarardrpgistaeataeatngedasakegsekKTK | 95 |
| 34 | ---VERLGGGTYGDVYKAV | E | EeeeeendrgsarardrpgistaeataeatngedasakegsekKTK | 95 |
| 34 | ---VERLGGGTYGDVYKAV | E | EeeeeendrgsarardrpgistaeataeatngedasakegsekKTK | 95 |
| 34 | ---VERLGGGTYGDVYKAV | E | EEDeenqrgassslssasrdgasdgggrnveetpekegea | 90 |
| 34 | ---VERLGGGTYGDVYRAV | E | EPedgvgg | 58 |

foreground (196):

| | | | |
|------------------|---|-----|------|
| VERLGGGTYGDVYKGV | N | KET | 15.8 |
| QILNLSSEATERAR | D | RQN | |
| GIAI | H | TK | |

wt_res_freqs (61):

| | | | |
|---------------------|---|-----|--|
| 6221241769578296611 | 1 | 315 | |
| 211313111111162 | 4 | 111 | |
| 1411 | 1 | 11 | |

insertions 1 127

deletions 77766555544444444444 5 433

Foreground

| | | | | |
|-----|---|---|--|-----|
| 1 | XXXVERLGGGTYGDVYKAV | E | YYY | 23* |
| 24 | ---EKLGGGTYGDVYKGVikynnnnnndlyqntnylpyD | D | YYT | 64 |
| 24 | ---EKLGGGTYGDVYKGVikynnnnnndlyqntnylpyD | D | YYT | 63 |
| 24 | ---EKLGGGTYGDVYKGVikysnssndlyqntnylpyD | D | YYT | 63 |
| 24 | ---EKLGGGTYGDVYKGV | V | VKY | 42 |
| 24 | ---EKLGGGTYGDVYKGV | V | VKY | 42 |
| 24 | ---EKLGGGTYGDVYKGV | V | VKY | 42 |
| 131 | ----- | - | --- | --- |
| 131 | ----- | - | --- | --- |
| 127 | ----- | - | --- | --- |
| 34 | ---VERLGGGTYGDVYKAV | E | EeeeeendrgsarardrpgistaeataeatngedasakegsekKTK | 95 |
| 34 | ---VERLGGGTYGDVYKAV | E | EeeeeendrgsarardrpgistaeataeatngedasakegsekKTK | 95 |
| 34 | ---VERLGGGTYGDVYKAV | E | EeeeeendrgsarardrpgistaeataeatngedasakegsekKTK | 95 |
| 34 | ---VERLGGGTYGDVYKAV | E | EEDeenqrgassslssasrdgasdgggrnveetpekegea | 90 |
| 34 | ---VERLGGGTYGDVYRAV | E | EPedgvgg | 58 |

foreground (15):

| | | | |
|------------------|---|-----|-----|
| VERLGGGTYGDVYRGR | D | ETT | 1.3 |
| RAV | V | VPY | |
| | E | YK | |

wt_res_freqs (4):

| | | | |
|----------------|---|-----|--|
| 37377777777133 | 1 | 111 | |
| 3 | 1 | 111 | |
| | 3 | 111 | |

insertions 2

deletions 99962222222222222222 2 222

position . 10 . 20

Intermediate

| | | | | | | | | | |
|---------|-----|--|--------------------------------------|------------------|---|---------------|-----|-------------|-----|
| unknown | 72 | QOK | IF | MA | Y | EYCPG | DL | KKLIQ | 91* |
| unknown | 122 | RQK | LIseyinrqlqhytsnyhhhhsklditplaadqkFI | FaayEYCDGg | Y | EYCDGg | DL | KKLIQ | 179 |
| unknown | 121 | RQKciseyinrqlqghasnfqhsakldmtplsadqkf | IF | AA | Y | EYCDAG | DL | KRLIQ | 176 |
| unknown | 121 | RQKciseyinrqlqghasnfqhsakldmtplaadqkf | IF | AA | Y | EYCDAG | DL | KRLIQ | 176 |
| unknown | 143 | QVK | ID | MVplslsqkffifaaY | Y | EYCDGg | DL | KKLIQ | 178 |
| unknown | 143 | QVK | ID | MVplslsqkffifaaY | Y | EYCDGg | DL | KKLIQ | 175 |
| unknown | 119 | RQKgiseyinrqlqhytsnyhhqvkidmaplsldqkf | IF | AA | Y | EYCDGg | DL | KKLIQ | 177 |
| unknown | 178 | EHEgitnklmnqiseliksdsrslspkefgfypfkntqifVL | VL | GL | Y | EFCRGg | DL | grgifRKFfSK | 239 |
| unknown | 178 | GDL | GR | GI | Y | --- | --- | RKFTK | 190 |
| unknown | 222 | KSQ | IF | MFal | Y | EYCEGg | DL | graiwRAYSK | 249 |
| unknown | 190 | QNF | VF | AA | Y | EFCPGg | DL | KKLLA | 210 |
| unknown | 190 | QNF | VF | AA | Y | EFCPGg | DL | KKLLA | 210 |
| unknown | 190 | QNF | VF | AA | Y | EFCPGg | DL | KKLLA | 210 |
| unknown | 187 | elkpnQNF | VF | AA | Y | EFCPGg | DL | KKLLA | 212 |
| unknown | 148 | laqe.ELK | PT | QV | Y | VFAAYelceggDL | DL | KKLLA | 177 |

position . 80 . 90

Background

| | | | | | | | | | |
|----------------|-----|--|--------------------------------------|------------------|---|---------------|-----|-------------|-----|
| consensus | 72 | QOK | IF | MA | Y | EYCPG | DL | KKLIQ | 91* |
| PFF0750w | 122 | RQK | LIseyinrqlqhytsnyhhhhsklditplaadqkFI | FaayEYCDGg | Y | EYCDGg | DL | KKLIQ | 179 |
| PKH_113350 | 121 | RQKciseyinrqlqghasnfqhsakldmtplsadqkf | IF | AA | Y | EYCDAG | DL | KRLIQ | 176 |
| PVX_113910 | 121 | RQKciseyinrqlqghasnfqhsakldmtplaadqkf | IF | AA | Y | EYCDAG | DL | KRLIQ | 176 |
| PBANKA_123020 | 143 | QVK | ID | MVplslsqkffifaaY | Y | EYCDGg | DL | KKLIQ | 178 |
| PY06538 | 143 | QVK | ID | MVplslsqkffifaaY | Y | EYCDGg | DL | KKLIQ | 175 |
| PCHAS_123090 | 119 | RQKgiseyinrqlqhytsnyhhqvkidmaplsldqkf | IF | AA | Y | EYCDGg | DL | KKLIQ | 177 |
| TA09960 | 178 | EHEgitnklmnqiseliksdsrslspkefgfypfkntqifVL | VL | GL | Y | EFCRGg | DL | grgifRKFfSK | 239 |
| TP04_0791 | 178 | GDL | GR | GI | Y | --- | --- | RKFTK | 190 |
| BBOV_III008880 | 222 | KSQ | IF | MFal | Y | EYCEGg | DL | graiwRAYSK | 249 |
| TGGT1_118720 | 190 | QNF | VF | AA | Y | EFCPGg | DL | KKLLA | 210 |
| TGME49_029020 | 190 | QNF | VF | AA | Y | EFCPGg | DL | KKLLA | 210 |
| TGVEG_026470 | 190 | QNF | VF | AA | Y | EFCPGg | DL | KKLLA | 210 |
| NCLIV_030060 | 187 | elkpnQNF | VF | AA | Y | EFCPGg | DL | KKLLA | 212 |
| ETH_00023650 | 148 | laqe.ELK | PT | QV | Y | VFAAYelceggDL | DL | KKLLA | 177 |

foreground (196):

| | | | | | | | |
|-----|----|----|---|-------|----|-------|------|
| DDS | VY | IV | F | EYMDH | DL | KKYID | 15.8 |
| EGK | LF | LI | M | DFVEY | | REFLE | |
| KS | IT | M | | L M | | QIMK | |

wt_res_freqs (61):

| | | | | | | | |
|-----|----|----|---|-------|----|-------|--|
| 111 | 13 | 17 | 6 | 75232 | 89 | 21331 | |
| 111 | 41 | 51 | 1 | 12131 | | 11142 | |
| 11 | 21 | 1 | | 1 1 | | 1111 | |

insertions 222 11

deletions 211 11 12 1 11122 22 22222 11.5

Foreground

| | | | | | | | | | |
|----------------|-----|--|--------------------------------------|------------------|---|---------------|-----|-------------|-----|
| consensus | 72 | QOK | IF | MA | Y | EYCPG | DL | KKLIQ | 91* |
| PFF0750w | 122 | RQK | LIseyinrqlqhytsnyhhhhsklditplaadqkFI | FaayEYCDGg | Y | EYCDGg | DL | KKLIQ | 179 |
| PKH_113350 | 121 | RQKciseyinrqlqghasnfqhsakldmtplsadqkf | IF | AA | Y | EYCDAG | DL | KRLIQ | 176 |
| PVX_113910 | 121 | RQKciseyinrqlqghasnfqhsakldmtplaadqkf | IF | AA | Y | EYCDAG | DL | KRLIQ | 176 |
| PBANKA_123020 | 143 | QVK | ID | MVplslsqkffifaaY | Y | EYCDGg | DL | KKLIQ | 178 |
| PY06538 | 143 | QVK | ID | MVplslsqkffifaaY | Y | EYCDGg | DL | KKLIQ | 175 |
| PCHAS_123090 | 119 | RQKgiseyinrqlqhytsnyhhqvkidmaplsldqkf | IF | AA | Y | EYCDGg | DL | KKLIQ | 177 |
| TA09960 | 178 | EHEgitnklmnqiseliksdsrslspkefgfypfkntqifVL | VL | GL | Y | EFCRGg | DL | grgifRKFfSK | 239 |
| TP04_0791 | 178 | GDL | GR | GI | Y | --- | --- | RKFTK | 190 |
| BBOV_III008880 | 222 | KSQ | IF | MFal | Y | EYCEGg | DL | graiwRAYSK | 249 |
| TGGT1_118720 | 190 | QNF | VF | AA | Y | EFCPGg | DL | KKLLA | 210 |
| TGME49_029020 | 190 | QNF | VF | AA | Y | EFCPGg | DL | KKLLA | 210 |
| TGVEG_026470 | 190 | QNF | VF | AA | Y | EFCPGg | DL | KKLLA | 210 |
| NCLIV_030060 | 187 | elkpnQNF | VF | AA | Y | EFCPGg | DL | KKLLA | 212 |
| ETH_00023650 | 148 | laqe.ELK | PT | QV | Y | VFAAYelceggDL | DL | KKLLA | 177 |

foreground (15):

| | | | | | | | |
|-----|----|----|---|-------|----|-------|-----|
| ENK | VT | GA | Y | VYCAg | DL | KKLSA | 1.3 |
| RLF | PD | MI | F | FAPY | | RRFLK | |
| QV | I | QV | | DA | | IQ | |

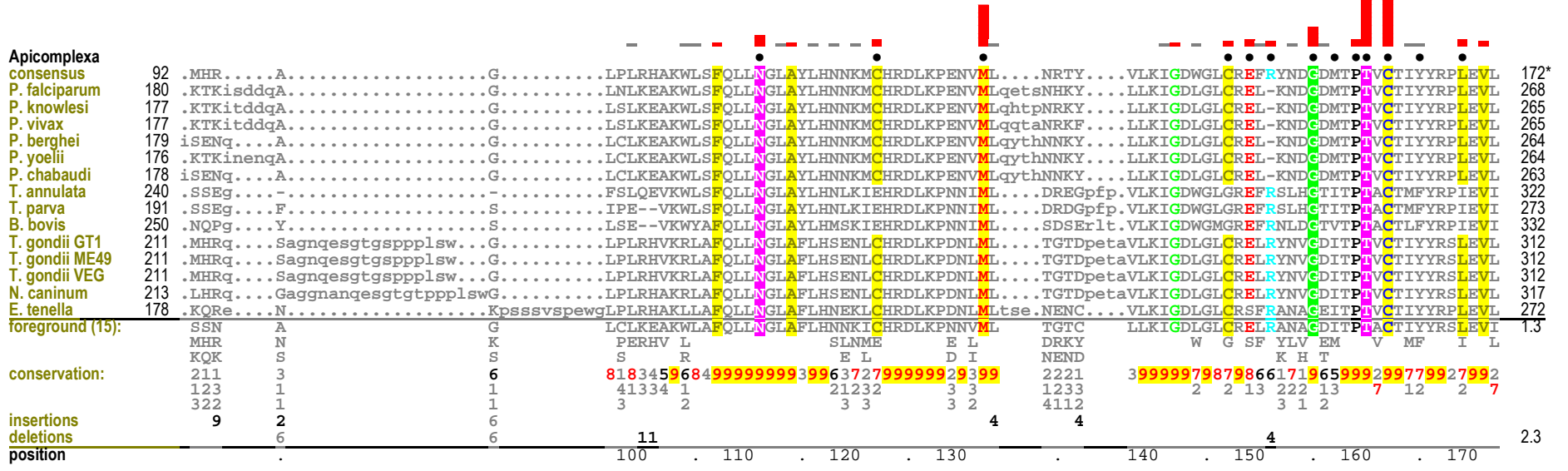
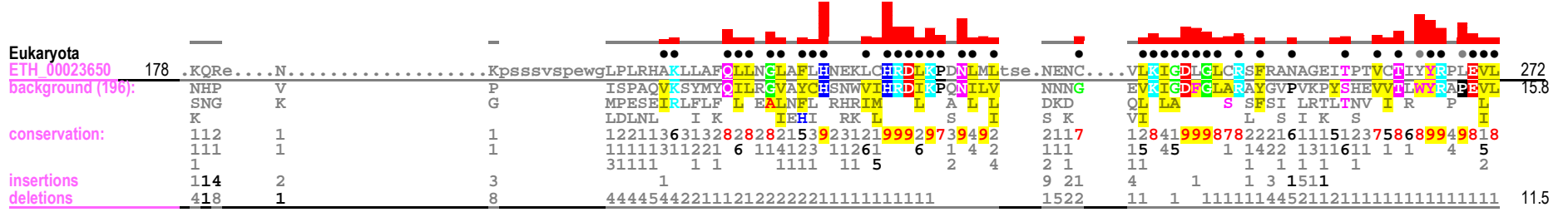
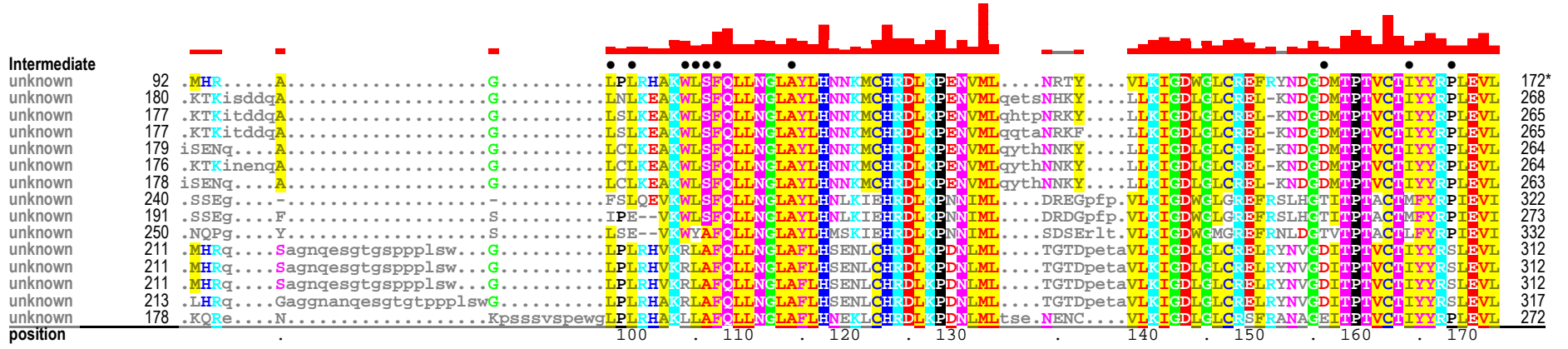
wt_res_freqs (4):

| | | | | | | | |
|-----|----|----|---|-------|----|-------|--|
| 224 | 31 | 14 | 7 | 14716 | 99 | 77713 | |
| 212 | 11 | 21 | 2 | 4121 | | 21132 | |
| 31 | 4 | 12 | | 31 | | 33 | |

insertions 2 6

deletions 2 6 8 1 1


position . 80 . 90 2.3




| Intermediate | | | | | |
|--------------|-----|----|----|----|------|
| unknown | 173 | LG | AA | H | 177* |
| unknown | 269 | L | | | 353 |
| unknown | 266 | L | | | 350 |
| unknown | 266 | L | | | 350 |
| unknown | 265 | L | | | 349 |
| unknown | 265 | L | | | 349 |
| unknown | 264 | L | | | 348 |
| unknown | 323 | LG | SI | SI | 343 |
| unknown | 274 | LG | SI | SI | 294 |
| unknown | 333 | LG | PM | N | 356 |
| unknown | 313 | LG | RI | H | 336 |
| unknown | 313 | LG | RI | H | 336 |
| unknown | 313 | LG | RI | H | 336 |
| unknown | 318 | LG | RI | H | 341 |
| unknown | 273 | LG | GA | H | 290 |

| Background | | | | | |
|--------------------|-----|----|----|----|------|
| consensus | 173 | LG | AA | H | 177* |
| PFF0750w | 269 | L | | | 353 |
| PKH_113350 | 266 | L | | | 350 |
| PVX_113910 | 266 | L | | | 350 |
| PBANKA_123020 | 265 | L | | | 349 |
| PY06538 | 265 | L | | | 349 |
| PCHAS_123090 | 264 | L | | | 348 |
| TA09960 | 323 | LG | SI | SI | 343 |
| TP04_0791 | 274 | LG | SI | SI | 294 |
| BBOV_III008880 | 333 | LG | PM | N | 356 |
| TGGT1_118720 | 313 | LG | RI | H | 336 |
| TGME49_029020 | 313 | LG | RI | H | 336 |
| TGVEG_026470 | 313 | LG | RI | H | 336 |
| NCLIV_030060 | 318 | LG | RI | H | 341 |
| ETH_00023650 | 273 | LG | GA | H | 290 |
| foreground (196): | | LG | AK | H | 15.8 |
| | | F | SR | E | |
| | | | T | | |
| wt_res_freqs (61): | 67 | | 22 | 1 | |
| | 1 | | 22 | 1 | |
| | | | 1 | | |
| insertions | | | | | |
| deletions | 12 | | 15 | 1 | 11.5 |


| Foreground | | | | | |
|-------------------|-----|----|----|----|------|
| consensus | 173 | LG | AA | H | 177* |
| PFF0750w | 269 | L | | | 353 |
| PKH_113350 | 266 | L | | | 350 |
| PVX_113910 | 266 | L | | | 350 |
| PBANKA_123020 | 265 | L | | | 349 |
| PY06538 | 265 | L | | | 349 |
| PCHAS_123090 | 264 | L | | | 348 |
| TA09960 | 323 | LG | SI | SI | 343 |
| TP04_0791 | 274 | LG | SI | SI | 294 |
| BBOV_III008880 | 333 | LG | PM | N | 356 |
| TGGT1_118720 | 313 | LG | RI | H | 336 |
| TGME49_029020 | 313 | LG | RI | H | 336 |
| TGVEG_026470 | 313 | LG | RI | H | 336 |
| NCLIV_030060 | 318 | LG | RI | H | 341 |
| ETH_00023650 | 273 | LG | GA | H | 290 |
| foreground (15): | | LG | GA | N | 1.3 |
| | | | SI | H | |
| | | | A | | |
| wt_res_freqs (4): | 96 | | 13 | 2 | |
| | | | 11 | 3 | |
| | | | 2 | | |
| insertions | 3 | | 1 | 4 | |
| deletions | 4 | | 44 | 4 | 2.3 |



| Group | Position | Sequence | Count |
|--------------|----------|----------|-------|
| Intermediate | 279 | ALSHQWF | 285* |
| unknown | 493 | ALSHPWTF | 499 |
| unknown | 526 | ALSHPWTF | 532 |
| unknown | 587 | ALSHPWTF | 593 |
| unknown | 494 | ALSHPWTF | 500 |
| unknown | 502 | ALSHPWTF | 508 |
| unknown | 509 | ALSHPWTF | 515 |
| unknown | 451 | ALSHRWTF | 457 |
| unknown | 402 | ALSHKWF | 408 |
| unknown | 464 | ALSHPWTF | 470 |
| unknown | 446 | ALSHQWF | 452 |
| unknown | 446 | ALSHQWF | 452 |
| unknown | 446 | ALSHQWF | 452 |
| unknown | 451 | ALSHQWF | 457 |
| unknown | 339 | ----- | |
| position | | | . |



| Group | Position | Sequence | Count |
|--------------------|----------|----------|-------|
| Background | 279 | ALSHQWF | 285* |
| consensus | 493 | ALSHPWTF | 499 |
| PFF0750w | 526 | ALSHPWTF | 532 |
| PKH_113350 | 587 | ALSHPWTF | 593 |
| PVX_113910 | 494 | ALSHPWTF | 500 |
| PBANKA_123020 | 502 | ALSHPWTF | 508 |
| PY06538 | 509 | ALSHPWTF | 515 |
| PCHAS_123090 | 451 | ALSHRWTF | 457 |
| TA09960 | 402 | ALSHKWF | 408 |
| TP04_0791 | 464 | ALSHPWTF | 470 |
| BBOV_III008880 | 446 | ALSHQWF | 452 |
| TGGT1_118720 | 446 | ALSHQWF | 452 |
| TGME49_029020 | 446 | ALSHQWF | 452 |
| TGVEG_026470 | 446 | ALSHQWF | 452 |
| NCLIV_030060 | 451 | ALSHQWF | 457 |
| ETH_00023650 | 339 | ----- | |
| foreground (196): | | ALNHPWF | 15.8 |
| | | Q EL | |
| | | E Y | |
| wt_res_freqs (61): | | 7716527 | |
| | | 1 11 | |
| | | 1 4 | |
| insertions | | | |
| deletions | | 6667881 | 11.5 |



| Group | Position | Sequence | Count |
|-------------------|----------|----------|-------|
| Foreground | 279 | ALSHQWF | 285* |
| consensus | 493 | ALSHPWTF | 499 |
| PFF0750w | 526 | ALSHPWTF | 532 |
| PKH_113350 | 587 | ALSHPWTF | 593 |
| PVX_113910 | 494 | ALSHPWTF | 500 |
| PBANKA_123020 | 502 | ALSHPWTF | 508 |
| PY06538 | 509 | ALSHPWTF | 515 |
| PCHAS_123090 | 451 | ALSHRWTF | 457 |
| TA09960 | 402 | ALSHKWF | 408 |
| TP04_0791 | 464 | ALSHPWTF | 470 |
| BBOV_III008880 | 446 | ALSHQWF | 452 |
| TGGT1_118720 | 446 | ALSHQWF | 452 |
| TGME49_029020 | 446 | ALSHQWF | 452 |
| TGVEG_026470 | 446 | ALSHQWF | 452 |
| NCLIV_030060 | 451 | ALSHQWF | 457 |
| ETH_00023650 | 339 | ----- | |
| foreground (15): | | ALSHQWF | 1.3 |
| | | P | |
| wt_res_freqs (4): | | 8888288 | |
| | | 4 | |
| insertions | | | |
| deletions | | 6666666 | 2.3 |
| position | | | . |