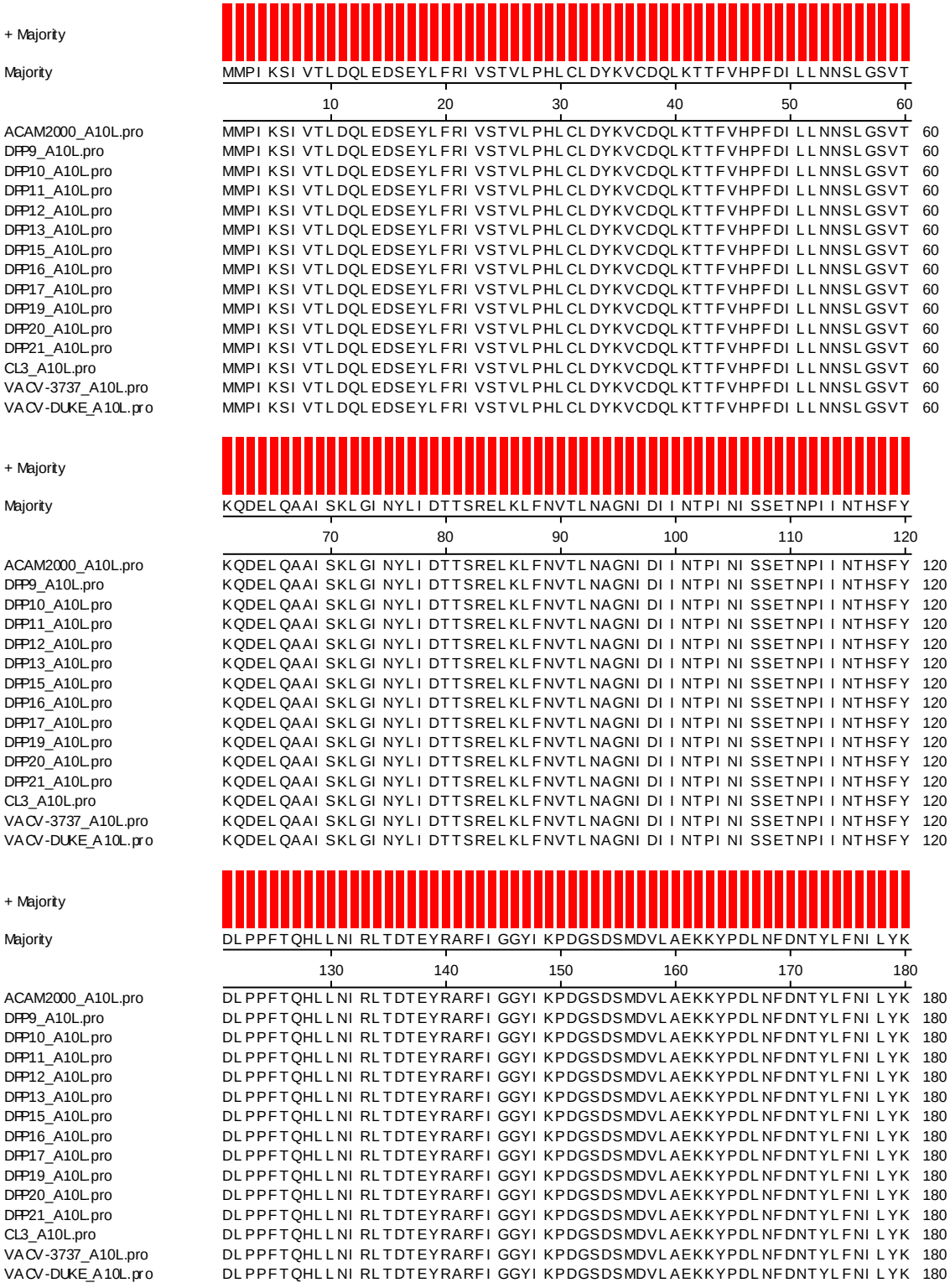
A. A10L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+ Majority
Majority
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70 80 90 100 110 120
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+ Majority
Majority
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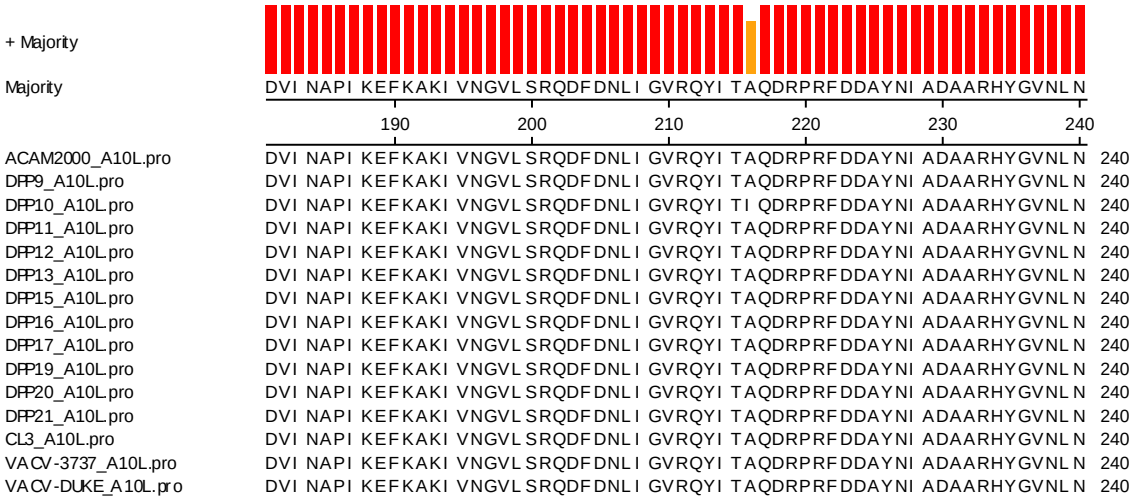
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Majority
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DPP10_A10L.pro DVI NAPI KEFKAKI VNGVL SRQDF DNLI GVRQYI TI QDRPRF DDAYNI ADAARHYGVNL N 240
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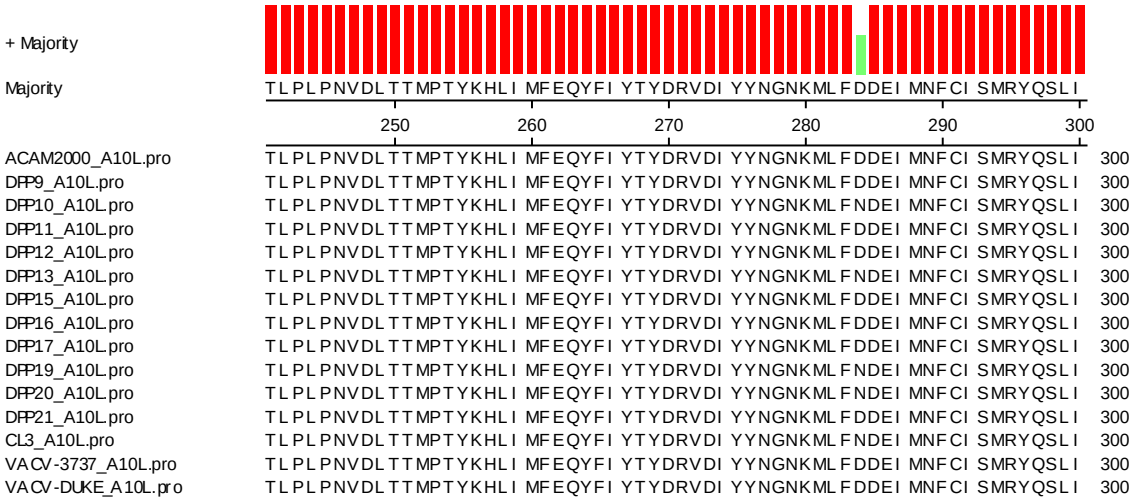
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+ Majority
Majority
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ACAM2000_A10L.pro PRLVEFFPDI PVNNNI VLHTRNPQNAAVNVTVTLPNVQFVDI GRNHKFFI NFFNLLAKEQ 360
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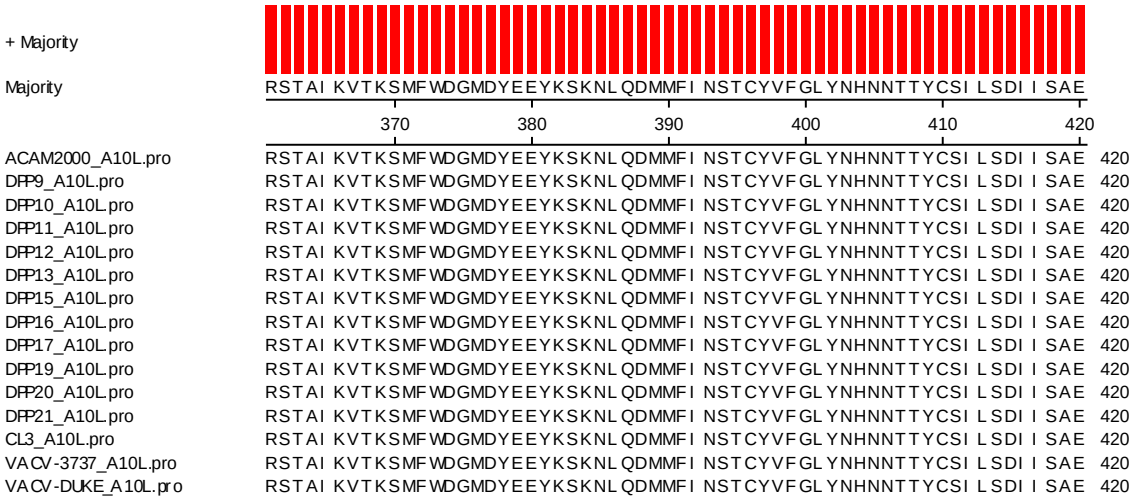
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370 380 390 400 410 420
ACAM2000_A10L.pro RSTAI KVTKSMFWDGMDYEEYKSKNLQDMMFI NSTCYVFGLYNHNNTTYCSI LSDII SAE 420
DPP9_A10L.pro RSTAI KVTKSMFWDGMDYEEYKSKNLQDMMFI NSTCYVFGLYNHNNTTYCSI LSDII SAE 420
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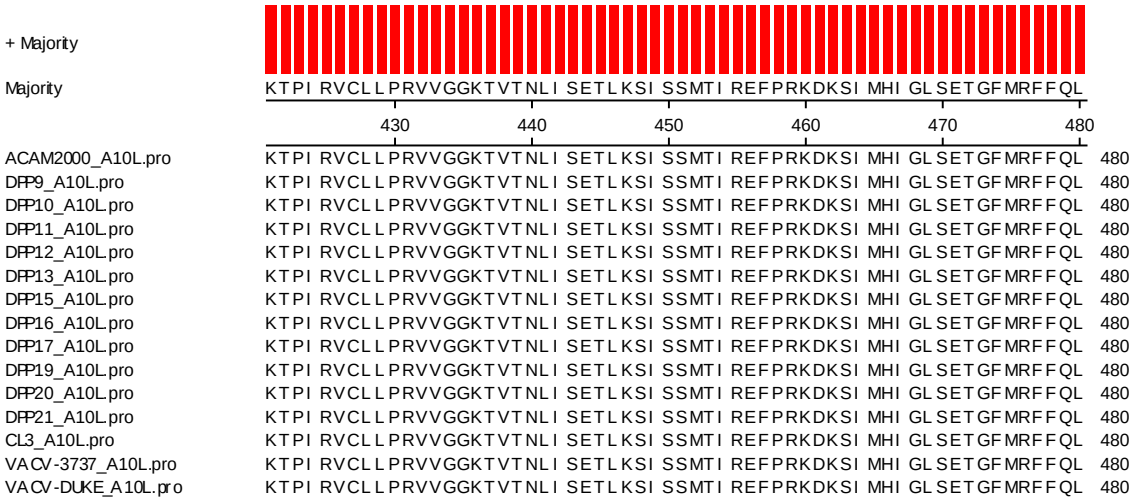
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+ Majority
Majority
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ACAM2000_A10L.pro LRLMADKPHETAI KEVVMAYVGI KLGDKGSPYYI RKESYQDFI YLLFASMGFKVTTRRSI 540
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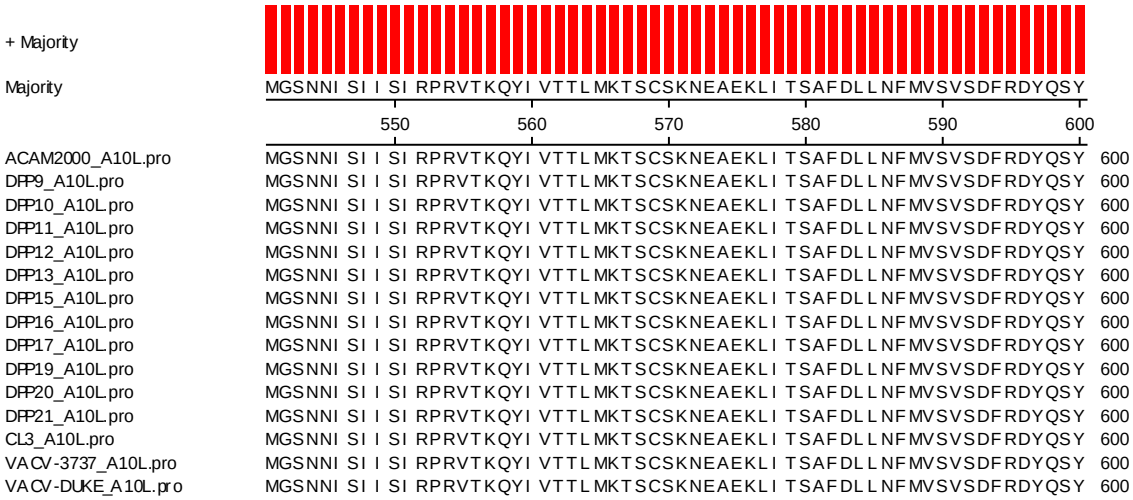
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Majority
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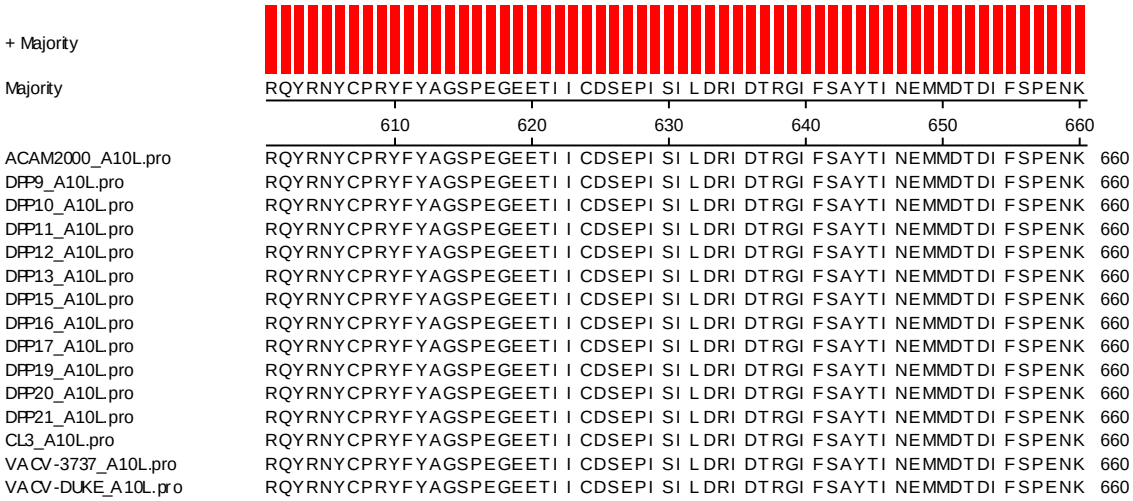
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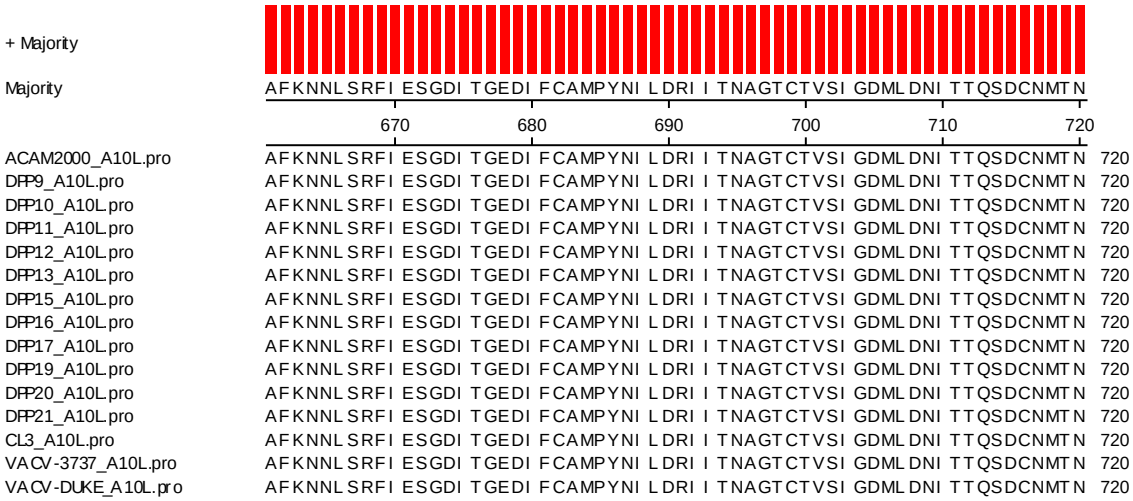
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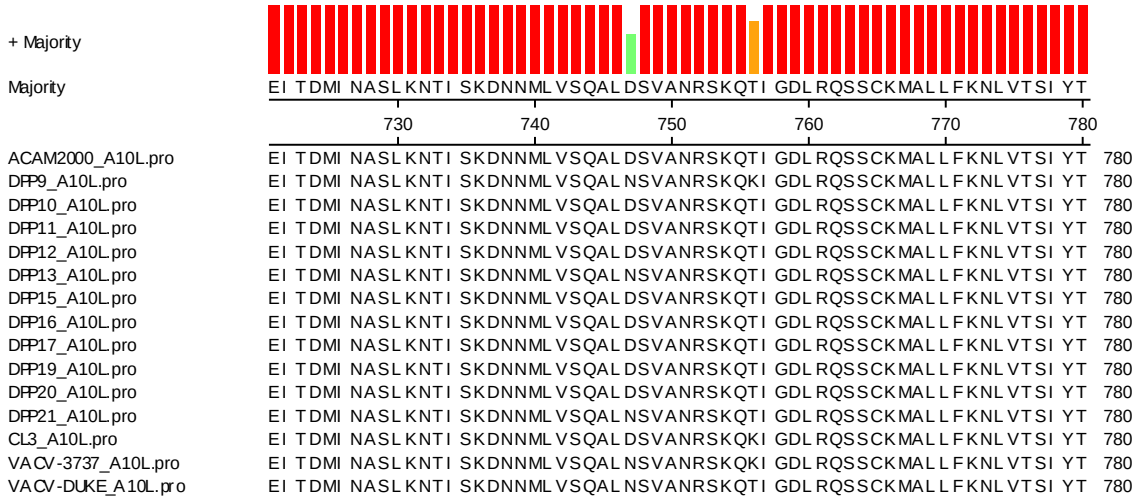
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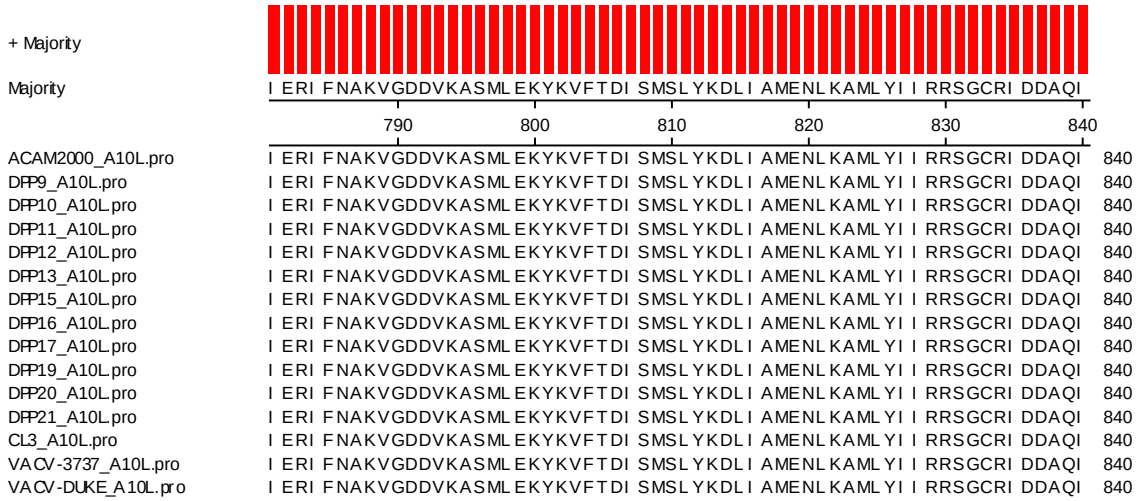
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840
ACAM2000_A10L.pro I ERI FNAKVGDDVKASMLEKYKVFTDI SMSLYKDLI AMENLKAMLYI I RRSGCRI DDAQI 840
DPP9_A10L.pro I ERI FNAKVGDDVKASMLEKYKVFTDI SMSLYKDLI AMENLKAMLYI I RRSGCRI DDAQI 840
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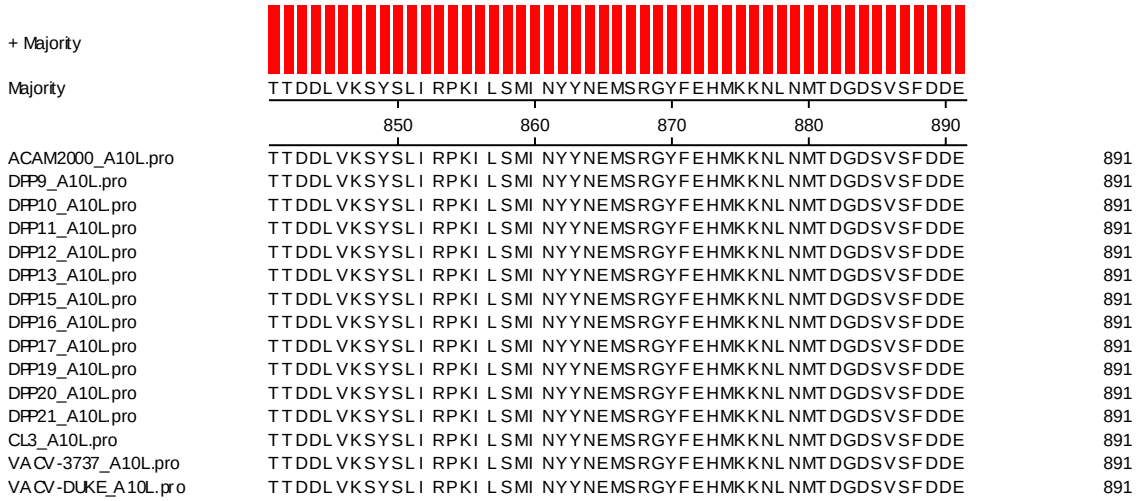
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870
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890
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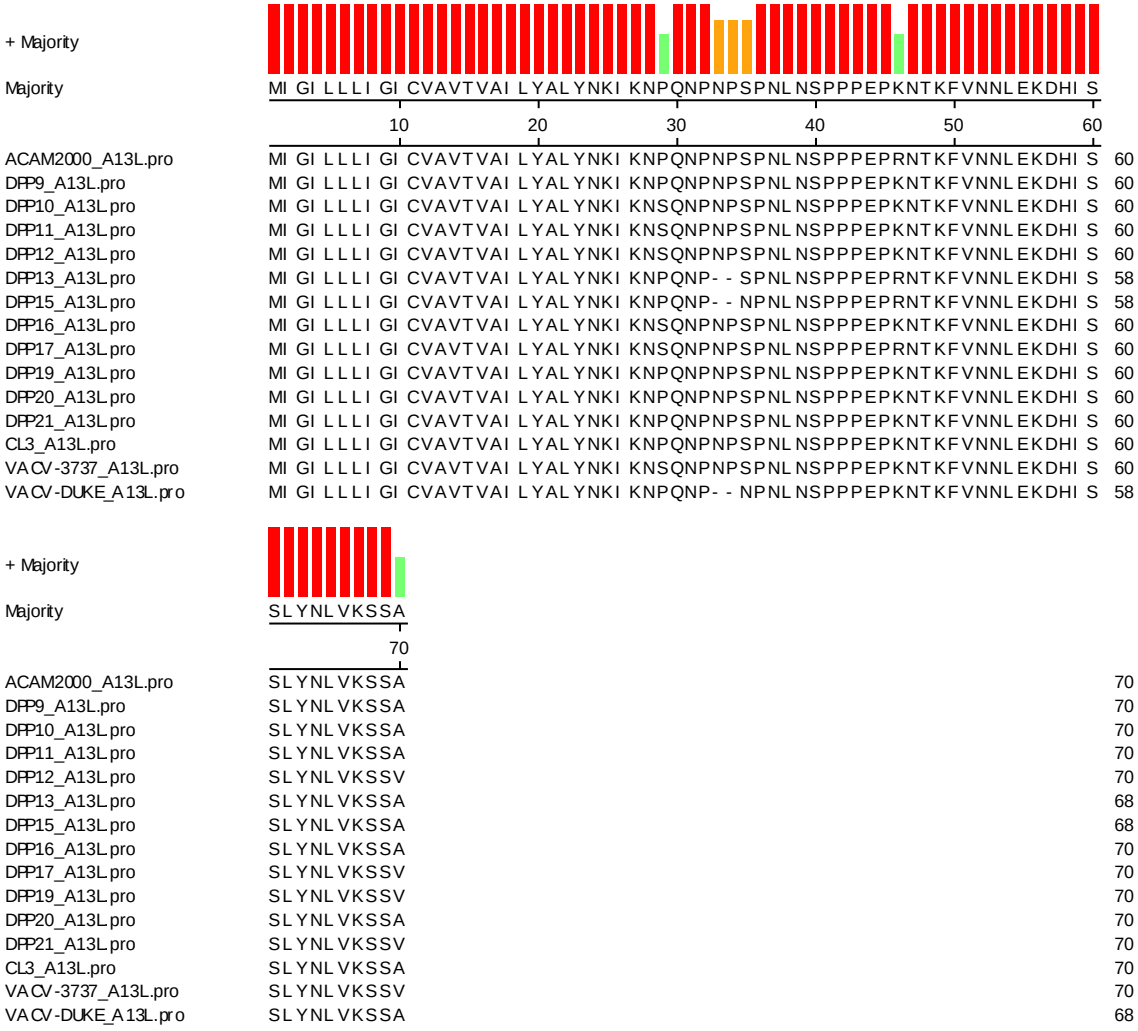
B. A13L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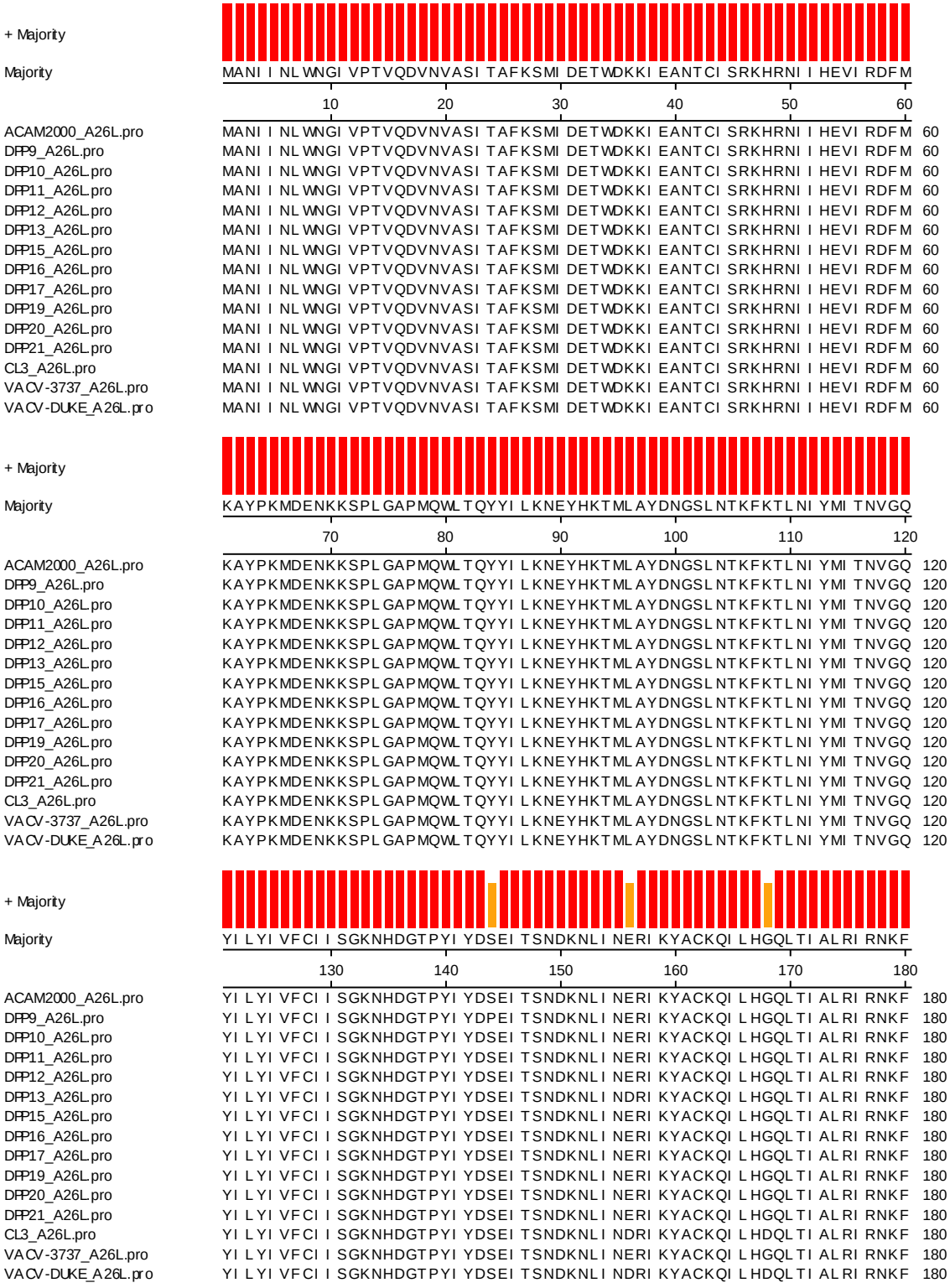
C. A26L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VACV-DUKE_A26L.pro MANI I NL WNGI VPTVQDVNVASI TAFKSMI DETWDKKI EANTCI SRKHRNI I HEVI RDFM 60
+ Majority
Majority
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70 80 90 100 110 120
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+ Majority
Majority
YI LYI VFCI I SGKNHDGTPYI YDSEI TSNDKNLI NERI KYACKQI LHGQLTI ALRI RNKF
130 140 150 160 170 180
ACAM2000_A26L.pro YI LYI VFCI I SGKNHDGTPYI YDSEI TSNDKNLI NERI KYACKQI LHGQLTI ALRI RNKF 180
DPP9_A26L.pro YI LYI VFCI I SGKNHDGTPYI YDPEI TSNDKNLI NERI KYACKQI LHGQLTI ALRI RNKF 180
DPP10_A26L.pro YI LYI VFCI I SGKNHDGTPYI YDSEI TSNDKNLI NERI KYACKQI LHGQLTI ALRI RNKF 180
DPP11_A26L.pro YI LYI VFCI I SGKNHDGTPYI YDSEI TSNDKNLI NERI KYACKQI LHGQLTI ALRI RNKF 180
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DPP13_A26L.pro YI LYI VFCI I SGKNHDGTPYI YDSEI TSNDKNLI NDRI KYACKQI LHGQLTI ALRI RNKF 180
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DPP21_A26L.pro YI LYI VFCI I SGKNHDGTPYI YDSEI TSNDKNLI NERI KYACKQI LHGQLTI ALRI RNKF 180
CL3_A26L.pro YI LYI VFCI I SGKNHDGTPYI YDSEI TSNDKNLI NDRI KYACKQI LHDQLTI ALRI RNKF 180
VACV-3737_A26L.pro YI LYI VFCI I SGKNHDGTPYI YDSEI TSNDKNLI NERI KYACKQI LHGQLTI ALRI RNKF 180
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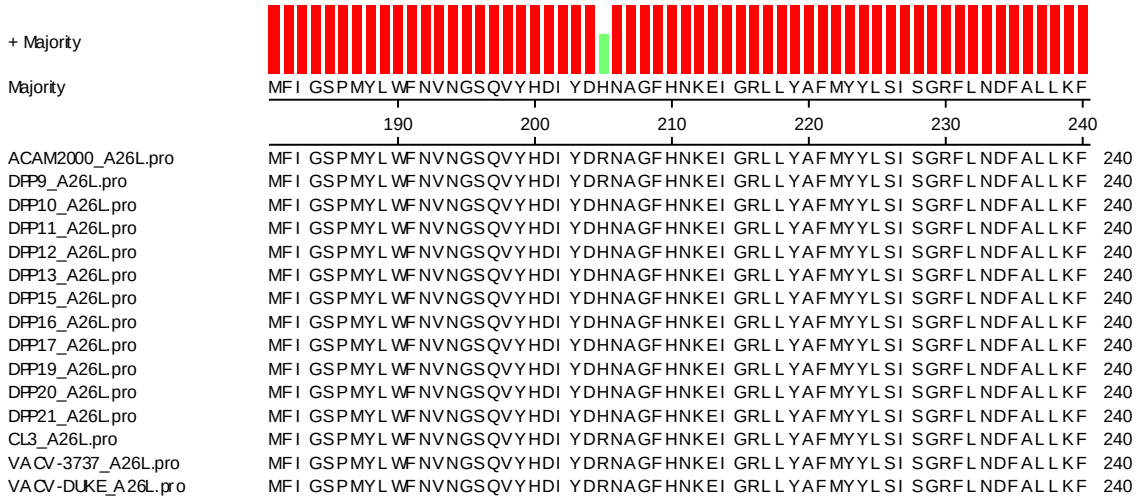
+ Majority
Majority
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190 200 210 220 230 240
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DPP9_A26L.pro MFI GSPMYLWFNVNGSQVYHDI YDRNAGFHNKEI GRLLYAFMYYLSI SGRFLNDFALLKF 240
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VACV-3737_A26L.pro MFI GSPMYLWFNVNGSQVYHDI YDRNAGFHNKEI GRLLYAFMYYLSI SGRFLNDFALLKF 240
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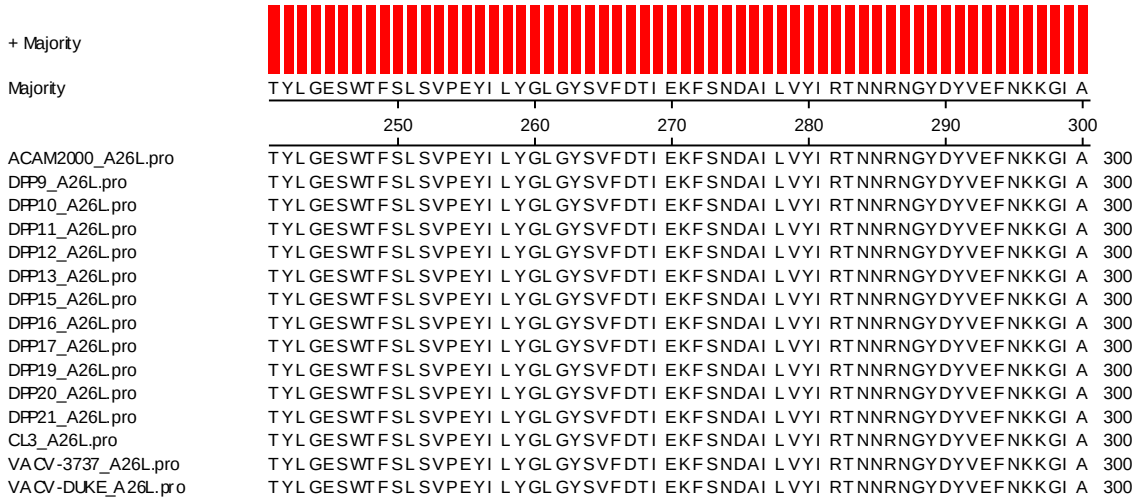
+ Majority
Majority
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ACAM2000_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
DPP9_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
DPP10_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
DPP11_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
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DPP16_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
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DPP19_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
DPP20_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
DPP21_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
CL3_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
VACV-3737_A26L.pro TYLGESWTFSLSVPEYI LYGLGYSVFDTI EKFSNDAI LVYI RTNNRNGYDYVEFNKKGI A 300
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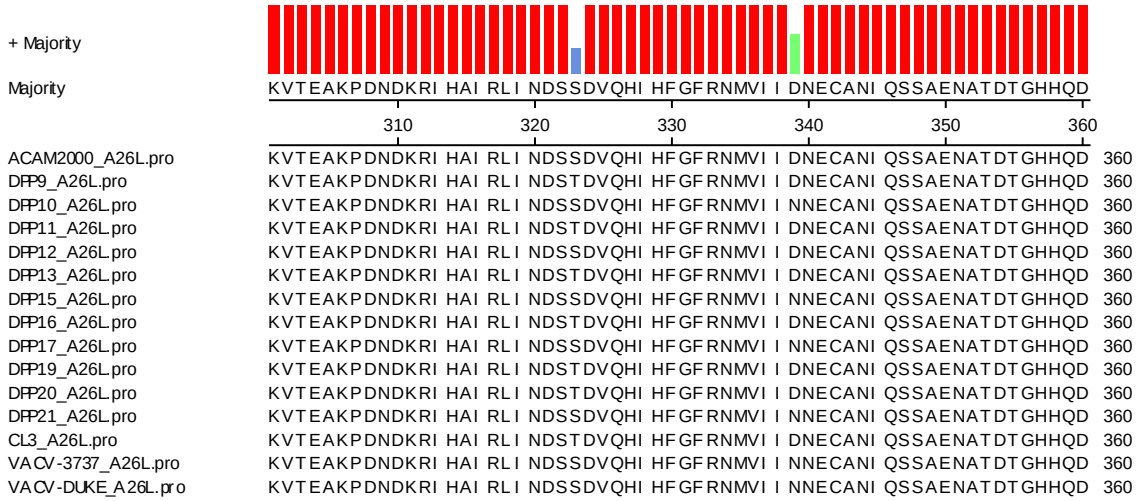
+ Majority
Majority
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DPP9_A26L.pro KVTEAKPDNDKRI HAI RLI NDSTDVQHI HFGFRNMVI I DNECANI QSSAENATDTGHHQD 360
DPP10_A26L.pro KVTEAKPDNDKRI HAI RLI NDSSDVQHI HFGFRNMVI I NNECANI QSSAENATDTGHHQD 360
DPP11_A26L.pro KVTEAKPDNDKRI HAI RLI NDSTDVQHI HFGFRNMVI I DNECANI QSSAENATDTGHHQD 360
DPP12_A26L.pro KVTEAKPDNDKRI HAI RLI NDSSDVQHI HFGFRNMVI I DNECANI QSSAENATDTGHHQD 360
DPP13_A26L.pro KVTEAKPDNDKRI HAI RLI NDSTDVQHI HFGFRNMVI I DNECANI QSSAENATDTGHHQD 360
DPP15_A26L.pro KVTEAKPDNDKRI HAI RLI NDSSDVQHI HFGFRNMVI I NNECANI QSSAENATDTGHHQD 360
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CL3_A26L.pro KVTEAKPDNDKRI HAI RLI NDSTDVQHI HFGFRNMVI I DNECANI QSSAENATDTGHHQD 360
VACV-3737_A26L.pro KVTEAKPDNDKRI HAI RLI NDSSDVQHI HFGFRNMVI I NNECANI QSSAENATDTGHHQD 360
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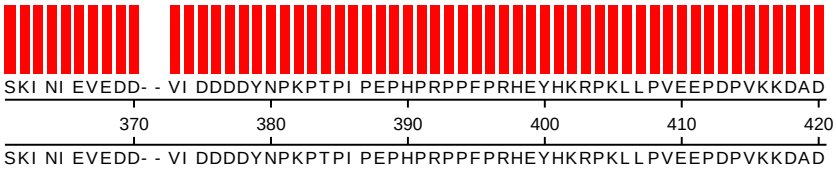

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ACAM2000_A26L.pro   SKI NI EVEDD- - VI DDDDYNPKPTPI PEPHPRPPFPRHEYHKRPKLLPVEEPDPVKKDAD 418
DPP9_A26L.pro       SKI NI EVEDD- - VI DDDDYNPKPTPI PEPHPRPPFPRHEYHKRPKLLPVEEPDPVKKDAD 418
DPP10_A26L.pro      SKI NI EVEDD- - VI DDDDYNPKPTPI PEPHPRPPFPRHEYHKRPKLLPVEEPDPVKKDAD 418
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DPP12_A26L.pro      SKI NI EVEDD- - VI DDDDYNPKPTPI PEPHPRPPFPRHEYHKRPKLLPVEEPDPVKKDAD 418
DPP13_A26L.pro      SKI NI EVEDD- - VI DDDDYNPKPTPI PEPHPRPPFPRHEYHKRPKLLPVEEPDPVKKDAD 418
DPP15_A26L.pro      SKI NI EVEDD- - VI DDDDYNPKPTPI PEPHPRPPFPRHEYHKRPKLLPVEEPDPVKKDAD 418
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CL3_A26L.pro        SKI NI EVEDD- - VI DDDDYNPKPTPI PEPHPRPPFPRHEYHKRPKLLPVEEPDPVKKDAD 418
VACV-3737_A26L.pro  SKI NI EVEDDDDVI DDDDYNPKPTPI PEPHPRPPFPRHEYHKRPKLLPVEEPDPVKKDAD 420
VACV-DUKE_A26L.pro  SKI NI EVEDD- - VI DDDDYNPKPTPI PEPHPRPPFPRHEYHKRPKLLPVEEPDPVKKDAD 418
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+ Majority
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                    430       440       450       460       470       480
ACAM2000_A26L.pro   RI RL DNHI L NTL DHNL NFI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
DPP9_A26L.pro       RI RL DNHI L NTL DHNL NFI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
DPP10_A26L.pro      RI RL DNHI L NTL DHNL NFI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
DPP11_A26L.pro      RI RL DNHI L NTL DHNL NSI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
DPP12_A26L.pro      RI RL DNHI L NTL DHNL NFI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
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DPP16_A26L.pro      RI RL DNHI L NTL DHNL NFI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
DPP17_A26L.pro      RI RL DNHI L NTL DHNL NFI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
DPP19_A26L.pro      RI RL DNHI L NTL DHNL NSI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
DPP20_A26L.pro      RI RL DNHI L NTL DHNL NFI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
DPP21_A26L.pro      RI RL DNHI L NTL DHNL NFI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
CL3_A26L.pro        RI RL DNHI L NTL DHNL NFI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
VACV-3737_A26L.pro  RI RL DNHI L NTL DHNL NSI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 480
VACV-DUKE_A26L.pro  RI RL DNHI L NTL DHNL NSI GHYCCDTAAVDRL EHHI ETL GQYAVI L ARKI NMQTLLFPWP 478
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+ Majority
Majority    L PTVHPHAI DGSI PPHGRSTI L
                    490       500
ACAM2000_A26L.pro   L PTVHPHAI DGSI PPHGRSTI L 500
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DPP10_A26L.pro      L PTVHPHAI DGSI PPHGRSTI L 500
DPP11_A26L.pro      L PTVHPHAI DGSI PPHGRSTI L 500
DPP12_A26L.pro      L PTVHPHAI DGSI PPHGRSTI L 500
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DPP15_A26L.pro      L PTVHPHAI DGSI PPHGRSTI L 500
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DPP19_A26L.pro      L PTVHPHAI DGSI PPHGRSTI L 500
DPP20_A26L.pro      L PTVHPHAI DGSI PPHGRSTI L 500
DPP21_A26L.pro      L PTVHPHAI DGSI PPHGRSTI L 500
CL3_A26L.pro        L PTVHPHAI DGSI PPHGRSTI L 500
VACV-3737_A26L.pro  L PTVHPHAI DGSI PPHGRSTI L 502
VACV-DUKE_A26L.pro  L PTVHPHAI DGSI PPHGRSTI L 500
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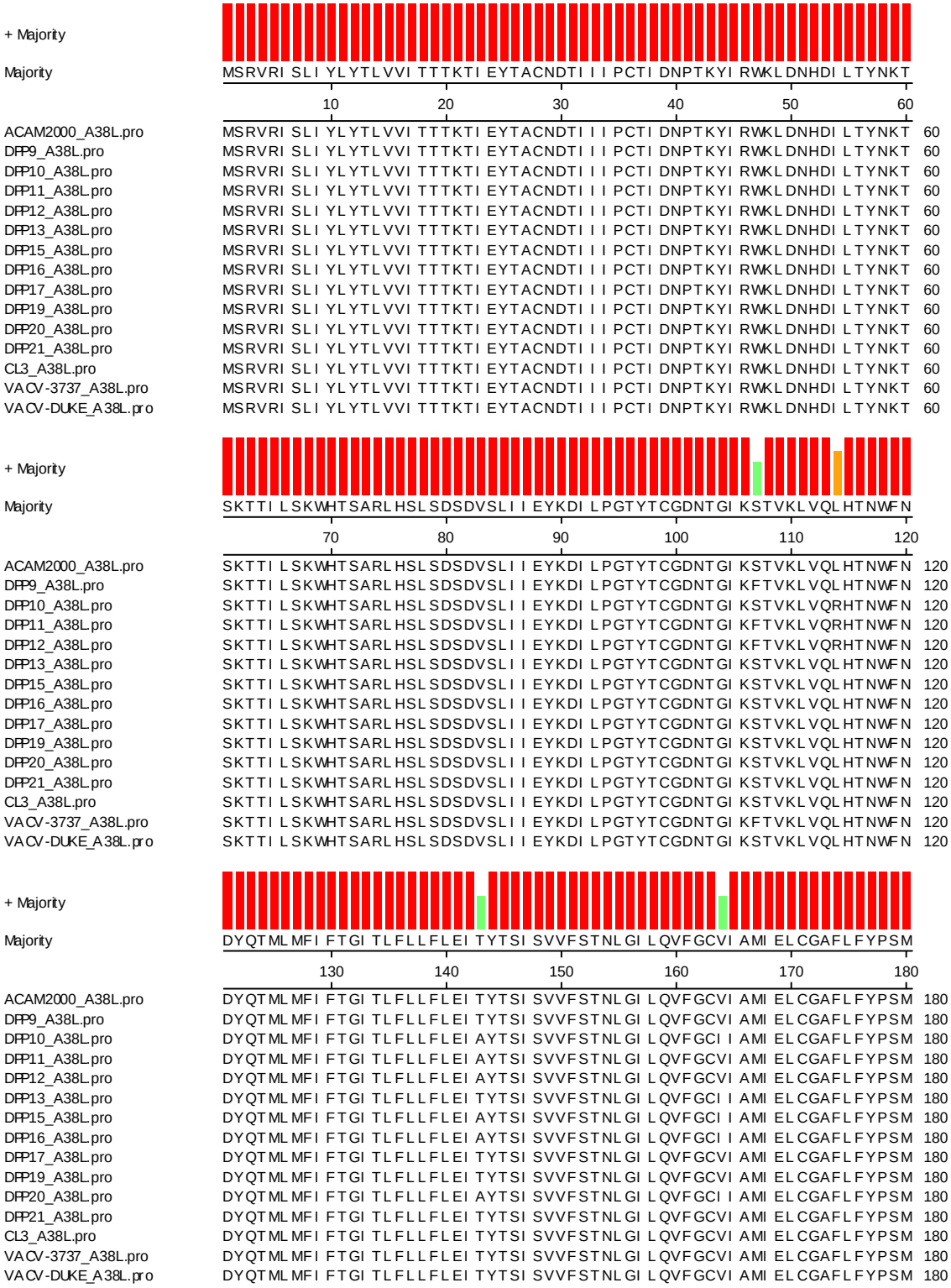
D. A38L


+ Majority
Majority
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10 20 30 40 50 60
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DPP17_A38L.pro MSRVRI SLI YLYTLVVI TTTKTI EYTACNDTI I I PCTI DNPTKYI RWKLDNHDI LTYNKT 60
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VACV-3737_A38L.pro MSRVRI SLI YLYTLVVI TTTKTI EYTACNDTI I I PCTI DNPTKYI RWKLDNHDI LTYNKT 60
VACV-DUKE_A38L.pro MSRVRI SLI YLYTLVVI TTTKTI EYTACNDTI I I PCTI DNPTKYI RWKLDNHDI LTYNKT 60
+ Majority
Majority
SKTTI LSKWHTSARLHSLSDSDVSLI I EYKDI LPGTYTCGDNTGI KSTVKLVQLHTNWFN
70 80 90 100 110 120
ACAM2000_A38L.pro SKTTI LSKWHTSARLHSLSDSDVSLI I EYKDI LPGTYTCGDNTGI KSTVKLVQLHTNWFN 120
DPP9_A38L.pro SKTTI LSKWHTSARLHSLSDSDVSLI I EYKDI LPGTYTCGDNTGI KFTVKLVQLHTNWFN 120
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DPP21_A38L.pro SKTTI LSKWHTSARLHSLSDSDVSLI I EYKDI LPGTYTCGDNTGI KSTVKLVQLHTNWFN 120
CL3_A38L.pro SKTTI LSKWHTSARLHSLSDSDVSLI I EYKDI LPGTYTCGDNTGI KSTVKLVQLHTNWFN 120
VACV-3737_A38L.pro SKTTI LSKWHTSARLHSLSDSDVSLI I EYKDI LPGTYTCGDNTGI KFTVKLVQLHTNWFN 120
VACV-DUKE_A38L.pro SKTTI LSKWHTSARLHSLSDSDVSLI I EYKDI LPGTYTCGDNTGI KSTVKLVQLHTNWFN 120
+ Majority
Majority
DYQTMLMFI FTGI TLFLLFLEI TYTSI SVVFSTNLGI LQVFGCVI AMI ELCGAFLFYPSM
130 140 150 160 170 180
ACAM2000_A38L.pro DYQTMLMFI FTGI TLFLLFLEI TYTSI SVVFSTNLGI LQVFGCVI AMI ELCGAFLFYPSM 180
DPP9_A38L.pro DYQTMLMFI FTGI TLFLLFLEI TYTSI SVVFSTNLGI LQVFGCVI AMI ELCGAFLFYPSM 180
DPP10_A38L.pro DYQTMLMFI FTGI TLFLLFLEI AYTSI SVVFSTNLGI LQVFGCI I AMI ELCGAFLFYPSM 180
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DPP17_A38L.pro DYQTMLMFI FTGI TLFLLFLEI TYTSI SVVFSTNLGI LQVFGCVI AMI ELCGAFLFYPSM 180
DPP19_A38L.pro DYQTMLMFI FTGI TLFLLFLEI TYTSI SVVFSTNLGI LQVFGCVI AMI ELCGAFLFYPSM 180
DPP20_A38L.pro DYQTMLMFI FTGI TLFLLFLEI AYTSI SVVFSTNLGI LQVFGCI I AMI ELCGAFLFYPSM 180
DPP21_A38L.pro DYQTMLMFI FTGI TLFLLFLEI TYTSI SVVFSTNLGI LQVFGCVI AMI ELCGAFLFYPSM 180
CL3_A38L.pro DYQTMLMFI FTGI TLFLLFLEI TYTSI SVVFSTNLGI LQVFGCVI AMI ELCGAFLFYPSM 180
VACV-3737_A38L.pro DYQTMLMFI FTGI TLFLLFLEI TYTSI SVVFSTNLGI LQVFGCVI AMI ELCGAFLFYPSM 180
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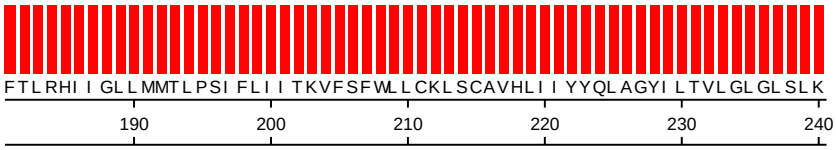

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DPP11_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
DPP12_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
DPP13_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
DPP15_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
DPP16_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
DPP17_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
DPP19_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
DPP20_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
DPP21_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
CL3_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
VACV-3737_A38L.pro	FTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVHLIIYYQLAGYILTVLGLGLSLK	240
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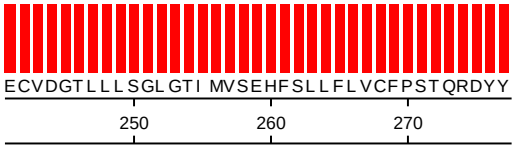

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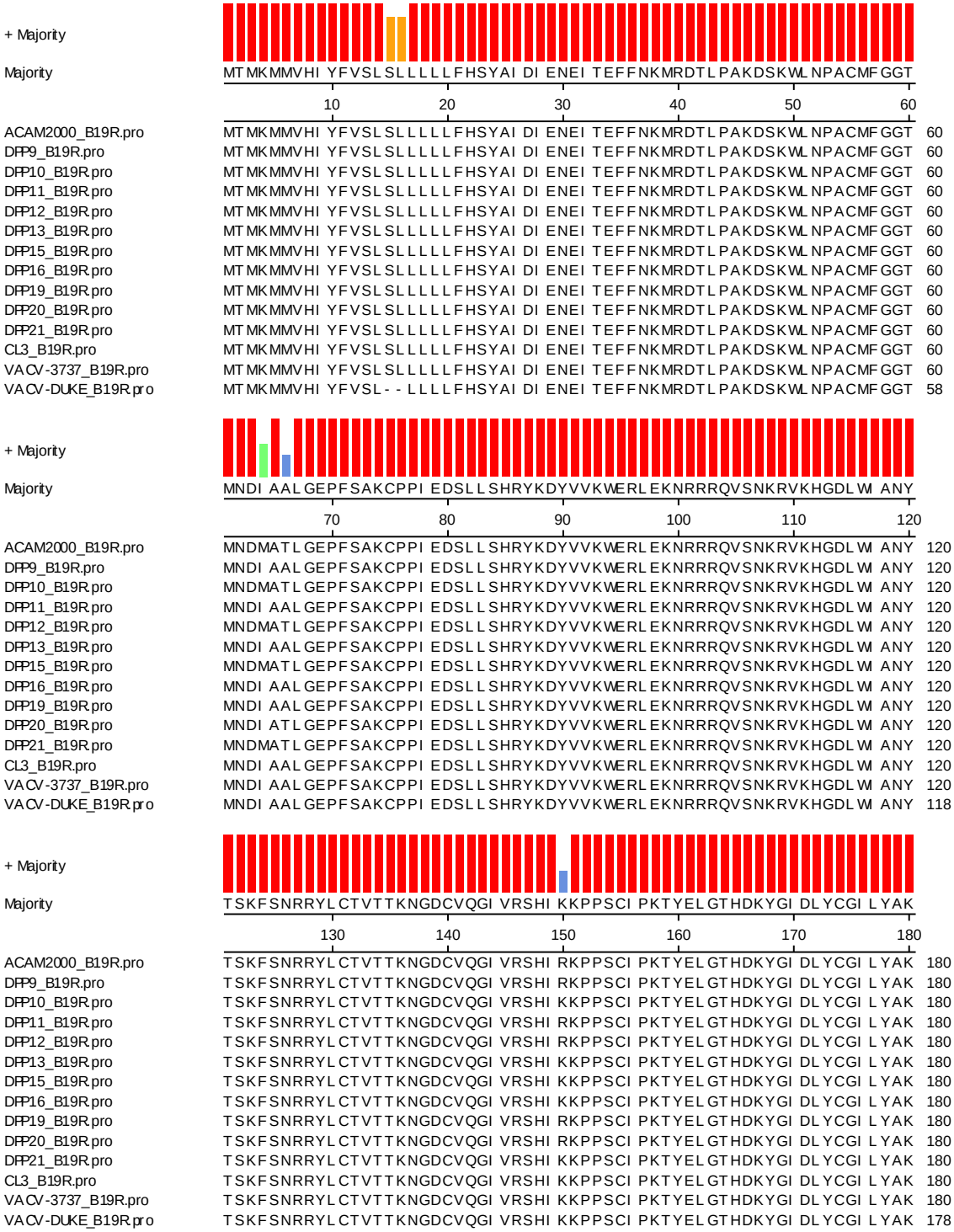
DPP10_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
DPP11_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
DPP12_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
DPP13_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
DPP15_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
DPP16_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
DPP17_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
DPP19_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
DPP20_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
DPP21_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
CL3_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
VACV-3737_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277
VACV-DUKE_A38L.pro	ECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDYY	277

E. B19R


+ Majority
Majority
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DPP9_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
DPP10_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
DPP11_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
DPP12_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
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DPP15_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
DPP16_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
DPP19_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
DPP20_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
DPP21_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
CL3_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
VACV-3737_B19R.pro MTMKMMVHI YFVSLSLLLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 60
VACV-DUKE_B19R.pro MTMKMMVHI YFVSL--LLLLFHSYAI DI ENEI TEFFNKMRDTLPAKDSKWLNPACMFGGT 58
+ Majority
Majority
MNDI AALGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY
70 80 90 100 110 120
ACAM2000_B19R.pro MNDMATLGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY 120
DPP9_B19R.pro MNDI AALGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY 120
DPP10_B19R.pro MNDMATLGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY 120
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DPP12_B19R.pro MNDMATLGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY 120
DPP13_B19R.pro MNDI AALGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY 120
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DPP21_B19R.pro MNDMATLGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY 120
CL3_B19R.pro MNDI AALGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY 120
VACV-3737_B19R.pro MNDI AALGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY 120
VACV-DUKE_B19R.pro MNDI AALGEPFSAKCPPI EDSLLSHRYKDYVVKWERLEKNRRRQVSNKRVKHGDLWI ANY 118
+ Majority
Majority
TSKFSNRRYLCTVTTKNGDCVQGI VRSHI KKPPSCI PKTYELGTHDKYGI DLYCGI LYAK
130 140 150 160 170 180
ACAM2000_B19R.pro TSKFSNRRYLCTVTTKNGDCVQGI VRSHI RKPPSCI PKTYELGTHDKYGI DLYCGI LYAK 180
DPP9_B19R.pro TSKFSNRRYLCTVTTKNGDCVQGI VRSHI RKPPSCI PKTYELGTHDKYGI DLYCGI LYAK 180
DPP10_B19R.pro TSKFSNRRYLCTVTTKNGDCVQGI VRSHI KKPPSCI PKTYELGTHDKYGI DLYCGI LYAK 180
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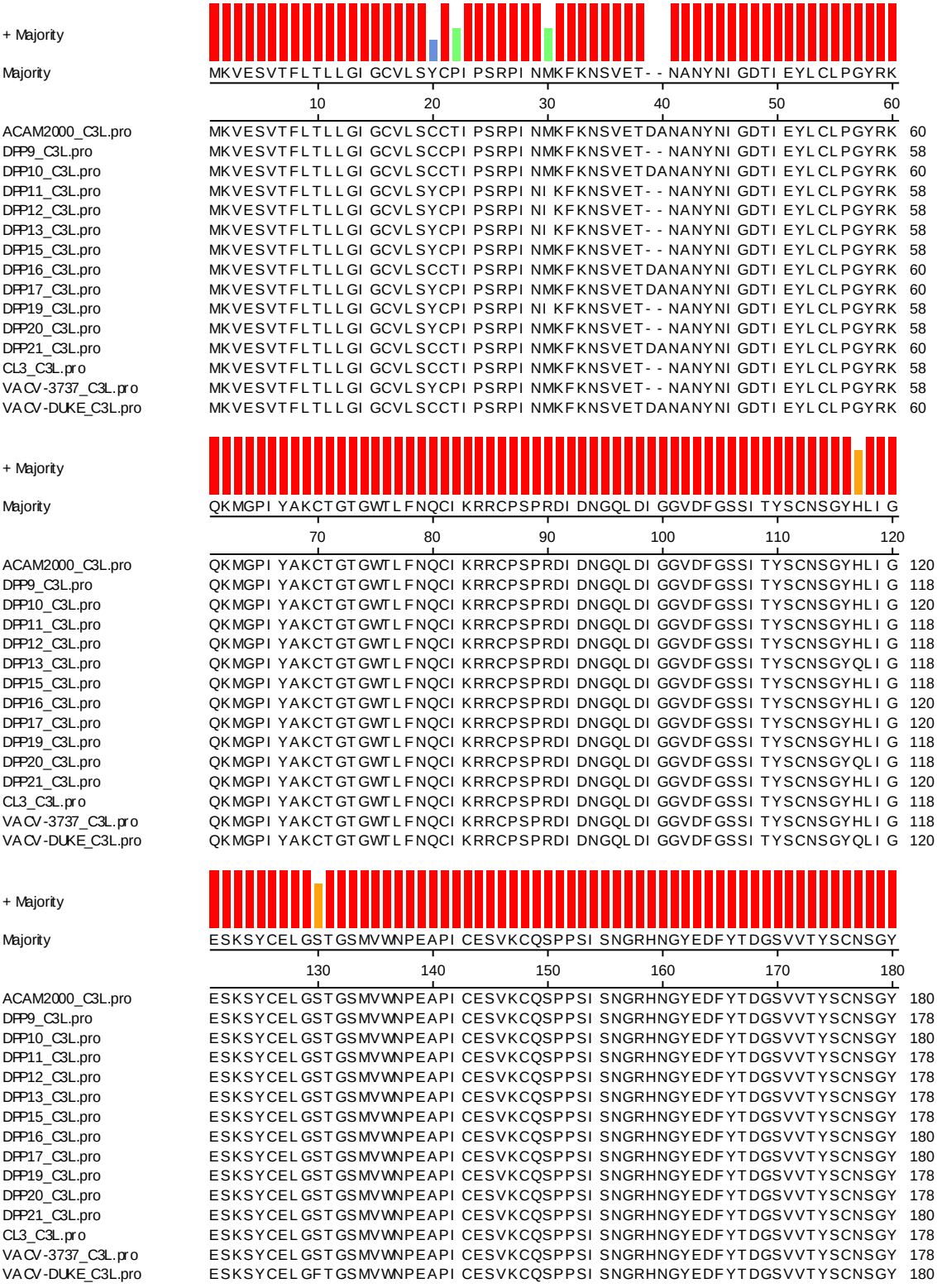
DPP21_B19R.pro TSKFSNRRYLCTVTTKNGDCVQGI VRSHI KKPPSCI PKTYELGTHDKYGI DLYCGI LYAK 180
CL3_B19R.pro TSKFSNRRYLCTVTTKNGDCVQGI VRSHI KKPPSCI PKTYELGTHDKYGI DLYCGI LYAK 180
VACV-3737_B19R.pro TSKFSNRRYLCTVTTKNGDCVQGI VRSHI KKPPSCI PKTYELGTHDKYGI DLYCGI LYAK 180
VACV-DUKE_B19R.pro TSKFSNRRYLCTVTTKNGDCVQGI VRSHI KKPPSCI PKTYELGTHDKYGI DLYCGI LYAK 178

+ Majority		
Majority	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYXCYVHYDDVRIKNDIVVSR	
	190 200 210 220 230 240	
ACAM2000_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYDCYVHYDDVRIKNDIVVSR	240
DPP9_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYNCYVHYDDVRIKNDIVVSR	240
DPP10_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYDCYVHYDDVRIKNDIVVSR	240
DPP11_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYDCYVHYDDVRIKNDIVVSR	240
DPP12_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYDCYVHYDDVRIKNDIVVSR	240
DPP13_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYNCYVHYDDVRIKNDIVVSR	240
DPP15_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYNCYVHYDDVRIKNDIVVSR	240
DPP16_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYDCYVHYDDVRIKNDIVVSR	240
DPP19_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYNCYVHYDDVRIKNDIVVSR	240
DPP20_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYDCYVHYDDVRIKNDIVVSR	240
DPP21_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYNCYVHYDDVRIKNDIVVSR	240
CL3_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYNCYVHYDDVRIKNDIVVSR	240
VACV-3737_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYDCYVHYDDVRIKNDIVVSR	240
VACV-DUKE_B19R.pro	HYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDSGRYNCYVHYDDVRIKNDIVVSR	238

+ Majority		
Majority	CKILTVIPSQDHRFKLKRN--------------CGYASN---------------------	
	250 260 270 280 290 300	
ACAM2000_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
DPP9_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
DPP10_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
DPP11_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
DPP12_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
DPP13_B19R.pro	CKILTVIPSQDHRFKLILDPKINVTIGEPANITCTAVSTSLLIDDVLIEWENPSGWLIGF	300
DPP15_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
DPP16_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
DPP19_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
DPP20_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
DPP21_B19R.pro	CKILTVIPSQDHRFKLILDPKINVTIGEPANITCTAVSTSLLIDDVLIEWENPSGWLIGF	300
CL3_B19R.pro	CKILTVIPSQDHRFKLILDPKINVTIGEPANITCTAVSTSLLIDDVLIEWENPSGWLIGF	300
VACV-3737_B19R.pro	CKILTVIPSQDHRFKLKRN--------------CGYASN	265
VACV-DUKE_B19R.pro	CKILTVIPSQDHRFKLILDPKINVTIGEPANITCTAVSTSLLIDDVLIEWENPSGWLIGF	298

+ Majority		
Majority	---	
	310 320 330 340 350	
ACAM2000_B19R.pro		265
DPP9_B19R.pro		265
DPP10_B19R.pro		265
DPP11_B19R.pro		265
DPP12_B19R.pro		265
DPP13_B19R.pro	DFDVYSVLTSRGGITEATLYFENVTEEYIGNTYKCRGHNYYFEKTLTTTVVLE	353
DPP15_B19R.pro		265
DPP16_B19R.pro		265
DPP19_B19R.pro		265
DPP20_B19R.pro		265
DPP21_B19R.pro	DFDVYSVLTSRGGITEATLYFENVTEEYIGNTYKCRGHNYYFEKTLTTTVVLE	353
CL3_B19R.pro	DFDVYSVLTSRGGITEATLYFENVTEEYIGNTYKCRGHNYYFEKTLTTTVVLE	353
VACV-3737_B19R.pro		265
VACV-DUKE_B19R.pro	DFDVYSVLTSRGGITEATLYFENVTEEYIGNTYKCRGHNYYFEKTLTTTVVLE	351

F. C3L


+ Majority
Majority
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10 20 30 40 50 60
ACAM2000_C3L.pro MKVESVTFLTLLGI GCVLSCCTI PSRPI NMKFKNSVETDANANYNI GDTI EYLCLPGYRK 60
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DPP10_C3L.pro MKVESVTFLTLLGI GCVLSCCTI PSRPI NMKFKNSVETDANANYNI GDTI EYLCLPGYRK 60
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DPP21_C3L.pro MKVESVTFLTLLGI GCVLSCCTI PSRPI NMKFKNSVETDANANYNI GDTI EYLCLPGYRK 60
CL3_C3L.pro MKVESVTFLTLLGI GCVLSCCTI PSRPI NMKFKNSVET- - NANYNI GDTI EYLCLPGYRK 58
VACV-3737_C3L.pro MKVESVTFLTLLGI GCVLSYCPI PSRPI NMKFKNSVET- - NANYNI GDTI EYLCLPGYRK 58
VACV-DUKE_C3L.pro MKVESVTFLTLLGI GCVLSCCTI PSRPI NMKFKNSVETDANANYNI GDTI EYLCLPGYRK 60
+ Majority
Majority
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70 80 90 100 110 120
ACAM2000_C3L.pro QKMGPI YAKCTGTGWTLFNQCI KRRCPSPRDI DNGQLDI GGVDFGSSI TYSCNSGYHLI G 120
DPP9_C3L.pro QKMGPI YAKCTGTGWTLFNQCI KRRCPSPRDI DNGQLDI GGVDFGSSI TYSCNSGYHLI G 118
DPP10_C3L.pro QKMGPI YAKCTGTGWTLFNQCI KRRCPSPRDI DNGQLDI GGVDFGSSI TYSCNSGYHLI G 120
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DPP16_C3L.pro QKMGPI YAKCTGTGWTLFNQCI KRRCPSPRDI DNGQLDI GGVDFGSSI TYSCNSGYHLI G 120
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VACV-3737_C3L.pro QKMGPI YAKCTGTGWTLFNQCI KRRCPSPRDI DNGQLDI GGVDFGSSI TYSCNSGYHLI G 118
VACV-DUKE_C3L.pro QKMGPI YAKCTGTGWTLFNQCI KRRCPSPRDI DNGQLDI GGVDFGSSI TYSCNSGYQLI G 120
+ Majority
Majority
ESKSYCELGSTGSMVWNPEAPI CESVKCQSPPSI SNGRHNGYEDFYTDGSVVTYSCNSGY
130 140 150 160 170 180
ACAM2000_C3L.pro ESKSYCELGSTGSMVWNPEAPI CESVKCQSPPSI SNGRHNGYEDFYTDGSVVTYSCNSGY 180
DPP9_C3L.pro ESKSYCELGSTGSMVWNPEAPI CESVKCQSPPSI SNGRHNGYEDFYTDGSVVTYSCNSGY 178
DPP10_C3L.pro ESKSYCELGSTGSMVWNPEAPI CESVKCQSPPSI SNGRHNGYEDFYTDGSVVTYSCNSGY 180
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VACV-3737_C3L.pro	SLI GNSGVL CSGGEWSDPPTCQI VKCPHPTI SNGYL SSGFKRSYSYNDNVDFKCKYGYKL	238
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CL3_C3L.pro	SGSSSSTCSPGNTWQPELPKCVR	261
VACV-3737_C3L.pro	SGSSSSTCSPGNTWQPELPKCVR	261
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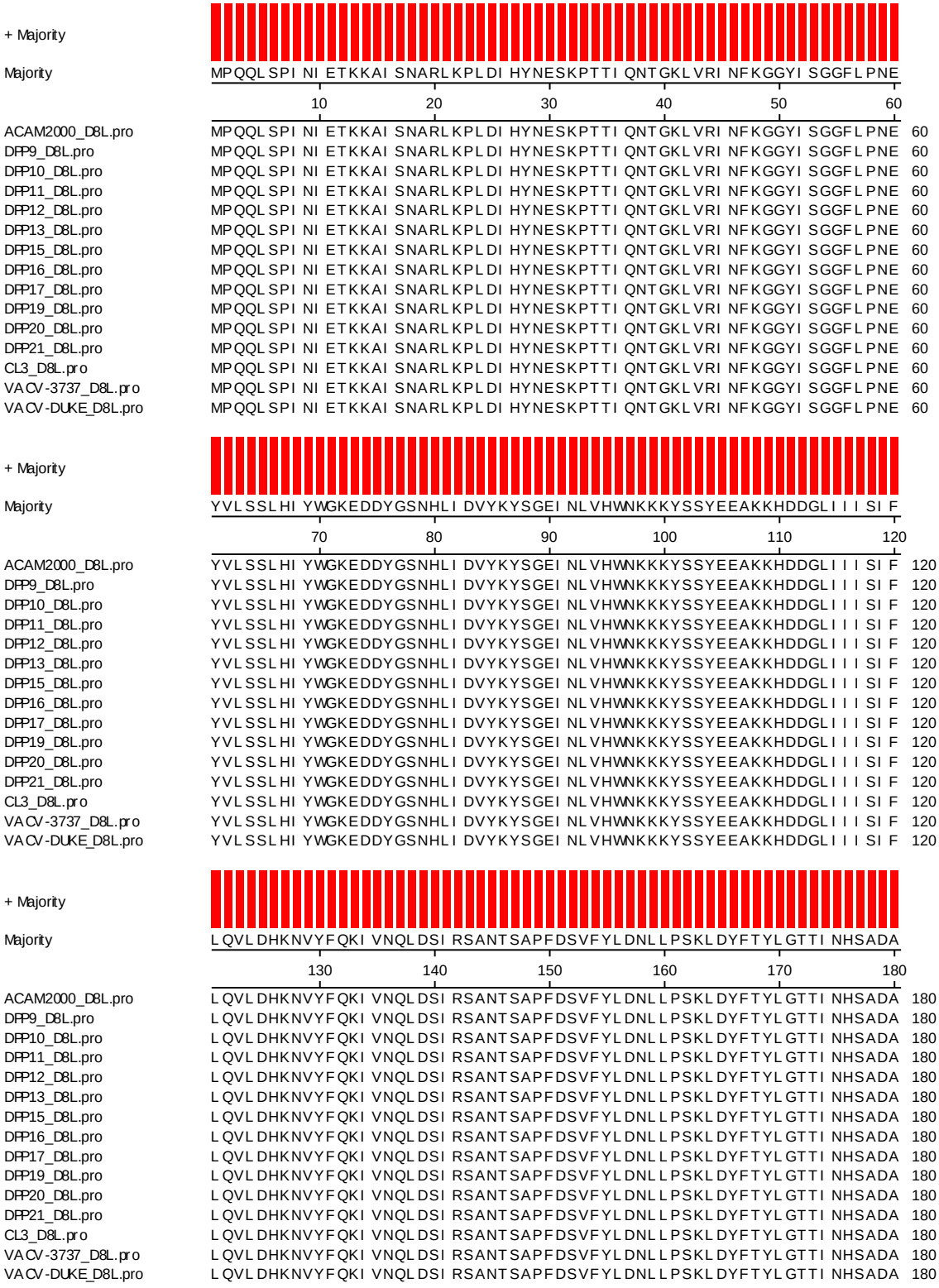
G. D8L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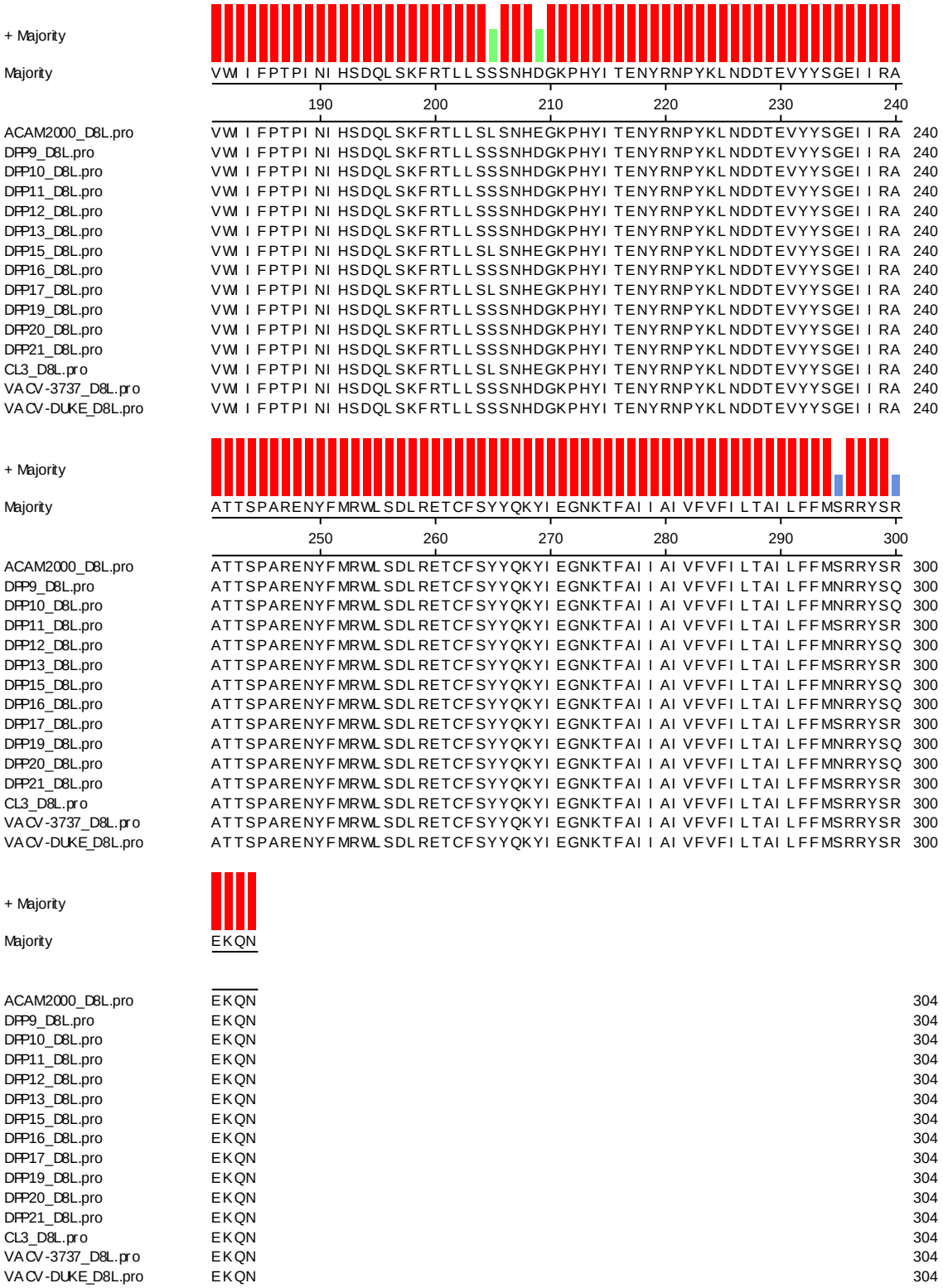
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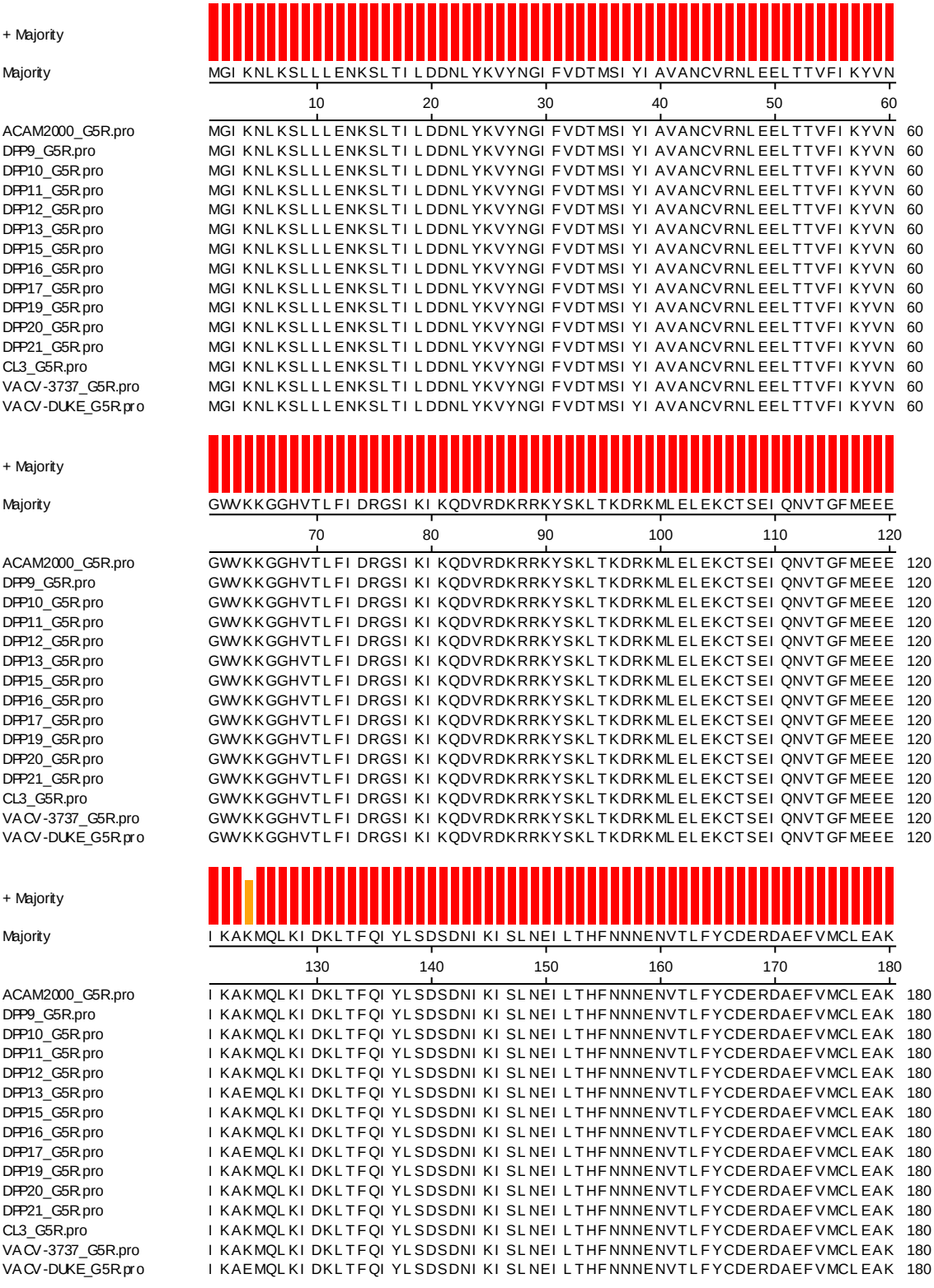
H. G5R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Majority
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VACV-3737_G5R.pro I KAKMQLKI DKLTFQI YLSDSDNI KI SLNEI LTHFNNNENVTLFYCDERDAEFVMCLEAK 180
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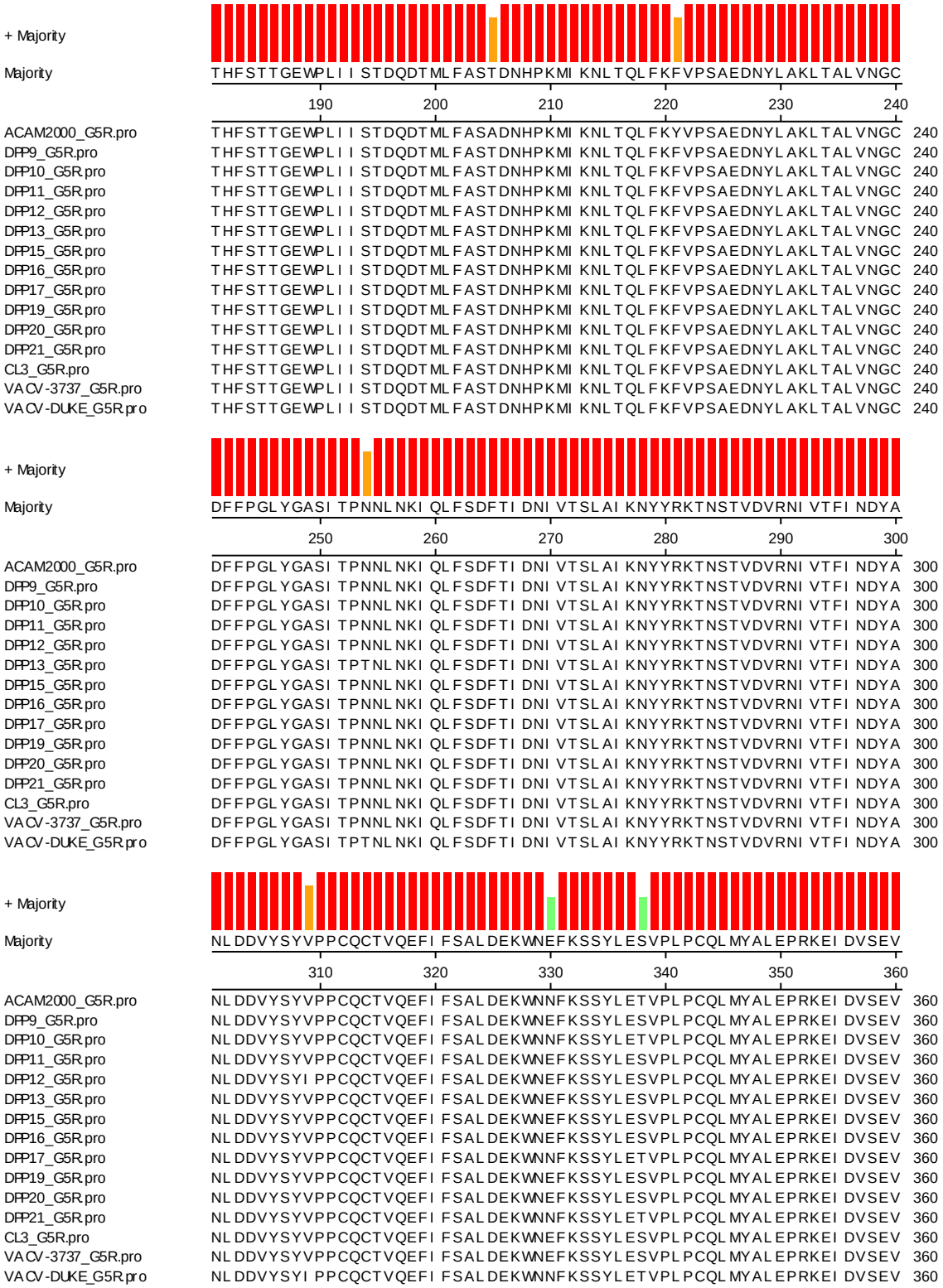
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Majority
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VACV-DUKE_G5R.pro THFSTTGEWPLII STDQDTMLFASTDNHPKMI KNLTQLFKFVPSAEDNYLAKLTALVNGC 240
+ Majority
Majority
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260
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+ Majority
Majority
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310
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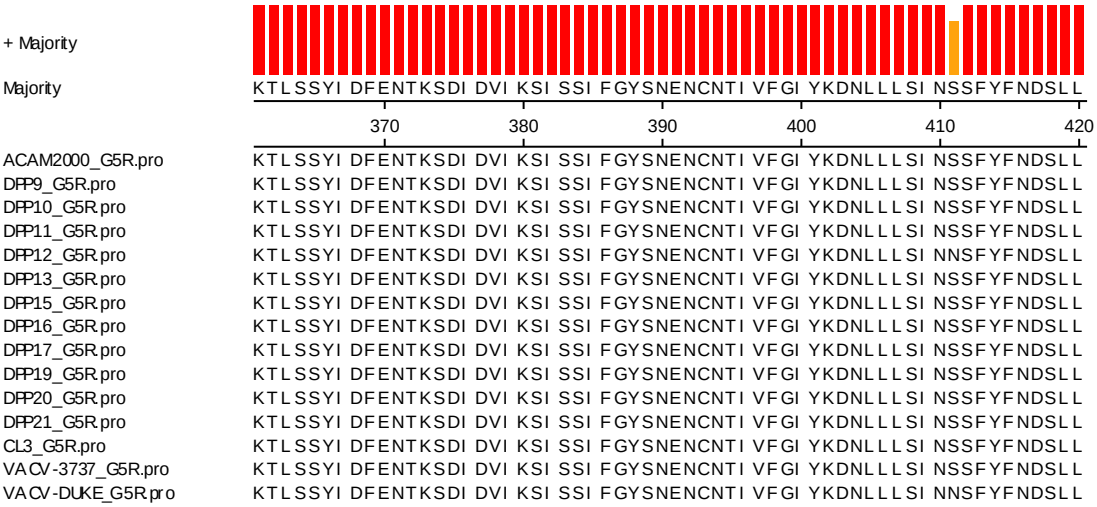
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420
ACAM2000_G5R.pro KTLSSYI DFENTKSDI DVI KSI SSI FGYSNENCNTI VFGI YKDNLLLSI NSSFYFNDSLL 420
DPP9_G5R.pro KTLSSYI DFENTKSDI DVI KSI SSI FGYSNENCNTI VFGI YKDNLLLSI NSSFYFNDSLL 420
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+ Majority
Majority
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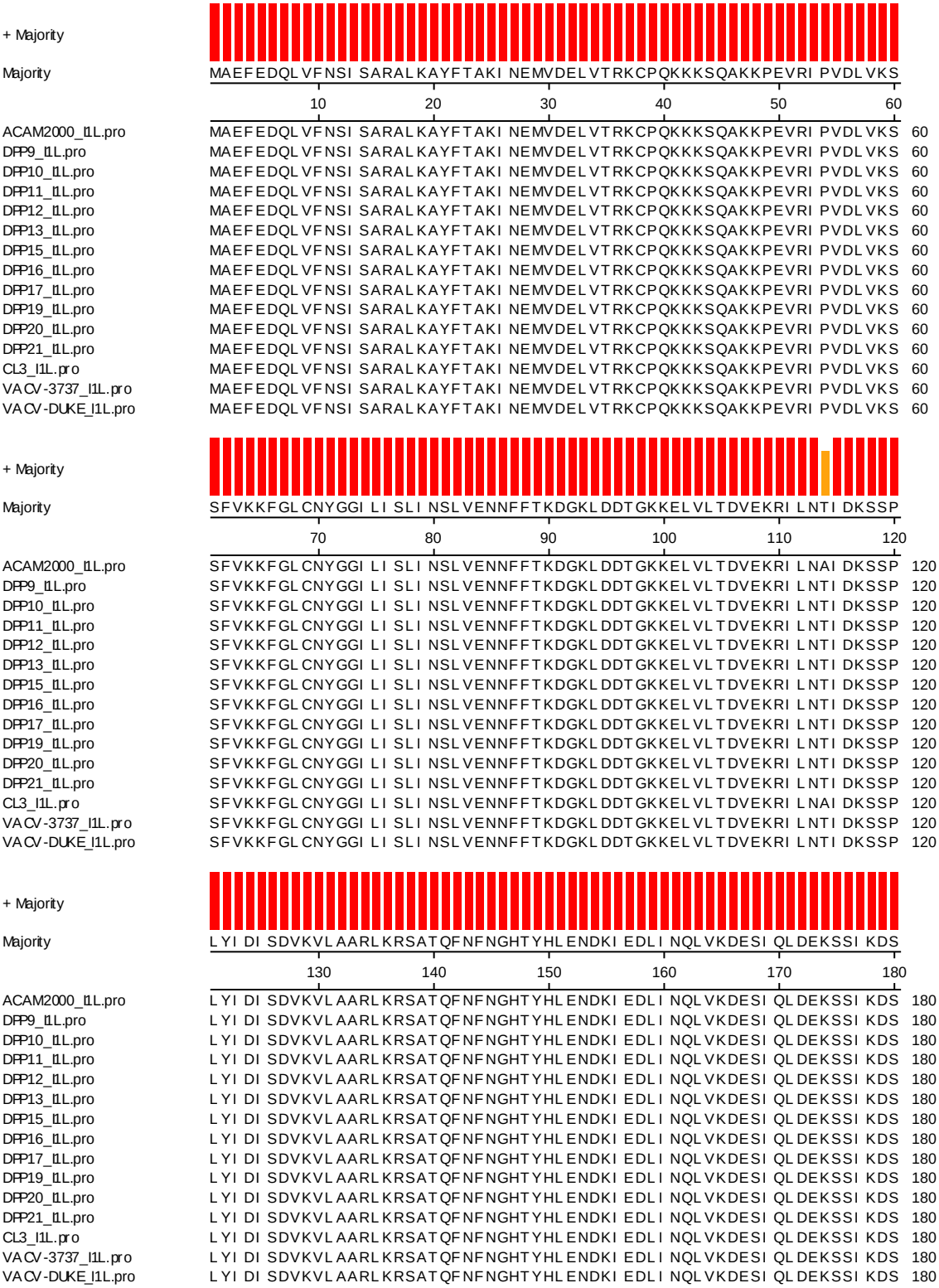
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VACV-3737_I1L.pro MAEFEDQLVFNSISARALKAYFTAKINEMVDELVTRKCPQKKKSQAKKPEVRIPVDLVKS 60
VACV-DUKE_I1L.pro MAEFEDQLVFNSISARALKAYFTAKINEMVDELVTRKCPQKKKSQAKKPEVRIPVDLVKS 60
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Majority
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+ Majority
Majority
LYIDISDVKVLAARLKRSATQFNFNGHTYHLENDKIEDLINQLVKDESIQLDEKSSIKDS
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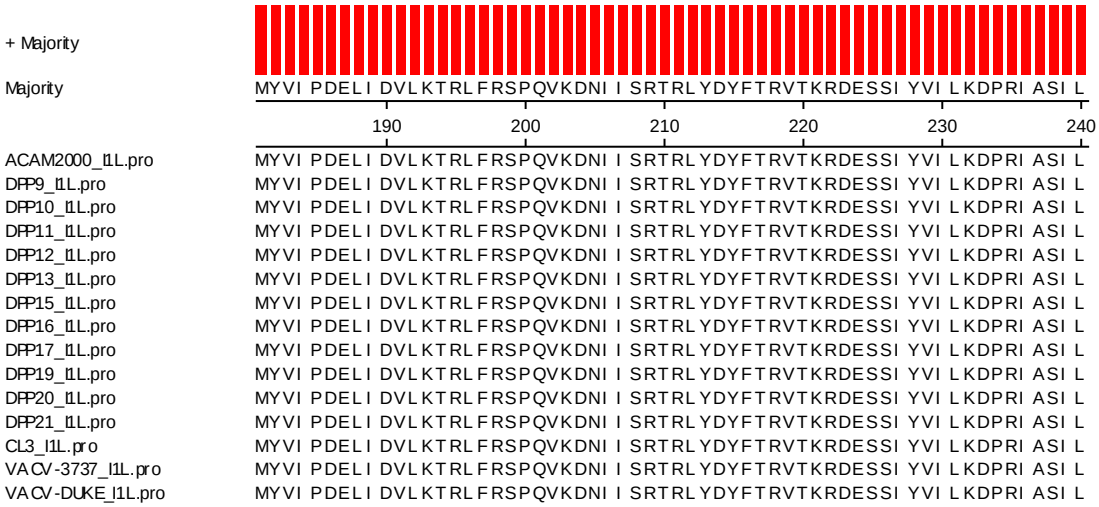
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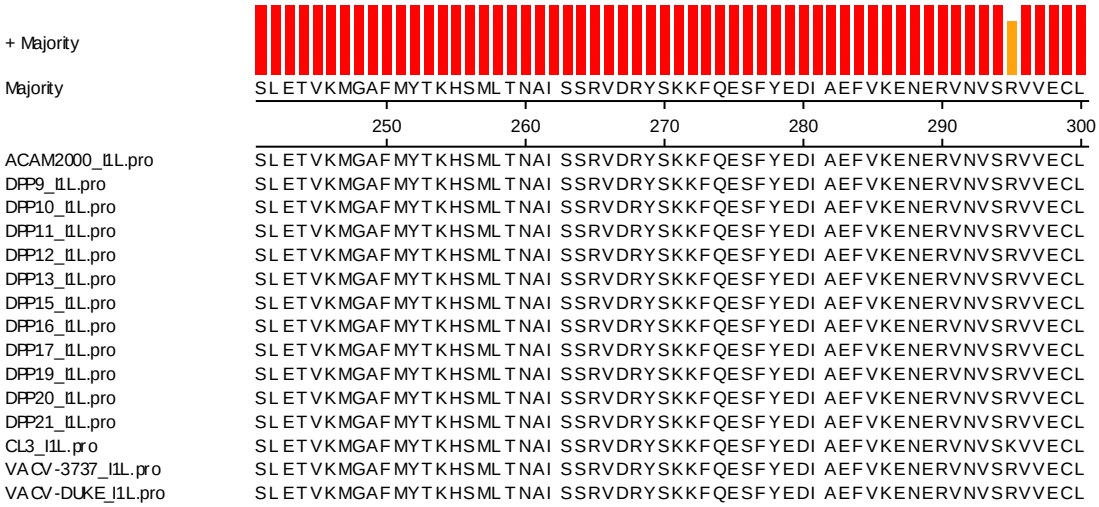
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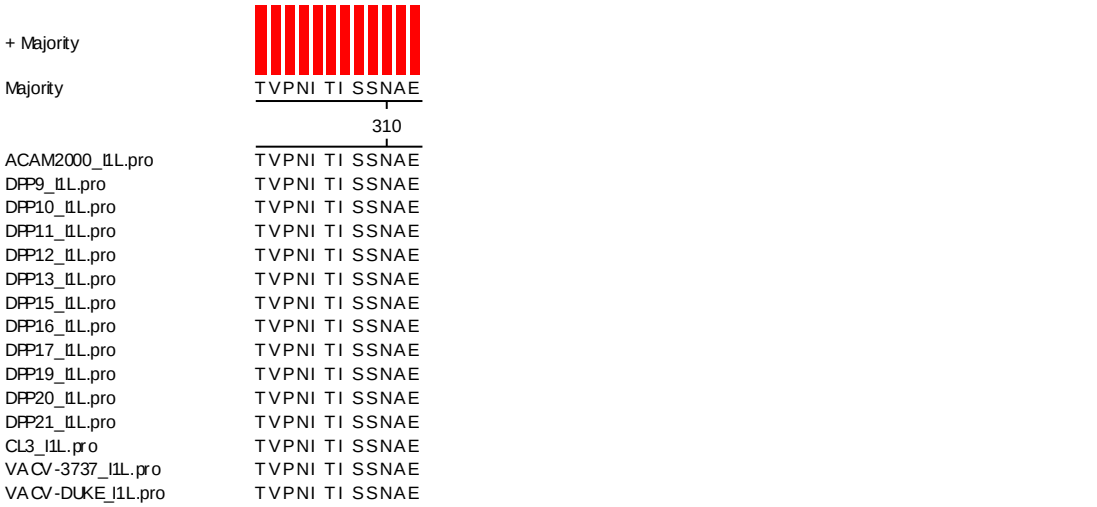
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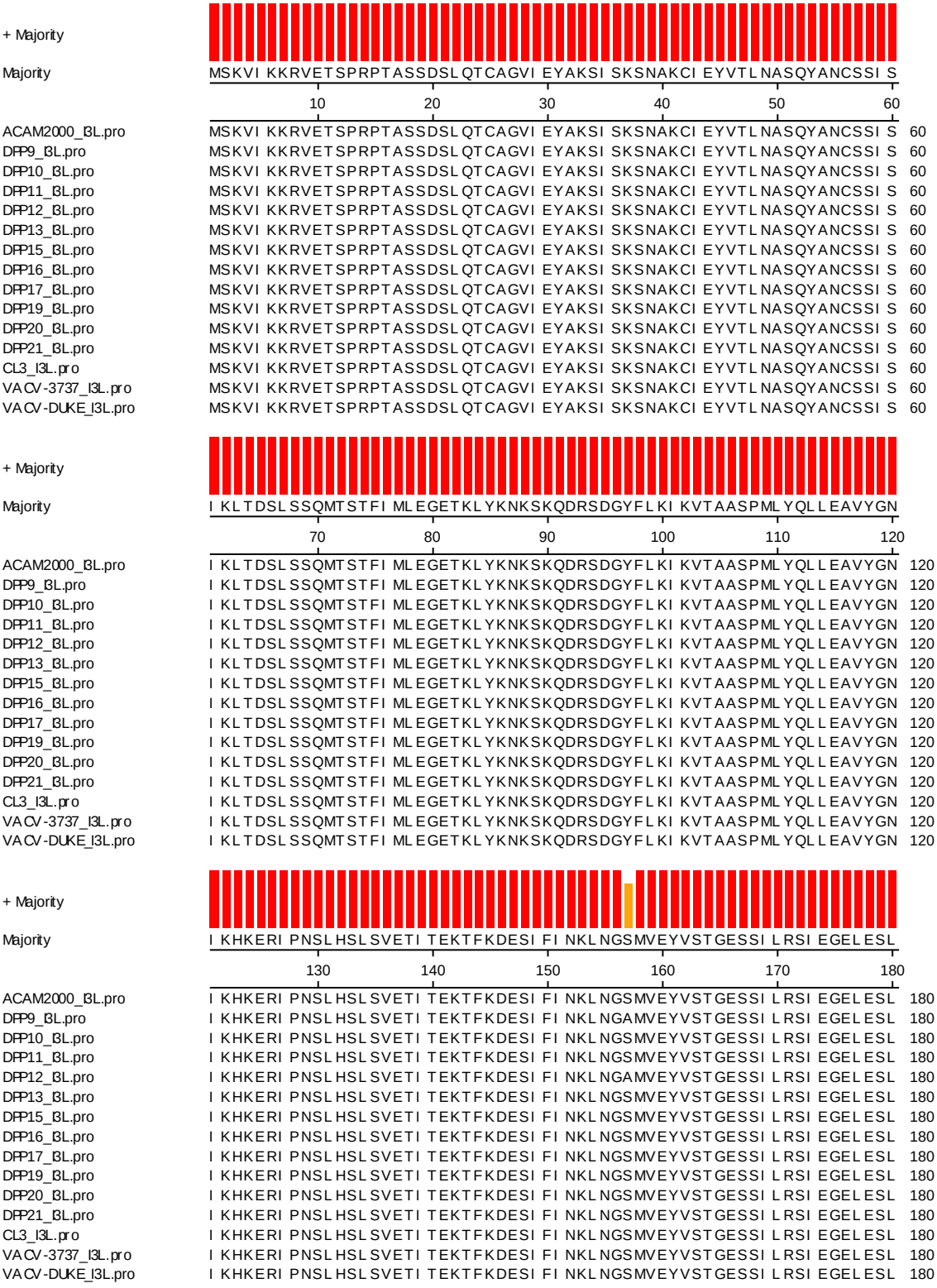
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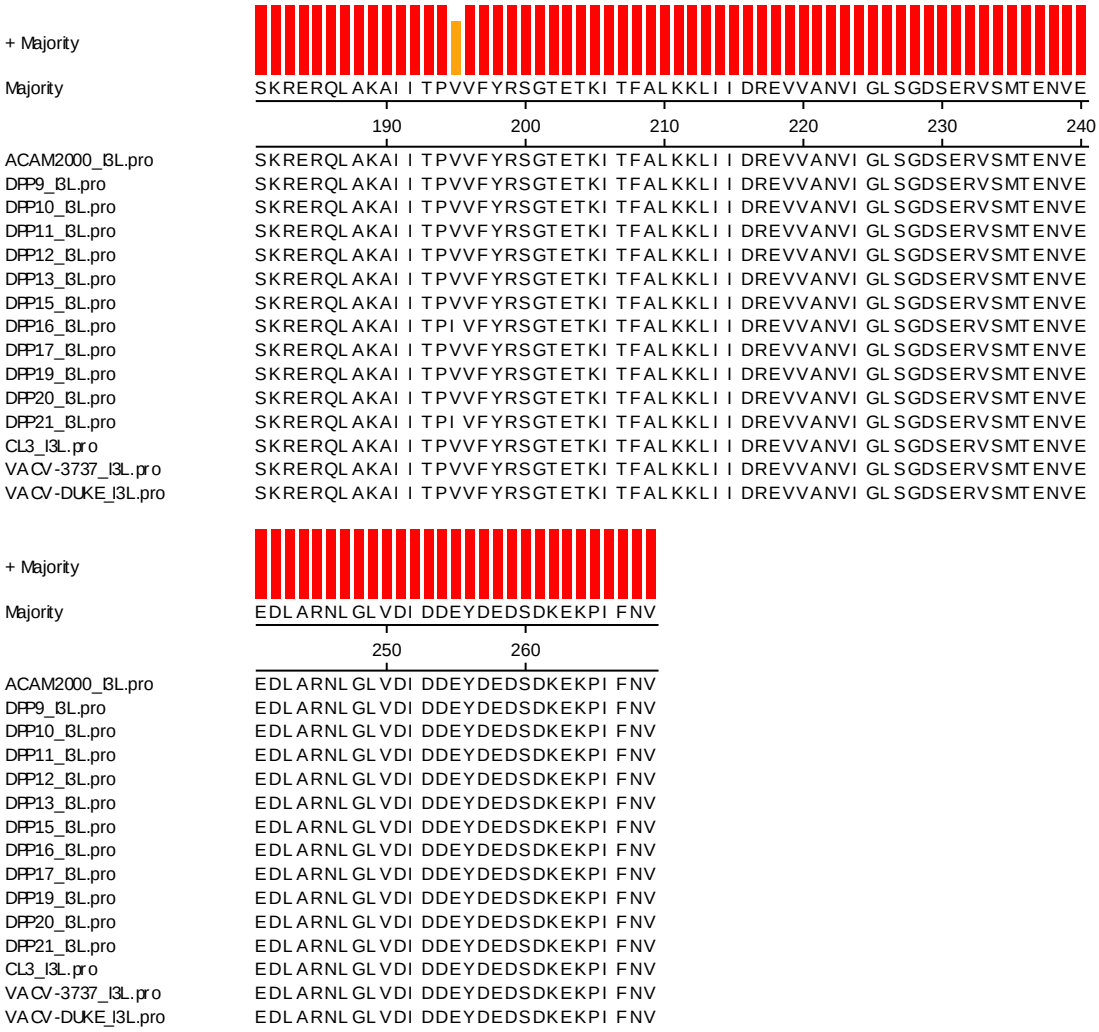
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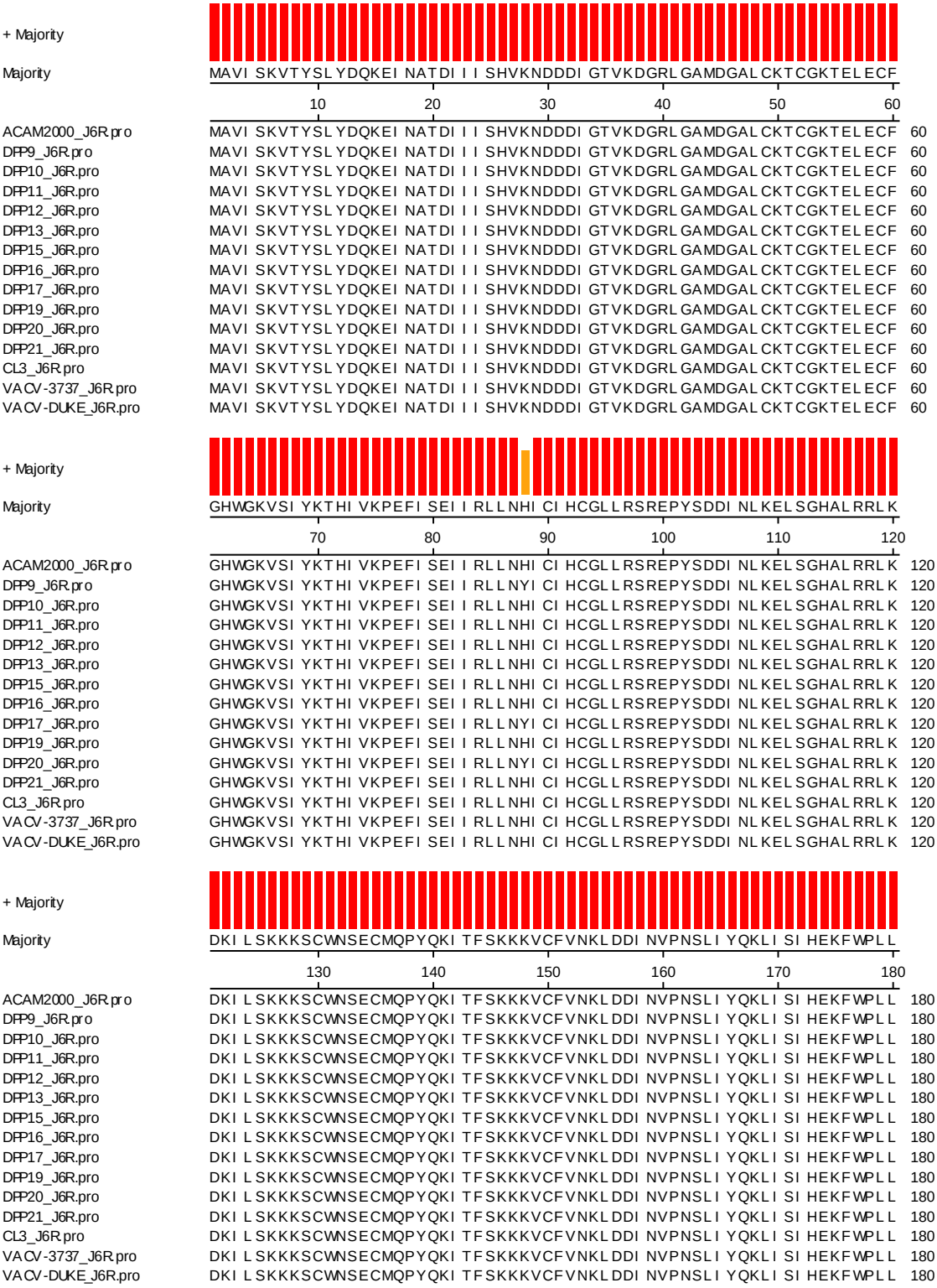
K. J6R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+ Majority
Majority
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+ Majority
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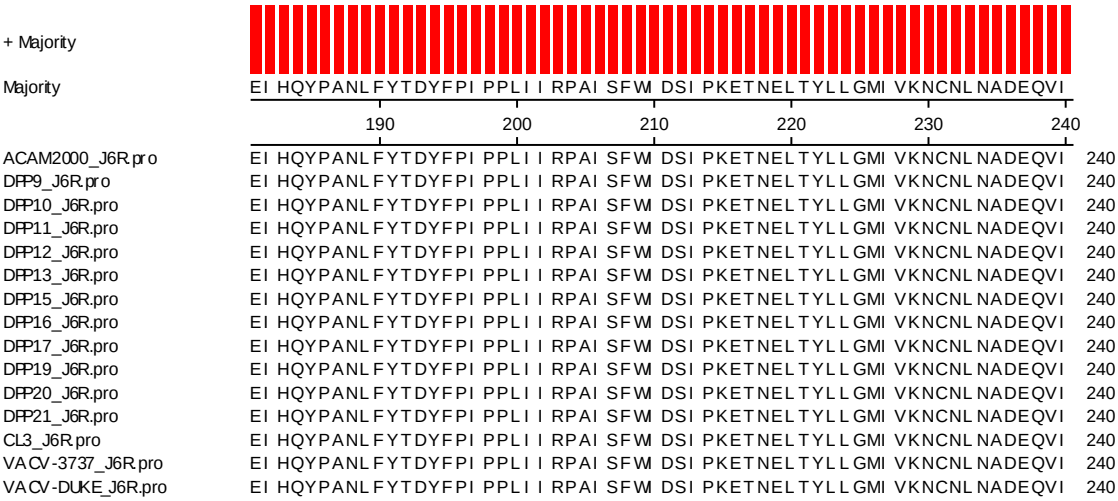
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Majority
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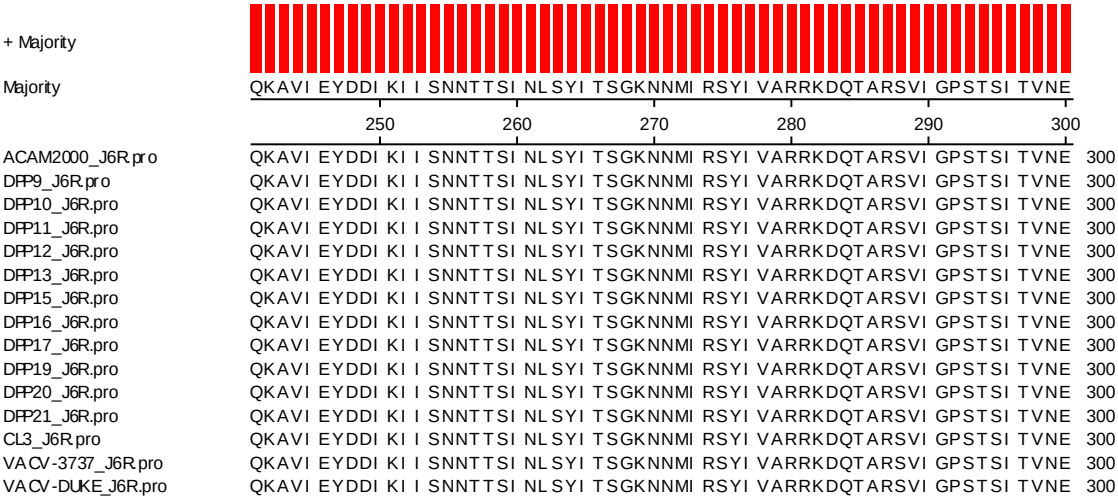
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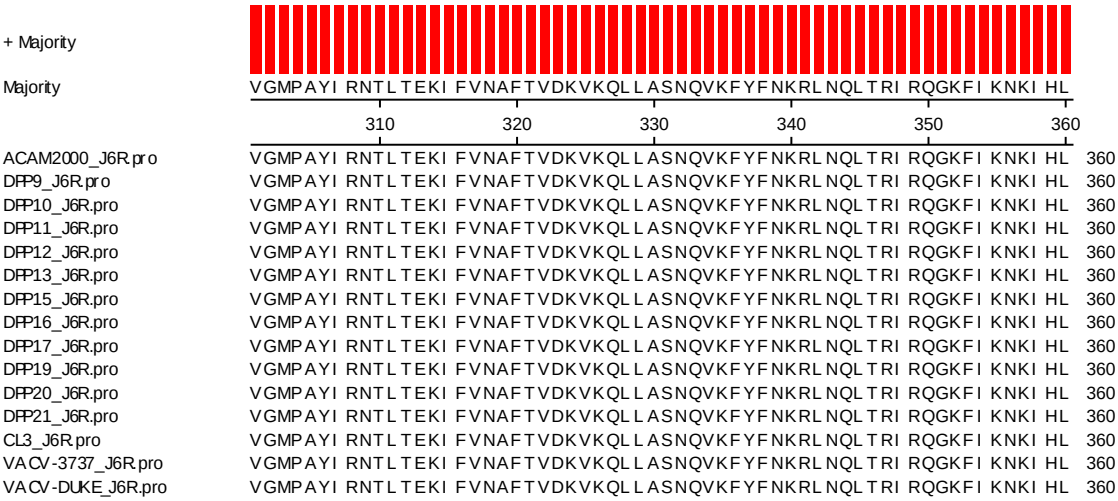
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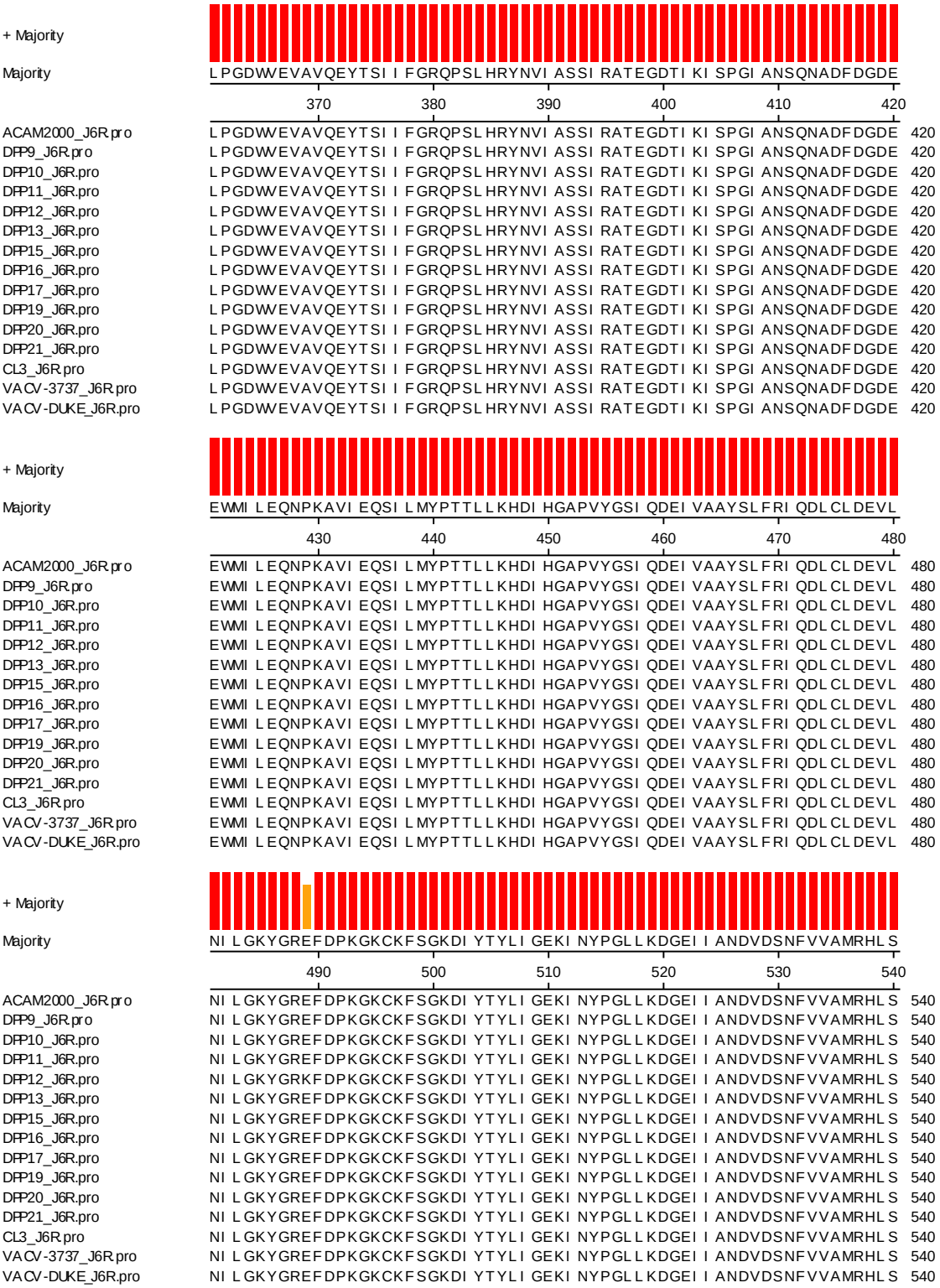
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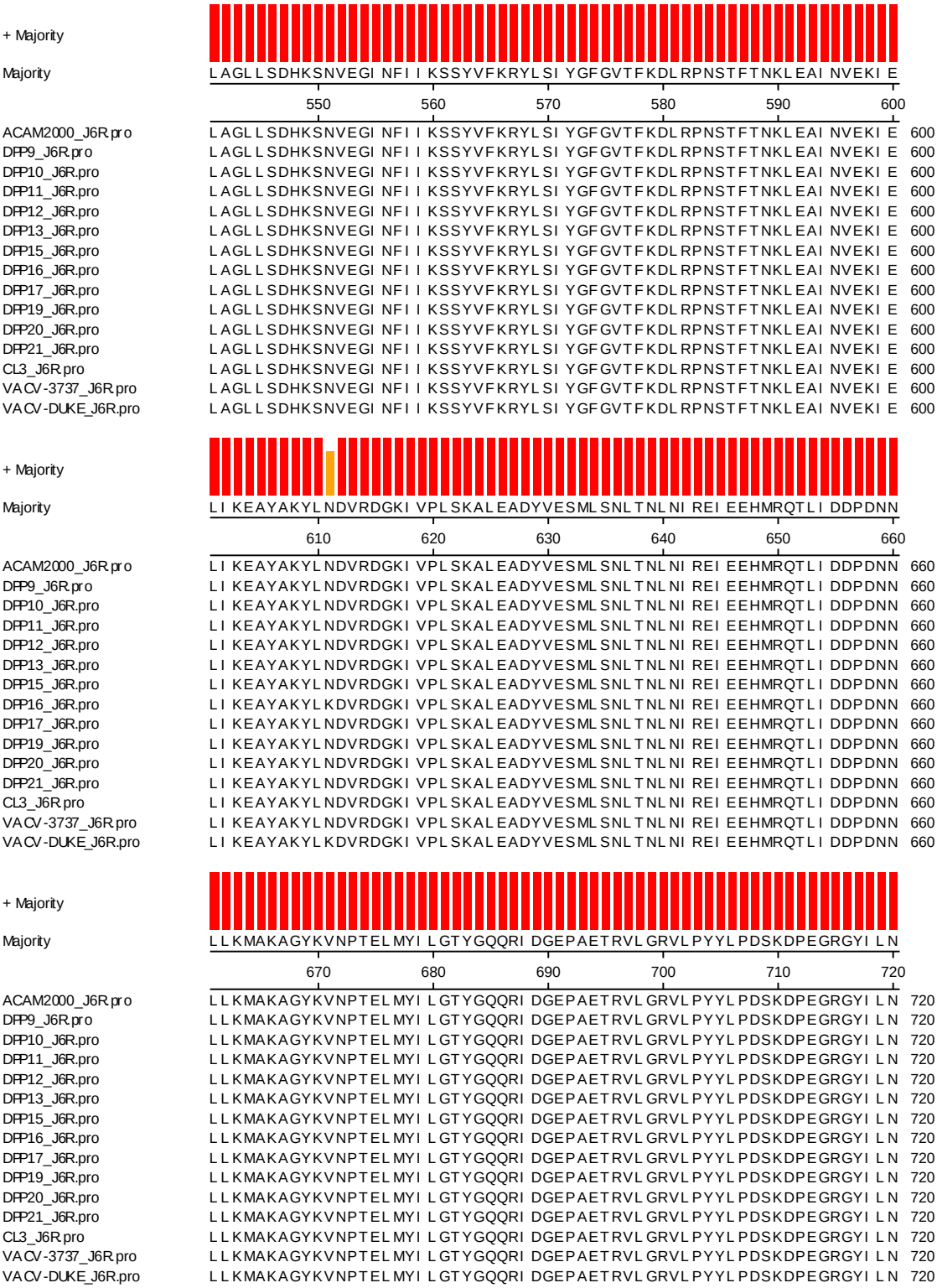
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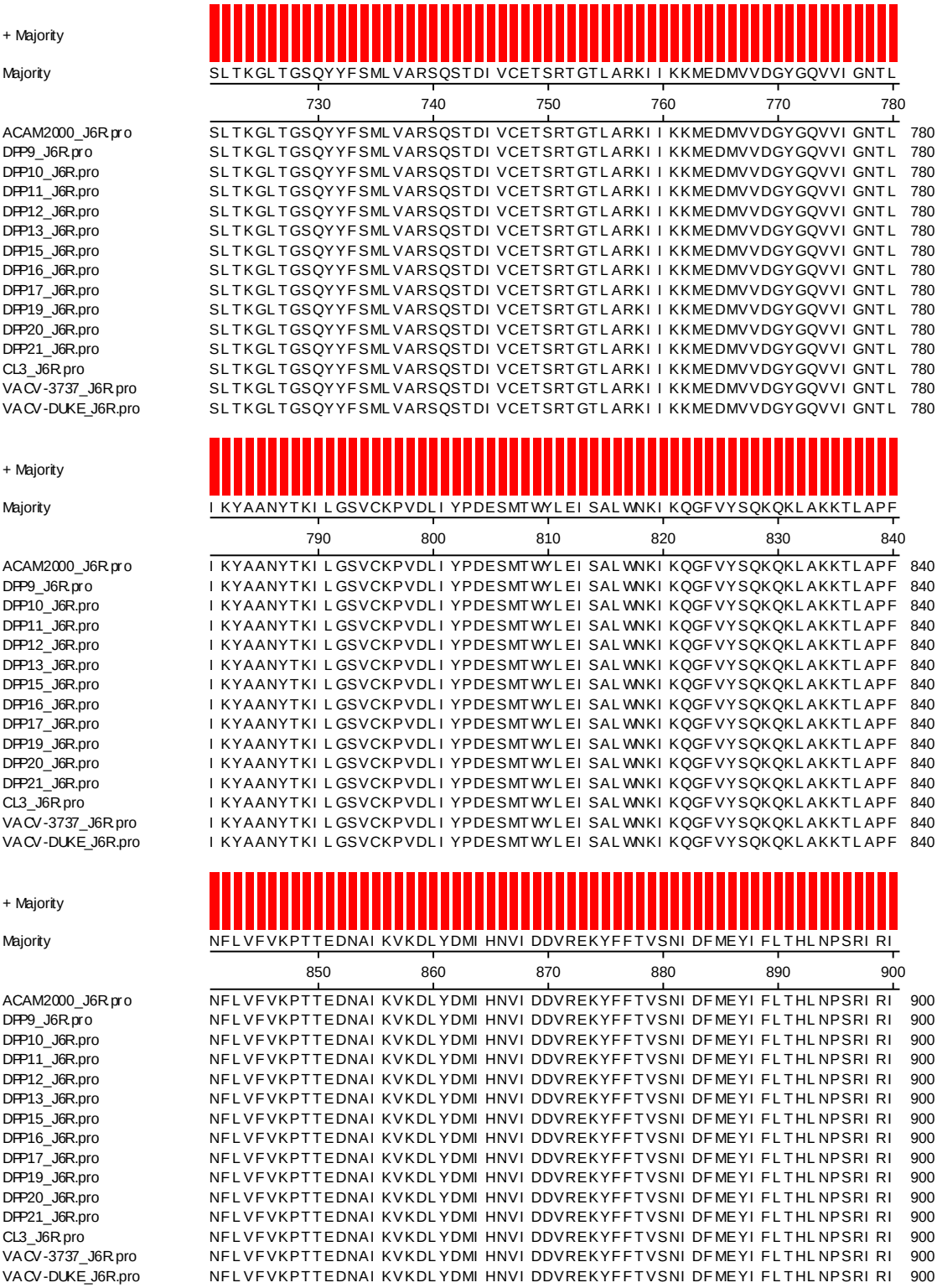
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Majority
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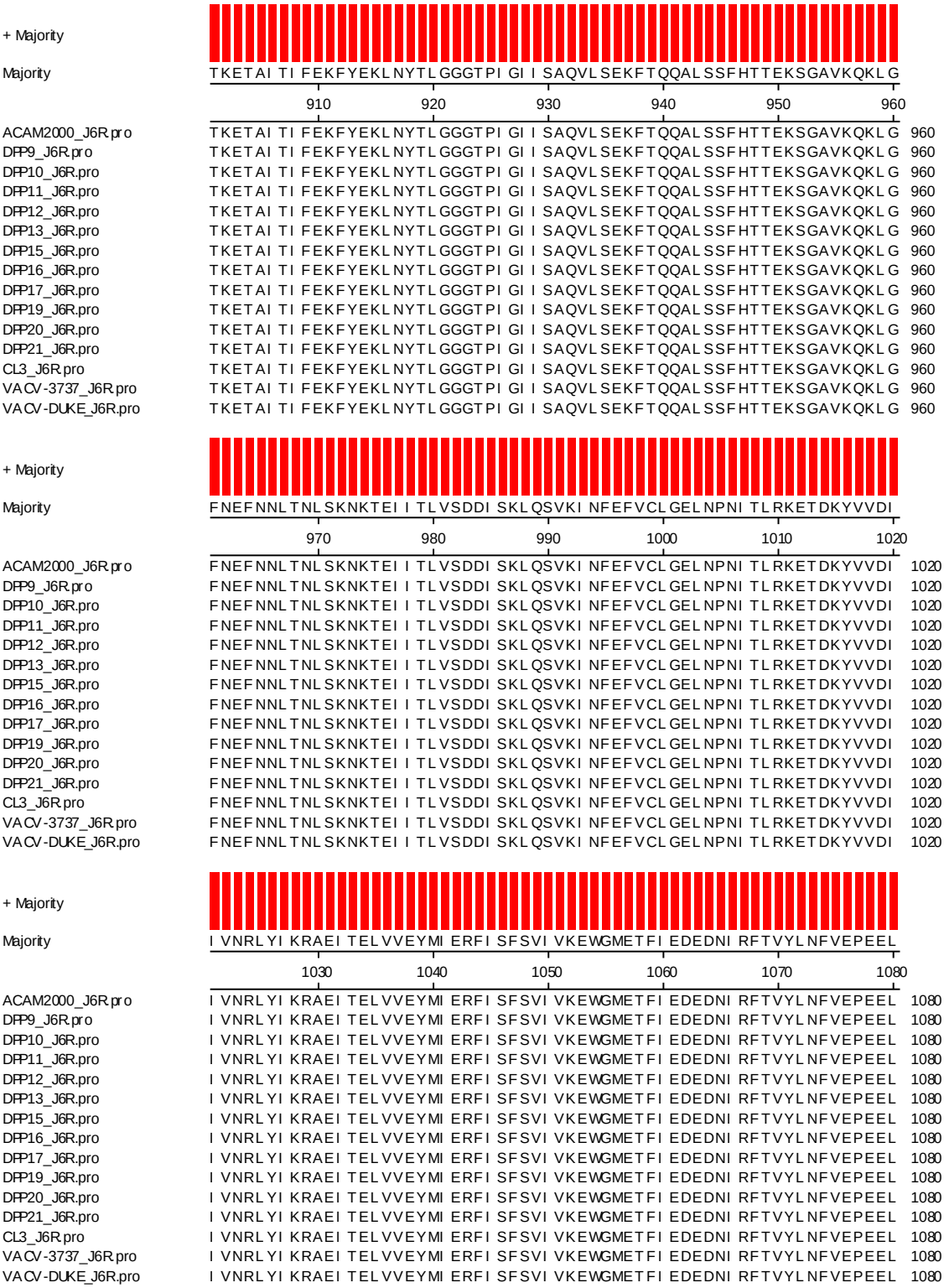
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+ Majority
Majority
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+ Majority
Majority
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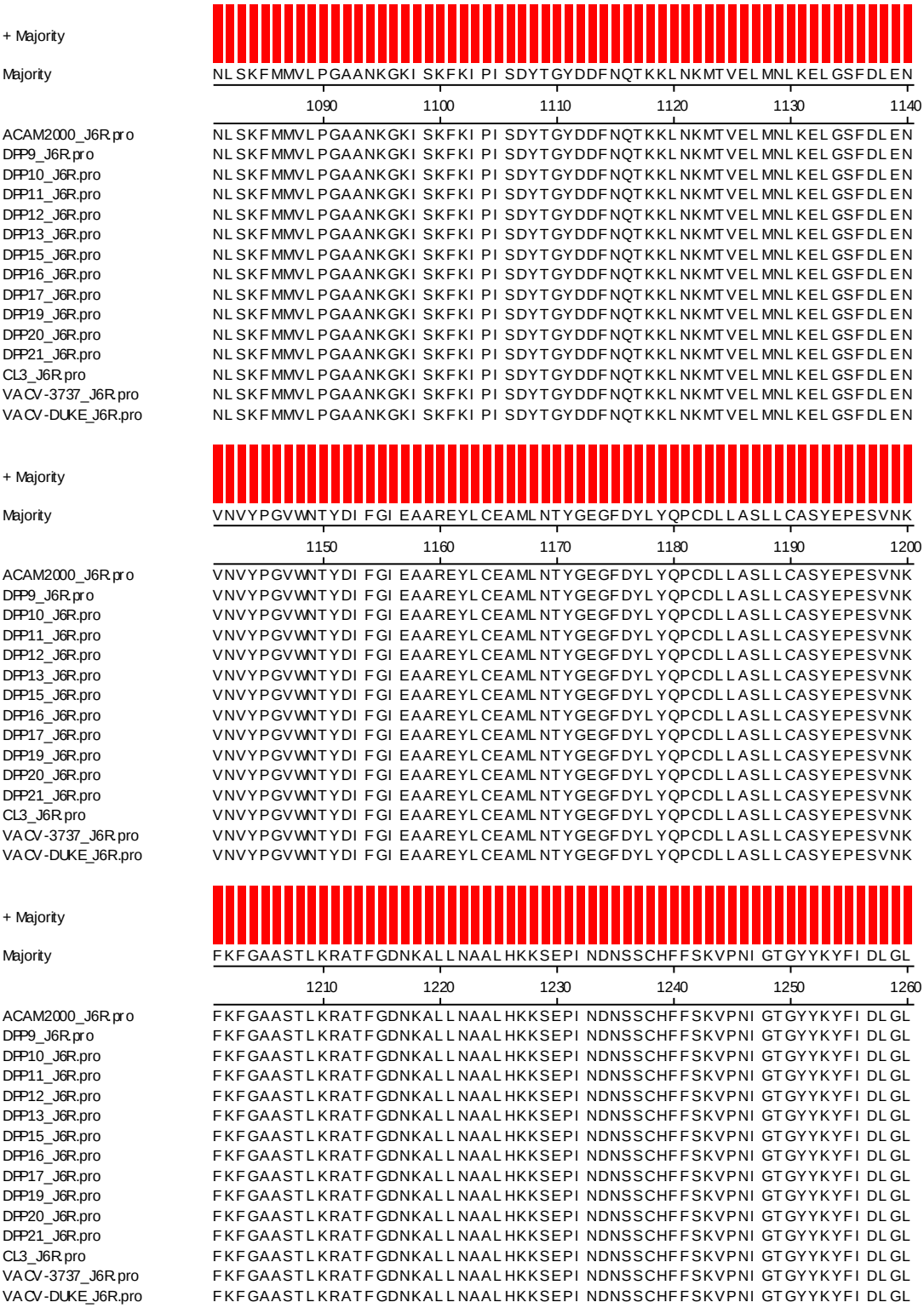
+ Majority
Majority
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+ Majority
Majority
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+ Majority
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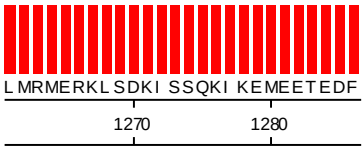

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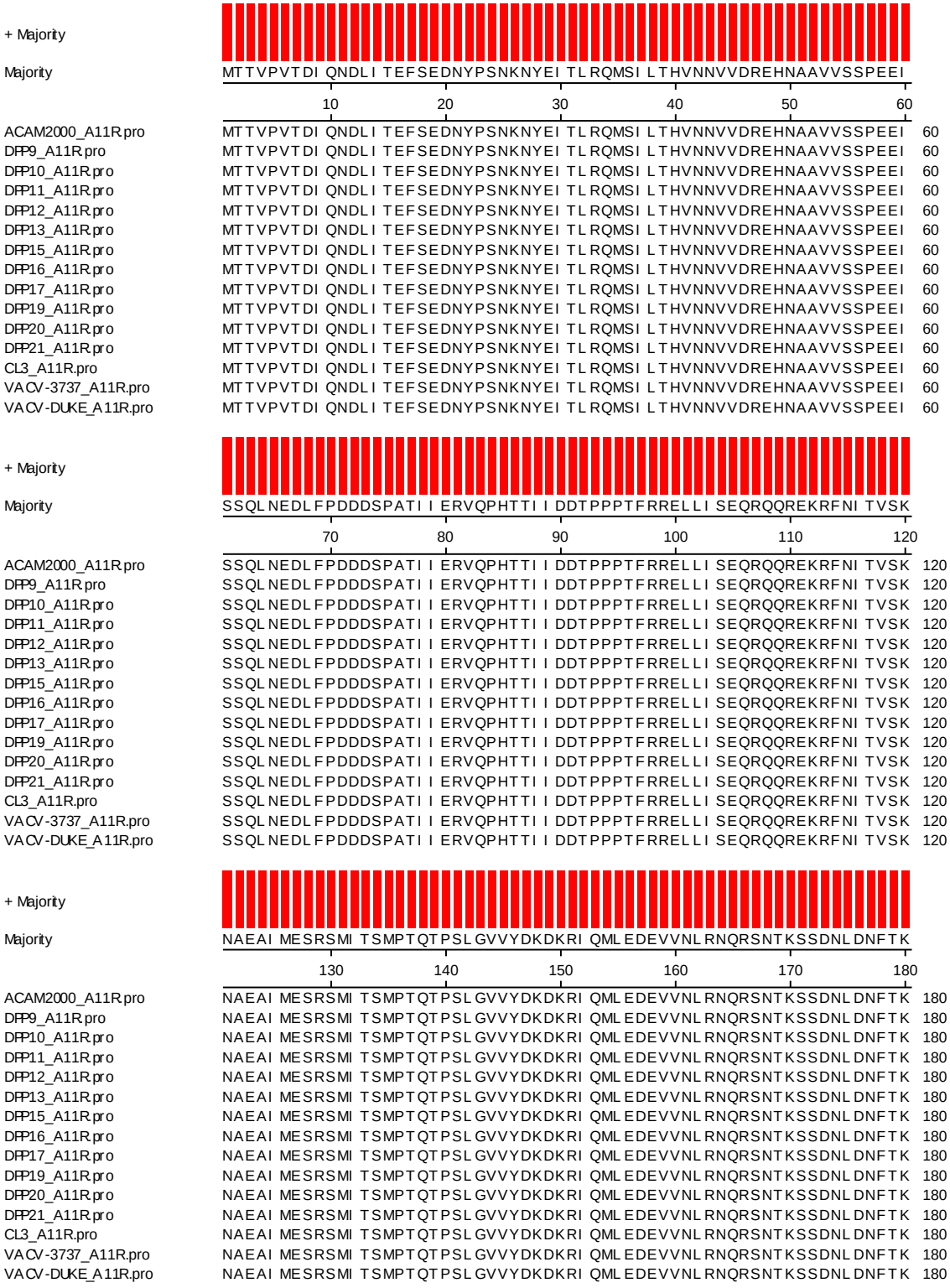
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+ Majority
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+ Majority
Majority
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VACV-3737_A11R.pro NAEAI MESRSMI TSMPTQTPSL GVVYDKDKRI QMLEDEVVNL RNQRSNTKSSDNL DNFTK 180
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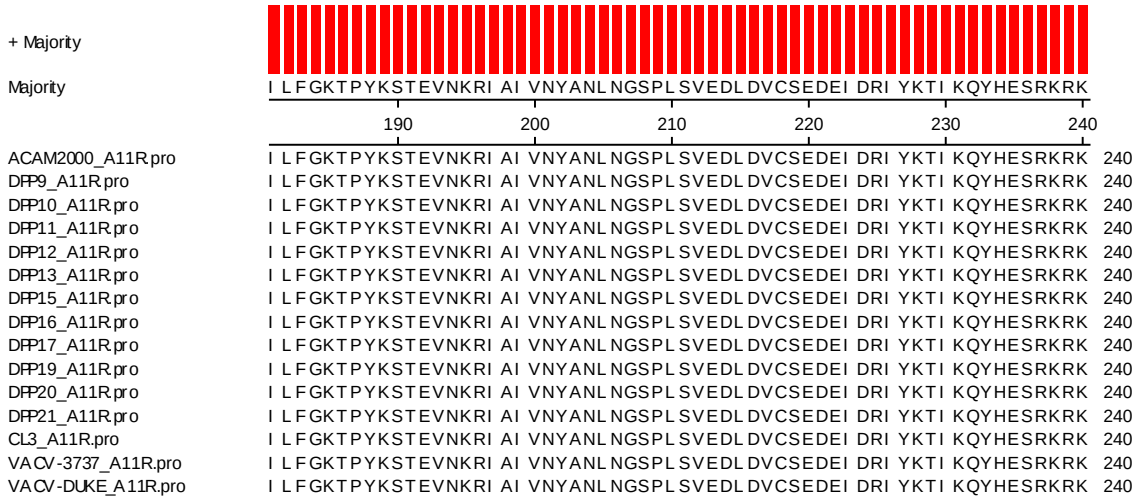
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Majority
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200
210
220
230
240
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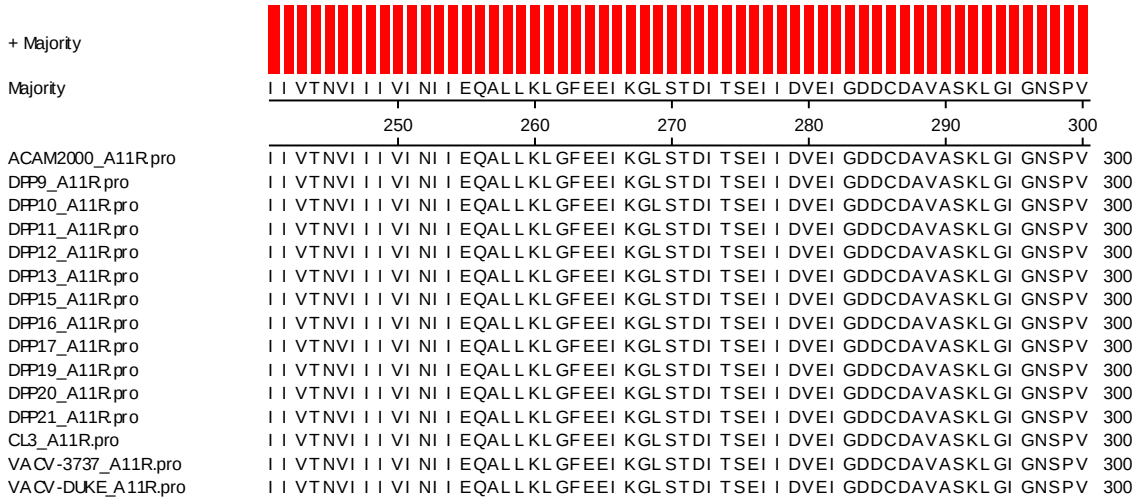
+ Majority
Majority
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260
270
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290
300
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+ Majority
Majority
L N I V L F I L K I F V K R I K I I
310
ACAM2000_A11R.pro L N I V L F I L K I F V K R I K I I 318
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DPP10_A11R.pro L N I V L F I L K I F V K R I K I I 318
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DPP12_A11R.pro L N I V L F I L K I F V K R I K I I 318
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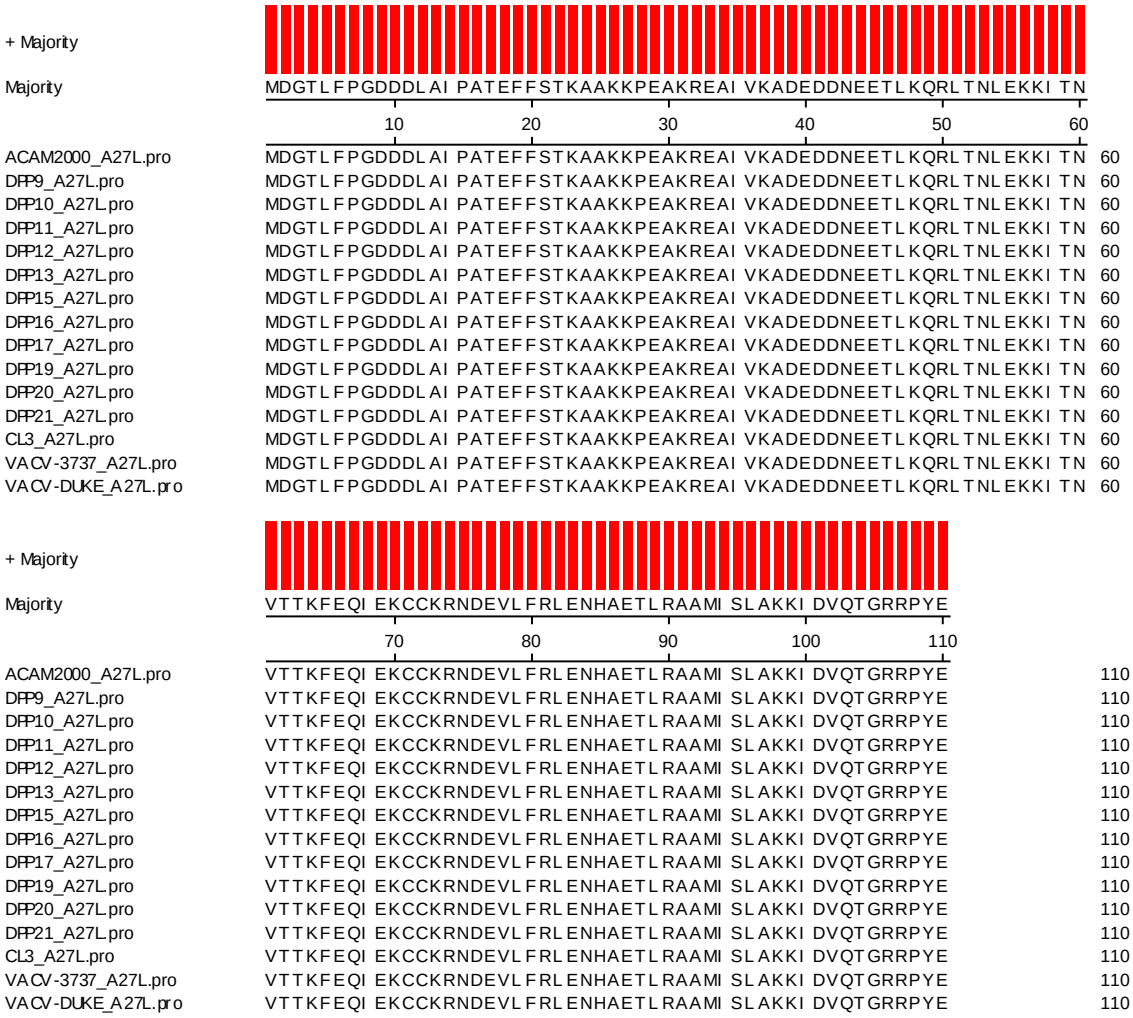
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VACV-3737_A27L.pro MDGTLFPGDDDLAI PATEFFSTKAAKKPEAKREAI VKADEDDNEETLKQRLTNLEKKI TN 60
VACV-DUKE_A27L.pro MDGTLFPGDDDLAI PATEFFSTKAAKKPEAKREAI VKADEDDNEETLKQRLTNLEKKI TN 60
+ Majority
Majority
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90
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VACV-3737_A27L.pro VTTKFEQI EKCCKRNDEVLFRLENHAETLRAAMI SLAKKI DVQTGRRPYE 110
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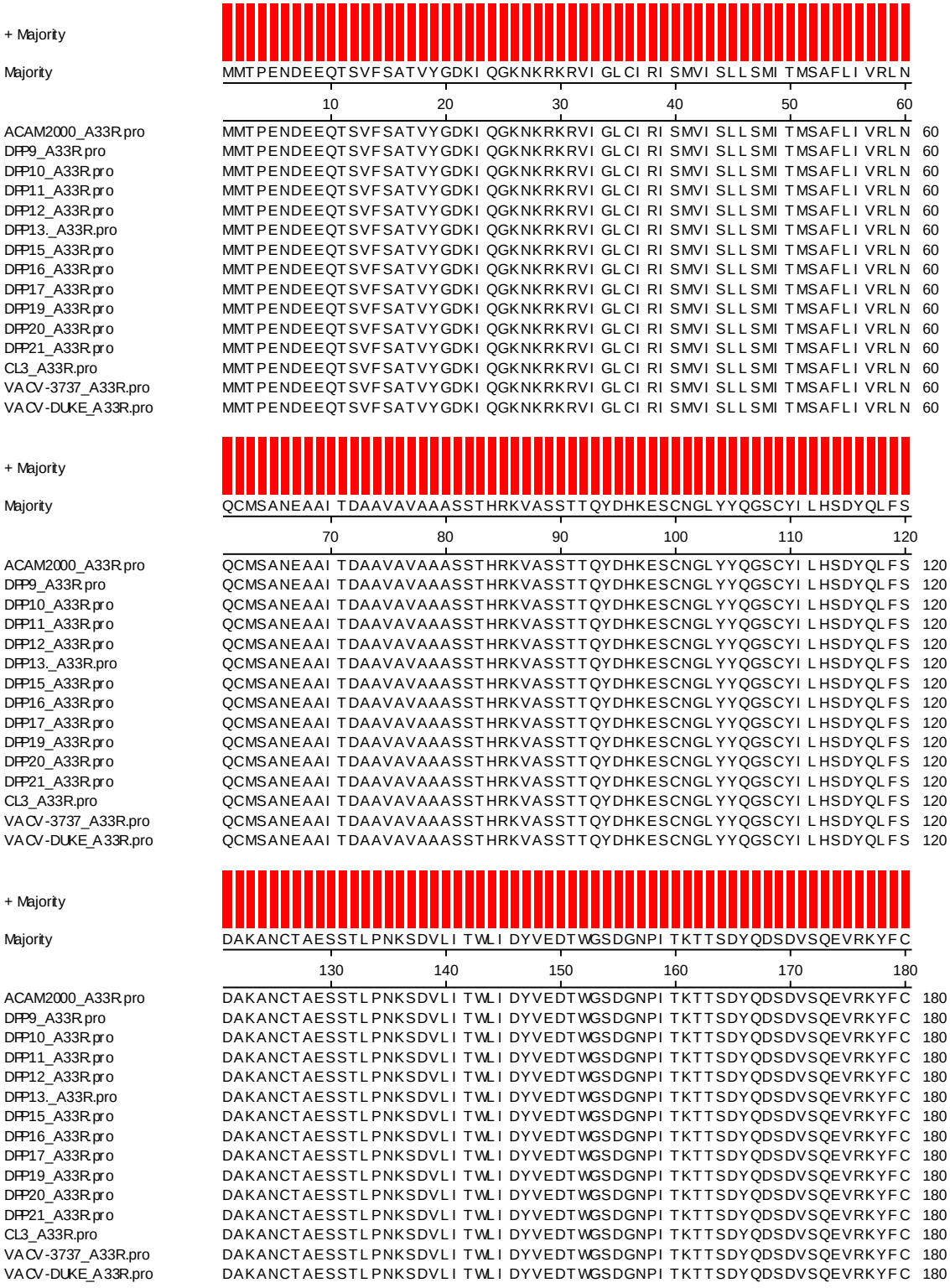
N. A33R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CL3_A33R.pro MMTPENDEEQTSVFSATVYGDKIQGKNKRKRVIGLCIRISMVISLLSMITMSAFLIVRLN 60
VACV-3737_A33R.pro MMTPENDEEQTSVFSATVYGDKIQGKNKRKRVIGLCIRISMVISLLSMITMSAFLIVRLN 60
VACV-DUKE_A33R.pro MMTPENDEEQTSVFSATVYGDKIQGKNKRKRVIGLCIRISMVISLLSMITMSAFLIVRLN 60
+ Majority
Majority
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70 80 90 100 110 120
ACAM2000_A33R.pro QCMSANEAAITDAAVAVAAASSTHRKVASSTTQYDHKESCNGLYYQGSCYILHSDYQLFS 120
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+ Majority
Majority
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ACAM2000_A33R.pro DAKANCTAESSTLPNKSDVLITWLIDYVEDTWGSDGNPITKTTSDYQDSDVSQEVRKYFC 180
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VACV-3737_A33R.pro DAKANCTAESSTLPNKSDVLITWLIDYVEDTWGSDGNPITKTTSDYQDSDVSQEVRKYFC 180
VACV-DUKE_A33R.pro DAKANCTAESSTLPNKSDVLITWLIDYVEDTWGSDGNPITKTTSDYQDSDVSQEVRKYFC 180

+ Majority

Majority V K T MN

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DFP10_A33R.pro	V K T MN	185
DFP11_A33R.pro	V K T MN	185
DFP12_A33R.pro	V K T MN	185
DFP13._A33R.pro	V K T MN	185
DFP15_A33R.pro	V K T MN	185
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DFP21_A33R.pro	V K T MN	185
CL3_A33R.pro	V K T MN	185
VACV-3737_A33R.pro	V K T MN	185
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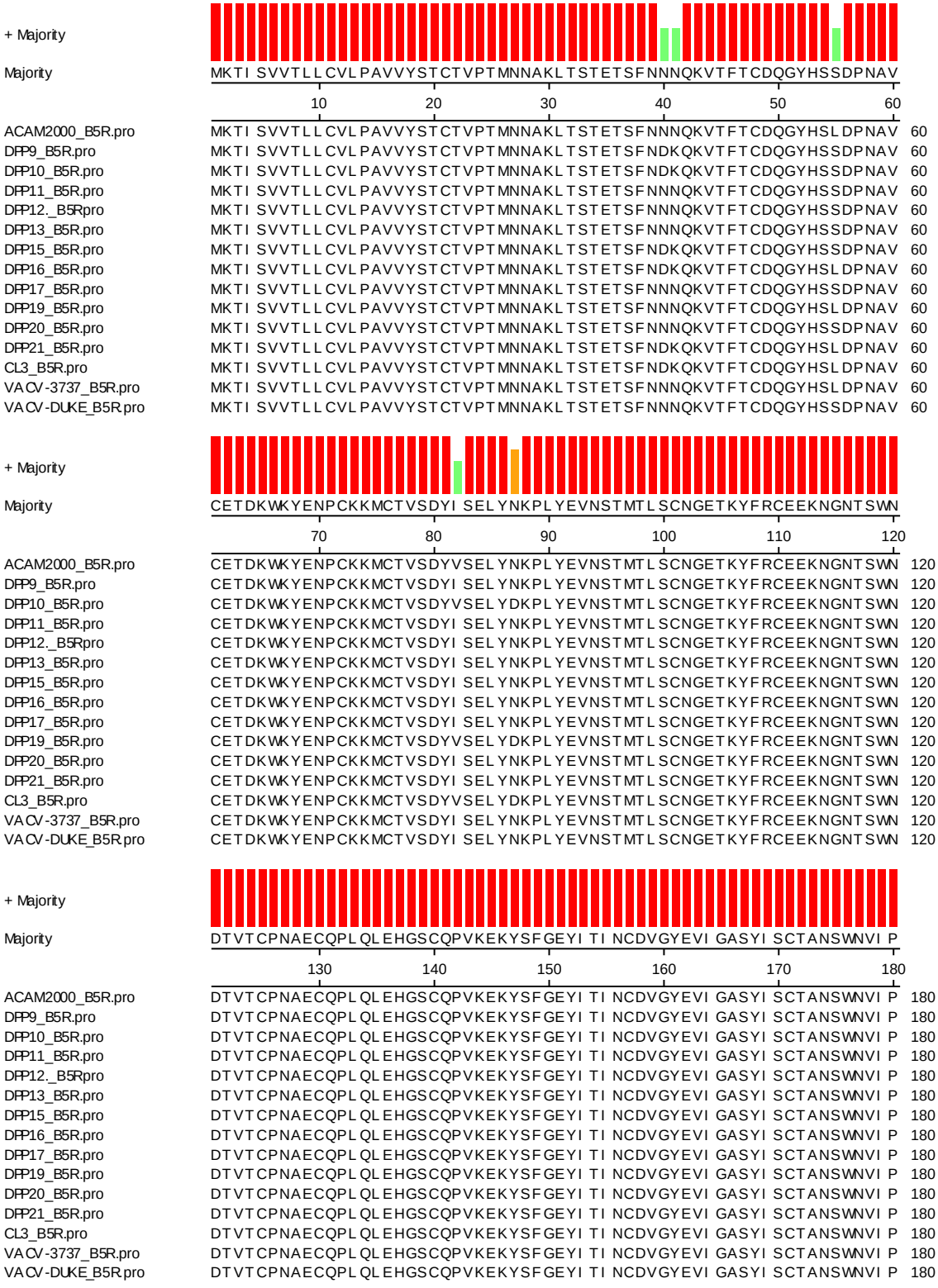
O. B5R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+ Majority
Majority
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DPP19_B5R.pro CETDKWKYENPCKKMCTVSDYVSELYDKPLYEVNSTMTLSCNGETKYFRCEEKNGNTSWN 120
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DPP21_B5R.pro CETDKWKYENPCKKMCTVSDYI SELYNKPLYEVNSTMTLSCNGETKYFRCEEKNGNTSWN 120
CL3_B5R.pro CETDKWKYENPCKKMCTVSDYVSELYDKPLYEVNSTMTLSCNGETKYFRCEEKNGNTSWN 120
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Majority
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CL3_B5R.pro DTVTCPNAECQPLQLEHGSCQPVKEKYSFGEYI TI NCDVGYEVI GASYI SCTANSWNVI P 180
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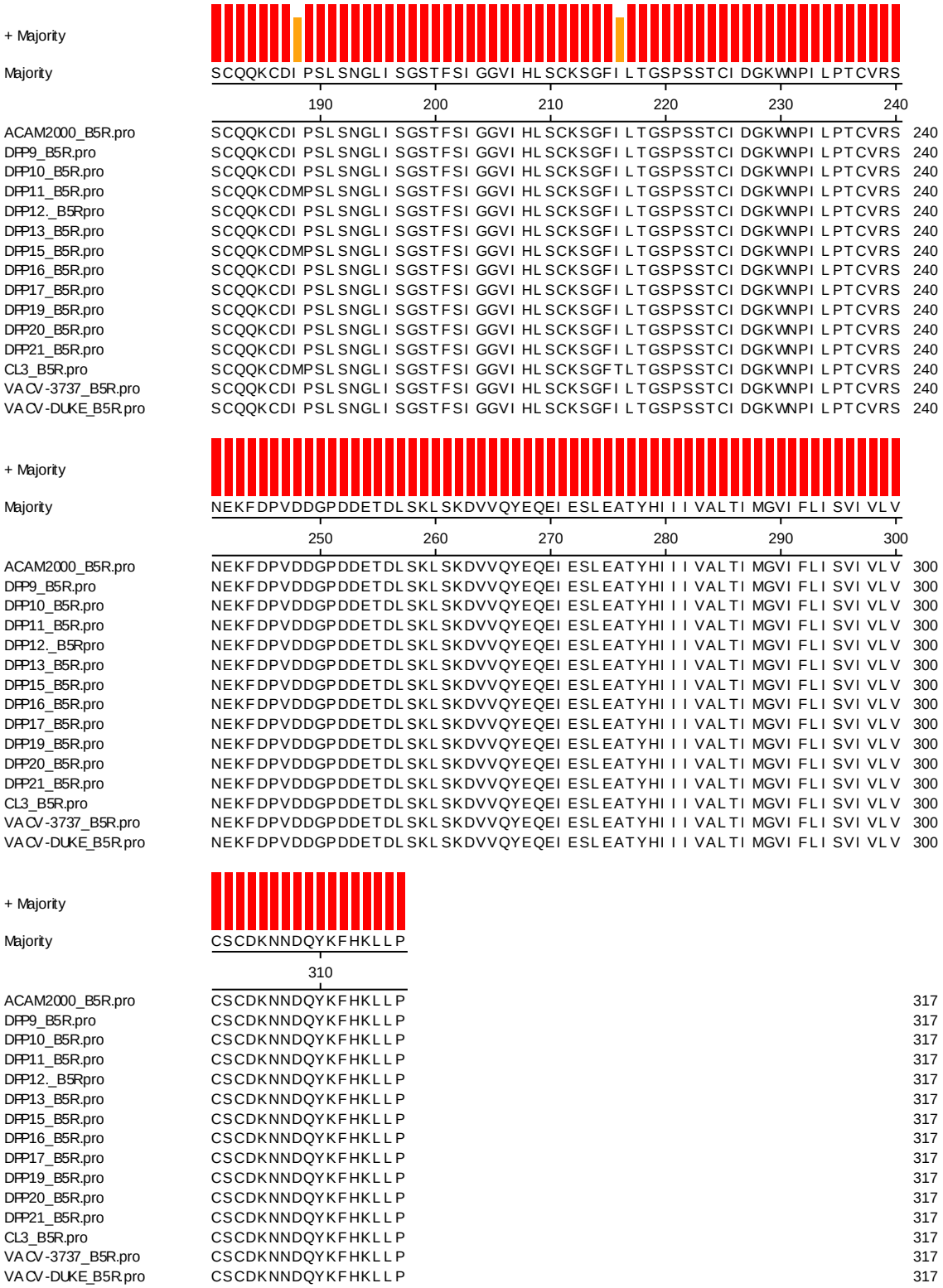
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Majority
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VACV-3737_B5R.pro SCQQKCDI PSLSNGLI SGSTFSI GGVI HLSCKSGFI LTGSPSSTCI DGKWNPI LPTCVRS 240
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+ Majority
Majority
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+ Majority
Majority
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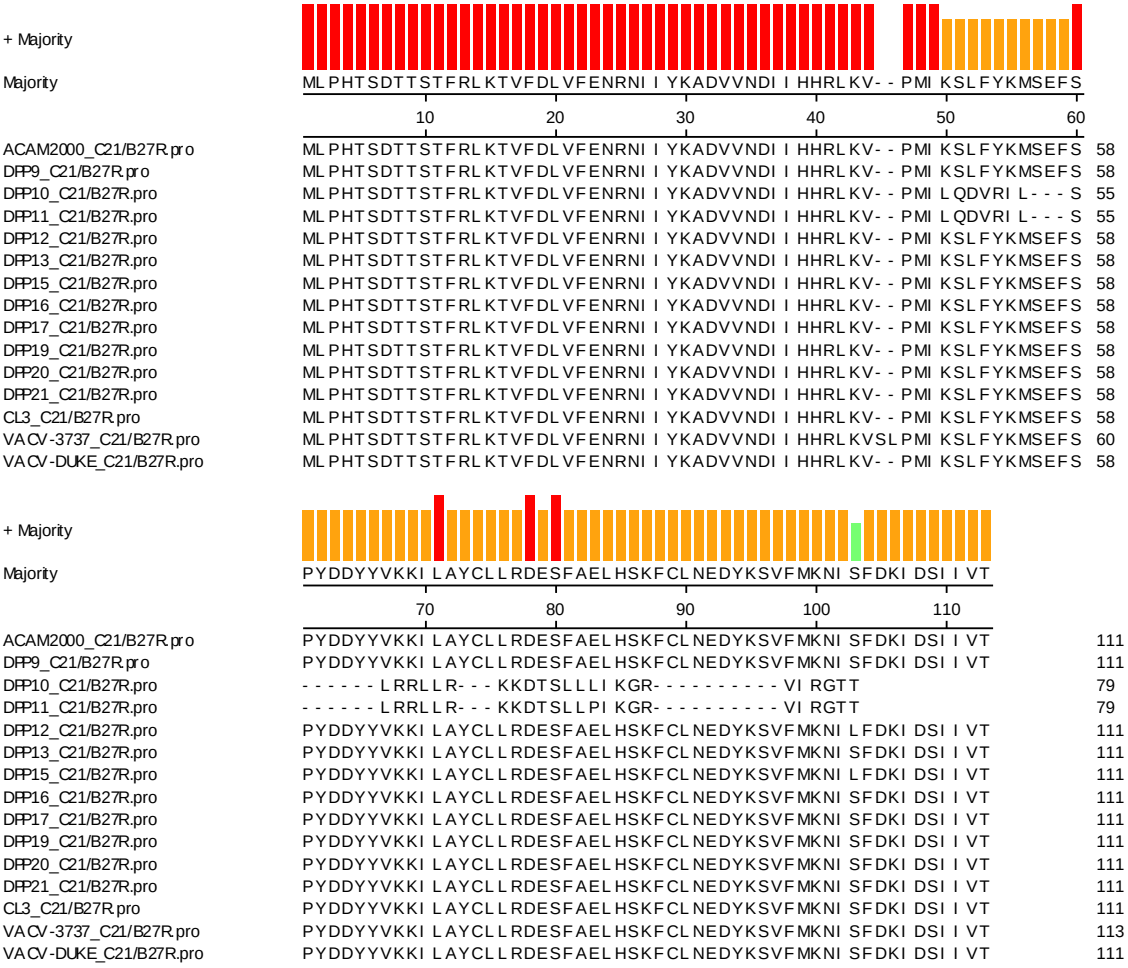
P. C21/B27R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+ Majority
Majority
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70 80 90 100 110
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VACV-3737_C21/B27R.pro PYD DYY VKK I L AYC L L RDE SFA ELH SKF CL NED YKS VFM KNI SFD KI DSI I VT 113
VACV-DUKE_C21/B27R.pro PYD DYY VKK I L AYC L L RDE SFA ELH SKF CL NED YKS VFM KNI SFD KI DSI I VT 111

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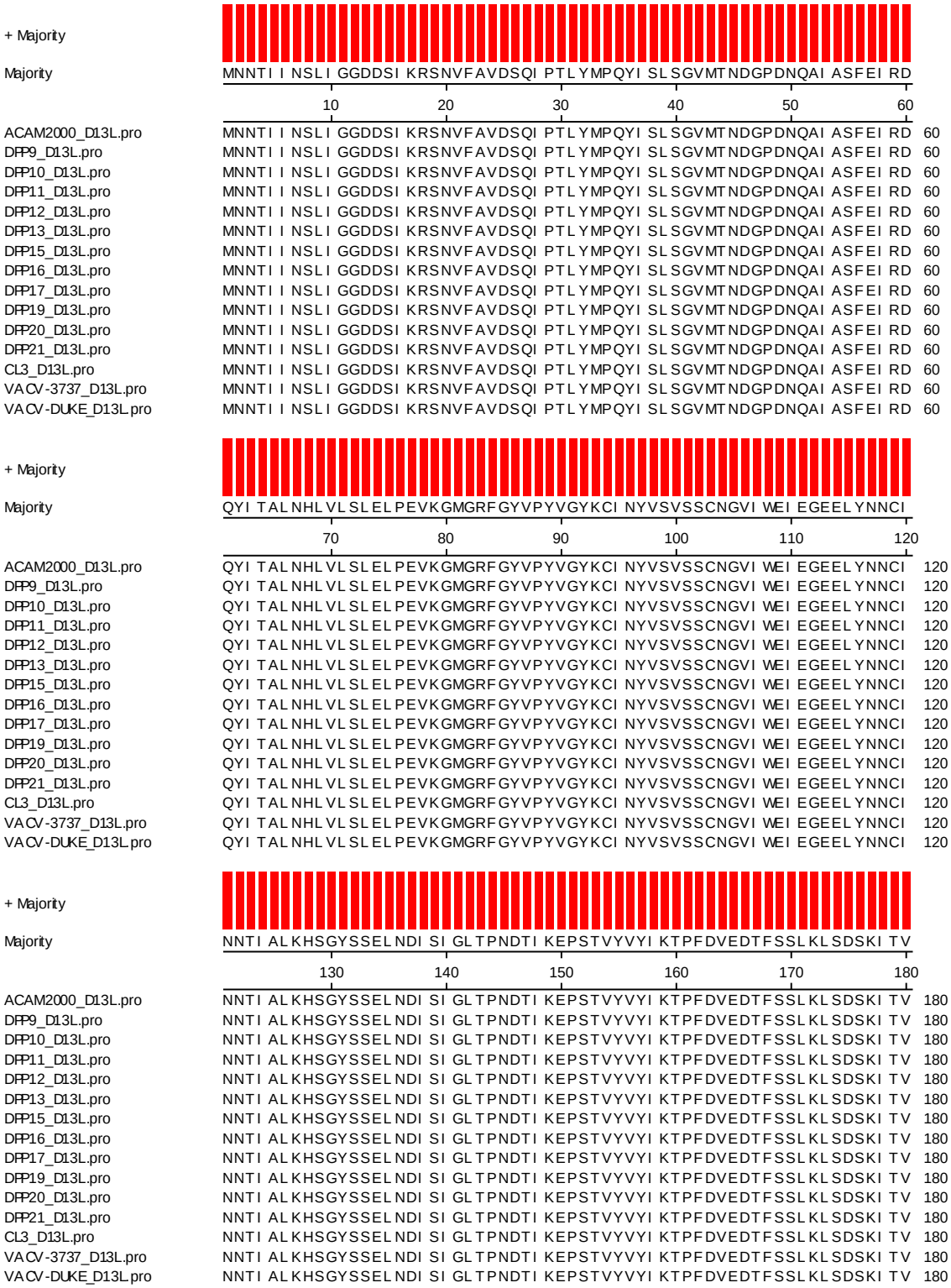
+ Majority
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VACV-3737_D13L.pro MNNTI I NSLI GGDDSI KRSNVFAVDSQI PTLYMPQYI SLSGVMTNDGPDNQAI ASFEI RD 60
VACV-DUKE_D13L.pro MNNTI I NSLI GGDDSI KRSNVFAVDSQI PTLYMPQYI SLSGVMTNDGPDNQAI ASFEI RD 60
+ Majority
Majority
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ACAM2000_D13L.pro QYI TALNHLVLSLELPEVKGMGRFGYVPYVGYKCI NYVSVSSCNGVI WEI EGEELYNNCI 120
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VACV-DUKE_D13L.pro QYI TALNHLVLSLELPEVKGMGRFGYVPYVGYKCI NYVSVSSCNGVI WEI EGEELYNNCI 120
+ Majority
Majority
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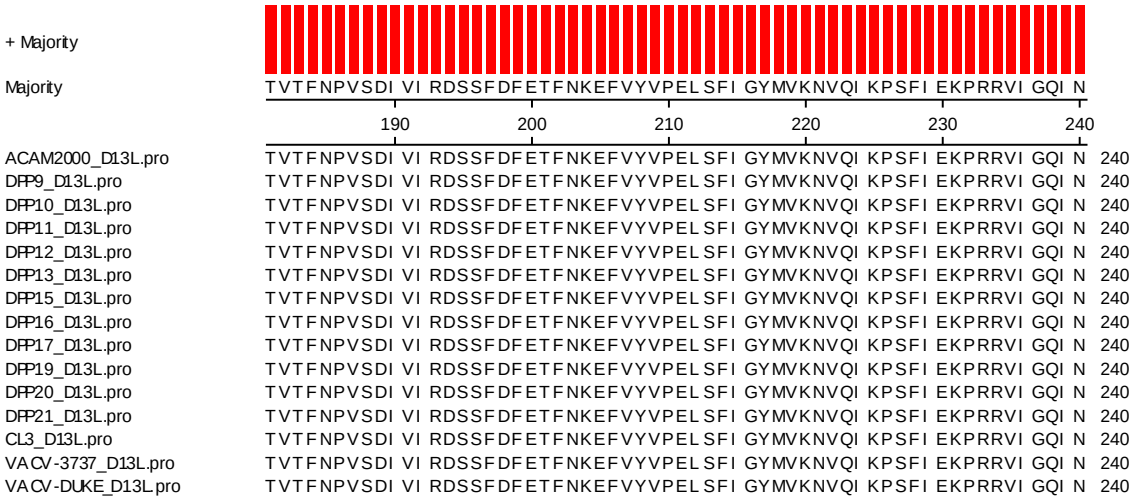
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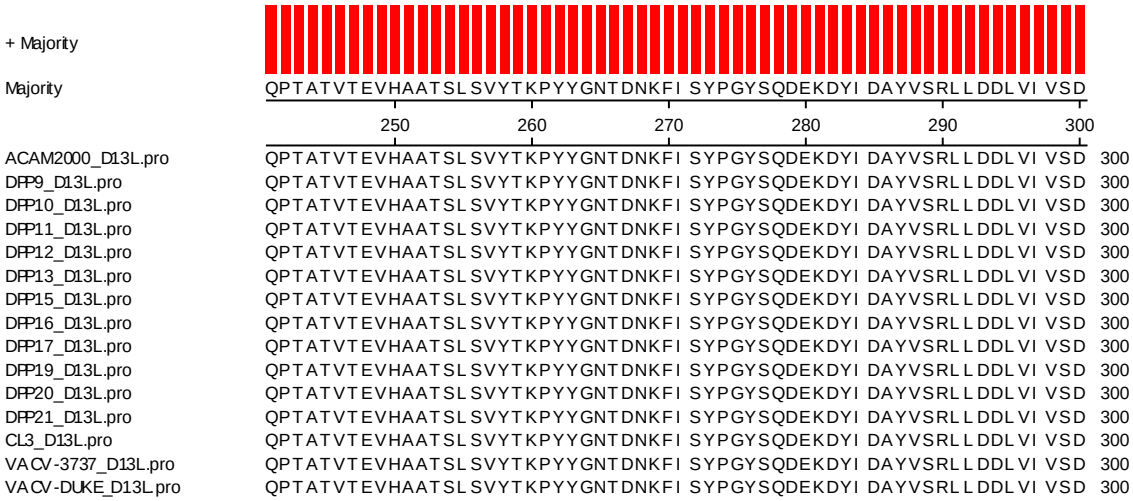
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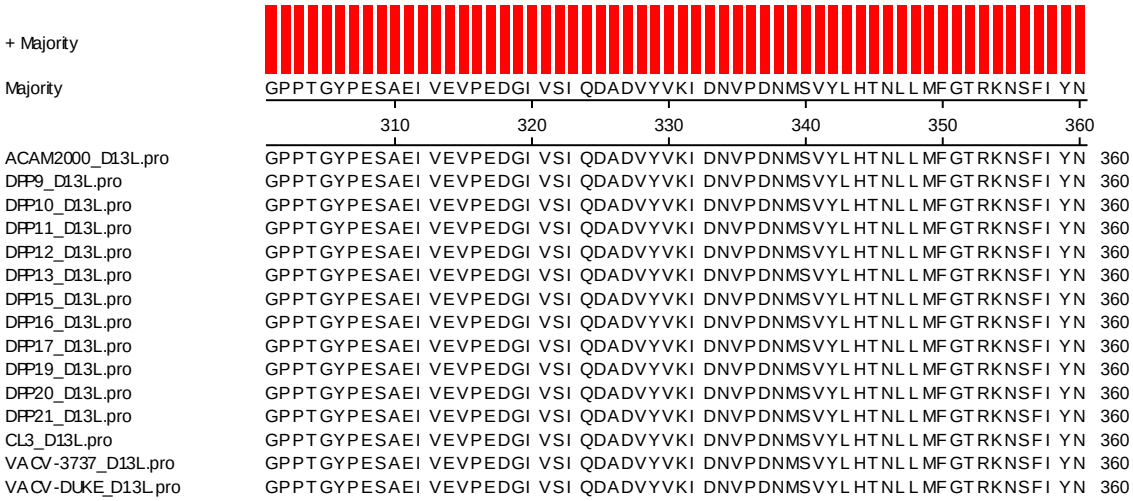
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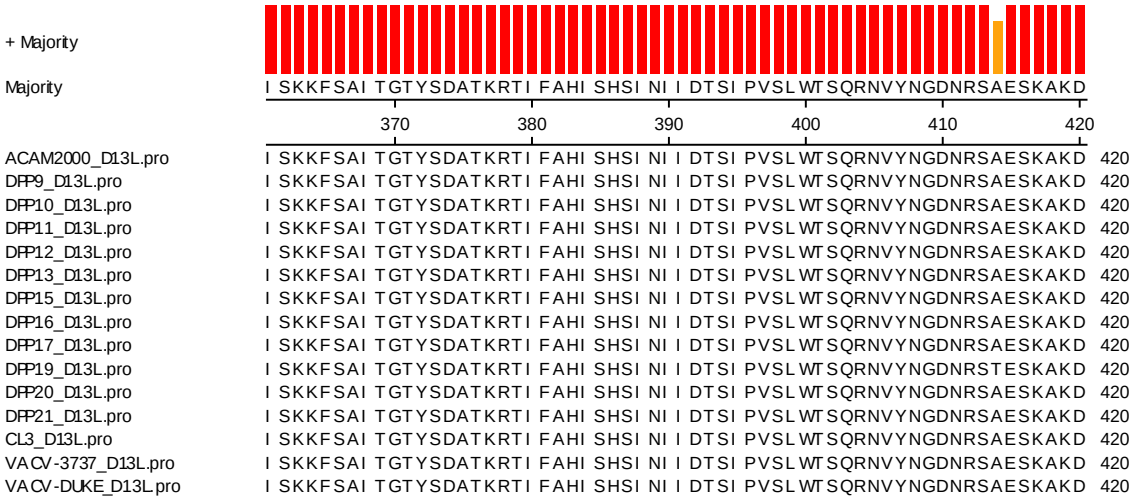
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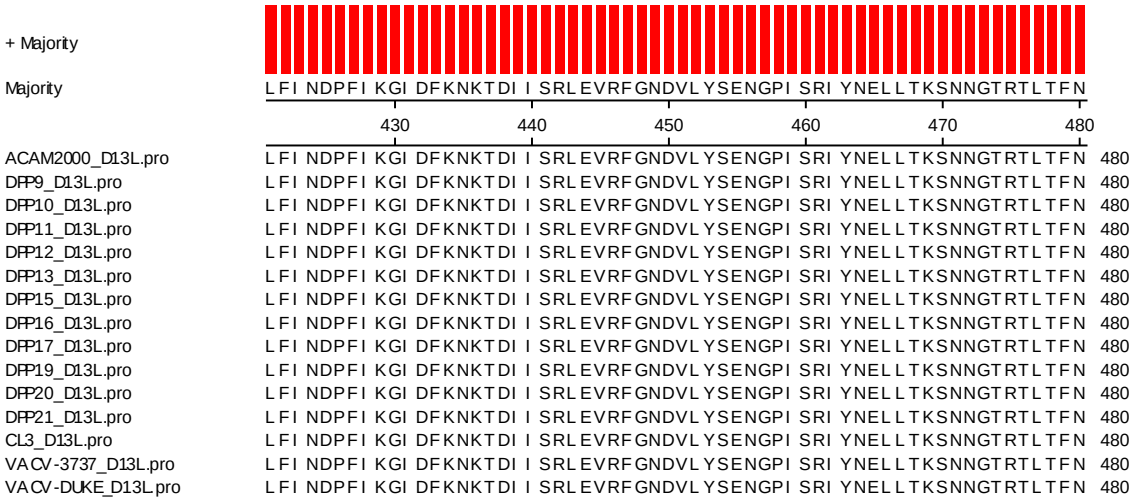
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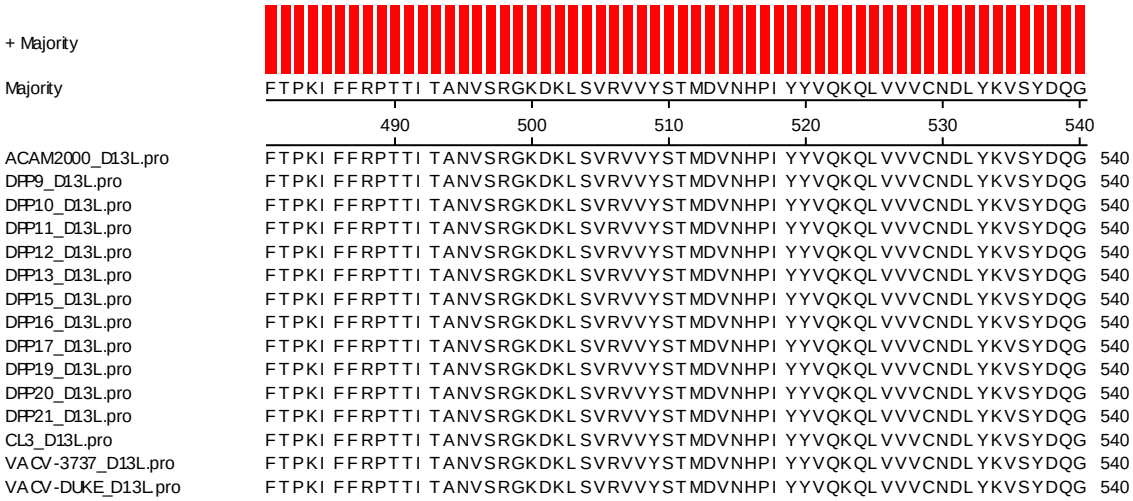
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+ Majority		
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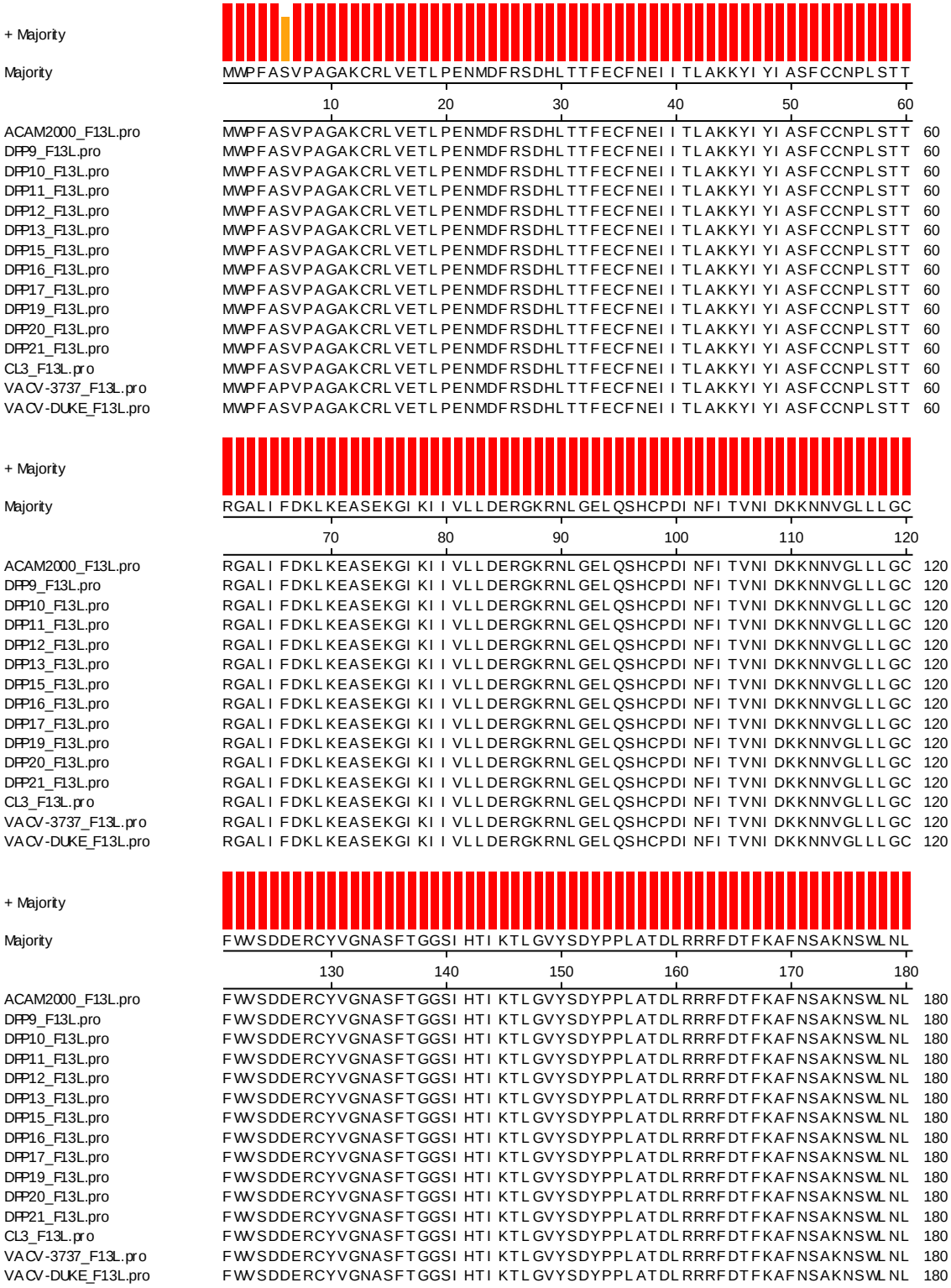
+ Majority
Majority
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Majority
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+ Majority
Majority
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CL3_F13L.pro FWVSDDERCYVGNASFTGGSIHTIKTLGVYSDYPPLATDLRRRFDTFKAFNSAKNSWLNL 180
VACV-3737_F13L.pro FWVSDDERCYVGNASFTGGSIHTIKTLGVYSDYPPLATDLRRRFDTFKAFNSAKNSWLNL 180
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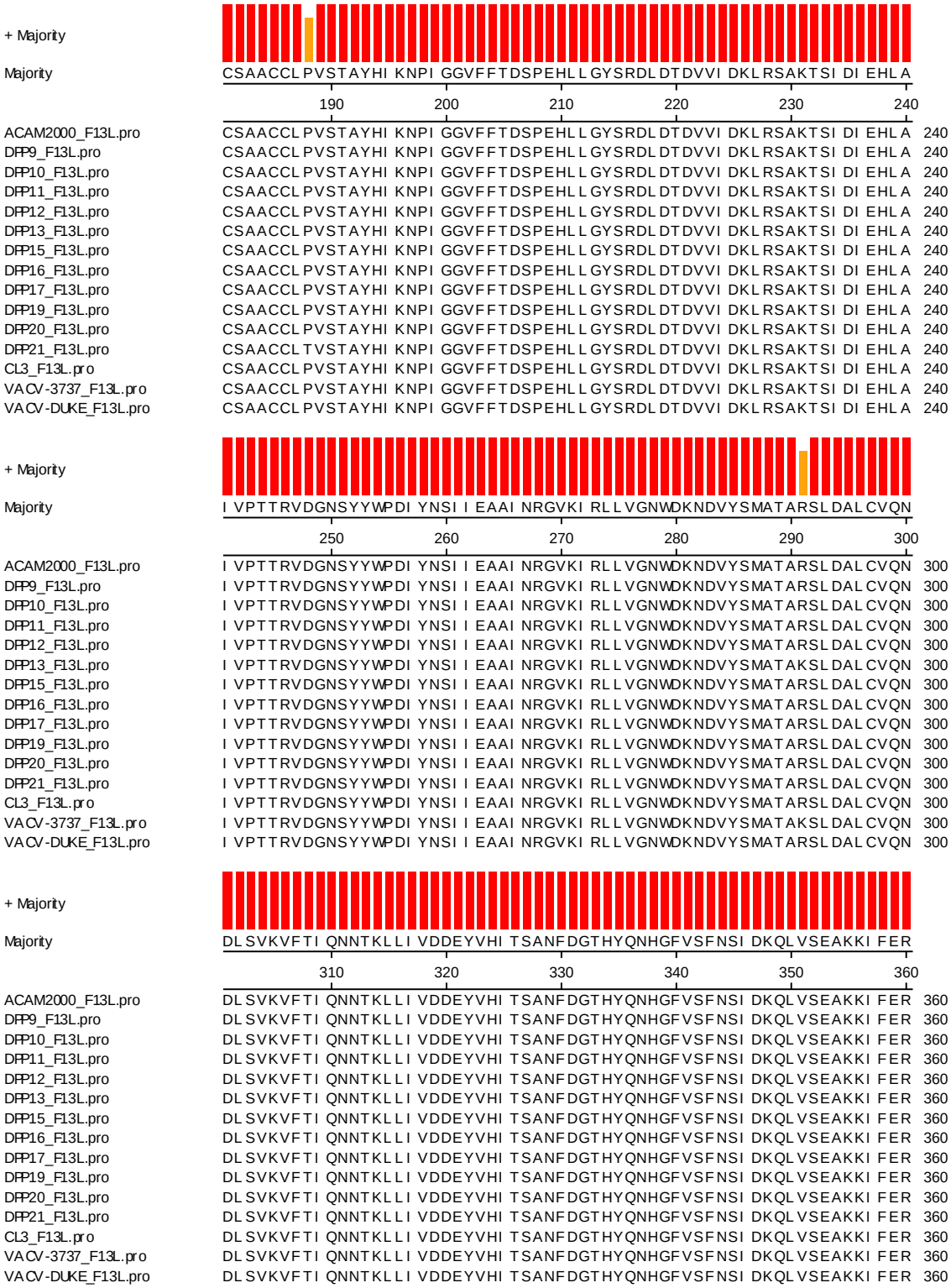
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Majority
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+ Majority
Majority
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+ Majority
Majority
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ACAM2000_F13L.pro DLSVKVFTIQNNTKLLIVDDEYVHITSANFDGTHYQNHGFVSFNSIDKQLVSEAKKIFER 360
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+ Majority		
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CL3_F13L.pro	DWVSSHSKSLKI	372
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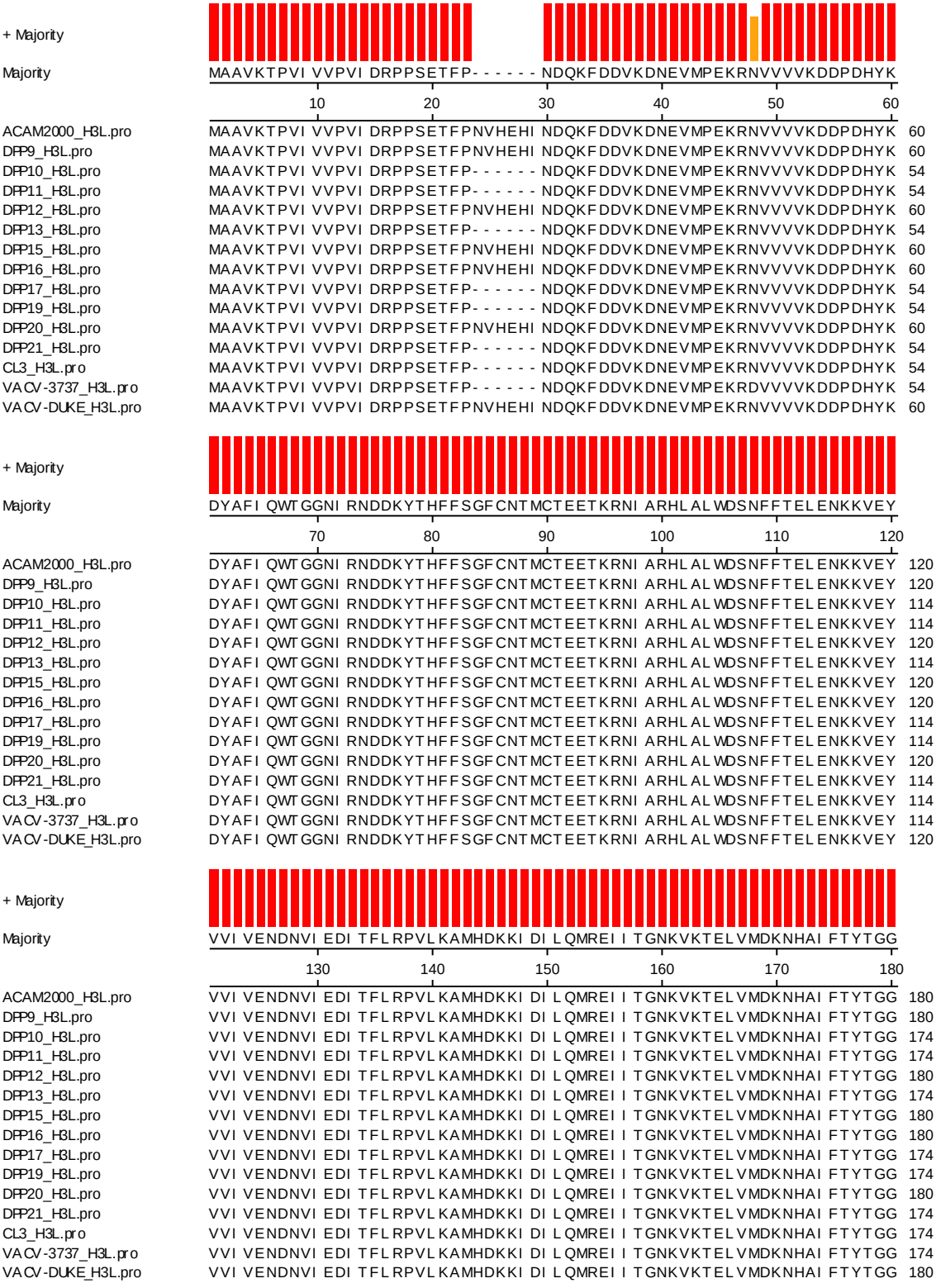
S. H3L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Majority
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VACV-3737_H3L.pro MAAVKTPVI VVPVI DRPPSETFP- - - - - - NDQKFDDVKDNEVMPEKRDVVVVKDDPDHYK 54
VACV-DUKE_H3L.pro MAAVKTPVI VVPVI DRPPSETFPNVHEHI NDQKFDDVKDNEVMPEKRNVVVVKDDPDHYK 60
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+ Majority
Majority
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DPP9_H3L.pro VVI VENDNVI EDI TFLRPVLKAMHDKKI DILQMREII TGNKVKTELVMDKNHAI FTYTGG 180
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CL3_H3L.pro VVI VENDNVI EDI TFLRPVLKAMHDKKI DILQMREII TGNKVKTELVMDKNHAI FTYTGG 174
VACV-3737_H3L.pro VVI VENDNVI EDI TFLRPVLKAMHDKKI DILQMREII TGNKVKTELVMDKNHAI FTYTGG 174
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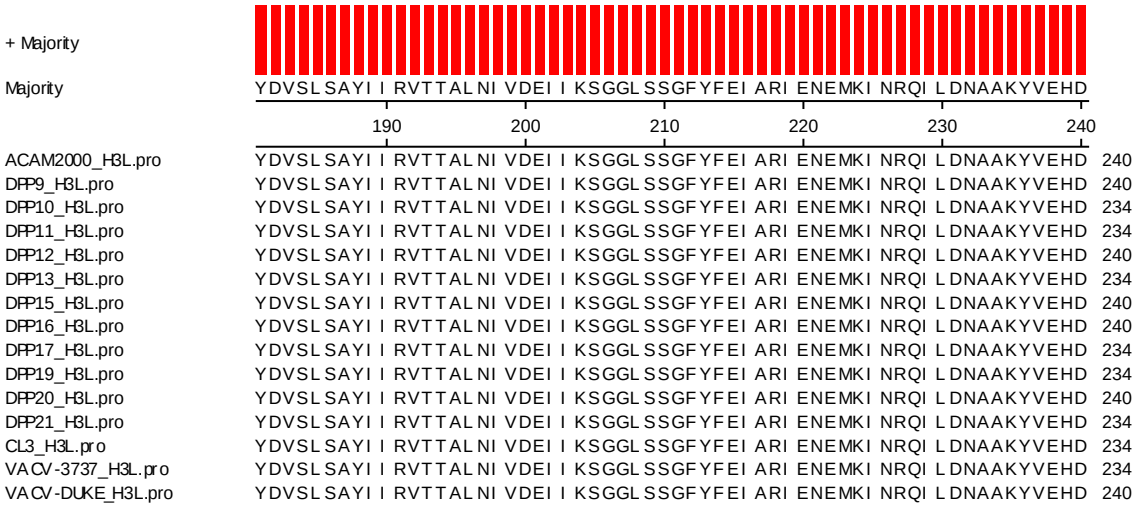
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Majority
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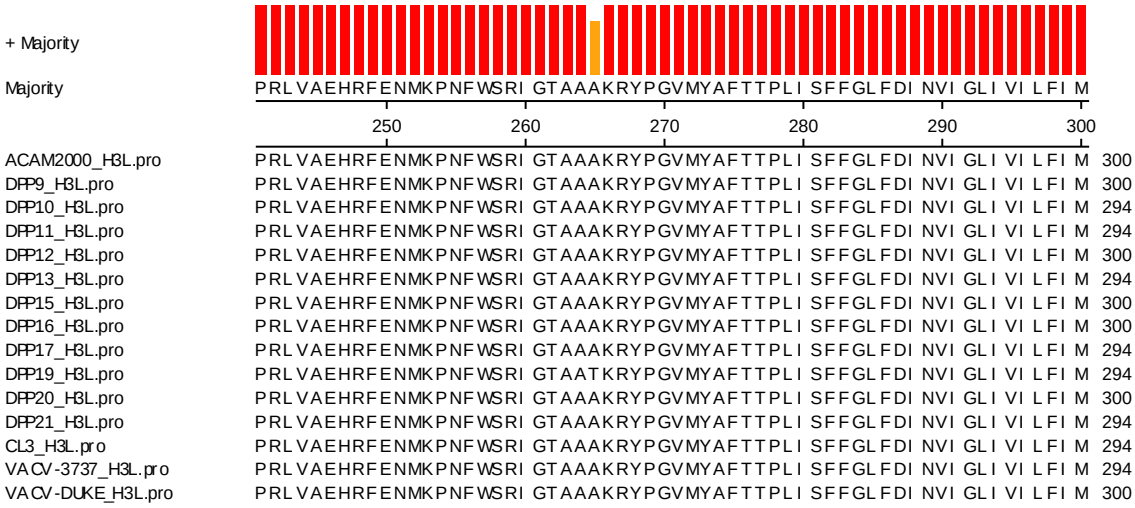
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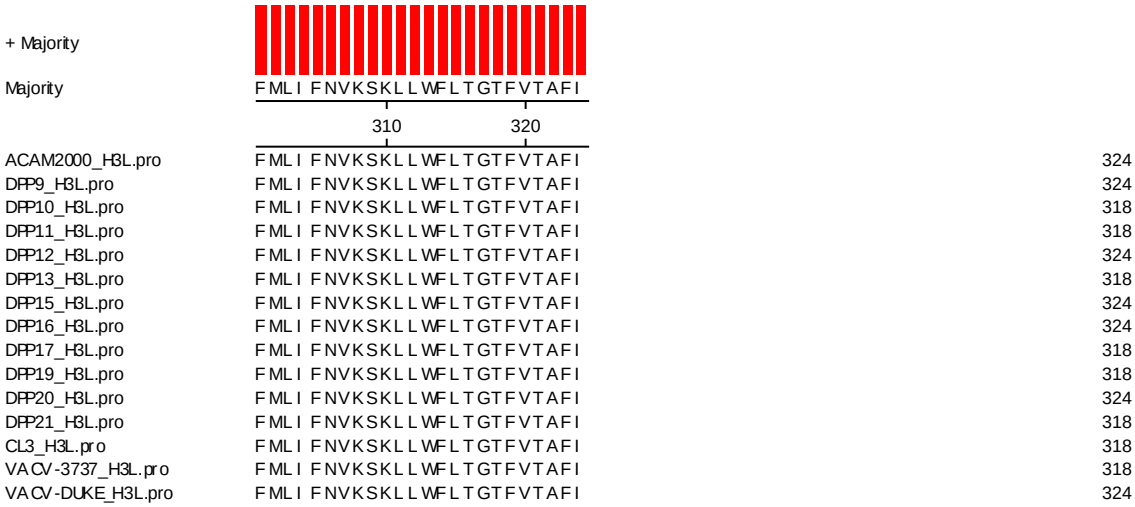
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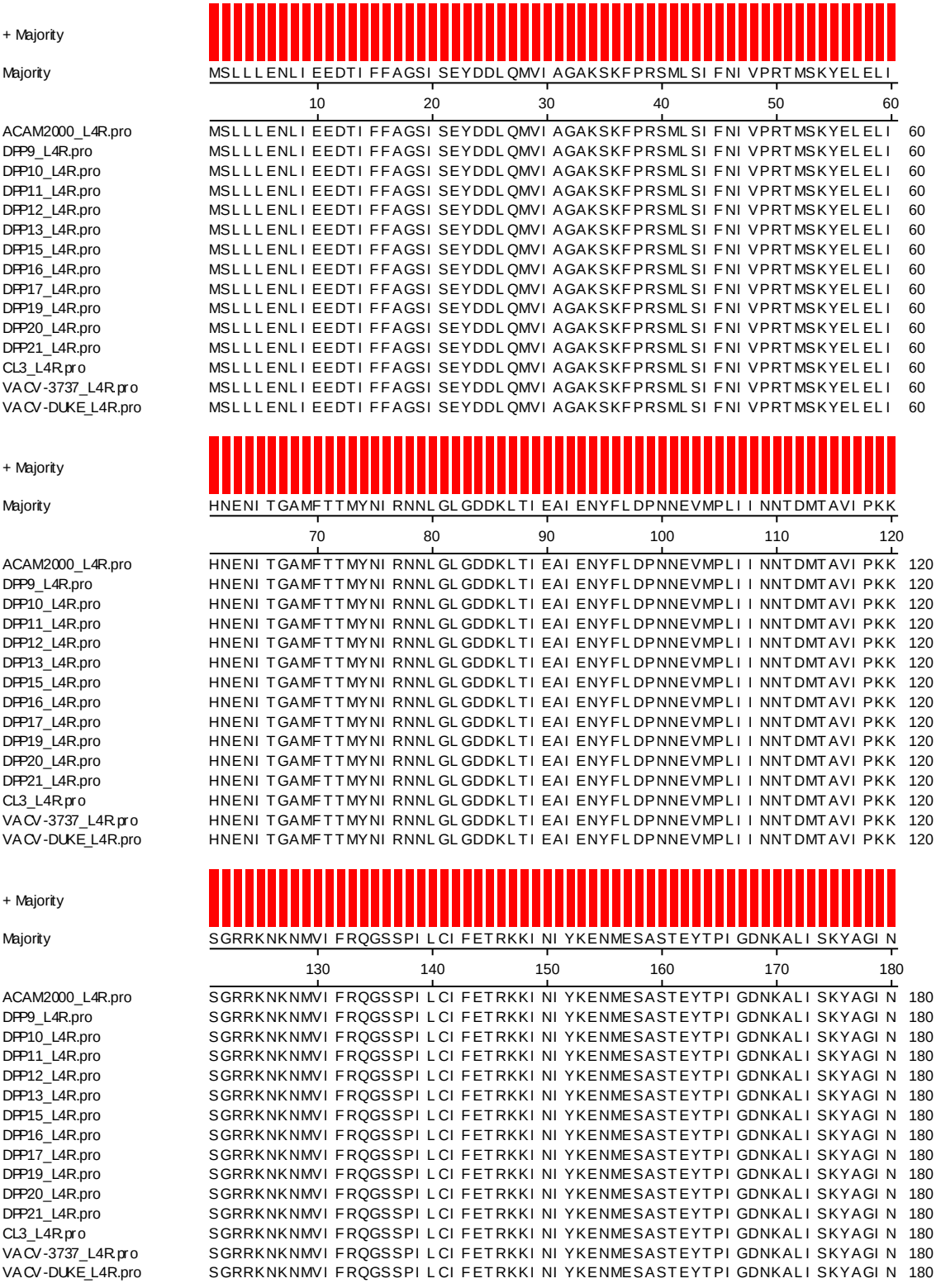
T. L4R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Majority
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DPP9_L4R.pro MSLLLENLIEEDTIFFAGSISEYDDLQMVIAGAKSKFPRSMLSIFNIVPRTMSKYELELI 60
DPP10_L4R.pro MSLLLENLIEEDTIFFAGSISEYDDLQMVIAGAKSKFPRSMLSIFNIVPRTMSKYELELI 60
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CL3_L4R.pro MSLLLENLIEEDTIFFAGSISEYDDLQMVIAGAKSKFPRSMLSIFNIVPRTMSKYELELI 60
VACV-3737_L4R.pro MSLLLENLIEEDTIFFAGSISEYDDLQMVIAGAKSKFPRSMLSIFNIVPRTMSKYELELI 60
VACV-DUKE_L4R.pro MSLLLENLIEEDTIFFAGSISEYDDLQMVIAGAKSKFPRSMLSIFNIVPRTMSKYELELI 60
+ Majority
Majority
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70 80 90 100 110 120
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DPP9_L4R.pro HNENITGAMFTTMYNIRNNLGLGDDKLTIEAIENYFLDPNNEVMPLIINNTDMTAVIPKK 120
DPP10_L4R.pro HNENITGAMFTTMYNIRNNLGLGDDKLTIEAIENYFLDPNNEVMPLIINNTDMTAVIPKK 120
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VACV-3737_L4R.pro HNENITGAMFTTMYNIRNNLGLGDDKLTIEAIENYFLDPNNEVMPLIINNTDMTAVIPKK 120
VACV-DUKE_L4R.pro HNENITGAMFTTMYNIRNNLGLGDDKLTIEAIENYFLDPNNEVMPLIINNTDMTAVIPKK 120
+ Majority
Majority
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130 140 150 160 170 180
ACAM2000_L4R.pro SGRRKNKNMVIFRQGSSPILCIFETRKKINIYKENMESASTEYTPIGDNKALISKYAGIN 180
DPP9_L4R.pro SGRRKNKNMVIFRQGSSPILCIFETRKKINIYKENMESASTEYTPIGDNKALISKYAGIN 180
DPP10_L4R.pro SGRRKNKNMVIFRQGSSPILCIFETRKKINIYKENMESASTEYTPIGDNKALISKYAGIN 180
DPP11_L4R.pro SGRRKNKNMVIFRQGSSPILCIFETRKKINIYKENMESASTEYTPIGDNKALISKYAGIN 180
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DPP20_L4R.pro SGRRKNKNMVIFRQGSSPILCIFETRKKINIYKENMESASTEYTPIGDNKALISKYAGIN 180
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VACV-3737_L4R.pro SGRRKNKNMVIFRQGSSPILCIFETRKKINIYKENMESASTEYTPIGDNKALISKYAGIN 180
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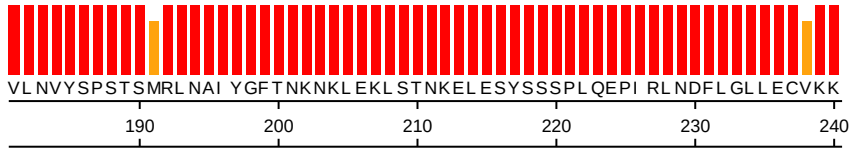

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DPP9_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
DPP10_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
DPP11_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECI KK	240
DPP12_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
DPP13_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
DPP15_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
DPP16_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECI KK	240
DPP17_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
DPP19_L4R.pro	VLNVYSPSTSI RLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
DPP20_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
DPP21_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
CL3_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECI KK	240
VACV-3737_L4R.pro	VLNVYSPSTSMRLNAI YGFTNKNKLEKLSTNKELESYSSSPLQEPI RLNDFLGLLECVKK	240
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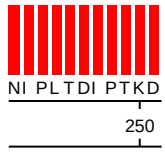

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DPP9_L4R.pro	NI PLTDI PTKD	251
DPP10_L4R.pro	NI PLTDI PTKD	251
DPP11_L4R.pro	NI PLTDI PTKD	251
DPP12_L4R.pro	NI PLTDI PTKD	251
DPP13_L4R.pro	NI PLTDI PTKD	251
DPP15_L4R.pro	NI PLTDI PTKD	251
DPP16_L4R.pro	NI PLTDI PTKD	251
DPP17_L4R.pro	NI PLTDI PTKD	251
DPP19_L4R.pro	NI PLTDI PTKD	251
DPP20_L4R.pro	NI PLTDI PTKD	251
DPP21_L4R.pro	NI PLTDI PTKD	251
CL3_L4R.pro	NI PLTDI PTKD	251
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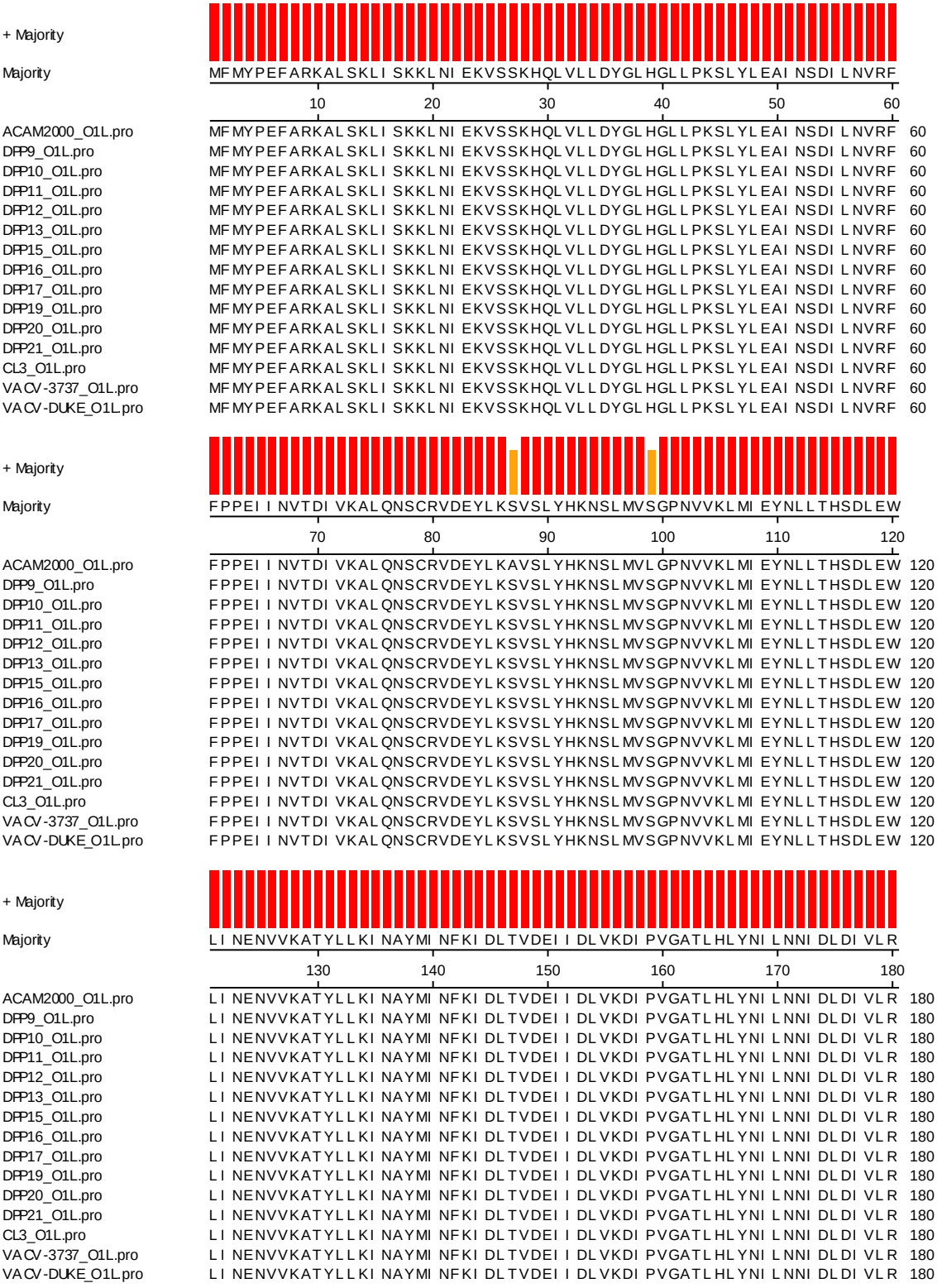
U. O1L


+ Majority
Majority
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DPP10_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
DPP11_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
DPP12_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
DPP13_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
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DPP16_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
DPP17_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
DPP19_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
DPP20_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
DPP21_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
CL3_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
VACV-3737_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
VACV-DUKE_O1L.pro MFMYPEFARKALSKLI SKKLNI EKVSSKHQLVLLDYGLHGLLPKSLYLEAI NSDI LNVRF 60
+ Majority
Majority
FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW
70 80 90 100 110 120
ACAM2000_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKAVSLYHKNSLMVLGPNVVKLMI EYNLLTHSDLEW 120
DPP9_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
DPP10_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
DPP11_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
DPP12_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
DPP13_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
DPP15_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
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DPP19_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
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DPP21_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
CL3_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
VACV-3737_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
VACV-DUKE_O1L.pro FPPEI I NVTDI VKALQNSCRVDEYLKSVSLYHKNSLMVSGPNVVKLMI EYNLLTHSDLEW 120
+ Majority
Majority
LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR
130 140 150 160 170 180
ACAM2000_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
DPP9_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
DPP10_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
DPP11_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
DPP12_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
DPP13_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
DPP15_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
DPP16_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
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DPP19_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
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DPP21_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
CL3_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
VACV-3737_O1L.pro LI NENVVKATYLLKI NAYMI NFKI DLTVDEI I DLVKDI PVGATLHLYNI LNNI DLDI VLR 180
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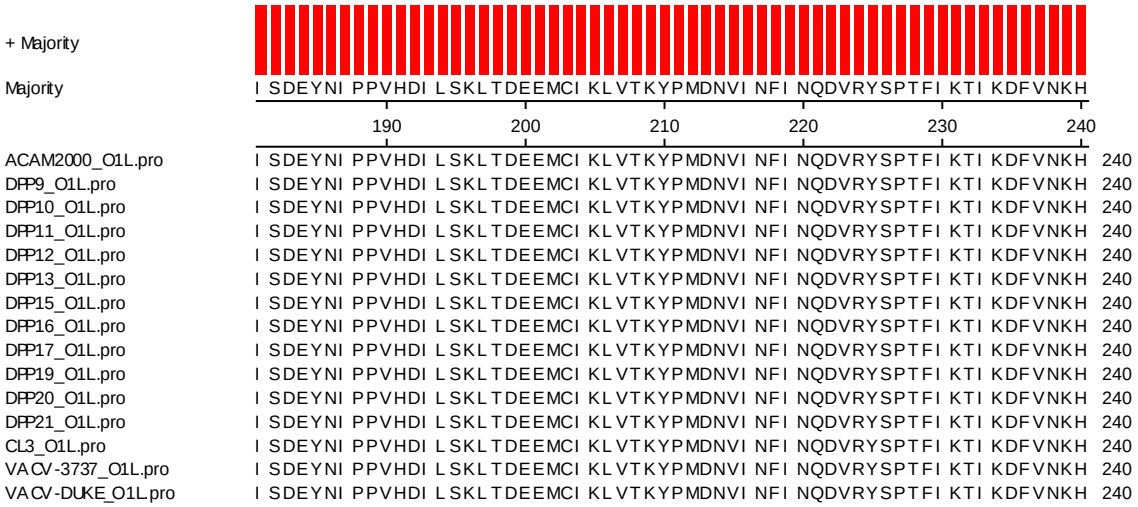
+ Majority
Majority
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190
200
210
220
230
240
ACAM2000_O1L.pro I SDEYNI PPVHDI LSKLTDEEMCI KLVTKYPMDNVI NFI NQDVRYSPTFI KTI KDFVNKH 240
DPP9_O1L.pro I SDEYNI PPVHDI LSKLTDEEMCI KLVTKYPMDNVI NFI NQDVRYSPTFI KTI KDFVNKH 240
DPP10_O1L.pro I SDEYNI PPVHDI LSKLTDEEMCI KLVTKYPMDNVI NFI NQDVRYSPTFI KTI KDFVNKH 240
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DPP17_O1L.pro I SDEYNI PPVHDI LSKLTDEEMCI KLVTKYPMDNVI NFI NQDVRYSPTFI KTI KDFVNKH 240
DPP19_O1L.pro I SDEYNI PPVHDI LSKLTDEEMCI KLVTKYPMDNVI NFI NQDVRYSPTFI KTI KDFVNKH 240
DPP20_O1L.pro I SDEYNI PPVHDI LSKLTDEEMCI KLVTKYPMDNVI NFI NQDVRYSPTFI KTI KDFVNKH 240
DPP21_O1L.pro I SDEYNI PPVHDI LSKLTDEEMCI KLVTKYPMDNVI NFI NQDVRYSPTFI KTI KDFVNKH 240
CL3_O1L.pro I SDEYNI PPVHDI LSKLTDEEMCI KLVTKYPMDNVI NFI NQDVRYSPTFI KTI KDFVNKH 240
VACV-3737_O1L.pro I SDEYNI PPVHDI LSKLTDEEMCI KLVTKYPMDNVI NFI NQDVRYSPTFI KTI KDFVNKH 240
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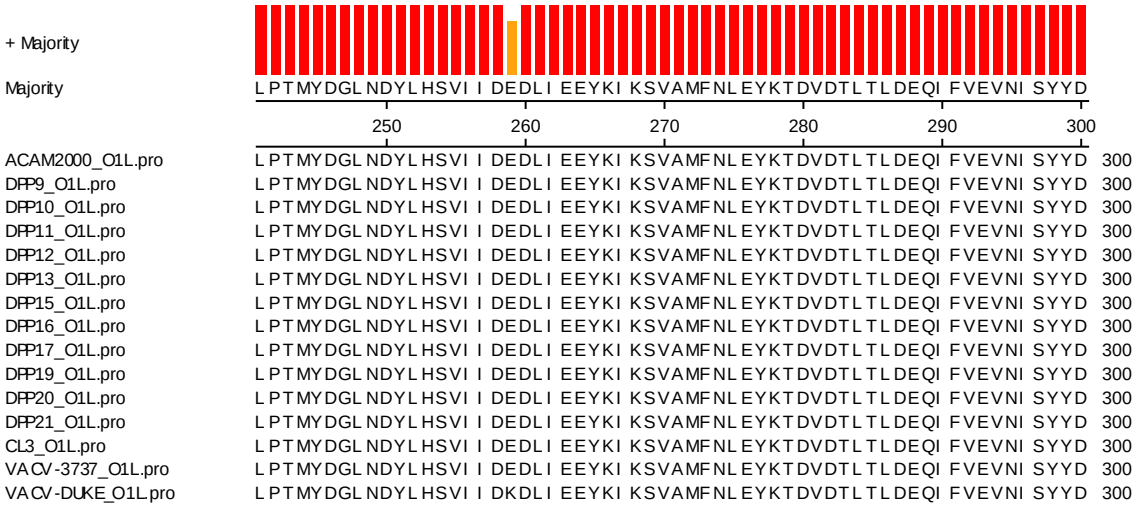
+ Majority
Majority
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250
260
270
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290
300
ACAM2000_O1L.pro L PTMYDGL NDYL HSVI I DEDL I EEYKI KSVAMFNL EYKTDVDTL TL DEQI FVEVNI SYYD 300
DPP9_O1L.pro L PTMYDGL NDYL HSVI I DEDL I EEYKI KSVAMFNL EYKTDVDTL TL DEQI FVEVNI SYYD 300
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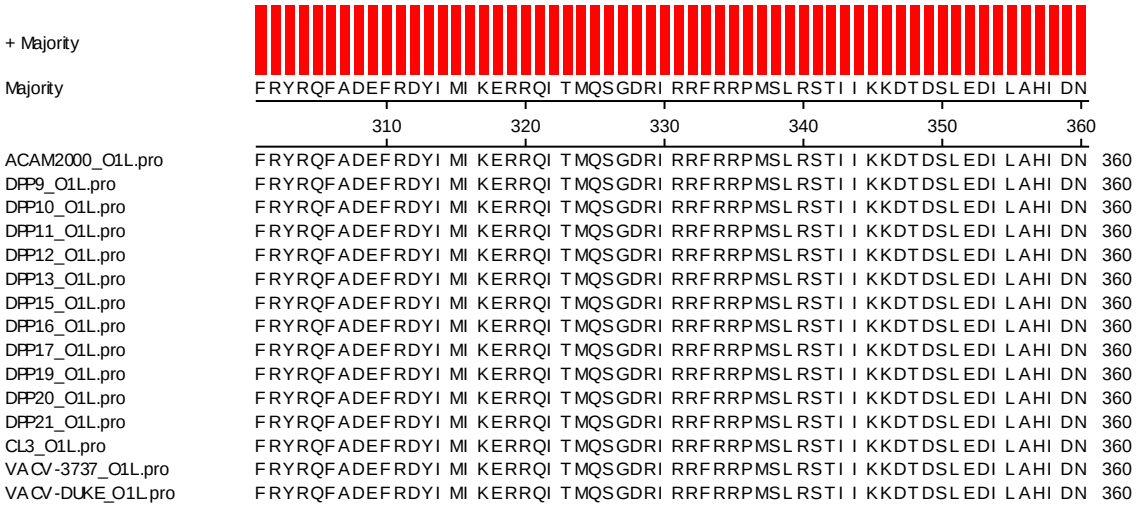
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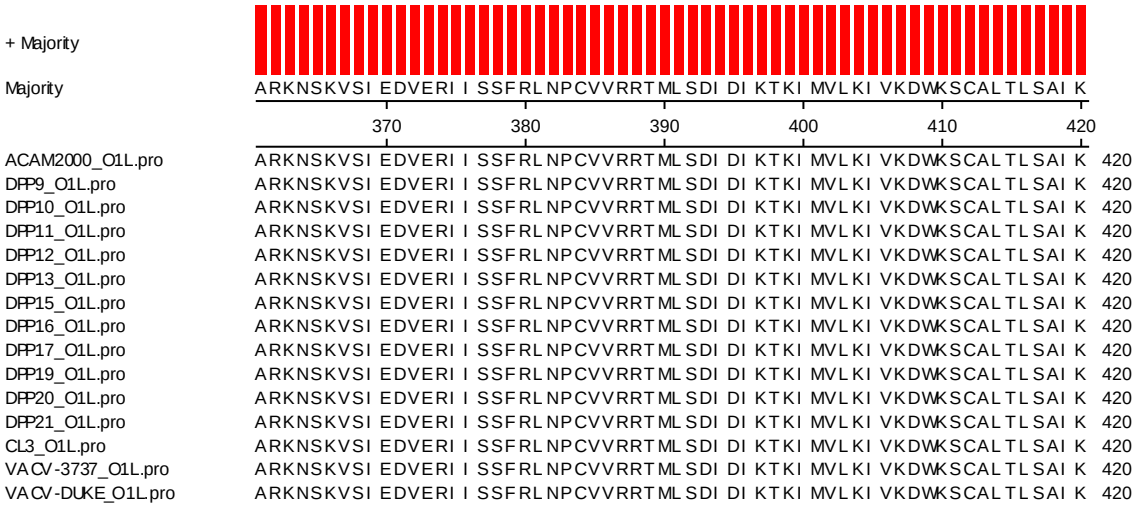
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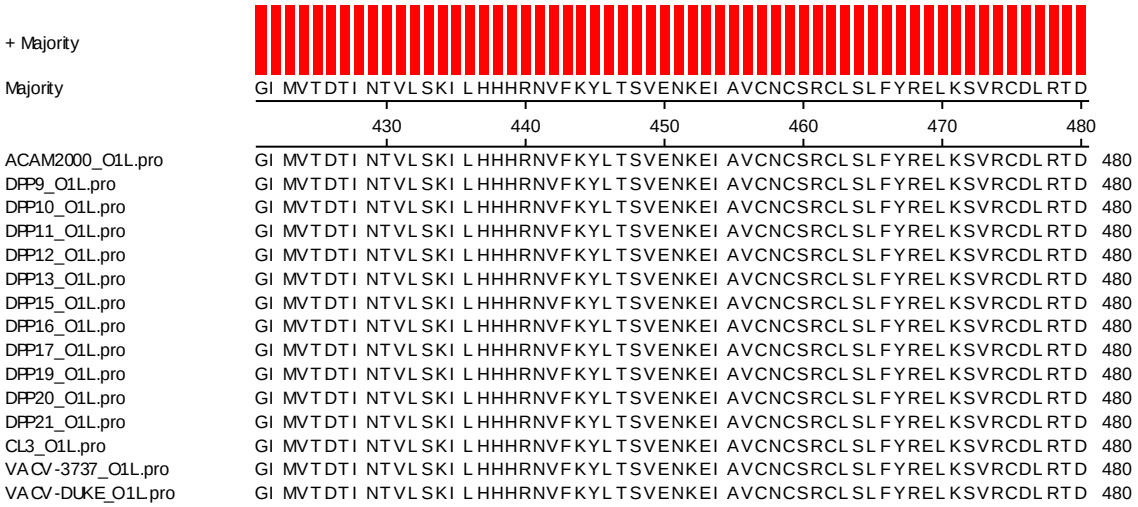
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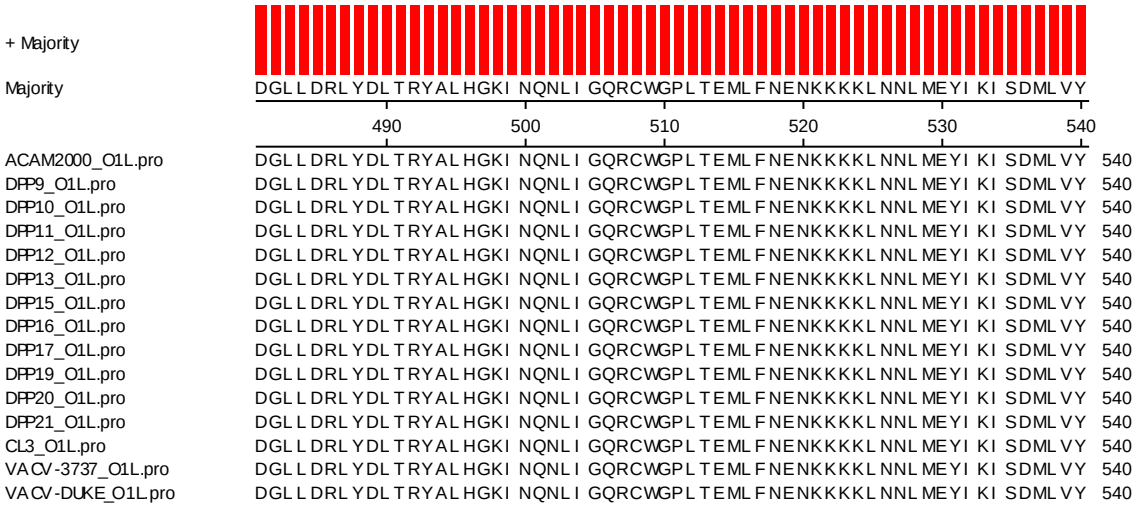
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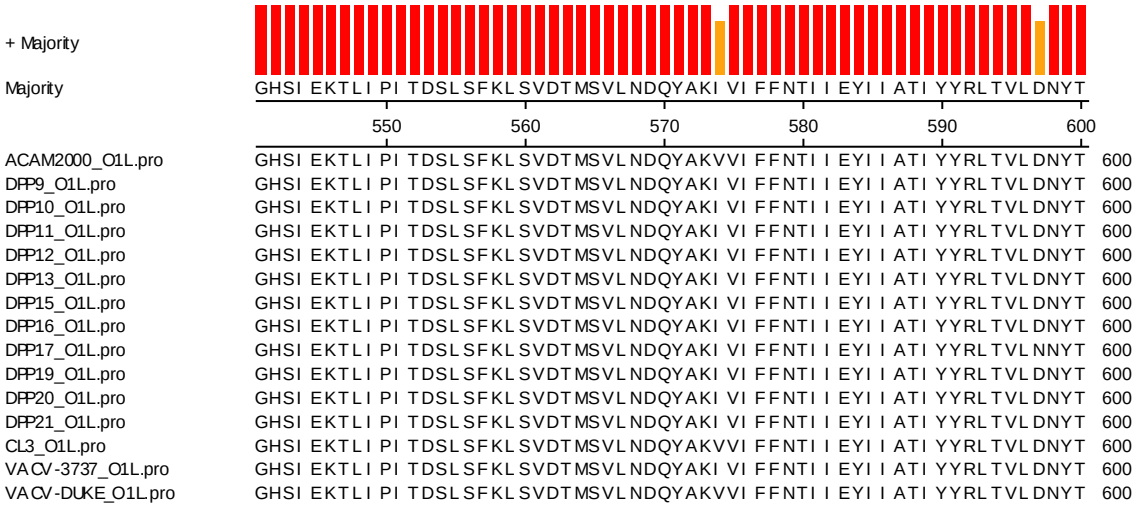
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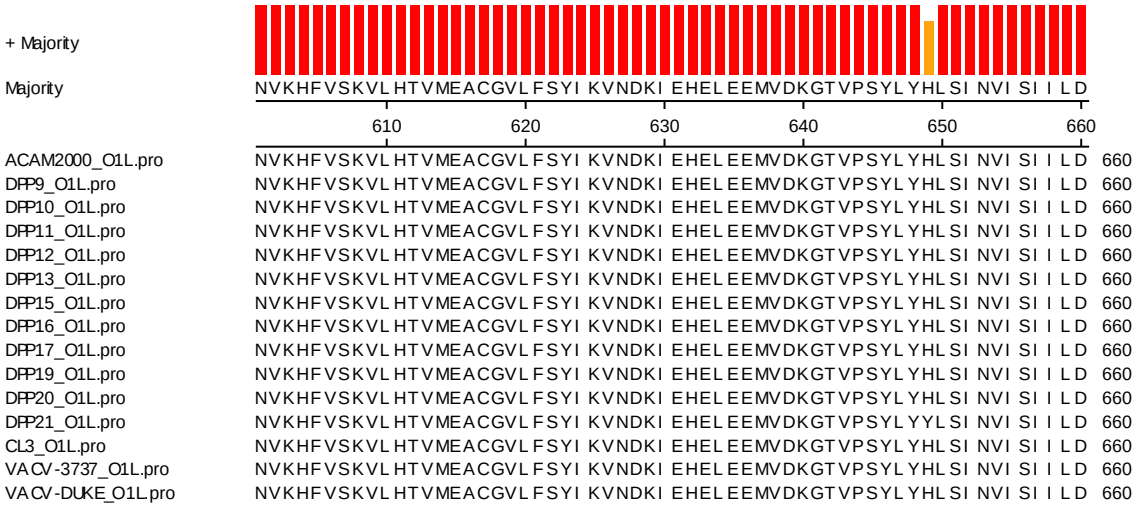
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Supplemental Figure 1. Multiple sequence alignment of vaccinia viral proteins recognized by antibody from Dryvax and ACAM2000 vaccinations. Protein sequences for 21 vaccinia viral antigens were obtained from fifteen Dryvax clones, including ACAM2000 (Viral Bioinformatics Resource Center (1, 2)). Multiple sequence alignments were individually performed for each protein within MegAlign (DNASTAR Lasergene software suite v.8) using the ClustalW alignment program. The name on the left of the alignment signifies the VACV strain and protein analyzed. The alignment reports for each of the 21 vaccinia viral proteins show the consensus strength between each column of aligned residues as well as a majority consensus protein sequence. High conservation is indicated by the height and color with red being 100% agreement. (A) A10L (B) A13L (C) A26L (D) A38L (E) B19R (F) C3L (G) D8L (H) G5R (I) I1L (J) I3L (K) J6R (L) A11R (M) A27L (N) A33R (O) B5R (P) C21-B27R (Q) D13L (R) F13L (S) H3L (T) L4R (U) O1L.

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1. **Ehlers A, Osborne J, Slack S, Roper RL, Upton C.** 2002. Poxvirus Orthologous Clusters (POCs). Bioinformatics **18:**1544-1545.
2. **Upton C, Slack S, Hunter AL, Ehlers A, Roper RL.** 2003. Poxvirus orthologous clusters: toward defining the minimum essential poxvirus genome. Journal of virology **77:**7590-7600.