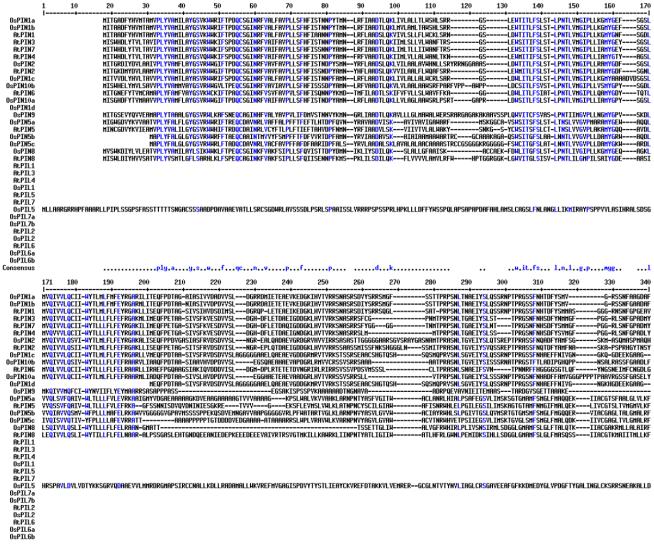
Supplementary Information

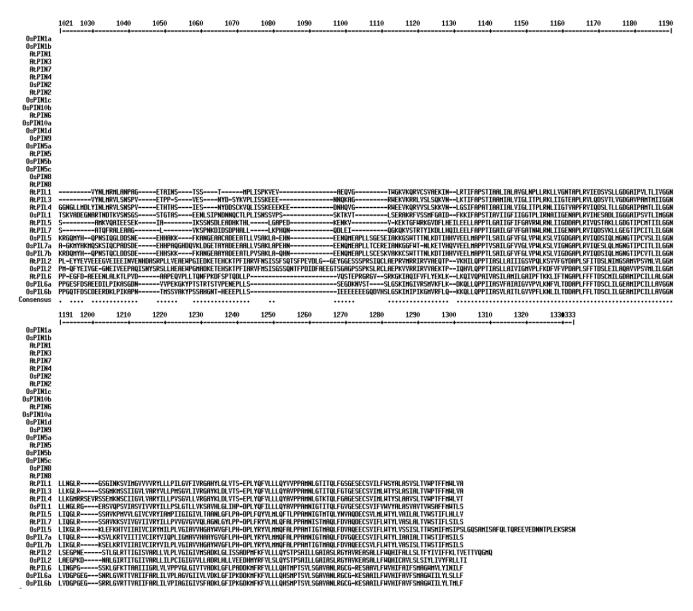
Supplementary Data File 1

Multiple sequence alignment of OsPIN, AtPIN and OsPILS protein. Sequence alignment shows, alignment of OsPILS starts towards the end of the OsPIN and AtPIN sequence. This shows that, OsPILS and PIN proteins are highly dissimilar in their sequence.



| | 341 | 350 | 360 | 370 | 380 | 390 | 400 | 410 | 420 | 430 | 440 | 450 | 460 | 470 | 480 | 490 | 500 | 510 | |
|--|----------------|-----------|---------------------|------------------------------|----------------------------|--------------------|--|--|------------------------------|-------------------------|----------------------------|----------------------|---------------------------|------------------------|---|------------|----------------------|-------------|--|
| OsPIN1a | GYRT- | + | | PSNYEEDAAAP | | | | | | | | | | | GA-EYNDAAAV | | | | |
| OsPIN1b Atpin1 | GYRT- FGSK- | | | | | | | | | | | | | | gapdyndaaayi gggnhhadysti | | | | |
| ALPIN3 | SYQSS | | RGPTPR | PSNFEENCAMA | SSPRFGYYPG | -66 | AGSYP | APNPEFSSTT | TSTANKSYNK | IPKDYNTNQ | QTTLPTGGKSN | SHDAKELHMF | YHSSNGSPYSI | DRAGLNYFG | GAPDNDQGGRSI | DQG-AKEIRI | LYPDQSHNGE | K | |
| ALPIN7 ALPIN4 | SYQSS | | | PSNFEESCAMA | | | | | | | | | | | GANEQYGKS | | | | |
| OsPIN2 | GGAGG | | R | AOGLDEOYTN- | KF | ASGKAADP | PSYP | RGSYPAPNPEFSTGTGVSTKPMKIPKENQQQLQEKDSKRSHDAKELHMFVNSSSASPVSDVFGGGAGDNVATEQSEQG-AKEIRMVVSDQPRKSNAR PSYPAPNPGHMPAPRKKELGGSNSNSNKELHMFVNSSSASPVSEANLRNAVNHARSTDFRSAPPPRAVPVGGATPKGVSGSVTPA | | | | | | | | | | | |
| AtPIN2 Ospinic | GGAGA | GPGGDVYSL | QSSKGVTPR | TSNFDEEVHKT | AKKAGRGGRS | MSGELYNNNS- | YPSYPPNPHFTGSTSGRSGVKKKESGGGSGGGVGGGNKEHNHFVVSSRSPVSEANAKHNTTGSSTDVSTDPKVSIPPHDNLATKAHQNLIENM GGGHSPQPV | | | | | | | | | | | | |
| OsPIN10b | SLHSS | | | PSSFDEHAAAR | AR | | ASATV | 'APT | | | | NDI КОТНИТ | FUSSGASAASI | EVIGI PVER | SGRETRRI VPS | napstassr: | TRPPPGATGG | -R | |
| ALPING | GFGFT | | RPGLGAS | PRRLSGYASSD | | | AYSL | QPTP | | | | RASNFNEL | DYNGNGTPYN | KSP | AAGRIYRQSSP | KHHHESGORI | AAKDINGSYP | K | |
| OsPIN10a OsPIN1d | SLU55 | | KGPTPK | USNF DEHSHKP | | | PKPP GGGH | CDODVV | | | | -CADAUL RHE | UNCCCOCDUC | 00000000 | GAYHYFGGGGGA | DHEDAKGAQA | INTERNET | -HEETG | |
| | | | | | | | | | | | | | | | | | | | |
| OsPIN5a AtPIN5 | IAGPA | | AMAIGSI | YLGLHGDYLRY | H1 AT | | IQH TQA | | | | | -ALPOSITSF | IFAKEYGLHA | DYLSTAVIF | GHLVSLPLLVG GHLVSLPVLVA GTLISLPILIA GTLASLPVLIV GHNVAVPVALA | YYAALEFIH | | | |
| OsPIN5b | VAGPL | | ATLYGAA | ALGLRGDVLHL | AI | | IQA | | | | | -ALPOSIASE | YFAKEYGLHA | DVLSTAVIF | GTLISLPILIA | YYAYLGFY | | | |
| OsPIN5c OsPIN8 | FI 6PA | | HTHYGHF I NGMSSY | HLGLRGULLRL Atghrgvi i kt | H1 AT | | | HEHETHSPSS | FFLLSPEICL | ISNGCHHUT | SPHUETHRUEU | -ALPUSTITE | YFAKEYGLAA YFAKEYNYQAI | ETESTHATE TESTATTA | elfholgan a | YYFANTTPAI | к | | |
| AF51N8 | VLGPR | | LHIASAY | CIRLKSTLFKY | AI | | LQA | | | | | -ALPQGYVPF | VFAKEYNLHP | IISTGVIF | GHLIALPTTLA | YYFLLDL | | | |
| ALPIL1 ALPIL3 | | | | | | | | | | | | | | | | | | | |
| ALPIL4 | | | | | | | | | | | | | | | | | | | |
| OsPIL1 AtPIL5 | | | | | | | | | | | | | | | | | | | |
| ALPIL7 | | | | | | | | | | | | | | | | | | | |
| OsPIL5 OsPIL7a | emsca | ELKPNVVVY | ANLIDGFMR | EGNADEAFKMI | Kenyaagyop | NKITYDN | LYRGL | CKHGQHDRAS | LLLKQMVRDSH | IRPDTITYN | LIIEGHFRHHS | KKDAFRLLSE | MENAGISPNY | TYSIMIHG | LCQSGEPEKAS | DLLEENTTKO | LKPNAFVYAPI | _ISGYC | |
| OsPIL7b | | | | | | | | | | | | | | | | | | | |
| AtPIL2 OsPIL2 | | | | | | | | | | | | | | | | | | | |
| ALPIL6 | | | | | | | | | | | | | | | | | | | |
| OsPIL6a OsPIL6b | | | | | | | | | | | | | | | | | | | |
| Consensus | | | | | •• | | | | | | | | | | | | | | |
| | 511 | 520 | 530 | 540 | 550 | 560 | 570 | 580 | 590 | 600 | 610 | 620 | 630 | 640 | 650 | 660 | 670 | 680 | |
| 0sPIN1a | 1 | + | + | -NRGVAERDAE | AGDEKSVAAA | VSGEHGK | PGI TPB | +нрр | TSVHTRI TI TH | VURKI TRN | PNTYSSI TGI T | USI VCERU | | KSTSTI SD | AGLGHANFSLG | + | PRTTACGN | (VAT | |
| OsPIN1b | FG | | | -NRGYMDRDAE | Agdekaaaaa | GADPS | KAMA-A | PTAMPP | TSYNTRLILIN | YHRKLIRN | PNTYSSLIGLI | HSLYCFRH | NFEMPAIY | KSISILSD | AGLGHAMFSLG | LFHALQ | PHIIACGN | (YAT | |
| ALPIN1 ALPIN3 | | HPASGDEGG | FOOFSFAGK | -EREEFSFGNK FFFAFRPKDAF | DDDSKYLATD Ngl nkl apns | GGNNI Taalosk | SNKTTQ TGLGGA | iakympp Fasorknapp | TSYNTRLILIN ASYNTRI TI TI | IVHRKLIRN IVHRKLIRN | PNSYSSLFGIT PNTYSSLTGLT | HSLISFKH HALVAFRH | NIEMPALI HVAMPKTI | IKSISILSD IOSTSTLSD | aglgmamfslg Aglgmamfslg | LFMALN | PRIIACGN | RAA Svat | |
| ALPIN7 | 86 | GPHNGDYGG | E | -EESERYKEYP | NGLHKLRCNS | TAELNPK | EAIETG | ETYPYKHMPP | ASYMTRLILIN | IVHRKLIRN | PNTYSSLIGLI | Halvafri | DYAMPKII | QSISILSD | AGLGHAMFSLG | LFHALQ | PKLIACGN | STAT | |
| AtPIN4 Ospin2 | | | | | | | | | | | | | | | aglghamfslg Aglghamfslg | | | | |
| ALPIN2 | SPG | RKGHVENDQ | D | -GNNGGK | SPYH | GKKGS | DYEDGG | PGPRKQQMPP | ASYMTRLILIN | IVWRKLIRN | PNTYSSLFGLA | HSLYSFKH | NIKHPTIM | SGSISILSD | AGLGHAMFSLG | LFHALQ | PKIIACGK | SVAG | |
| OsPIN1c OsPIN10b | GP | FNKØVG | | -GODELAKLEA | -TLSKLGSNS GAKTEDOTTA | THULRPK VTTTTKG | DUGEGA | HHHMPP Frargoonap | AGVMERETET AGVMERETET | IYHRKLIRN 'YHRRI TRN | PNTYSSLLGVI PNTYASLTGLT | HSLYSYRH HSLTAFRF | GIEMPHII HITMPTIV | IRSISILSD IKSTSTLSD | AGLGMAMFSLG AGLGMAMFSLG | LFMALQ | PRIINCGN PKITACGY | SVAA | |
| ALPING | EI | | | -sfrdalkaap | qataagggas | MEEGAAG | ·KDTTP¥ | AAIGKQEMPS | AIYMMRLILT\ | YGRKLSRN | PNTYSSLLGLY | WSLISFKH | NIPHPNIY | DFSIKIISD | aglghamfslgi | LFHALQ | PKHIPCGAI | (KAT | |
| UsP1N1Va OsPIN1d | | | | | | | | | | | | | | | rplprgpcrhg Aglghamfslg | | | | |
| OsPIN9 | | | | | | | | | | | | | | | TAYGLSHFSSG | | | | |
| OsPIN5a AtPIN5 | | | | | | | | | | | | | | | | | | | |
| OsPIN5b | | | | | | | | | | | | | | | | | | | |
| OsPIN5c | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| OsPIN8 AlPIN8 | | | | | | | | | | | | | | | | | | | |
| OSPIN8 ALPIN8 ALPIL1 | | | | | | | | | | | | | | | | | | | |
| OSPIN8 ALPIN8 ALPIL1 ALPIL3 ALPIL4 | | | | | | | | | | | | | | | | | | | |
| OSPIN8 ALPIN8 ALPIL1 ALPIL3 ALPIL4 OSPIL1 | | | | | | | | | | | | | | | | | | | |
| OSPIN8 ALPIN8 ALPIL3 ALPIL3 ALPIL4 OSPIL1 ALPIL5 ALPIL7 | | | | | | | | | | | | | | | | | | | |
| OSPIN8 AtPIN8 AtPIL1 AtPIL3 AtPIL4 OSPIL1 AtPIL5 AtPIL7 OSPIL5 | REGNY | SLACEIFDK | MTKVNVLPD | LYCYNSLIFGL | SKVGRVEEST | kyfaqhqergi | LPNEFTYSG | LIHGYLKNGD | Lesaeqlyqri | ILDTGLKPN | DVIYIDLLESY | FKSDDIEKY- | sstfksmli | DQGY-HLDN | RIYGILIHNLS | SSGNMERAFF | VLSGIEK n gs | /PDVH¥ | |
| OSPIN8 AtPIN8 AtPIL1 AtPIL3 AtPIL4 OSPIL1 AtPIL5 AtPIL5 AtPIL7 OSPIL7a OSPIL7b | REGNV | SLACEIFDK | MTKVNVLPD | LYCYNSLIFGL | SKVGRVEEST | Kyfaqhqergi | LPNEFTYSG | LIHGYLKNGD | LESAEQL VQRI | ILDTGLKPN | DYIYIDLLESY | FKSDDIEKV- | sstfkshli | DQGY-HLDN | RIYGILIHNLS | SSGNMEARFF | VLSGIEKNGS | /PDVHV | |
| OSPIN8 ALPIN8 ALPIL1 ALPIL3 ALPIL4 OSPIL1 ALPIL5 ALPIL5 OSPIL75 OSPIL75 ALPIL2 OSPIL76 ALPIL2 | REGNV | SLACEIFDK | MTKVNVLPD | LYCYNSLIFGL | SKVGRVEEST | kyfaqhqergi | LPNEFTYSG | LIHGYLKNGD | LESAEQL VQRI | ILDTGLKPN | DYIYIDLLESY | FKSDDIEKV- | sstfkshli | DQGY-HLDN | RIYGILIHNLS | SSGNMERAFF | VLSGIEKNGS' | VPDVH¥ | |
| 0sPIN8 RtFIN8 RtFIL3 RtFIL4 0sPIL1 RtFIL5 RtFIL5 0sPIL75 0sPIL76 RtFIL2 0sPIL2 0sPIL2 RtFIL6 | REGNYS | SLACEIFDK | HTKYNYLPD | LYCYNSLIFGL | SKVGRVEEST | KYFAQHQERGL | LPNEFTYSG | LIHGYLKNGD | LESAEQL VQRI | ILDTGLKPN | DVIYIDLLESY | FKSDDIEKV- | sstfkshli | DQGY-MLDN | RIYGILIHNLS | SSGNMERAFF | VLSGIEKNGS | /PDVHV | |
| OSPIN8 AtPIN8 AtPIL1 AtPIL3 AtPIL4 OSPIL14 OSPIL7 OSPIL75 OSPIL75 OSPIL75 AtPIL2 OSPIL2 AtPIL6 | REGNV | SLACEIFDK | HTKYNYLPD | LYCYNSLIFGL | SKVGRVEEST | Kyfaqhqergi | LPNEFTYSG | LIHGYLKNGD | Lesaeqlyqri | ILDTGLKPN | DVIYIDLLESY | FKSDDIEKV- | sstfkshli | DQGY-HLDN | RIYGILIHNLS | SSGNMEAAFF | VLSGIEKNGS' | /PDVH¥ | |
| 0sPIN8 RtFIN8 RtFIL3 RtFIL4 0sPIL1 RtFIL5 RtFIL5 0sPIL75 0sPIL76 RtFIL2 0sPIL2 0sPIL2 RtFIL6 | REGNV | SLACEIFDK | NTKYNYLPD | LYCYNSLIFGL | SKVGRVEEST | KYFAQHQERGL | .LPNEFTYSG | LIHGYLKNGD | LESAEQL VQRI | ILDTGLKPN | DVIYIDLLESY | FKSDDIEKV- | SSTFKSHLI | DQGY-HLDN | RIYGILIHNLS | SSGNHEAAFF | VLSGIEKNGS' | /PDVHV | |

| Image: Construction | | 681 | 690 | 700 | 710 | 720 | 730 | 740 | 750 | 760 | 770 | 780 | 790 | 800 | 810 | 820 | 830 | 840 | 850 |
|--|---------|--------|-----------|-----------------|--------------|--------------|----------|-------------|------------|----------------|-------------|--------------|-------------|---------------|-------------------|------------|----------------|-------------------|----------|
| BP37 Renors Transmission Conclusion Stratuce (LINE) BP36 Renors Transmission Conclusion Stratuce (LINE) BP376 Renors Transmission C | OsPIN1b | YAH | AYRFLAGP | aymaaasfay | GLRGTLLHYAI | YQAALPQGIY | PFYF | AKEYSYHPSIL | STAVIFGHLI | ALPITLYYYIL | LGL | | + | | | | | | 1 |
| BP3P Henrie TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT BP3P HERRY TUMETROMUNICATION CLUBERTON PROTECT HERRY TUMETROMUNICATION CLUBERTON PROTECT | | | | | | | | | | | | | | | | | | | |
| B-7180 | ALPIN4 | FAM | AVRFITGP | AIMAYAGIAI | GLHGDLLRIAI | YQAALPQGIY | PF¥F | AKEYNYHPTIL | STGVIFGHLI | ALPITLYYYIL | LGL | | | | | | | | |
| 0-71000 | ALPIN2 | FAM | AVRFLTGP | AVIAATSIAI | GIRGDLLHIAI | YQAALPQGIY | PFYF | AKEYNYHPDIL | STRVIFGHLV | ALPYTYLYYYL | LGL | | | | | | | | |
| 0.2010.00100000000000000000000000000000 | | | | | | | | | | | | | | | | | | | |
| 0. PTH 0 - THERE VERY MERKELING AND LEAD TO A THE CHARGE AND LEAD TO YOUR AND YOUR AND LEAD TO YOUR AND LEAD | | | | | | | | | | | | RAIYLCDICTR | RONDRHYSNI | TDIRYYFC | | | | | |
| B-PTI65 B-PTI6 | OsPIN1d | YAH | AVRFLYGP | AVMAAASIAV | GLRGYLLHIAI | YQAALPQGIY | PFYF | AKEYNYHPNIL | STRVIFGHLI | ALPITLYYYIL | LGL | | | | | | | | |
| BerPBB6 BerPBB | OsPIN5a | | | TTILLIJETI | | | JITI | ILLINTIIDII | | | LUL | | | | | | | | |
| G-D1B6 RP116 PR3.103PHK (F1)PHK (F3)PHK (| OsPIN5b | | | | | | | | | | | | | | | | | | |
| RP1L1 HSJ LEGREL/LINGS LGCT TRUTUS FHERE SECURCH FXXRX LGFHMULS SULCT SELES FSJ LMRUR SESS LSL FSJ LMRUR SESS FSJ LMRUR SESS LSL FSJ LMRUR SESS FSJ LMRUN SESS FSJ LMRUR SESS FSJ LMRUR SESS FSJ LMRUN SESS FSJ LMRUR SESS FSJ LMRUR SESS FSJ LMRUN SESS FSJ | | | | | | | | | | | | | | | | | | | |
| RP1L3 MVALL RP1L4 RP1L4 RP1L4 RP1L4 RP1L4 RP1L4 RP1L4 RP1L4 RP1L5 RP1L5 RP1L5 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>HSI TO</td> <td>сакі нттност</td> <td>IGKTTTRI YN</td> <td>TSPEHGDSHCk</td> <td>(OP-PUKNNC</td> <td>TOFNHNTSNVI</td> <td>KOYSETESE</td> <td>STNOPTOPST</td> <td>SI EI STI DSE.</td> <td>¥</td> <td>MPHPI I</td> | | | | | | | | | HSI TO | сакі нттност | IGKTTTRI YN | TSPEHGDSHCk | (OP-PUKNNC | TOFNHNTSNVI | KOYSETESE | STNOPTOPST | SI EI STI DSE. | ¥ | MPHPI I |
| ap111 m611 RP115 m671 RP117 m671 RP118 m671 | ALPIL3 | | | | | | | | IJETQ | JUNCHITTUGT | | | New INTRONE | Tối NINTON I | INCIDENCI | THOUTHOT | JEI EJIENJI | | MVKLL |
| BPIL7 FIGL OP112 VS1.153.LCK1000EX0FG1LBERSKKWUPUTUNELIDG.LCSGDISTNOVTHSLIDGSCXV60IS00FYLNELATGTP00-FYS9LTIGSSSK0LEQNFLIEEHTKRHSTSSFNU.VGC CRRRATE LLLWTM MG1 MG1 OP712 MG1 MG1 OP712 MG2 MG2 OP714 < | 0sPIL1 | | | | | | | | | | | | | | | | | | MGLL |
| GeP112a HFIL RP112b HFIL GeP112b HFIL GeP121b HTRELTAR MUSICAL WARGEN GeP121b HTRELTAR MUSICAL WARGEN </td <td></td> | | | | | | | | | | | | | | | | | | | |
| BP112b HRIE BP | | YSSLI | SGLCKTAD | REKAFGILDEI | MSKKGYDPNIY | CYNALIDGLC | KSGDI | SYARNYFNSIL | AKGLYPNCYT | YTSLIDGSCK | GDISNAFYL | YNEHLATGITF | PDA-FYYSYL | TTGCSSAGDLI | EQAMFLIEEN | FLRGHASI | SSFNNLVDGFO | CKRGKHQETLI | |
| BPTI2 INDEX SHU (WYPP) TW | OsPIL7b | | | | | | | | | | | | | | | | , | ISCESSC-NVI | MGFL |
| dp11L6 mtersummer 0.491L6 mtersummer 851 860 870 880 890 900 910 920 930 940 950 950 950 990 990 1010 1020 0471L6 | 0sPIL2 | | | | | | | | | | | | | | | | Ì | IDHLSANLQY | PQYTYH |
| Consensus Image: Consensus | OsPIL6a | | | | | | | | | | | | | | | | MMERSLMEAL | ATAAQGG1 | YGTSYF |
| Improvemental and the second sec | | | | | | | | | | | | | | | | | MMGRSVLEM | /vaaaqggggg | |
| GePNIG RePIX REPIX R | | 851 | 860 | 870 | 880 | 890 | 900 | 910 | 920 | 930 | 940 | 950 | 960 | 970 | 980 | 990 | 1000 | 1010 | 1020 |
| GePNIG RePIX REPIX R | OsPIN1a | I | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | |
| RePTN3 RePTN4 RePTN4 GePTN4 GePTN5 GePTN5 GePTN6 | OsPIN1b | | | | | | | | | | | | | | | | | | |
| BrP1M4 GsP1M2 BrP1M2 GsP1M2 GsP1M2 GsP1M16 GsP1M16 GsP1M16 GsP1M16 GsP1M16 GsP1M16 GsP1M16 GsP1M16 GsP1M16 GsP1M5 GsP1M6 < | ALPIN3 | | | | | | | | | | | | | | | | | | |
| RPTNE 0sPTNLo 0 | ALPIN4 | | | | | | | | | | | | | | | | | | |
| 0sPTN10b 0sPTN10a 0sPTN10a 0sPTN10a 0sPTN10a 0sPTN10b 0sPTN5 | | | | | | | | | | | | | | | | | | | |
| REPTNG 0sPTNLd 0sPTNLd 0sPTNS 0sPT | | | | | | | | | | | | | | | | | | | |
| 0sP1N5 0s | ALPIN6 | | | | | | | | | | | | | | | | | | |
| 0±PIN5a REPIN5 0±PIN5c 0±PIN5c 0±PIN5c 0±PIN6 REPIL1 0LFITSSIPVAKILLITGIGFYLALDQVNILNHORKQLNNTVFYVFSPSLVASSLSETITYESNVKM#FMPLNVLLTFIIGSFLGHTVIKITKPPSHLRGIILGCCARGNLGNMPLIIIPAICNEKGSPFG0PES-CEKFGLG-YIALSMAIGAIYINTY REPIL4 ELFITSSKPVVETLLITSVGFYMALDGVNLLGHORKKULNNTVFYVFSPSLIGSRLADSVTYESLVKM#FMPLNVLLTFIIGSLLGHTVITIKPPSHLRGIILGCCARGNLGNMPLIIIPAICNEKGSPFG0PES-CEKFGLG-YIALSMAIGAIYINTY REPIL4 ELFITSSKPVVETLLITSVGFYMALDGVNLLGHORKKULNNTVFYVFSPSLIGSRLADSVTYESLVKM#FMPVNVLLTFIIGSLLGHTVITIKPPSHLRGIILGCCARGNLGNMPLIIIPAICNEKGSPFG0PES-CEKFGLG-YIALSMAIGAIYINTY REPIL4 ELFITASSKPVVETLLITSVGFYALDTVNLLGHORKKULNNTVFYVFSPSLIGSRLADSVTYESLVKM#FMPVNVLLTFIIGSLLGHTVTTKPPSHLRGIILGCCARGNLGNMPLIIIPAICNEKGGPFG0PES-CEKFGLG-YIALSMAIGAIYINTY REPIL4 ELFITACVPVLNMLVTGVGSFLATDFVGILNKORKKUNNTVFYVFSPSLIGSRLADSVTYESLVKM#FMPVNVLLTFIIGSLLGHTVVTTKPPSHLRGIILGCCSGRGMMGNTFLIIIPAICKEKGGPFG0PES-CEKFGLG-YIALSMAIGAIYINTY REPIL5 ELFURSKPVTQULFISLVGAFLARSDRCKLFPVERNSMKKVVFYVFNPSLVATULAQTTILEGLALAFMPVVNULTRCTFLIGGLLGHLVVKUTRAPRARLRGLIGCCSGRGMMGNTFLIIIPAICKEKGGPFG0PES-CEKFGLG-YINTYTFRLTKG REPIL5 SLLEVRSMPVTQULFISLVGAFLARSDRCKLFPVERNSMKKVVFYVFNPSLVATULAQTTILEGLALAFMPVNNGLTFLIGGLLGHLVVKUTRAPRARLRGLIGLTVATCRGGNGNGNTFLIIIPAICKEKGGPFG0PES-CEKFGLG-YINTYTFNTKIKK REPIL5 SLLEVRSMPVTQVLISVGAFLARSDRCKLFPVERNSMKKVVFYVFPDCIMFANLARTVTLODTISM#FMPVNNGLTFLIGGLLGHLVVKUTRAPRARLRGLITATCRSGNMGNIFLIIIPAICKEKGGPFG0PES-CEKFGLG-YSSLSMALGGFYINTYSQLVRS 0±PIL5 GRULVNMLTENTISGLSEAGKLSEVNITFVELQKVTSESARAMFSSLFMDITNQGKTLOVVVDUTDINCHCKEGNLDKRLMLRDVTWIKSAPMCGSSVLATVONLCRKKKLSERLNLLKEMDKRGNQLGSVCRSIGLS-YSSLSMALGGFYINTYSQLVRS 0±PIL7 BLLVRSMPIVQVLLIGVVGAFLARSGVSKLITSSALRDNNKVVFTVFTPSLHFRSLAKTVILSDVISM#FMPVNIGITFIYGGTLGHTACKTLKPPQHFRGNTIAFCSRGNLGNLLLIVVPOCDEGMPFGKDSSLCSSGSLS-SSLSMALGGLFINTHTYSLMKK REPIL2 -DILSGVVPULKLICLIVGVFRETRSVYNKLVFNFFDLIFSLGSSINGHVISSMFMPVNIGITFIYGGTLGHTACKTLKPPQHFRGNTIAFCSRGNLGNLLLILIVPSVCDEGMPFGKDSSLCSSGSLSCSSGSLS-SSLSMALGGLFINTHTYSLMK REPIL2 -DILSGVVPULKLICLIVGVFRETRSSVXNULVFNFFDLIFSLGESSTIL | OsPIN1d | | | | | | | | | | | | | | | | | | |
| 0sPIN6 0sPIN6 0sPIN6 RePIN6 RePIN6 RePIN6 RePIN6 RePIN6 RePIN6 RePIN6 RePIN7 | OsPIN5a | | | | | | | | | | | | | | | | | | |
| 0sPIN8 REPIN8 REPIN1 DIFITSSIPVAKILLITGIGFYLALDQVMILMHORKQLMNTVFYVFSPSLVASSLSETITYESMVXM#FMPLMVLLTFIIGSFLGMIVIKITKPPSHLRGIIGCCAAGALGNMPLIIIPAICNEKGSPFGDPES-CEKFGLG-YIALSMAIGAIYIMTY | | | | | | | | | | | | | | | | | | | |
| REPIL1 DLFITSSIPVAKILLITGIGFYLALDQVNILNHDARKQLNNIVFYVFSSLVASLSETITYESMVKMHFNPLNVLLTFIIGSLGALVIXITKPPSHLRGIIVGCCARGNLGMNPLIIIPAICNEKGSPFGDPES-CEKFGLG-YIALSMAIGAIYIMTY | | | | | | | | | | | | | | | | | | | |
| REPIL3 ELFITSSKPVVETLLITSVGFYHALDGVNLLGHDRKYLNNIVFYVFSPLIGSRLADSVTYESLVKMHFMPVNVLLTFITGSLLGHIVIVITKPPSHLRGLILGCCARGNLGNMPLTITPRVCKEKGGPFGDPES-CKYGHG-YVALSHAHGSIYIHTY | | DI ETT | SSTPVAKT | I I TTGTGEVI I | а поумті мно | IARKOI NNTV- | -FYVESPS | VASSI SETTI | YESHVKHUEH | PI NVI I TETTA | SEI GUTVTK | TTKPPSHI PGT | TVGCCAAGN | I GNMPI TTTPI | TONEKGSPE | GNPES-CEKE | GI G-YTAI SHA | атсатутиту. | |
| 0sPI1 ELFITACVPVLNILLYGVGSFLATDFVGILNKDRRKYLNITVFYVFNPSLVATYLAQTITLEGLAKLAFHPVNILLACTFGLIGALGVVKVTRAPARLRGLIGCCSAGANGANIFLIIIPALCKEKGSPFGAPDV-CHTYGLA-YSSLSHALGAVFLATVANIHRA RcPI15 SLLEVASHPVIQVLLISVLGAFLASGNCKLFPVERRKSHNKVVFVFPARLHFANLAQTVTLEDIJSHHFHPVNGLTFLIGGLGALUVKLLKPPPVLGLIVATCSAGANGALPTILVPATCDEOKSPFGA-RSVCRTVGLS-YASFSHALGGFYIHTYFRLIKG RcPI15 ELEVASHPVIQVLLISVLGAFLASGNSKLVFVFPARLHFANLAQTVTLEDIJSHHFHPINGITFLIGGLGALUVKLLKPPVLGLIVATCSAGANGALPTILVPATCDEOKSPFGA-RSVCRTVGLS-YASFSHALGGFYIHTYFRLIKG OSPI15 GRGLYPNALTIFHIJSVLGKELSEVARLSEVHTIFVELQQKTSESARAFHSSLFHDNINGKTPLUVVDDHIRDHCKEGNLDKALHLRDVIVAKSAPHGCSSVLATVDNLCKKGKLSEAN.LLKEMDKRGMLQPTLVALLGFHFRRHHHILIKLGGLYIHTHYSLMKK OSPI173 SLLUVASHPVIQVLLIGVIGAFLASGYSNILTSSALSANKVVFTVFPSLHFASLAKTVTLSDVISHHFHPINIGITFHGGGIGAIACKILKPPQHFRGHIIAFCSAGANLGALLLIVPAVCDEOGAPFGKDSSRCKSLGS-YSSLSHALGGLYIHTHYSLMKK OSPI174 ALLVASHPVIQVLLGVGAFLASGYSNILTSSALSDNNKVVFTVFPSLHFASLAKTVTLSDVISHHFHPINIGITFHGGGIGAIACKILKPPQHFRGHIIAFCSGANLGALLLIVPAVCDEOGAPFGKDSSRCKSLGS-YSSLSHALGGLYIHTHYSLMKK PSPI12 -DILSGVYPLLKILCLIVIGLLABFXTQLYPRATFLLSKLVFALFUPCLIFFELGESTILDUTUSHHFHPINIGITFHGGGIGAIACKILKPPQHFRGHIIAFCSGANLGALLLAIVSSCHTKTNPFGFCKRGVGYSVSSLGSVCKSGLG-YSSLSHALGGLYIHTHYSLMKK PSPI12 -DILSGVYPLLKILCLIVGULLABFXTQLIPSATFLSKLVFALFUPCLIFFELGESTILDUTUSHHFHPINIGITFHGGGIGAIACKILKPPPHFFKFTUTTGFGNTGMLLALIVSSVCHTKNPFGFGCKRGVG-YSFAQUVARILVYTVYTHHPP OSPI12 -DILSGVYPLLKILCLIVGULLABFXYNULSKLVFALFUPCLIFFELGESTILDUTUSHHFPINVULSKVGSLGIVVLSKVGSLGFVVSGLGGVVLSKGKCKSVCHTTDHFGFGGACKRGVG-YSFAQUVARILVYTVYTHHPP OSPI12 -DILXGVYFVCVGULKILCLINGSVYNULLABKSVVNULALKSLVFALFUPCLIFFELGEGANTUNGKMULSKVGSLGGVVSLGFVVSSLGFVVSSLGFVVSSLGFVVSGLGGVVTTDHFFFTVINTFGGAUVGATLVYTVYTHHPP OSPI16 DILKYRVFTVGTGLLABFXYNULGLUARSKYNULANGLVFSULLPCLIFSQLGARTUNGKULANGHFPINVVGLISTAGSCIGFVYSSLGFVVSSLGFVVSSLGFVVSSLGFVVSSGSCHTTDHFGGSSVCHTTDHFGGSVCHTTDHFFGDSKLCKGANGAUVGTLVYTVYTKHFF OSPI16 DILKYRVFTVGTGFLAGSKYNULQANGKLLNGLVFSULLPCLIFSQLGARTUNGKUNGKULGHFFTVWVLGTSGSSTGFVSSSVFTTIGTGTSGSVCHTTDHFGGSVGHTDHFFGDSKC-CKEGGANGATLTYTYVFKKLAP | ALPIL3 | ELFIT | SSKPYYEI | LLITSYGFYM | ALDGYNLLGHD | ARKYLNNIV- | -FYYFSPS | LIGSRLADSVI | YESLYKHNFH | PYNYLLTFII® | SLLGHIVIV | ITKPPSHLRGL | ILGCCAAGN | LGNMPLIIIP | AVCKEKGGPF | GDPES-CQKY | GMG-YVALSHA | AMGSIYINTY- | |
| REPIL7 ELLEVASHPIVQVLLISVLGAFLATDYCSLLSADTRRSVNKLVFVFTPCINFANLAETVTLQDIISNHFHPINVGITFLVGGILGALVVKLLNPKPQLHGLIIATCASGNHGNLHLIVPAICDEGSPFGN-RSVCRSIGLS-YASFSHALGGFYINTSVQLVRS 0sPIL5 GGRUVPNALTENTISGLSEAGKLSEVHITFVELQQKTSESANAHFSSLFNDDTINGGKTLQVVDOITKOHCKEONLDKALH.RDVIVHKSAPHGCSSVLATVONLCKKGKLSEALNLLKEMDKRGNLQVVLIGTHAFKGNUTFLVGGISSANAHFSSLFNDTINGGKTLQVVDOITKOHCKEONLDKALH.RDVIVHKSAPHGCSSVLATVONLCKKGKLSEALNLLKEMDKRGNLQVFLVALLGTHAFRAHHTLHKKLGGLTHHTYSLMK 0sPIL7 GSLLVARSHPIVQVLLIGVTGAFLASGYSKLISSALROHNKVVFTVFTPSLHFASLAKTVTLSDVISNHFHPVNGTIFLVGGTLGATACKTLKPPQHFRGHIIAFCSRGNLGALLITVPAVCDEGOMPFGKDSSKCSLGS-SSLSHALGGLFIHTHTYSLMK 0sPIL7 ALLLVRSHPIVQVLLIGVTGAFLASGYSKLISSALROHNKVVFTVFTPSLHFASLAKTVTLSDVISNHFHPVNGTLFHAGGTLGATACKTLKPPQHFRGHIIAFCSRGNLGALLITVPAVCDEGOMPFGKDSSKCSLG-SSLSLSALGSLGS-SSLSHALGGLFIHTHTYSLMK 0sPIL7 ALLLVRSHPVQVLLGUTVGAFLASGYSMUTSSALGSUNKVVFTVFTSDVISNHFHPVNGTLSNHFFPLNGGTLFHAGGTLGATACKTLKPPQHFRGHIIAFCSRGNLGALLITVPAVCDEGOMPFGKDSSKCSLG-SSLGLS-SSLSHGLGGLTYHTTYSLMKK 0sPIL7 DLLSGVVPLLKLICLTVGULUSKLSKL-SSLGSLGSVKVVFTVFTSDVISNHFHPINGTFFHAGGTLGATACKTLKPPQHFRGHIIAFCSRGNLGALLITVSSVCHTKTPPGGNS-VSSLGG-SSLGSLGS-SSLGSLGSVS-VSFAQUVARTUVTVTVVHHMEP 0sPIL2 -DILSGVVPLKLICLTVGULUSKLPFRTLSKLVFRLFLPCLIFTELGESTILDNTVQH#FIPVVVLISR4VGSLGYVVLISR4VGFTVVLISR4VFTVVVLISR4VFTGFKTVTTUTGFGNTGMVLITVTVVFFKAQUVARTUVTVTVVHHMEP 0sPIL2 -DILSGVVPLKLICLTVGLVSKVFTQLPRATFRLSKLV <frlflpcliftelgestildntvqh#fipvvvlisr4vgsslgyvvlisr4vgftvvvlisr4vftuvtvtvvfkaramapatuvtvtvvyhmhep< td=""> 0sPIL6 GTTKRTAVPVVVVULUSKLSKLINGLVFSULGUGAVTUCKLUPVLISTIGUGUGATUFVVVULISRAGSGSLGFVVRSISVPPVFFKFTVTITGGTGANGNVVULURAFTVVVVVITVYVSFA</frlflpcliftelgestildntvqh#fipvvvlisr4vgsslgyvvlisr4vgftvvvlisr4vftuvtvtvvfkaramapatuvtvtvvyhmhep<> | 0sPIL1 | ELFIT | ACYPYLNM | LLYTGYGSFL | ATDF¥GILNKD | ARKYLNNIV- | -FYYFNPS | LVATYLAQTII | LEGLAKLAFM | PYNILLACTFO | GLILGHIYYH | VTRAPARLEGL | ILGCCSAGN | HGNIFLIIIP | ILCKEKGSPF | GAPDY-CHTY | GLA-YSSLSH | ALGAYFLATYA | YNIMRA |
| 0sPIL7a SLLLYRSHPIVQVLLIGVIGAFLRSGYSKILTSSÄLRDHNKVVFTYFTPSLHFÄSLAKTYTLSDVISHAFHPVNIGITFIVGGTLGAIACKILKPPQHFRGHIIAFCSRGNLGNLLLIIVPRVCDEDGNPFGKDRSLCRSRGLS-YSSLSHALGGLFIATHTYSLHK 0sPIL7b RLLLVRSHPVVQVLLIGVIGAFLRSGYSNILTSSALSDHNKVVFTYFTPSLHFASLRRTVTFGVISHAFHPINIGITFINGGTLGAIACKILKPPQHFRGHIIAFCSRGNLGNLLLIVPRVCDEDGNPFGKDSSRCSSGLS-YSSLSHALGGLFIATHTYSLHKK R+PIL2 -DLLSGVPPLLKLCLTVIGLLAHPKTQLVPRATFRLLSKLVFRIFLPCLIFTELGESTITFIOVISHAFHPINIGITFINGGTLGAIACKILKPPQHFRGHTIAFCSRGNLGNLLLIVPRVCDEDGNPFGKDSSRCSKLGS-YSSLSHALGGLFIATHTYSLHKK R+PIL2 -DLSGVPPLLKLLCLTVIGLLAHPKTQLVPRATFRLLSKLVFRIFLPCLIFTELGESTITIVFDVISHAFHPINVLLSRVYGSLIGVLVILCRPPPEFRNFTIYTAFGFONTGNLLARVSSVCHTKTNPFGPMCNSRGVS-YVSFAQUVARUILVYTVYHMHPP 0sPIL2 -GDAVSRVNPLKKLCLTVIGLUSNPRTFLLSKLVFRIFLPCLIFTHLGGSVTIQNILDHAFIPVNVLISRVFGSLIGVIVALCSRTVFDPPFPFRFTVINTGFGNTGNLPAILGSVCHTTDHPFGPGCHRKGVYVSFAQUVARUILVYTVYHMHPP 0sPIL6 GTIKTRVPIKVFTHCFLGLHRSKYVNILPSGKLLNGLVFSLLPCLIFSQLGARVTLQKUQHAFIPVNVVGRYSGSLIGFVYRSITRPPPFYFKFTITIGIGVNGTURVLIALGRCDTSNPFGDSEK-CSUGFAVSFAQUVGRUILYTYVFKHLAP 0sPIL6 DLKYRVLPIRKVFTUCFHGFLHRSKYVNILQPNGRKLLNGLVFSLLPCLIFSQLGARTTLGKUQHAFIPVNVVGRYSGSLIGFVYRSITRPPPYFKFTVIHIGIGNIGNIPLVLARLCRDTNPFGDSEK-CSUGFAVSFAQUVGRUILYTYYFKHLAP | ALPIL7 | ELLEY | ASHPIYQY | LLISYLGAFLI | ATDYCSLLSAD | TRRSYNKLY- | -FYYFTPC | INFANLAETY | LQDIISHHFM | PINYGITFLYG | GILGHLYYK | LLNPKPQLHGL | IIATCASGN | HGNLHLILYPI | AICDEEGSPF | GN-RSYCRSI | GLS-YASFSHA | ALGGFYINTYS | YQLYRS |
| REPIL2 -DILSGVVPLLKLICLTVIGLLLAHPKTQLVPRATFRLLSKLVFALFLPCLIFTELGESITLDNIVQHWFIPVNVLLSAVYGSLIGYLVVLICRPPPEFNRFTIVNTAFGNTGNLLLAIVSSVCHTKTNPFGPNCNSRGVS-YVSFAQUVARILVYTVVHHMEP 0sPIL2 GDNVSAVMPLMLLCLTVIGUVSMPRQTIPKATFKLLSKLVFALFLPCLIFVHLGGSVTIQNLIDNHFIPVNVLISTAIGCILGTVALICRPPOPFFRTVINTAFGNTGNLIAIVISSVCHTKTNPFGPNCNSRGVS-YVSFAQUVARILVYTVVHHMEP 0sPIL2 GDNVSAVMPLMLVLCLTVIGUVSMPRQTIPKATFKLLSKLVFALFLPCLIFVHLGGSVTIQNLIDNHFIPVNVLISTAIGCILGTVALICRPPOPFFRTVINTAFGNTGNLIAIVISSVCHTKTNPFGPNCNSRGVS-YVSFAQUVARILVYTVVHHMEP 0sPIL5 GTIXKIAVPINKVFTHCFLGLHARSKYNTLPSGKLLMGLVFSLLPCLIFSQLGQAVTLQKHLQHWFIPVNVLVSGAVSGSLIGFVVRSITIDIGSCNGTAVILVILVNLANKSGNVPVFNFKTTUITIGFGNGAVPLQKULAIVILANKSKVFTHCFLGLHARSKVFTHCIGLUNGKLUNGLVV-FSLLPCLIFSQLGANTLIKKLQHWFIPVNVLVYGAVSGSLIGFVVRSITRPPPYFKTVINIGIGNIGNILVLIAALCROPINFGDSK-CXEDGAA-TISEGQAVGATILYTYVKHKLAP 0sPIL6a DHLXYAVPINKVFTHCFGLHARSKVFTHCIGLUNGKLUNGLVFSLLPCLIFSQLGANTLIKKLQHWPINIVVGAVSGSLIGFVVRSGSLIGFVVRSGNIVPYPYFKTVINIGIANICANILVLIAALCROPINFGDSK-CXEDGAA-TISEGQAVGATILYTYKKHLAP | | | | | | | | | | | | | | | | | | | |
| 0sPIL2 GDWVSRVHPLNKLLCLTVIGLVLSNPRTQIIPKATFKLLSKLVFRLFLPCLIFVHLGGSVTIQNILDHHFIPVNVLISTRIGCILGYIVALICRPPPQFFRFTVINTGFGNTGNLPIAIIGSVCHTTDHPFGPGCHRKGVA-YVSFAQHVAVILVYTLVYHVHFP Repil6 gtikirvhpiakvfthcflgllhaskyvnilppsgrkllnglvfslllpclifsqlgavtlqkhlqhhfipvnvlgtisgsiigfivasivrppypyfkftiiqigvgnignvplvllanlcrdfsnpfgdskcbigta-yisfgquvgaiilytyvqhfap 0spil6a dhlkyrvlpiakvftvcfhgflhaskyvnilqpngrkllnglvfslllpclifsqlgratiekhlqhhyipvnivvgaysgsligfivasirppypyfkftihigignigntplvlianlcrdfnpfgdskchrgquvgaiivytyvfkhlap | OsPIL7b | ALLLY | ASHPYYQYI | LLIGYYGAFLI | RSGYSNILTSS | alsdhnkyv- | -FTYFTPS | LINFASLARTY | FSDYISHNFM | PINIGITFMAG | GTLGHIACR | ILKPPQHFRGM | IIIAFCSAGN | LGNLLLIYYPI | TYCDEDGNPF | GKDSSRCRSL | GLS-YSSLSM | ALGGLYINTH | YSLHKK |
| Ospilga dhlkyavlpiakvfivcfhgflhaskyvnilqpngrkllnglvfslllpclifsqlgraitiekhlquhyipvnivvgavsgsligfvvasiirppypyfkftvihigignigniplvliarlcrdptnpfgdsdk-chedgna-yisfgquvgaiivytyvfkhlap | OsPIL2 | GDHYS | avhplikli | LCLTVIGLVLS | SNPRTQIIPKA | ITFKLLSKLY- | -FALFLPC | LIFYHLGQSYI | IQNILDHHFI | PYNYLISTAIO | GILGYIYAL | ICRPPPQFFRF | TVINTGEGN | TGNLPIAIIG | SYCHTTDHPF | GPGCHRK | GYA-YYSFAQ | WAATITAATI | YHMMEP |
| USPYLL6D ONEKTHVLP1HKVEVVCFMGFLMHSKKVGVLKPSGKKLLNHLVFSLLLPCL1FHQLGKS1110K1MEMHF1PHNLHLGAVSRSLVGLIVHLIVRPPYPYFKFTITHIGIGNIGNIPLVLISALCROQLNPFGDSNK-CTQDGNA-YLSFGQAVGAIIVYTYVFKHLAP | OsPIL6a | DHLKY | AYLPIAKY | FTYCFHGFLHI | ASKYYNILOPN | IGRKLLNGLY- | -FSLLLPC | LIFSQLGRAIT | IEKHLQHHYI | PYNIYYGAYSO | ISLIGFYYAS | IIRPPYPYFKF | TYIHIGIGN | IGNIPLYLIA | ALCROPTNPF | GDSDK-CNED | GNA-YISFGQ | 4YGAIIYYTY\ | FKHLAP |
| | USPILED | UNERT | HATLAHKA | r yyur Nuf Lili | паккүйүшкр5 | OKKLLNHLY- | -rslllpt | LTF HQLGKS1 | TOKTUENNET | PHATHERARY | ISLYULIYHL | TARGULULULU | TINTOTON | TONTLATIS | ILLKUQLNPH | UDSNK-CTQU | unH=TLSFGQ | 44001111111 | 'r KALHP |



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