

**Figure S8.** SDP analysis of *OeuAQP*s from the wild Olive species *Olea europaea* var. *sylvestris* from alignments with putative amino acid sequences of AQP's transporting non-aqua substrates. Multiple alignments were performed using ClustalW. Shown are the sequences containing the nine SD positions which are highlighted in yellow and the representative sequences are marked in blue. The Genbank accession numbers: *AtPIP1;2* (Q06611), *AtPIP2;1* (P43286), *AtPIP2;4* (Q9FF53), *AtTIP1;1* (P25818), *AtTIP1;2* (Q41963), *AtTIP1;3* (NP;192056), *AtTIP2;1* (Q41951), *AtTIP2;3* (Q9FGL2), *AtTIP4;1* (O82316), *AtTIP5;1* (NP;190328), *AtNIP1;1* (CAA16760), *AtNIP1;2* (Q8LFP7), *AtNIP5;1* (NP;192776), *AtNIP6;1* (NP;178191), *CmNIP2;1* (BAK09176), *CpNIP1* (CAD67694), *GmNOD26* (P08995), *GmNIP2;1* (XP;003534451), *GmNIP2;2* (NP;001240190), *HvPIP1;3* (BAA23745), *HvPIP1;4* (BAF33068), *HvPIP2;1* (BAA23744), *HvNIP2;1* (BAH24163), *NtAQP1* (O24662), *NtTIPa* (Q9XG70), *NtXIP1;1α* (ADO66667), *NtXIP1;1β* (ADO66666), *OsNIP2;1* (Q6Z2T3), *OsNIP2;2* (Q67WJ8), *OsNIP3;2* (Q7EYH7), *SlXIP1;1α* (ADO66672), *SlXIP1;1β* (ADO66671), *StXIP1;1α* (ADO66669), *StXIP1;1β* (ADO66670), *TaLsi1* (ADM47602), *TaTIP2;1* (AAS19468), *TaTIP2;2* (AAS19469), *TgTIP1;1* (BAL41683), *TgTIP1;2* (BAL41684), *ZmPIP1;1* (Q41870), *ZmPIP1;5* (Q9AR14), *ZmNIP2;1* (Q19KC1), *ZmNIP2;2* (Q9ATN2).

## Boric Acid Transporters

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OeuPIP1;1a   KTVGIQGIAWAFGGMIFALVYCTAGISGGHINPAVTFGLFLGRKLSLTRAFFYVMVMQCLG
OeuPIP1;1b   KTVGIQGIAWAFGGMIFALVYCTAGISGGHINPAVTFGLFLGRKLSLTRAFFYVMVMQCLG
OeuPIP1;1c   KTVGIQGIAWAFGGMIFALVYCTAGISGGHINPAVTFGLFLGRKLSLTRAFFYVMVMQCLG
OeuPIP1;2     STVGIQGIAWAFGGMIFALVYCTAGISGGHINPAVTFGLFLARKLSLTRAIFYMVMQCLG
OeuPIP1;3     ASVGVQGIAWAFGGMIFALVYCTAGISGGHINPAVTFGLFLARKLSLTRAIFYMVMQCLG
OeuPIP1;4     ASVGIQGIAWAFGGMIFALVYCTAGISGGHINPAVTFGLFLARKLSLTRAIFYIVMQCLG
OeuPIP1;5     ASVGIQGIAWSFGGMIFALVYCTAGISGGHINPAVTFGLFLARKLSLTRAIFYIVMQCLG
OeuPIP1;6     TSVGIQGIAWAFGGMIFALVYCTAGISGGHINPAVTFGLFVARKLSLTRAIFYIVMQCLG
OeuNIP5;1     QAETLIGNAACAGLAAMIVILSTGHTSGAHLNPSLTIAFAAVRHFPWAHVPGYIQAQISA
OeuNIP5;2     QAETLIGNAACAGLAVMIVILSTGHTSGAHLNPSLTIAFAALRHFPWAHVPAYIAAQVSA
OeuNIP6;1     GSETLLGLAVSTGLAVMIVILSTGHTSGAHLNPSVTIAFAALKHFPWKHPVYIGAQILA
OeuXIP1;1     PNLIIIS---ILIAIVVAILLLAVHPVSGGHINPVISFSAGLVGLISMSRAIVYILAQCIG
OeuXIP1;2     PNLVLS---ILAAIIIAILLAVHPVSGGHINPVISFSAAVLGLISMSKAIFYIQAQCLG
OeuXIP1;3     PNLVLS---ILAAIIIAIVLLAVHPISGGHINPVISFSAAVLGLISVSKALIYISAQCLG
HvPIP1;3      GTVGIQGIAWSFGGMIFVLVYCTAGISGGHINPAVTFGLFLARKLSLTRAFFYIVMQCLG
HvPIP1;4      GTVGIQGIAWSFGGMIFVLVYCTAGISGGHINPAVTFGLFLARKLSLTRAFFYIVMQCLG
ZmPIP1;1      ATVGIQGIAWSFGGMILALVYCTAGISG-HINPAVTFGLFLARKLSLTRAFFYIIMQCLG
NtXIP1;1α     PNLIMS---ILIAIVITILLAVVPVSGGHINPVISFSAAVLGIIISMSRAIYIMVAQCVG
NtXIP1;1β     PNLIMS---ILIAIVITILLAVVPVSGGHINPVISFSAAVLGIIISMSRAIYIMVAQCVG
StXIP1;1α     PNLIMS---ILIAVVITILLAVVPVSGGHINPVISFSAAVLGIIISMSRAIYIQAQCLG
StXIP1;1β     PNLIMS---ILIAVVITILLAVVPVSGGHINPVISFSAAVLGIIISMSRAIYIQAQCLG
AtNIP5;1      GAETLIGNAACAGLAVMIILSTGHTSGAHLNPSLTIAFAALRHFPWAHVPAYIAAQVSA
AtNIP6;1      GAETLIGCAASAGLAVMIVILSTGHTSGAHLNPAVTIAFAALKHFPWKHPVYIGAQVMA
OsNIP2;1      SRISQLGQSIAGGLIVTMIVAVGHISGAHMNPAVTLAFAVFRHFPWVQVFFYWAQFTG

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OeuPIP1;1a   AICGAGVVKGF GKTL YMT-----KGGGANVVAHGYTKGDGLGAEIIGTFVLVY
OeuPIP1;1b   AICGAGVVKGF GKTL YMT-----KGGGANVVAHGYTKGDGLGAEIIGTFVLVY
OeuPIP1;1c   AICGAGVVKGF GKTL YMT-----KGGGANVVAHGYTKGDGLGAEIIGTFVLVY
OeuPIP1;2     AICGAGVVKGF GKTL YMS-----KGGGANVVAHGYTKGSGLGAEIIGTFVLVY
OeuPIP1;3     AICGAGVVKGF MKGQYER-----LQGGANIVQHGYTKGDALGAEIVGTFILVY
OeuPIP1;4     AICGAGVVKGF QPSFYKA-----NGGGANVVS HGYTKGDGLGAEIIGTFVLVY
OeuPIP1;5     AICGAGVVKGF MEGPYQR-----LQGGANVVS HGYTKGDGLGAEIVGTFILVY
OeuPIP1;6     AICGAGVVKGF GSPFYKA-----NGGGANVVAHGYTKGDGLGAEIIGTFVLVY
OeuNIP5;1     SICASFALKGV FHPFMSG-----GVTVPVS VSIGQAFALFLITFNLLF
OeuNIP5;2     SICASFALKGV FHPFMSG-----GVTVPVS VSTGQAFALFLITFNLLF
OeuNIP6;1     STCAAFLLKAIFHPIMGG-----GVTVPSS GFAQAFALFVVISFNLMF
OeuXIP1;1     AILGALALKA VVSSTIEQNFSLGGCTLTVIAPGPNGPITLGLETAQAFWLEIFCTFVFLF

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OeuXIP1;2      AVLGALALKAVVSSTTEETFSLGGCTLTVIAPGLNGPATVGLETVQAFWLEIFCTFVFLF
OeuXIP1;3      AALGALALKAVVSSTIEQTFSLGGCTLTVIAPGPNGLVTIGLETAQAFWLEIICTFVLLF
HvPIP1;3       AICGAGVVKGFGQTTLYQG-----NGGGANSVAAGYTKGDGLGAEIVGTFVLVY
HvPIP1;4       AICGAGVVKGFGQTTLYQG-----NGGGANSVAAGYTKGDGLGAEIVGTFVLVY
ZmPIP1;1       AICGRGVVKGFGQGLYMG-----NGGRRNVVAPGYTKGDGLGAEIVGTFILVY
NtXIP1;1α      AILGALALKAVVSSTIAQTFSLGGCTITVIAPGPNGPITVGLEMAQALWLEIFCTFVFLF
NtXIP1;1β      AILGALALKAVVSSTIAQTFSLGGCTITVIAPGPNGPITVGLEMAQALWLEIFCTFVFLF
StXIP1;1α      AVLGALALRAVVSSSIEDTFSLGGCTVTIIAPGPNGPVTVGLETAQALWLEIFCTFVFLF
StXIP1;1β      AVLGALALRAVVSSSIEDTFSLGGCTVTIIAPGPNGPVTVGLETAQALWLEIFCTFVFLF
AtNIP5;1       SICASFALKGVFHPFMSG-----GVTIPSVSLGQAFALEFIITFILLF
AtNIP6;1       SVSAAFALKAVFEPTMSG-----GVTVPVTVGLSQAFALEFIISFNLMF
OsNIP2;1       AICASFVLKAVIHPVDVI-----GTTTPVGPWHSLVVEIVTFNMMF
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OeuPIP1;1a     TVFSATDAKRSARDS---HVPILAPLPIGFAVFLVHLATIP--ITGTGINPARSLGAII
OeuPIP1;1b     TVFSATDAKRSARDS---HVPILAPLPIGFAVFLVHLATIP--ITGTGINPARSLGAII
OeuPIP1;1c     TVFSATDAKRSARDS---HVPILAPLPIGFAVFLVHLATIP--ITGTGINPARSLGAII
OeuPIP1;2      TVFSATDAKRSARDS---HVPILAPLPIGFAVFLVHLATIP--ITGTGINPARSLGAII
OeuPIP1;3      TVFSATDAKRNARDS---HVPLLAPLPIGFAVFLVHLATIP--ITGTGINPARSLGAII
OeuPIP1;4      TVFSATDAKRNARDS---HVPILAPLPIGFAVFLVHLATIP--ITGTGINPARSLGAII
OeuPIP1;5      TVFSATDAKRNARDS---HVPLLAPLPIGFAVFLVHLATIP--ITGTSINPARSLGAII
OeuPIP1;6      TVFSATDAKRNARDS---HVPILAPLPIGFAVFLVHLATIP--ITGTGINPARSLGAII
OeuNIP5;1      VVTAVATDTR-----AVGELAGIAGVATVMLNILVAGP--SSGGSMPVRTLGPVA
OeuNIP5;2      VVTAVATDTR-----AVGELAGIAGVATVMLNILVAGP--SSGGSMPVRTLGPVA
OeuNIP6;1      VVTAVATDTR-----AVGKLAGIGVATVMLNILIAGE--TTGASMPVRTLGPVA
OeuXIP1;1      ASIWMAYDHRQAKNLGLVLVFSIIGLVLLVFISTTVTAKKGYAGAGMNPARCLGAAIV
OeuXIP1;2      ASIWMAYDPRQAKELGHVLIFSIVGVLLVFISTTVTAKKGYAGAGMNPARCFGPAIV
OeuXIP1;3      ASVWMAYDHRQAKALGRVLVFSIVGVLLVFISTTVTAKKGYAGAGMNPARCFGAADV
HvPIP1;3       TVFSATDAKRSARDS---HVPILAPLPIGFAVFLVHLATIP--ITGTGINPARSLGAII
HvPIP1;4       TVFSATDAKRSARDS---HVPILAPLPIGFAVFLVHLATIP--ITGTGINPARSLGAII
ZmPIP1;1       TVFSATDAKRRARDS---HVPILAPLPIGFAVFLVHLATMG--ITGTGINPARSLGAAVI
NtXIP1;1α      ASIWMAYDHRQAKALGLVTVLSIVGIVLGLLVFISTTVTMKKGYAGAGMNPARCFGAADV
NtXIP1;1β      ASIWMAYDHRQAKALGLVTVLSIVGIVLGLLVFISTTVTMKKGYAGAGMNPARCFGAADV
StXIP1;1α      ASIWMAYDHRQAKALGHVTVLSIVGLVLGLLVFISTTVTAKKGYGGAGINPARCLGPAII
StXIP1;1β      ASIWMAYDHRQAKALGHVTVLSIVGLVLGLLVFISTTVTAKKGYGGAGINPARCLGPAII
AtNIP5;1       VVTAVATDTR-----AVGELAGIAGVATVMLNILVAGP--STGGSMPVRTLGPVA
AtNIP6;1       VVTAVATDTR-----AVGELAGIAGVATVMLNILIAGE--ATSASMPVRTLGPVA
OsNIP2;1       VTLAVATDTR-----AVGELAGLAVGSAVCITSIFAGA--ISGGSMPARTLGPALA
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## Carbon dioxide (CO<sub>2</sub>) Transporters

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OeuPIP1;4      HINPAVTFGLFLARKLSLTRAIFYIIVMQCLGAICGAGVVKGFQPSFYKANGGGANVVSHG
OeuPIP1;6      HINPAVTFGLFVARKLSLTRAIFYIIVMQCLGAICGAGVVKGFGPSFYKANGGGANVVAHG
AtPIP1;2       HINPAVTFGLFLARKLSLTRAIVYYIIVMQCLGAICGAGVVKGFQPKQYQALGGGANTIAHG
NtAQP1         HINPAVTFGLFLARKLSLTRAIFYIIVMQCLGAICGAGVVKGFQPMVGPYQRLGGGANVNVHG
HvPIP2;1       HINPAVTFGLFLARKVSLIRALLYTIAQCLGAICGVGLVKGFQSSYYVRYGGGANELSAG
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OeuPIP1;4      YTKGDGLGAEIIGTFVLVYTVFSATDAKRNARDSHVPILAPLPIGFAVFLVHLATIPITG
OeuPIP1;6      YTKGDGLGAEIIGTFVLVYTVFSATDAKRNARDSHVPILAPLPIGFAVFLVHLATIPITG
AtPIP1;2       YTKGSGLGAEIIGTFVLVYTVFSATDAKRNARDSHVPILAPLPIGFAVFLVHLATIPITG
NtAQP1         YTKGDGLGAEIIGTFVLVYTVFSATDAKRNARDSYVPILAPLPIGFAVFLVHLATIPITG
HvPIP2;1       YSKGTGLAAEIIGTFVLVYTVFSATDPKRNARDSHIPVILAPLPIGFAVFMVHLATIPITG
*:** ** .*****.*****.:*:*****:*****

OeuPIP1;4      TGINPARSLGAIIYNKDHAWDDHWIFWVGPFIGAALAALYHQVVIIRAIPFKSSS----
OeuPIP1;6      TGINPARSLGAIIYNKDHAWDDHWIFWVGPFIGAALAALYHQVVIIRAIPFKSGN----
AtPIP1;2       TGINPARSLGAIIIFNKDQAWDDHWIFWVGPFIGAALAALYHVIVIRAIPFKSRS----
NtAQP1         TGINPARSLGAIIYNTDQAWDDHWIFWVGPFIGAALAAVYHQIIIRAIPFHKSS----
HvPIP2;1       TGINPARSLGAAVIYNTDKAWDDQWIFWVGPLIGAAIAAAYHQYVLRASA AKLGSYRSN
*****:*.*.*:*****:*.*****:*****:** ** :.*. : .
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## H<sub>2</sub>O<sub>2</sub> Transporters

|                   |                     |         |                  |                          |
|-------------------|---------------------|---------|------------------|--------------------------|
| <i>OeuPIP1;1a</i> | YMVMQCLGAICGAGVVKGF | GKTL    | YMT-----         | KGGGANVVAHGYTKGDGLGAEI   |
| <i>OeuPIP1;1b</i> | YMVMQCLGAICGAGVVKGF | GKTL    | YMT-----         | KGGGANVVAHGYTKGDGLGAEI   |
| <i>OeuPIP1;1c</i> | YMVMQCLGAICGAGVVKGF | GKTL    | YMT-----         | KGGGANVVAHGYTKGDGLGAEI   |
| <i>OeuPIP1;2</i>  | YMVMQCLGAICGAGVVKGF | GKTL    | YMS-----         | KGGGANVVAHGYTKGSGLGAEI   |
| <i>OeuPIP1;3</i>  | YMVMQCLGAICGAGVVKGF | MKGQ    | YER-----         | LQGGANIVQHGYTKGDALGAEI   |
| <i>OeuPIP1;4</i>  | YIVMQCLGAICGAGVVKGF | QPSFY   | KA-----          | NGGGANVVSHGYTKGDGLGAEI   |
| <i>OeuPIP1;5</i>  | YIVMQCLGAICGAGVVKGF | MEG     | PYQR-----        | LQGGANVVQHGYTKGDGLGAEI   |
| <i>OeuPIP1;6</i>  | YIVMQCLGAICGAGVVKGF | GPSFY   | KA-----          | NGGGANVVAHGYTKGDGLGAEI   |
| <i>OeuPIP2;1</i>  | YMVAQCLGAICGVGLVKAF | QKSYY   | HK-----          | YGGGANELAPGYNKGVGLGAEI   |
| <i>OeuPIP2;2</i>  | YMVAQCLGAICGVGLVKAF | QKSYY   | NL-----          | YGGGANELAPGYNKGVGLGAEI   |
| <i>OeuPIP2;3</i>  | YMVAQCLGAICGVGLVKAF | QKAYY   | KK-----          | YGGGANELADGYSTGVGLSAEI   |
| <i>OeuPIP2;4</i>  | YMVAQCLGAICGVALVKAL | QKSHY   | KK-----          | YGGGANELADGYSTGVGLSAEI   |
| <i>OeuPIP2;5</i>  | YMVAQCLGAICGCVLVKAF | QKSYY   | VK-----          | FGGGANELADGYSNGTGLAAEI   |
| <i>OeuPIP2;6</i>  | YMVAQCLGAICGVGLVKAF | QKSYY   | KK-----          | YGGGANVLADGISTGVGLAAEI   |
| <i>OeuPIP2;7</i>  | YMVAQCVGAICGCVLVKAF | QRAYY   | VVR-----         | YGGGANELGDGYSTGTGLAAEI   |
| <i>OeuPIP2;8</i>  | YMIAQCLGAVCGVGLVKAF | MKSY    | YNR-----         | LGGGANVVSHGYNIGTALGAEI   |
| <i>OeuPIP2;9</i>  | YMIAQCLGAICGVGLVKAF | MKGY    | YNR-----         | LGGGANVSHGYNTGTALGAEI    |
| <i>OeuPIP2;10</i> | YMVAQCLGAICGVALVKAF | QKSHY   | KK-----          | YGGGVNELSDGYSTGGGLAAEI   |
| <i>OeuTIP1;7</i>  | YWIAQLLGSVVA        | CLLLK   | FATGGLTTA-----   | AFSLSAGVNVWNAFVLEI       |
| <i>OeuTIP2;1</i>  | YWIAQLLGSIVACYLLV   | FVTGGLA | IP-----          | IHGVGAGVGAFAFEGVMEI      |
| <i>OeuTIP2;2</i>  | YWIAQLLGSIVACYLLV   | FVTGGLA | IP-----          | IHGVGAGVGAFAFEGVMEI      |
| <i>OeuTIP5;3</i>  | YSISQTFGSVMA        | CLLLK   | ATTAGQHVP-----   | THAIEHEMTGFGGAVLEG       |
| <i>OeuNIP1;1</i>  | YISAQMIGATLAG       | GT      | LRLLF-----       | QGKHDHFGGTFTPGSDMQSFV    |
| <i>OeuNIP1;3</i>  | YIAAQVIGATLAS       | GT      | LRLLF-----       | MGKHDHFA                 |
| <i>OeuXIP1;1</i>  | YILAQCIGAILGALALKA  | VVSSTIE | QNFSLGGCTLT      | VIAPGPNGPITVLETAQAFWLEI  |
| <i>OeuXIP1;3</i>  | YISAQCLGAALGALALKA  | VVSSTIE | QTFSLGGCTLT      | VIAPGPNGPVTIGLETAQAFWLEI |
| <i>AtTIP1;1</i>   | YWIAQLLGSVVA        | CLLLK   | FATGGLAVP-----   | AFGLSAGVGVNLAFVFEI       |
| <i>AtTIP1;2</i>   | YWIAQLLGSVAAC       | FLLSF   | ATGGEPIP-----    | AFGLSAGVGSNLALVFEI       |
| <i>TgTIP1;1</i>   | YIIAQLLGS           | SVACLL  | LRFTTG-LGTG----- | TFGLVAGVSVWSGLVMEI       |
| <i>TgTIP1;2</i>   | YIIAQLLGS           | SVACLL  | LRFTTG-LGTG----- | TFGLVAGVSVWSGLVMEI       |
| <i>AtTIP2;3</i>   | YWIAQCLGSIVAC       | LLL     | VFTNGKSVP-----   | THGVSAGLGAVEGVMEI        |
| <i>AtPIP2;1</i>   | YIIAQCLGAICGVGFVKAF | QSSYY   | TR-----          | YGGGANSLADGYSTGTGLAAEI   |
| <i>AtPIP2;2</i>   | YMVAQCLGAICGVGFVKAF | QSSYY   | DR-----          | YGGGANSLADGYNTGTGLAAEI   |
| <i>AtPIP2;4</i>   | YIVAQCLGAICGCGFVKAF | QSSYY   | TR-----          | YGGGANELADGYNKG          |
| <i>ZmPIP2;5</i>   | YIVAQCLGAICGVGLVKGF | QSAFY   | VVR-----         | YGGGANELSAGYSKGTGLAAEI   |
| <i>AtPIP2;5</i>   | YMVAQCLGAICGVALVKAF | QSAFY   | TR-----          | YGGGANGLSDGYSIGTGVAEI    |
| <i>AtPIP2;7</i>   | YMIAQCLGAICGVGFVKAF | MKTPY   | NT-----          | LGGGANTVADGYSKGTALGAEI   |
| <i>NtXIP1;1α</i>  | YMVAQCVGAILGALALKA  | VVSSTIA | QTFSLGGCTIT      | VIAPGPNGPITVLEMAQALWLEI  |
| <i>NtXIP1;1β</i>  | YMVAQCVGAILGALALKA  | VVSSTIA | QTFSLGGCTIT      | VIAPGPNGPITVLEMAQALWLEI  |
| <i>StXIP1;1α</i>  | YIVAQCLGAVLGALALRA  | VSSSIED | TFSLGGCTVT       | IIAPGPNGPVTVLETAQALWLEI  |
| <i>StXIP1;1β</i>  | YIVAQCLGAVLGALALRA  | VSSSIED | TFSLGGCTVT       | IIAPGPNGPVTVLETAQALWLEI  |
| <i>SlXIP1;1α</i>  | YIVAQCVGAILGALALRA  | VSSSIED | TFSLGGCTVT       | IIAPGPNGPVI              |
| <i>SlXIP1;1β</i>  | YIVAQCVGAILGALALRA  | VSSSIED | TFSLGGCTVT       | IIAPGPNGPVI              |
| <i>AtNIP1;2</i>   | YVISQVIGSTLAA       | TLRL    | FLDQDV-----      | CSGKHDVFGTLP             |

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|-------------------|-------------------------------------|-----------------------------|
| <i>OeuPIP1;1a</i> | IGTFVLVYTVFSATDAKRSARDS---HVPILAPLP | IGFAVFLVHLATIP--ITGTGINPA   |
| <i>OeuPIP1;1b</i> | IGTFVLVYTVFSATDAKRSARDS---HVPILAPLP | IGFAVFLVHLATIP--ITGTGINPA   |
| <i>OeuPIP1;1c</i> | IGTFVLVYTVFSATDAKRSARDS---HVPILAPLP | IGFAVFLVHLATIP--ITGTGINPA   |
| <i>OeuPIP1;2</i>  | IGTFVLVYTVFSATDAKRSARDS---HVPILAPLP | IGFAVFLVHLATIP--ITGTGINPA   |
| <i>OeuPIP1;3</i>  | VGTFILVYTVFSATDAKRNARDS---HVPLLAPLP | IGFAVFLVHLATIP--ITGTGINPA   |
| <i>OeuPIP1;4</i>  | IGTFVLVYTVFSATDAKRNARDS---HVPILAPLP | IGFAVFLVHLATIP--ITGTGINPA   |
| <i>OeuPIP1;5</i>  | VGTFILVYTVFSATDAKRNARDS---HVPLLAPLP | IGFAVFLVHLATIP--ITGTSINPA   |
| <i>OeuPIP1;6</i>  | IGTFVLVYTVFSATDAKRNARDS---HVPILAPLP | IGFAVFLVHLATIP--ITGTGINPA   |
| <i>OeuPIP2;1</i>  | IGTFVLVYTVFSATDPKRNARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>OeuPIP2;2</i>  | IGTFVLVYTVFSATDPKRNARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>OeuPIP2;3</i>  | IGTFVLVYTVFSATDPKRSARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>OeuPIP2;4</i>  | IGTFVLVYTVFSATDPKRSARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>OeuPIP2;5</i>  | IGTFVLVYTVFSATDPKRNARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>OeuPIP2;6</i>  | IGTFVLVYTVFSATDPKRSARDS---HVPVLAPLP | IGFAVFMVHLATIP--VTGTGINPA   |
| <i>OeuPIP2;7</i>  | IGTFVLVYTVFSATDPKRSARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>OeuPIP2;8</i>  | IGTFVLVYTVFSATDPKRSARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>OeuPIP2;9</i>  | IGTFVLVYTVFSATDPKRSARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>OeuPIP2;10</i> | IGTFVLVYTVFSATDPKRSARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTSINPA   |
| <i>OeuTIP1;7</i>  | VMTFGLVYTVYATAVDPKRGSLG-----TIAPIA  | IGFIVGANILAGGA--FDGASMNPA   |
| <i>OeuTIP2;1</i>  | VITFALVYTVYATAADPKKGS LG-----TIAPIA | IGFIVGANILAAGP--FSGGSMNPA   |
| <i>OeuTIP2;2</i>  | VITFALVYTVYATAADPKKGS LG-----TIAPIA | IGFIVGANILAAGP--FSGGSMNPA   |
| <i>OeuTIP5;3</i>  | VMTFALVYTVYVASN-LRPVSAG-----AIGPLA  | IGLIAGANVLASGP--FTGGSMNPA   |
| <i>OeuNIP1;1</i>  | VEFIITFYLMFVISGVATDNRAIG-----ELAGLA | IGATILLNVM IAGP--VSGASMNPA  |
| <i>OeuNIP1;3</i>  | MEFIITFYLMFVISGVATDNRAIG-----ELSGLA | IGATILLNVMFAGP--VSGASMNPA   |
| <i>OeuXIP1;1</i>  | FCTFVFLFASIWMAYDHRQAKNLGLVLFVSIGLV  | LGLLVFISTT VTAKKGYAGAGMNPA  |
| <i>OeuXIP1;3</i>  | ICTFVLLFASVWMAYDHRQAKALGRVLFVSIGV   | LGLLVFISTT VTAKKGYAGAGMNPA  |
| <i>AtTIP1;1</i>   | VMTFGLVYTVYATAIDPKNGSLG-----TIAPIA  | IGFIVGANILAGGA--FSGASMNPA   |
| <i>AtTIP1;2</i>   | VMTFGLVYTVYATAVDPKNGSLG-----TIAPIA  | IGFIVGANILAGGA--FSGASMNPA   |
| <i>TgTIP1;1</i>   | VMTFGLVYTVYATAVDPKKG DIG-----TIAPIA | IGFIVGANILV GGA--FTGASMNPA  |
| <i>TgTIP1;2</i>   | VMTFGLVYTVYATAVDPKKG DIG-----TIAPIA | IGFIVGANILV GGA--FTGASMNPA  |
| <i>AtTIP2;3</i>   | VVTFALVYTVYATAADPKKGS LG-----TIAPIA | IGFIVGANILAAGP--FSGGSMNPA   |
| <i>AtPIP2;1</i>   | IGTFVLVYTVFSATDPKRSARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>AtPIP2;2</i>   | IGTFVLVYTVFSATDPKRNARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>AtPIP2;4</i>   | IGTFVLVYTVFSATDPKRNARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>ZmPIP2;5</i>   | IGTFVLVYTVFSATDPKRNARDS---HVPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>AtPIP2;5</i>   | IGTFVLVYTVFSATDPKRSARDS---HVPVLAPLP | IGFAVFIVHLATIP--ITGTGINPA   |
| <i>AtPIP2;7</i>   | IGTFVLVYTVFSATDPKRSARDS---HIPVLAPLP | IGFAVFMVHLATIP--ITGTGINPA   |
| <i>NtXIP1;1α</i>  | FCTFVFLFASIWMAYDHRQAKALGLVTVLSIGV   | LGLLVFISTT VTMMKKGYAGAGMNPA |
| <i>NtXIP1;1β</i>  | FCTFVFLFASIWMAYDHRQAKALGLVTVLSIGV   | LGLLVFISTT VTMMKKGYAGAGMNPA |
| <i>StXIP1;1α</i>  | FCTFVFLFASIWMAYDHRQAKALGHVTVLSIGV   | LGLLVFISTT VTAKKGYGGAGINPA  |
| <i>StXIP1;1β</i>  | FCTFVFLFASIWMAYDHRQAKALGHVTVLSIGV   | LGLLVFISTT VTAKKGYGGAGINPA  |
| <i>SlXIP1;1α</i>  | FCTFVFLFASIWMAYDHRQAKALGHVTVLSIGV   | LGLLVFISTT VTAKKGYGGAGINPA  |
| <i>SlXIP1;1β</i>  | FCTFVFLFASIWMAYDHRQAKALGHVTVLSIGV   | LGLLVFISTT VTAKKGYGGAGINPA  |
| <i>AtNIP1;2</i>   | IEFIITFYLMFVISGVATDNRAIG-----ELAGLA | VGSTVLLNVI IAGP--VSGASMNPG  |

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*OeuPIP1;1a* RSLGAIIYNKDKAWDDHWIFWVGPFFIGAALAALYHVVVIRAI PFKK-----  
*OeuPIP1;1b* RSLGAIIYNKDKAWDDHWIFWVGPFFIGAALAALYHVVVIRAI PFKK-----  
*OeuPIP1;1c* RSLGAIIYNKDKAWDDHWIFWVGPFFIGAALAALYHVVVIRAI PFKK-----  
*OeuPIP1;2* RSLGAIIYNKDKAWDDHWIFWVGPFFIGAALAALYHVVVIRAI PFKNK-----  
*OeuPIP1;3* RSLGAIIYNRDHAWDDQWIFWVGPFFIGAALAIIYHQIVIRAI PFKSRA-----  
*OeuPIP1;4* RSLGAIIYNKDHAWDDHWIFWVGPFFIGAALAALYHQVIIRAI PFKSSS-----  
*OeuPIP1;5* RSLGAIIYNRDNAWDDHWIFWVGPFFIGAALAIIYHQIVIRAI PFKSSQAC-----  
*OeuPIP1;6* RSLGAIIYNKDHAWDDHWIFWVGPFFIGAALAALYHQVIIRAI PFKSGN-----  
*OeuPIP2;1* RSFGAAVIYNEDKPWDDHWIFWVGPFVFGALIAAIYHQYILRAGAIKALGSFRSNA-----  
*OeuPIP2;2* RSFGAAVIYNKDKPWDDHWIFWVGPFFIGAAIAAFYHQYILRAAAIKALGSFRSNN-----  
*OeuPIP2;3* RSFGAAVIYNQEKAWDDQWIFWVGPFFIGAAIAAFYHQFILRAGAAKALGSFRSSYHV---  
*OeuPIP2;4* RSLGAAVIYNQEKAWDDQWIFWVGPFFIGAAIAAFYHQFILRAGAAKALGSFRSSSHV---  
*OeuPIP2;5* RSLGAAVIYGKDKAWDDQWIFWVGPFFIGAAIAAFYQYILRAGAVKALGSFRSTAH----  
*OeuPIP2;6* RSLGAAVIYDQHKAWDDHWIFWVGPFFIGAAVAAFYHQFILRAGAAKALGSFRSSASHH--  
*OeuPIP2;7* RSFGAAVIYGKDKAWDDQWIFWAGPFFIGAAIAALYHQYILRAGAVKALGSFRSSASAY--  
*OeuPIP2;8* RSFGAAVIYNNDKVVDDHWIFWVGPFVFGALAAAAYHQYILRAAAIKAIGSFRSNPTN---  
*OeuPIP2;9* RSFGAAVIFNNDKVVDDHWIFWVGPFVFGALAAAAYHQYILRAAAIKALGSFRSNPTN---  
*OeuPIP2;10* RSFGPAVIYNQKKAWDDQWIFWVGPFFIGAAMAALYHQCILRA--KAFRSYRSSSRI---  
*OeuTIP1;7* VSFGPAVVSWSW---TWDNHWVYWAGPLIGGGLAGLIYEFFINQ-THEQLPTTDH-----  
*OeuTIP2;1* RSFGPAVASG---NFSGIWIYWVGPLIGGGLAGLVYAYVFMSH--EHAPLPTDF-----  
*OeuTIP2;2* RSFGPAVASG---NFSGIWIYWVGPLIGGGLAGLVYAYVFMSH--EHAPLPTDF-----  
*OeuTIP5;3* YAFGSAIVGG---SFKNQAVYWVGPLFGAAIAGILHDNVVCPAPVPDSFRGNADGVGV--  
*OeuNIP1;1* RSLGPAIVSN---KYKGIWIYIVGPTLGAVAGAWVYNIIRFTNKPLREITKSASFLKSSA  
*OeuNIP1;3* RSLGPAIVSN---RYEGIWIYIVGPTLGAIAGAWAYNIIRFTDKPLREITQTASFLKILA  
*OeuXIP1;1* RCLGAAIVRG-GHLWDGHWIFWVGPAIACVAFYLYTKIIPRQHHAHAK-GYGHDFFDTVKA  
*OeuXIP1;3* RCFGAAVVRG-GHLWNGHWIFWVGPAIACVAFYLYTKIIPRQHYQAKF-YDHDFFNVVKA  
*AtTIP1;1* VAFGPAVVSWSW---TWTNHWVYWAGPLVGGGIAGLIYEVEFFINT-THEQLPTTDY-----  
*AtTIP1;2* VAFGPAVVSWSW---TWTNHWVYWAGPLIGGGLAGLIYDFVFDENAHEQLPTTDY-----  
*TgTIP1;1* IAFGPALVSW---SWTSHWVYWVGPLIGGGIAGIVYDLFFINS-THEQLPSTDY-----  
*TgTIP1;2* IAFGPALVSW---SWASHWVYWVGPLIGGGIAAIVYDLFFISG-THEQLPTTDY-----  
*AtTIP2;3* RSFGPAVVSWSW---DLSQIWIYWVGPLVGGALAGLIYGDVFIGS--YEAVETREIRV----  
*AtPIP2;1* RSFGAAVIYNKSKPWDDHWIFWVGPFFIGAAIAAFYHQFVLRASGSKSLGSFRSAANV---  
*AtPIP2;2* RSFGAAVIYNKSKPWDDHWIFWVGPFFIGAAIAAFYHQFVLRASGSKSLGSFRSAANV---  
*AtPIP2;4* RSFGAAVIYNNEKAWDDQWIFWVGPMIGAAAAAFYHQFILRAAAIKALGSFGSFGSFRSF  
*ZmPIP2;5* RSLGAAVIYNNDKAWDDHWIFWVGPFFIGAAIAAAYHQYVLRASAAK-LGSSASFSSR----  
*AtPIP2;5* RSLGAIIYNKDKAWDDHWIFWVGPFFIGAAIAAFYHQFVLRAGAIKALGSFRSQPHV---  
*AtPIP2;7* RSFGAAVIYNNEKAWDDQWIFWVGPFFIGALAAAAYHQYILRASAIKALGSFRSNATN---  
*NtXIP1;1α* RCFGAAVVRG-GHLWDGHWIFWVGPTIACVAFYVYTKIIPPKHFHAD-GYKYDFIGVVKA  
*NtXIP1;1β* RCFGAAVVRG-GHLWDGHWIFWVGPTIACVAFYVYTKIIPPKHFHAD-GYKYDFIGVVKA  
*StXIP1;1α* RCLGPAIIRG-GHLWDGHWIFWVGPTIGCVAFYVYTKIIPPKHFLAEYGFKHDFVGVVKA  
*StXIP1;1β* RCLGPAIIRG-GHLWDGHWIFWVGPTIGCVAFYVYTKIIPPKHFLAEYGFKHDFVGVVKA  
*SlXIP1;1α* RCLGPAIIRG-GHLWDGHWIFWVGPTIGCVAFYVYTKIIPKHFLAEYGFKHDFVGVVKA  
*SlXIP1;1β* RCLGPAIIRG-GHLWDGHWIFWVGPTIGCVAFYVYTKIIPKHFLAEYGFKHDFVGVVKA  
*AtNIP1;2* RSLGPAMVYS---CYRGLWIVIVSPIVGAVSGAWVYNMVRVYTDKPLREITKSGSFLKT-V  
  
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## Urea Transporters

*OeuPIP1;1a* GVS~~K~~S~~D~~S-----KCKTVGIQGI~~A~~WAFGGMIFALVYCTAGISGGHINPAVTFGLFLGR  
*OeuPIP1;1b* GVS~~K~~S~~D~~S-----KCKTVGIQGI~~A~~WAFGGMIFALVYCTAGISGGHINPAVTFGLFLGR  
*OeuPIP1;1c* GVS~~K~~S~~D~~S-----KCKTVGIQGI~~A~~WAFGGMIFALVYCTAGISGGHINPAVTFGLFLGR  
*OeuPIP1;2* GVS~~K~~S~~D~~S-----K~~C~~STVGIQGI~~A~~WAFGGMIFALVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP1;3* GVFS~~A~~KN-----K~~C~~ASVGVQGI~~A~~WAFGGMIFALVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP1;4* GVSRS~~G~~S-----K~~C~~ASVGIQGI~~A~~WAFGGMIFALVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP1;5* GVGRS~~N~~S-----K~~C~~ASVGIQGI~~A~~WSFGGMIFALVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP1;6* GVSRS~~N~~S-----K~~C~~TSVGIQGI~~A~~WAFGGMIFALVYCTAGISGGHINPAVTFGLFVAR  
*OeuPIP2;1* GYKSQIDPAHG--GDDCGGVGILGIAWAFGGMIFILVYCTAGISGGHINPAVTFGLFLGR  
*OeuPIP2;2* GYKSQIDPAHG--GDQCGGVGILGIAWAFGGMIFILVYCTAGISGGHINPAVTFGLFLGR  
*OeuPIP2;3* GYKSQTD~~T~~NAGHGGDQCGGVVLGIAWAFGGMIFVLVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP2;4* GYKSQID~~T~~TVGHGGDQCGGVGILGIAWAFGGMIFVLVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP2;5* GYK~~S~~ESA-----ADKCGVGILGIAWAFGGMIFVLVYCTAGISGGHINPAVTLGLFLAR  
*OeuPIP2;6* GYKSQTD~~P~~DLK--GDQCDGVGILGIAWAFGGMIFILVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP2;7* GYKSQ~~S~~A-----TDEC~~G~~GVGILGIAWAFGGMIFVLVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP2;8* GHKKL~~N~~A-----ADQCDGVGILGIAWAFGGMIFILVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP2;9* GHKKL~~N~~A-----ADQCDGVGILGIAWAFGGMIFILVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP2;10* GYKSQNDTHCG----GGGVGILGIAWAFGGMIFVLVYCTAGISGGHINPAVTFGLFLAR  
*OeuPIP2;11* GYKSHLDTDLK--GDQCGGVRI~~L~~GIAWAFGGMIFILVYCTAGISGGHINPAVTFGLFLAR  
*OeuTIP1;1* AFAKLT~~D~~NE-----STTPAGLIAA~~S~~IAHAFALFVAVSVGANISGGHVNPAVTFGAFVGG  
*OeuTIP1;2* AFAKLT~~D~~GG-----SSTPAGLIAA~~S~~IAHAFALFVAVSVAANISGGHVNPAVTFGAFVGG  
*OeuTIP1;3* AYNKLTG~~N~~A-----PTSPSGLVAA~~A~~VAHGFALFVAVSVANISGGHVNPAVTFGLFLGG  
*OeuTIP1;4* AFAKLT~~N~~NG-----STTP~~T~~GLIAE~~A~~IAHAFALFVAVSVGANISGGHVNPAVTFGAFVGG  
*OeuTIP1;5* AFAKLT~~N~~NG-----STTP~~T~~GLIAE~~A~~IAHAFALFVAVSVGANISGGHVNPAVTFGAFVGG  
*OeuTIP1;6* AFNKL~~S~~NDG-----SPNPSGLLAA~~A~~LAHAFALFVAVSVGANISGGHVNPAVTFGAFVGG  
*OeuTIP1;7* AFNKL~~T~~DDG-----ATTPAGLIAA~~V~~AHAFALFVAVSVGANISGGHVNPAVTFGAFVGG  
*OeuTIP2;1* AYNKLT~~A~~DA-----ALDPAGLV~~A~~VAICHGFALFVAVSIGANISGGHVNPAVTFGLAVGG  
*OeuTIP2;2* AYNKLT~~A~~DA-----ALDPAGLV~~A~~VAICHGFALFVAVSIGANISGGHVNPAVTFGLAVGG  
*OeuTIP2;3* AYNKLT~~Y~~DA-----ALDPAGLV~~A~~VAVCHGFALFVAVSIGANISGGHVNPAVTFGLAVGG  
*OeuTIP2;4* AYNKLT~~S~~DA-----ALDP~~P~~GLV~~A~~VAVAHAFALFVGVSMAANVSGGHVNPAVTFGLAIGG  
*OeuTIP2;5* AYNKLT~~S~~DA-----ALDP~~P~~GLV~~A~~VAVAHAFALFVGVSMAANVSGGHVNPAVTFGLAIGG  
*OeuTIP3;1* ALDKMY~~K~~DT-----ALGASSLVVIALA~~H~~ALS~~L~~FAAVASSMNVSGGHVNPAVTFGALVGG  
*OeuTIP4;1* ATDKL~~N~~GD-----PLVGLFFVAMAH~~L~~VVAVMISAGFRVSGGHVNPAVTLGLLGG  
*OeuTIP5;1* STLK~~M~~MPDA-----ASNSSGLV~~A~~IAVANAFALSVAVYIAYNISGGHVNPAVTFGMAIGG  
*OeuTIP5;2* STLK~~M~~MPDA-----ASNSSGLV~~A~~IAVANAFALSVAVYIAYNISGGHVNPAVTFGMAIGG  
*OeuTIP5;3* SSRK~~M~~MPDA-----ASDSSSLV~~A~~IAVANAFALSVTVYISANISGGHVNPAVTFGMVGG  
*OeuNIP1;1* VNADK~~K~~II~~T~~-----MPGIAIVWGLVVMVMIYSVGHISGAHFNPAVTIAFASCK  
*OeuNIP1;2* VNKNM~~E~~NVVT-----LPGIAAVCGLV~~V~~VVMIYSVGHISGAHFNPAVTIAFATFK  
*OeuNIP1;3* VNADK~~E~~EVIT-----QPGIAIVWGLVVMAMVYSVGHISGAHFNPAVTIAFATCK  
*OeuNIP3;1* VDR--E~~K~~TLT-----VVGLAMVWGLALMAMIYALGHVSGGHFNPAVTIGFAAAR  
*OeuNIP4;1* VNKLYGGT~~V~~T-----FPGICATWGLIVMVMVYSVGHISGAHFNPAVTITFAIFR  
*OeuNIP5;1* VNQKYNQ~~A~~ET-----LIGNAACAGLAAMIVILSTGHISGAHFNPSLTIAFAAVR  
*OeuNIP5;2* VNQKYNQ~~A~~ET-----LIGNAACAGLAVMIVILSTGHISGAHFNPSLTIAFAALR  
*OeuNIP7;1* IMHLIGLEAG-----LM~~E~~YAATAALTVTVIVFSGAISGAHVNPAVTIAFATVG  
*OeuXIP1;2* STIES~~D~~I-----KIPNLVLSILA~~A~~IIIAILLAVHPVSGGHINPVISFSAALVG  
*OeuXIP1;3* STIET~~D~~V-----KMPNLVLSILA~~A~~IIIAIVLLAVHPISGGHINPVISFSAALVG  
*NtTIPa* AANKL~~N~~GD-----PLVSLFFVAMAH~~L~~VVAVTISAGFRISGGHVNPAVTLGLCMGG  
*AtTIP4;1* ATDSL~~V~~GN-----TLVGLFAVAVAHAFV~~V~~AVMISAG-HISGGHVNPAVTLGLLLGG  
*AtTIP1;1* AFNKL~~T~~ENG-----ATTPSGLVAA~~A~~VAHAFGLFVAVSVGANISGGHVNPAVTFGAFVGG  
*AtTIP1;2* AFNKIT~~D~~NG-----ATTPSGLVAA~~A~~LAHAFGLFVAVSVGANISGGHVNPAVTFGLVLLGG  
*AtTIP1;3* AYGKLT~~G~~DG-----PATPAGLVAA~~S~~LSHAFALFVAVSVGANVSGGHVNPAVTFGAFVGG  
*AtTIP2;1* AYAKLT~~S~~DA-----ALDTPGLV~~A~~IVCHGFALFVAVAIGANISGGHVNPAVTFGLAVGG  
*AtTIP5;1* SSRKL~~M~~AGD-----VSGPFGVLI~~P~~AIANALALSSSVYISWNVSGGHVNPAVTFAMAVAG  
*NtAQPI* GLKRS~~D~~S-----LCSSVGIQGV~~A~~WAFGGMIFALVYCTAGISGGHINPAVTFGLFLAR  
*ZmPIP1;5* GVS~~K~~SSS-----KCATVGIQGI~~A~~WSFGGMIFALVYCTAGISGGHINPAVTFGLFLAR  
*NtXIP1;1α* STFES~~D~~V-----KMPNLIMSILIAIVITILLAVVPVSGGHINPVISFSAALVG  
*NtXIP1;1β* STFES~~D~~V-----KMPNLIMSILIAIVITILLAVVPVSGGHINPVISFSAALVG  
*StXIP1;1α* STFES~~D~~T-----KMPNLIMSILIAV~~V~~ITILLAVVPVSGGHINPVISFSAALVG  
*StXIP1;1β* STFES~~D~~T-----KMPNLIMSILIAV~~V~~ITILLAVVPVSGGHINPVISFSAALVG  
*CpNIP1* LNGSDAQRVS-----QLGASVAGGLIVT~~V~~MIYAVGHISGAHMNEAVTTAF~~A~~AATR  
*OsNIP2;1* ISGSDLSRIS-----QLGQSIAGGLIVT~~V~~MIYAVGHISGAHMNEAVTLAF~~A~~AVFR  
*AtNIP6;1* VNQKTDGAET-----LIGCAASAGLAVMIVILSTGHISGAHFNPAVTIAFAALK

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*OeuPIP1;1a* KGDGLGAEIIGTFVLVYT-VFSATDAKRSARDSHVPILAPLPIGFAVFLVHLATIPI-TG  
*OeuPIP1;1b* KGDGLGAEIIGTFVLVYT-VFSATDAKRSARDSHVPILAPLPIGFAVFLVHLATIPI-TG  
*OeuPIP1;1c* KGDGLGAEIIGTFVLVYT-VFSATDAKRSARDSHVPILAPLPIGFAVFLVHLATIPI-TG  
*OeuPIP1;2* KGSGLGAEIIGTFVLVYT-VFSATDAKRSARDSHVPILAPLPIGFAVFLVHLATIPI-TG  
*OeuPIP1;3* KGDALGAEIVGTFFILVYT-VFSATDAKRNARDSHVPILAPLPIGFAVFLVHLATIPI-TG  
*OeuPIP1;4* KGDGLGAEIIGTFVLVYT-VFSATDAKRNARDSHVPILAPLPIGFAVFLVHLATIPI-TG  
*OeuPIP1;5* KGDGLGAEIVGTFFILVYT-VFSATDAKRNARDSHVPILAPLPIGFAVFLVHLATIPI-TG  
*OeuPIP1;6* KGDGLGAEIIGTFVLVYT-VFSATDAKRNARDSHVPILAPLPIGFAVFLVHLATIPI-TG  
*OeuPIP2;1* KGVGLGAEIIGTFVLVYT-VFSATDPKRNARDSHVPVLAAPLPIGFAVFMVHLATIPI-TG  
*OeuPIP2;2* KGVGLGAEIIGTFVLVYT-VFSATDPKRNARDSHVPVLAAPLPIGFAVFMVHLATIPI-TG  
*OeuPIP2;3* TGVGLSAEIIGTFVLVYT-VFSATDPKRSARDSHVPVLAAPLPIGFAVFMVHLATIPI-TG  
*OeuPIP2;4* TGVGLSAEIIGTFVLVYT-VFSATDPKRSARDSHVPVLAAPLPIGFAVFMVHLATIPI-TG  
*OeuPIP2;5* NGTGLAAEIIGTFVLVYT-VFSATDPKRNARDSHVPVLAAPLPIGFAVFMVHLATIPI-TG  
*OeuPIP2;6* TGVGLAAEIIGTFVLVYT-VFSATDPKRSARDSHVPVLAAPLPIGFAVFMVHLATIPI-TG  
*OeuPIP2;7* TGTGLAAEIIGTFVLVYT-VFSATDPKRSARDSHVPVLAAPLPIGFAVFMVHLATIPI-TG  
*OeuPIP2;8* IGTALGAEIIGTFVLVYT-VFSATDPKRSARDSHVPVLAAPLPIGFAVFMVHLATIPI-TG  
*OeuPIP2;9* TGTALGAEIIGTFVLVYT-VFSATDPKRSARDSHVPVLAAPLPIGFAVFMVHLATIPI-TG  
*OeuPIP2;10* TGGGLAAEIIGTFVLVYT-VFSATDPKRSARDSHVPVLAAPLPISIGFAVFMVHLATIPI-TG  
*OeuPIP2;11* TSVGLS--IGTFVLVYT-VFSATDPKRSARDSHV-VLAAPLPIGFAVFMVHLATIPI-TG  
*OeuTIP1;1* VWNNAVIFEIVMTFGLVYTVYATAVDPPK----GNLGIAPIAIGFIVGANILAGGAF-DG  
*OeuTIP1;2* SWNALVFEIVMTFGLVYTVYATAVDPPK----GDIGIAPIAIGFIVGANILAGGAF-DG  
*OeuTIP1;3* VWNNAVFEIVMTFGLVYTVYATAVDPPK----GEIGIAPIAIGFIVGANILAGGAF-TG  
*OeuTIP1;4* VWNNAVFEIVMTFGLVYTVYATAVDPPK----GNLGIAPIAIGFIVGANILAGGAF-DG  
*OeuTIP1;5* VWNNAVFEIVMTFGLVYTVYATAVDPPK----GNLGIAPIAIGFIVGANILAGGAF-DG  
*OeuTIP1;6* VWNALVFEIVMTFGLVYTVYATAVDPPK----GNLGNIAPIAIGFIVGANILAGGAF-DG  
*OeuTIP1;7* VWNNAVLEIVMTFGLVYTVYATAVDPPK----GSLGTIAPIAIGFIVGANILAGGAF-DG  
*OeuTIP2;1* AFEVGVMEIVITFALVYTVYATAADPPK----GSLGTIAPIAIGFIVGANILAAGPF-SG  
*OeuTIP2;2* AFEVGVMEIVITFALVYTVYATAADPPK----GSLGTIAPIAIGFIVGANILAAGPF-SG  
*OeuTIP2;3* AIEGVVMEIVITFALVYTVYATAVDPPK----GSLGTIAPIAIGFIVGANILAAGPF-SG  
*OeuTIP2;4* AVEGVVMEIVITFALVYTVYATAADPPK----GSLGTIAPIAIGFIVGANILAAGPF-SG  
*OeuTIP2;5* AVEGVVMEIVITFALVYTVYATAADPPK----GSLGTIAPIAIGFIVGANILAAGPF-SG  
*OeuTIP3;1* EWNALVMEIVLTFGLVYTVYATAIDPPK----GSLGTIAPLAIAIGFIVGANVLVGGPF-SG  
*OeuTIP4;1* FAQGVIMEIVLTFSLFTVYATAVDPPK----GFLEGMGPLLTGLVVGANVMAGGPF-SG  
*OeuTIP5;1* GFGAAILEGVMTFTLVYTVYA-AADPRR----GSMIIIGPLAIGLVSGANVLASGPF-TG  
*OeuTIP5;2* GFGAAILEGVMTFTLVYTVYA-AADPRR----GSMIIIGPLAIGLVSGANVLASGPF-TG  
*OeuTIP5;3* GFGGAVLEGVMTFALVYTVYV-ASNLRP----VSAGAIGPLAIGLIAGANVLASGPF-TG  
*OeuNIP1;1* DMQSFVVEFIITFYLMFVISGVATDNRA-----IGELAGLAIGATILLNVMIAGPV-SG  
*OeuNIP1;2* DVQSFMIIEFITTFYLMFVISGVATDNRA-----IGELKGIAIGATLSNLIFAGPI-SG  
*OeuNIP1;3* DLQSFVMEFIITFYLMFVISGVATDNRA-----IGELSGLAIGATILLNVMFAGPV-SG  
*OeuNIP3;1* DLEAITWEFVITFIFMLTIRGVASDDRA-----L-----QLELQPI-TG  
*OeuNIP4;1* NGQSFAIEIISFLLMFTISGVATDSRA-----IGDLAGLVVGMTIMLNVFVAGPI-SG  
*OeuNIP5;1* IGQAFALEFLITFNLLFVVTAVATDTRA-----VGELAGIAVGATVMLNILVAGPS-SG  
*OeuNIP5;2* TGQAFALEFLITFNLLFVVTAVATDTRA-----VGELAGIAVGATVMLNILVAGPS-SG  
*OeuNIP7;1* CTAAFWVELIATFIILFLTASLSNDPQS-----IGQVSGFVVGVAIGLVLSISGPFVSGG  
*OeuXIP1;2* TVQAFWLEIFCTFVFLFASIWMAYDHRQAKELGHVTLFSIVGVVLGLLVFISTTVTAKKG  
*OeuXIP1;3* TAQAFWLEIICTFVLLFASVWMAYDHRQAKALGRVLVFSIVGVVLGLLVFISTTVTAKKG  
*NtTIPa* YGQGIIMEVILTFSLFTVYTTIVDPKK----GILEGMGPLLTGLVVGANIMAGGPF-SG  
*AtTIP4;1* YTQGIWEIILTFSLFTVYATIVDPKK----GSLDGFGLLTGFVVGANILAGGAF-SG  
*AtTIP1;1* VLNAFVFEIVMTFGLVYTVYATAIDPKN----GSLGTIAPIAIGFIVGANILAGGAF-SG  
*AtTIP1;2* SLNALVFEIVMTFGLVYTVYATAVDPPK----GSLGTIAPIAIGFIVGANILAGGAF-SG  
*AtTIP1;3* PWNNAVFEIVMTFGLVYTVYATAVDPPK----GDIGIAPLAIGLIVGANILVGGAF-DG  
*AtTIP2;1* SIEGVMEIITFALVYTVYATAADPPK----GSLGTIAPLAIGLIVGANILAAGPF-SG  
*AtTIP5;1* GFGASVLEGVLAFLVYTVFT-ASDPRR----GLPLAVGPPIGIFVAGANVLAAGPF-SG  
*NtAQp1* KGDGLGAEIIGTFVLVYT-VFSATDAKRNARDSYVPILAPLPIGFAVFLVHLATIPI-TG  
*ZmPIP1;5* KGDGLGAEIVGTFFILVYT-VFSATDAKRSARDSHVPILAPLPIGFAVFLVHLATIPI-TG  
*NtXIP1;1α* MAQALWLEIFCTFVFLFASIWMAYDHRQAKALGLVTVLSIVGIVLGLLVFISTTVTMKKG  
*NtXIP1;1β* MAQALWLEIFCTFVFLFASIWMAYDHRQAKALGLVTVLSIVGIVLGLLVFISTTVTMKKG  
*StXIP1;1α* TAQALWLEIFCTFVFLFASIWMAYDHRQAKALGHVTVLSIVGLVLGLLVFISTTVTAKKG  
*StXIP1;1β* TAQALWLEIFCTFVFLFASIWMAYDHRQAKALGHVTVLSIVGLVLGLLVFISTTVTAKKG  
*CpNIP1* DLQALVMEIVVTFSMFVTCVAVATDTKA-----VGELAGLAVGSAVCITSILAGPV-SG  
*OsNIP2;1* HWHSLVVEIVTFNMMFVTLAVATDTRA-----VGELAGLAVGSAVCITSIFAGAI-SG  
*AtNIP6;1* LSQAFALEFIISFNLMFVVTAVATDTRA-----VGELAGIAVGATVMLNILIAGPA-TS

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*OeuPIP1;1a* ---TGINPARSLGAIIYNKDKAWDD-HWIFWVGPFIGAALAALYHVVVIRAI PFKK---  
*OeuPIP1;1b* ---TGINPARSLGAIIYNKDKAWDD-HWIFWVGPFIGAALAALYHVVVIRAI PFKK---  
*OeuPIP1;1c* ---TGINPARSLGAIIYNKDKAWDD-HWIFWVGPFIGAALAALYHVVVIRAI PFKK---  
*OeuPIP1;2* ---TGINPARSLGAIIYNKDKAWDD-HWIFWVGPFIGAALAALYHVVVIRAI PFKNK--  
*OeuPIP1;3* ---TGINPARSLGAIIYNRDHAWDD-QWIFWVGPFIGAALAIYHQIVIRAI PFKSR--  
*OeuPIP1;4* ---TGINPARSLGAIIYNKDKAWDD-HWIFWVGPFIGAALAALYHQVIRAI PFKSSS-  
*OeuPIP1;5* ---TSINPARSLGAIIYNRDNAWDD-HWIFWVGPFIGAALAIYHQIVIRAI PFKSSQA  
*OeuPIP1;6* ---TGINPARSLGAIIYNKDHAWDD-HWIFWVGPFIGAALAALYHQVIRAI PFKSGN-  
*OeuPIP2;1* ---TGINPARSFGAAVIYNEDKPWDD-HWIFWVGPFVGGALIAAIYHQYILRAGAIKALGS  
*OeuPIP2;2* ---TGINPARSFGAAVIYNKDKPWDD-HWIFWVGPFIGAATAAFYHQYILRAAAIKALGS  
*OeuPIP2;3* ---TGINPARSFGAAVIYNQEKAWDD-QWIFWVGPFIGAATAAFYHQFILRAGAAKALGS  
*OeuPIP2;4* ---TGINPARSLGAAVIYNQEKAWDD-QWIFWVGPFIGAATAAFYHQFILRAGAAKALGS  
*OeuPIP2;5* ---TGINPARSLGAAVIYQDKAWDD-QWIFWVGPFIGAATAAFYHQYILRAGAVKALGS  
*OeuPIP2;6* ---TGINPARSLGAAVIYDQHKAWDD-HWIFWVGPFIGAATAAFYHQFILRAGAAKALGS  
*OeuPIP2;7* ---TGINPARSFGAAVIYQDKAWDD-QWIFWAGPFIGAATAALYHQYILRAGAVKALGS  
*OeuPIP2;8* ---TGINPARSFGAAVIYNNDKVWDD-HWIFWVGPFVGGALAAAAYHQYILRAAAIKAIGS  
*OeuPIP2;9* ---TGINPARSFGAAVIYNNDKVWDD-HWIFWVGPFVGGALAAAAYHQYILRAAAIKALGS  
*OeuPIP2;10* ---TSINPARSFPGAIVYNNQKAWDD-QWIFWVGPFIGAATAALYHQYILRAAAIKALGS  
*OeuPIP2;11* ---TGINPARSLGAAVIYNQDKAWDD-LWIFWVGPFIGAATAAFYHQFILRAGAVKALGS  
*OeuTIP1;1* ---ASMNPVVSFGP---AVVSWTWDS-HWVYWLGPFGVAGIAALVYEILFINQS-----  
*OeuTIP1;2* ---ASMNPVVSFGP---AVVSWTWDS-HWVYWLGPFGVAGIAAIVYEIVFINQT-----  
*OeuTIP1;3* ---ASMNPVVSFGP---ALVSFTWTH-HWVYWAGPLIGGGLAGIVYEIVFVNH-----  
*OeuTIP1;4* ---ASMNPVVSFGP---AVVSWTWDN-HWVFWLGPFGVAGIAALIYDILFINQS-----  
*OeuTIP1;5* ---ASMNPVVSFGP---AVVSWTWDS-HWVFWLGPFGVAGIAALIYEILFINQS-----  
*OeuTIP1;6* ---ASMNPVVSFGP---AVVSL-----VFDQKD-----  
*OeuTIP1;7* ---ASMNPVVSFGP---AVVSWTWDN-HWVYWAGPLIGGGLAGLIYEFFFFINQ-----  
*OeuTIP2;1* ---GSMNPARSFGP---AVASGNFSG-IWIYWVGPLIGGGLAGLVYAYVFM-SH-----  
*OeuTIP2;2* ---GSMNPARSFGP---AVASGNFSG-IWIYWVGPLIGGGLAGLVYAYVFM-SH-----  
*OeuTIP2;3* ---GSMNPARSFGP---AVASGDFAD-NWIYWVGPLIGGGLAGLVYAYVFM-VH-----  
*OeuTIP2;4* ---GSMNPARSFGP---AVAAGDFSQ-NWIYWVGPLIGGGLAGLVYGYVFIASY-----  
*OeuTIP2;5* ---GSMNPARSFGP---AVAADVFSQ-NWIYWVGPLIGGGLAGLVYGDVFIGSY-----  
*OeuTIP3;1* ---ASMNPARAFGP---ALVGWRWGD-HWVYWLGPFGVAGALAGIYIEFVGIQTETPHPTH  
*OeuTIP4;1* ---ASMNPARSFGP---ALVSGDWDN-HWVYWVGPLIGGGLAGIYIENFFIVRS-----  
*OeuTIP5;1* ---GSMNPAYSFGS---ALVGSFKN-QAVYWIGPLIGAATAGILYEHVVFPAQQ-----  
*OeuTIP5;2* ---GSMNPAYSFGS---ALVGSFKN-QAVYWIGPLIGAATAGILYEHVVFPAQQ-----  
*OeuTIP5;3* ---GSMNPAYAFGS---ALVGSFKN-QAVYWVGPLFGAATAGILHDNVVCPAP-----  
*OeuNIP1;1* ---ASMNPARSLGP---AIVSNKYKG-IWIYIVGPTLGAVAGAWVYNIIRFTNKLPREIT  
*OeuNIP1;3* ---ASMNPVRS LGP---AIVSNRYEG-IWIYIVGPTLGAIAGAWAYNIIRFTDKLPREIT  
*OeuNIP1;2* ---ASLNPARSLGP---AIVSNRYEG-LWNYILAPISGAIAGAWVYNIIRFTDKLPREIT  
*OeuNIP3;1* ---ASMNPARSMGP---AIVSGVYKN-QWVYVAPILGATAASLIYSLQPKPKKHRES  
*OeuNIP4;1* ---ASMNPARSIGP---AIVKHTYKG-LWVYIFGPLIGTILGGFAYNLIRYTNKPLRELT  
*OeuNIP5;1* ---GSMNPVRTLGP---AVAAGNYKA-VWIYLLAPTLGALAGAGIYTLVKLNQEEEEAPS  
*OeuNIP5;2* ---GSMNPVRTLGP---AVAAGNYKV-IWVYLLAPTLGALAGAGIYTLVKLNQEEEEVPR  
*OeuNIP7;1* ---GSMNPARSLGP---ALVSWKFDDHLWIYLVAPTIGAIAGVFVYRILRLQGWSCESSQ  
*OeuXIP1;2* YAGAGMNPARCFGAIVRG-GHLWNV-YWVFWAGPTIACVAFYLYTKIIPCKHRSKYSY  
*OeuXIP1;3* YAGAGMNPARCFGAIVRG-GHLWNG-HWIFWVGPAIACVAFYLYTKIIPRQHYQAKF-Y  
*NtTIPa* ---ASMNPARSFGP---AFVSGIWDN-HWVYWVGPLIGGGLAGFICENFFIVRT-----  
*AtTIP4;1* ---ASMNPARSFGP---ALVSGNWDN-HWVYWVGPLIGGGLAGFIYENVLIDRP-----  
*AtTIP1;1* ---ASMNPVAFSGP---AVVSWTWTN-HWVYWAGPLVGGGIAGLIYEVEFFINT-----  
*AtTIP1;2* ---ASMNPVAFSGP---AVVSWTWTN-HWVYWAGPLIGGGLAGIYDVFVIDEN-----  
*AtTIP1;3* ---ASMNPVVSFGP---AVVSWIWTN-HWVYWVGPFIGAATAAIVYDTIFIGSN-----  
*AtTIP2;1* ---GSMNPARSFGP---AVAAGDFSG-HWVYWVGPLIGGGLAGLIYGNVFMGSS-----  
*AtTIP5;1* ---GSMNPACAFGS---AMVYGSFKN-QAVYWVGPLLGATAALVYDNVVPVED-----  
*NtAQp1* ---TGINPARSLGAIIYNTDQAWDD-HWIFWVGPFIGAALAAVYHQIIRAI PFHKSS-  
*ZmPIP1;5* ---TGINPARSLGAIVYNRSHAWN-D-HWIFWVGPFIGAALAIYHVVIIRAL PFKSRD-  
*NtXIP1;1a* YAGAGMNPARCFGAIVRG-GHLWDG-HWIFWVGPTIACVAFYVYTKIIPPKHFHAD-GY  
*NtXIP1;1b* YAGAGMNPARCFGAIVRG-GHLWDG-HWIFWVGPTIACVAFYVYTKIIPPKHFHAD-GY  
*StXIP1;1a* YGGAGINPARCLGPAIIRG-GHLWDG-HWIFWVGPTIGCVAFYVYTKIIPPKHFLAEYGF  
*StXIP1;1b* YGGAGINPARCLGPAIIRG-GHLWDG-HWIFWVGPTIGCVAFYVYTKIIPPKHFLAEYGF  
*CpNIP1* ---GSMNPVRTLGP---AMASDNYKG-LWVYFVGPTGTLLGAWSYKFIASDKPVHLIS  
*OsNIP2;1* ---GSMNPARTLGP---ALASNKFDG-LWIYFLGPVMGTLSGAWTYTFIRFEDTPKEGSS  
*AtNIP6;1* ---ASMNPVRTLGP---ATAANNYRA-IWVYLTAPILGALIGAGTYTIVKLP-EEDEAPK  
  
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