

### Accessory Publication

**Table S1. Primer combinations used in this study for PCR and sequencing**

F, forward primer; R, reverse primer

Primer name	Vitis gene	Application	Sequence
PIP1;1 F	VitisPIP1;1 (AF141643)	PCR	5'-AAGAGAAGAGAAGAGAGATGGAAGG-3'
PIP1;1 R			5'-CACATTTACAGCGTCACCT-3'
PIP1;2 F	VitisPIP1;2 (AF141898)	PCR	5'-AAGCTCTGAACTCTCAGTGTTTTTC-3'
PIP1;2 R			5'-CATTCAAAAAGCTGCCATTG-3'
PIP1;3 F	Vitis PIP1;3 (AF141899)	PCR	5'-TTTGAGTGGTGCTGAGTTGC-3'
PIP1;3 R			5'-GGGCAGGGAAGGATAAAAAGA-3'
PIP2;1 F	Vitis PIP2;1 (AF141642)	PCR	5'-ACCTTCTCCTGAACCCCTA-3'
PIP2;1 R			5'-CAACAAGACAAAGCCCAACA-3'
PIP2;2 F	Vitis PIP2;2 (AF141900)	PCR	5'-GGGATAAGTGAGAAGAGAGAACAGA-3'
PIP2;2 R			5'-GCCCAAAGCTAACAAAGAAGG-3'
TIP1 F	Vitis TIP1 (AF271661)	PCR	5'-TTCATCTTCAATAGTTGCTTCCA-3'
TIP1 R			5'-CACAGCTTGAACCAAAGCAA-3'
TIP2 F	Vitis TIP2 (AF271662)	PCR	5'-TTCAGAAGCCTTTTGTACTGGA-3'
TIP2 R			5'-CACCATCGAAGGCACCAC-3'
TIP3 F	Vitis TIP3 (AF271660)	PCR	5'-GGCCTAGAGCTTGAGGAGGA-3'
TIP3 R			5'-TGATTGCAAACAAACCAGACA-3'
VvPIP1a F	VvPIP1a (AF188843)	PCR	5'-TGTTTTCAGATCTGTAGAGGGGAGA-3'
VvPIP1a R			5'-ATTCAAAAGCTGCCATTGT-3'
VvPIP1b F	VvPIP1b (AF188844)	PCR	5'-TTTGAGTGGTGCTGAGTTGC-3'
VvPIP1b R			5'-TCAAAGGGGGTCCAACATAA-3'
pDONR222 F	Vector	5' RACE PCR	5'-CTGGCAGTTCCTACTCTCG-3'
VvPIP1;4 R	VvPIP1;4	5' RACE PCR	5'-GCAAAGATCATAACCCCAAA-3'
VvPIP2;3 R	VvPIP2;3	5' RACE PCR	5'-CCAACCCCGTTGCATTCATTC-3'
VvPIP2;3 F( <i>attB</i> )	VvPIP2;3	PCR (Gateway)	5'-GGGGACAAGTTTGTACAAAAAAGCAGGCTGCTCAAGCTCACTGAGAAG-3'
VvPIP2;3 R( <i>attB</i> )	VvPIP2;3	PCR (Gateway)	5'-GGGGACCACTTTGTACAAGAAAGCTGGGTGGAGTTTATTAGAGCAGAGTTGTTG-3'

VvPIP1;4 F( <i>attB</i> )	VvPIP1;4	PCR (Gateway)	5'-GGGGACAAGTTTGTACAAAAAGCAGGCTGGAGAAAAATGGAGGGGAAG-3'
VvPIP1;4R ( <i>attB</i> )	VvPIP1;4	PCR (Gateway)	5'-GGGGACCACTTTGTACAAGAAAGCTGGGTGAGCTCAACCCAGATTCAG-3'
M13F	Vector	Sequencing	5'-GTAAAACGACGGCCAG-3'
M13R	Vector	Sequencing	5'-CAGGAAACAGCTATGAC-3'
T7	Vector	Sequencing	5'-TAATACGACTCACTATAAGGG-3'
Gateway F	Vector	Sequencing	5'-CACATTATACGAGCCGGAAGCAT-3'
Gateway R	Vector	Sequencing	5'-CAGTGTGCCGGTCTCCGTTATCG-3'

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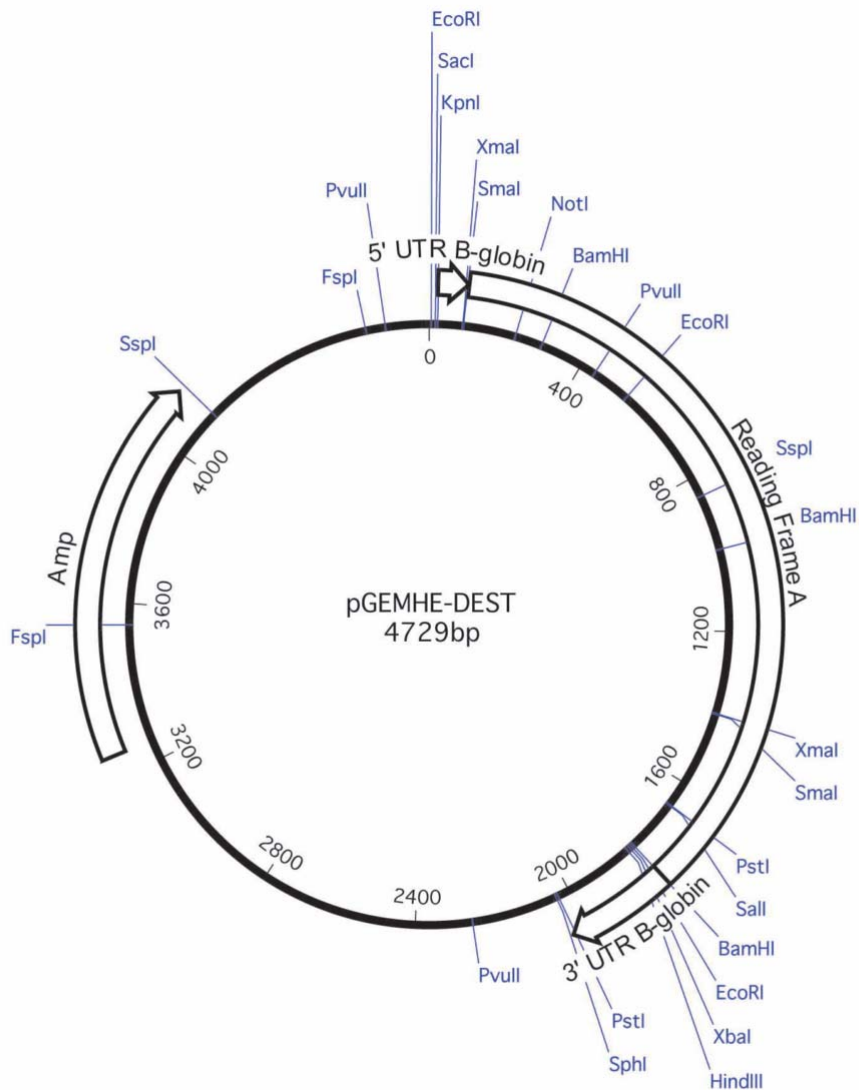
**Table S2. Grapevine aquaporin genes identified in *Vitis vinifera* cv. Pinot Noir (Entav 115)**

Gene name	Locus	Chromosome number	Protein accession	Amino acids	Notes
<b>PIPs</b>					
<i>PIP1;1</i>	AM474295.2	13	CAN77353	286	
<i>PIP1;3</i>	AM454917.2	2	CAN74419	287	
<i>PIP1</i>	AM437680.2	12	CAN82636	61 (partial)	C termini
<i>PIP1</i>	AM454570.2	19	CAN76706	384 (partial)	ABC Transporter/ PIP1 gene
<i>PIP1</i>	AM425110.1	9	CAN60156	575 (partial)	AA 1-180: unknown protein, 181-271: Gamma glutamyltranspeptidase, 423-575: homology to PIP1
<i>PIP2;1</i>	AM486947.2	13	CAN75442	284	
<i>PIP2;2</i>	AM473895.2	3	CAN77349	279	
<i>PIP2;3</i>	AM469487.2	8	CAN77241	287	
<b>TIPs</b>					
<i>TIP1;1</i>	AM443154.2	17	CAN74049	251	
<i>TIP1;2</i>	AM432932.2	8	CAN69323	251	
<i>TIP2;1</i>	AM464761.1	9	CAN70336	249	
<i>TIP2;2</i>	AM458201.2	2	CAN76842	250	
<i>TIP4;1</i>	AM430844.1	4	CAN66944	253	
<i>TIP;5;2</i>	AM483925.1	4	CAN77650	262	
<i>TIP5</i>	AM481595.2	Undetermined	CAN73028	416 (partial)	Amino acids: 1-74 C terminal protein RVT2 reverse transcriptase (RNA dependent DNA polymerase)
<b>NIPs</b>					
<i>NIP6;1</i>	AM452661.1	Undetermined	CAN83047	329	
<b>SIPs</b>					
<i>SIP1;1</i>	AM479429.2	8	CAN79588	238	
<i>SIP2;1</i>	AM480690.1	Undetermined	CAN70854	221	
<b>XIP</b>					
<i>XIP1</i>	AM455454	Undetermined		ND	Danielson and Johanson 2008

**Table S3. Conserved residues in loops B and E of grapevine MIPS**

Bold letters indicate differences in the highly conserved Glycine residue and differences found in the NPA motif in the NIPs and SIPs

Name	Protein accession number	Loop B	Loop E
<b>PIPs</b>	Consensus	ISGGHINPAVT	INPARS(L/F)GAA
VvPIP1	CAO67902	Loop B missing	INPARSLGPP
*VvPIP2;5	Not submitted	ISWGHINPAVT	INPARSLGAA
<b>TIPs</b>	Consensus	ISGGH(I/V/L)NPAVT	MNPARSFGPA
VvTIP2;3	CAO50033	Loop B missing	MNPARSFGPA
VvTIP5;2	CAO70596	ISDGHVNP <b>A</b> VT	MNPARSFGPA
<b>NIPs</b>		(I/V)SG(A/G)H(F/M/N)NP(A/S)(V/L)T	MNP(A/V)RS(I/L)GPA
VvNIP3;1	CAO17108	ISGAHFNPAVT	Loop E missing
VvNIP5;1	CAO62847	ISGAHLNP <b>S</b> LT	MNPVRTL <b>G</b> PA
VvNIP6;1	CAO45476	ISGAHLNP <b>A</b> VT	MNPVRTL <b>G</b> PA
<b>SIPs</b>			
VvSIP1;1	CAO23510	Loop B missing	MNPANAFGWA
VvSIP2;1	CAO18284	SKGGAYNP <b>L</b> TV	MNPAAVMGWA



**Fig. S1.** Expression vector pGEMHE-DEST. 5' and 3' UTRs from *Xenopus  $\beta$ -globin* gene flanking a polylinker (Krieg and Melton 1984) enabling the recombination of the reading frame cassette A containing the *ccdB* gene and chloramphenicol resistance gene.

### References

- Krieg PA, Melton DA (1984) Functional messenger-RNAs are produced by SP6 *in vitro* transcription of cloned cDNAs. *Nucleic Acids Research* **12**, 7057–7070. doi:10.1093/nar/12.18.7057
- Danielson JAH, Johanson U (2008) Unexpected complexity of the aquaporin gene family in the moss *Physcomitrella patens*. *BMC Plant Biology* **8**, 45. doi:10.1186/1471-2229-8-45