

**Figure S8. Consensus sequences for transport of H<sub>2</sub>O<sub>2</sub> and urea.** Alignment of putative amino acids of aquaporins of *V. Vinifera* (cv. Touriga nacional) obtained from present study and previous study (Leitão, 2012) with sequences of aquaporins reported to transport (A) H<sub>2</sub>O<sub>2</sub> and (B) urea. ar/R constrictions and P1-P5 positions are shown to demonstrate the conserved amino acid residue. Accession numbers of presented protein sequences are: *AtTIP1;1* (P25818), *AtTIP1;2* (Q41963), *AtTIP1;3* (NP\_192056), *AtTIP2;1* (Q41951), *AtTIP2;3* (Q9FGL2), *AtPIP2;4* (Q9FF53), *CpNIP1* (CAD67694), *NtAQP1* (O24662), *NtTIPa* (Q9XG70), *OsNIP2;1* (Q6Z2T3), *VvTnPIP1;1* (HQ913643), *VvTnPIP1;4* (KJ697714), *VvTnPIP2;1* (KJ697715), *VvTnPIP2;2* (HQ913642), *VvTnPIP2;3* (KJ697716), *VvTnTIP1;1* (KJ697717), *VvTnTIP2;1* (HQ913640), *VvTnTIP2;2* (KJ697718), *VvTnTIP4;1* (KJ697719), *ZmPIP1;5* (Q9AR14). *At*: *Arabidopsis thaliana*, *Cp*: *Cucurbita pepo*, *Nt*: *Nicotiana tabacum*, *Os*: *Oryza sativa*, *VvTn*: *Vitis vinifera* (cv. Touriga nacional), *Zm*: *Zea mays*.

**A**

	TMH2(ar/R)H/F/W	LC-P1(ar/R) T/Q/F	TMH5(ar/R) I/H/V	LE1(ar/R)A/T/G, LE2(ar/R)R/V, P2-A/S P3-A	TMH6_P4-Y/F, P5-W/I
VvTIPs	VvTnPIP1; 1	WAFGG	GFEK	LVHLA	GIGINPARSLGAAII
	→VvTnPIP1; 4	WAFGG	GFOG	LVHLA	GIGINPARSLGAAII
	→VvTnPIP2; 1	WSFGG	AFQS	MVHLA	GIGINPARSLGAAVI
	VvTnPIP2; 2	WAFGG	AFMK	MVHLA	GIGINPARSFGAAVI
	→VvTnPIP2; 3	WAFGG	LFQD	MVHLA	GIGINPARSLGAAVI
	→VvTnTIP1; 1	LAHGF	FSTG	ANILA	GASMNPAVSFGPAAVV
	VvTnTIP2; 1	VAHGF	LVTG	ANILA	GGSMNPARSFGPAAVV
	→VvTnTIP2; 2	IAHAF	FATN	ANILA	GGSMNPARSFGPAAVV
	→VvTnTIP4; 1	MAHAL	FLTG	ANVMA	GTGINPARSFGAAVI
	AtTIP1; 1	VAHAF	FATG	ANILA	GGSMNPARSFGPAAVV
	AtTIP1; 2	LAHAF	FATG	ANILA	GTGINPARSFGPALV
	AtTIP2; 3	IAHAF	FVTN	ANILA	GGSMNPAVAFGPAAVV
	AtPIP2; 4	WAFGG	AFQS	MVHLA	GGSMNPAVAFGPAAVV
	AtTIP2; 1	VCHGF	YVTG	ANILA	GGSMNPARSFGPAAVV
					GTGINPARSFGAAVI
					GGSMNPARSFGPAAVA
B	TMH2(ar/R)F/H/G/A/N	LC -P1-(ar/R) M/T/Q/L/F/V/I	TMH5(ar/R) H/I/S/V	LE1_(ar/R)T/A/G, LE2_(ar/R)R/V, P2-S/A/T , P3- A	TMH6_P4-F/Y, P5-W/F/L
	VvTnPIP1; 1	WAFGG	FEKG	LVHLA	GIGINPARSLGAAII
	→VvTnPIP1; 4	WAFGG	FQGH	LVHLA	GIGINPARSLGAAII
	→VvTnPIP2; 1	WSFGG	FQSA	MVHLA	GIGINPARSFGAAVI
	VvTnPIP2; 2	WAFGG	FMKS	MVHLA	GIGINPARSLGAAVI
	→VvTnPIP2; 3	WAFGG	FQDI	MVHLA	GASMNPAVSFGPAAVV
	→VvTnTIP1; 1	LAHGF	STGG	ANILA	GGSMNPARSFGPAAVV
	VvTnTIP2; 1	VAHGF	VTGG	ANILA	GGSMNPARSFGPAAVV
	VvTnTIP2; 2	IAHAF	ATNG	ANILA	GASMNPARSFGPALV
	→VvTnTIP4; 1	MAHAL	LTGG	ANVMA	GTGINPARSLGAAII
	NtAQP1	WAFGG	FMVG	LVHLA	GASMNPARSFGPAAVV
	NtTIPa	MAHAL	LTAG	ANIMA	GTGINPARSFGPAAVV
	AtTIP1; 1	VAHAF	ATGG	ANILA	GASMNPAVAFGPAAVV
	ZmPIP1; 5	WSFGG	FQEG	LVHLA	GTGINPARSLGAAIV
	AtTIP2; 1	VCHGF	VTGG	ANILA	GGSMNPARSFGPAAVA
	CpNIP1	VAGGL	LLHP	ITSIL	GGSMNPVRTLGFAAMA
	AtTIP1; 2	LAHAF	ATGG	ANILA	GASMNPAVAFGPAAVV
	AtTIP1; 3	LSHAF	STGG	ANILV	GGSMNPAVSFGPAAVV
	OsNIP2; 1	IAAGL	VIHP	ITSIF	GGSMNPARTLGPAALA
					IYEL

### Supplementary references

Leitão L, Prista C, Moura TF, Loureiro-Dias MC, Soveral G (2012) Grapevine aquaporins: gating of a tonoplast intrinsic protein (TIP2;1) by cytosolic pH. PLoS One 7: e33219.