

表 1 表达模式研究涉及的小桐子抗冷相关基因

Table 1 Cold tolerance-associated genes of *J. curcas* involved in the studies of expression patterns

基因分类 Gene classification	基因缩写 Gene abbreviation	基因全名 Full name of the gene	转录组测序编号 Unigene	GenBank 登录号 GenBank accession number	倍数变化(Log ₂ Ratio) Fold change (Log ₂ Ratio)		
					12 h	24 h	48 h
I	Cyt P450	Cytochrome P450	Unigene800_JC-CK_1A	GAHK01013348	+10.637	+6.020	+10.606
	nsLTPA	Nonspecific lipid-transfer protein A	Unigene992_JC-CK_1A	GAHK01013540	+6.131	+3.043	+9.295
	POD73	Peroxidase 73	Unigene700_JC-CK_1A	GAHK01013248	+5.605	+2.615	+6.421
	UGT	UDP-glucuronosyltransferase	CL1624.Contig2_JC-CK_1A	GAHK01004859	+4.314	+4.905	+4.463
	GSTs	Glutathione s-transferase	Unigene968_JC-CK_1A	GAHK01013516	+2.009	+3.737	+5.436
II	DNAj	Chaperone protein DNAj	CL884.Contig1_JC-CK_1A	GAHK01002859	+14.640	+11.967	+14.871
	GA20ox	Gibberellin 20 oxidase	Unigene2535_JC-CK_1A	GAHK01015081	+10.937	+12.406	+11.254
	CHS	chalcone synthase-like protein	Unigene1616_JC-CK_1A	GAHK01014162	+14.067	+7.409	+12.450
	LRR-RLK	Receptor protein kinase CLAVATA 1	Unigene2608_JC-CK_1A	GAHK01015154	+13.314	+11.489	+13.700
	ADMT	S-adenosylmethionine-dependent methyltransferase	Unigene989_JC-CK_1A	GAHK01013537	+13.005	+7.994	+13.912
	DXS	1-deoxyxylulose-5-phosphate synthase	Unigene4846_JC-CK_1A	GAHK01017392	+11.638	+7.219	+12.554
	Ca ²⁺ -ATPase12	Calcium-transporting ATPase 12	Unigene3545_JC-CK_1A	GAHK01016091	+10.647	+7.994	+11.524
III	FAD3	Fatty acid desaturase 3	Unigene9182_JC-CK_1A	GAHK01021724	-	-	-
IV	APX1	Ascorbate peroxidase 1	CL4167.Contig2_JC-CK_1A	GAHK01010419	-	-	-
V	PIP2	Plasma membrane intrinsic protein 2	CL978.Contig2_JC-CK_1A	GAHK01003113	+3.464	+3.756	+4.523
VI	DHN2	Dehydrin 2	Unigene25029_JC-CK_1A	GAHK01037549	-2.338	-1.124	-1.434
	NR	Nitrate reductase	Unigene593_JC-CK_1A	GAHK01013141	-1.512	-2.480	-2.076
	HSP17.5	Heat Shock Protein 17.5	Unigene8271_JC-CK_1A	GAHK01020815	+2.893	+0.608	+2.453
	PDI	Protein Disulfide Isomerase	Unigene1054_JC-CK_1A	GAHK01013601	+0.235	+0.864	+0.442
	LEA5	Late embryogenesis protein 5	CL815.Contig1_JC-CK_1A	GAHK01002659	+4.215	+2.048	+4.519
VII	NAC	NAC transcription factor	CL3591.Contig1_JC-CK_1A	GAHK01009252	+1.1459	+1.379	+1.212
	WRKY	W-box binding transcription factor	Unigene7510_JC-CK_1A	GAHK01020056	+10.455	+6.728	+10.741
	18S rRNA						

注: +: 上调表达; -: 下调表达; 12 h, 24 h, 48 h 分别指 12℃低温锻炼 12 h, 24 h, 48 h 与对照相比基因差异表达倍数

Note: +: Up-regulated expression; -: Down-regulated expression; 12 h, 24 h, and 48 h refer to the gene differential expression folds contrast to control when exposure to 12℃ for 12 h, 24 h, and 48 h, respectively