

**Table S4.** List of differentially regulated proteins in  $\Delta Nyda1$  mutant seedlings as identified by shot gun differential proteomic analysis. Only proteins with statistically significant change in abundance with ANOVA  $p \leq 0.05$  are presented in the table.

Accession	Description	Score	Unique	$\Delta Nyda1$ :Ler_ Ratio	Rel Profile SD
<b>Upregulated proteins</b>					
NP_171792.1	glutathione S transferase 6	22430	$\Delta Nyda1$		
NP_564034.1	D 3 phosphoglycerate dehydrogenase	2104.9	$\Delta Nyda1$		
NP_200261.1	flavodoxin like quinone reductase 1	1942.7	$\Delta Nyda1$		
NP_001031647.1	pyruvate phosphate dikinase 1	555.87	$\Delta Nyda1$		
NP_176794.1	glutamine synthetase	3659.2	$\Delta Nyda1$		
NP_851005.1	dihydrolipoyl dehydrogenase 2	3066.4	$\Delta Nyda1$		
NP_566875.1	lipoxygenase 2	2941.1	$\Delta Nyda1$		
NP_171791.1	glutathione S transferase 7 11	20497	$\Delta Nyda1$		
NP_194091.1	cystine lyase	9566.6	$\Delta Nyda1$		
NP_565061.1	kunitz trypsin inhibitor 1	5540.3	$\Delta Nyda1$		
NP_565491.1	protein THYLAKOID FORMATION 1	3179	$\Delta Nyda1$		
NP_195213.1	rotamase cyclophilin 5	11210	$\Delta Nyda1$		
NP_566700.1	gamma aminobutyrate transaminase POP2	1380.7	$\Delta Nyda1$		
NP_173173.3	alanine aminotransferase	880.27	$\Delta Nyda1$		
NP_566776.1	allene oxide cyclase 2	2950.9	$\Delta Nyda1$		
NP_188274.1	legume lectin like protein	25172	$\Delta Nyda1$		
NP_001031073.1	catalase 3	21156	$\Delta Nyda1$		
NP_197501.1	GTP binding nuclear protein Ran 1	1434.1	$\Delta Nyda1$		
NP_567004.1	tryptophan synthase alpha chain	2948.3	$\Delta Nyda1$		
NP_171994.1	1 aminocyclopropane 1 carboxylate oxidase	4015.1	$\Delta Nyda1$		
NP_850363.1	actin family protein	455.3	$\Delta Nyda1$		
NP_190383.1	aldehyde dehydrogenase 2B4	910.2	$\Delta Nyda1$		

NP_190018.1	nitrilase 3	1431.6	<i>ΔNydal</i>	
NP_683568.1	lectin like protein	30803		10.697
NP_187123.1	pathogenesis related 4	13323		7.70
NP_192161.1	glutathione S transferase F2	101414		6.959
NP_973873.1	catalase 3	19017		3.857
NP_180644.1	glutathione S transferase PHI 10	10096		3.633
NP_175806.3	epithiospecifier protein	34930		3.561
NP_850963.1	epithiospecifier protein	31406		3.561
NP_191703.1	cysteine synthase C1	14284		3.490
NP_196982.1	formate dehydrogenase	7243.1		3.320
NP_192617.1	putative apoplatic peroxidase Prx37	3954.1		3.287
NP_195146.1	D 3 phosphoglycerate dehydrogenase	6865.2		3.287
NP_193361.4	putative beta 1 3 endoglucanase	2832.9		3.190
NP_190481.1	peroxidase 34	4842.9		3.190
NP_566840.1	AIG2 like protein	5671.5		3.190
NP_188048.1	pectin methylesterase 3	4542		3.065
NP_564571.1	Formate tetrahydrofolate ligase	2825.4		2.915
NP_195288.1	phosphoserine aminotransferase	2215.2		2.915
NP_565191.1	curculin like mannose binding lectin like protein	5136.8		2.801
NP_564647.1	GDSL esterase lipase	2810.3		2.718
NP_193955.1	plastid lipid associated protein PAP fibrillin family protein	8561.6		2.612
NP_192311.1	fibrillin	657.75		2.535
NP_001031791.1	catalase 2	8397.8		2.509
NP_566268.1	peroxiredoxin 2F	4351.1		2.293
NP_190468.1	4 coumarate CoA ligase like 10	1160		2.248
NP_195683.1	Lipase lipooxygenase PLAT LH2 family protein	700.55		2.226
NP_192839.1	nucleoside diphosphate kinase 3	1233.5		2.226
NP_566728.1	FIBRILLIN 4	3538		2.138
NP_197960.1	NADP dependent malic enzyme 3	1595.5		2.138
NP_563841.1	uncharacterized protein	3334.7		2.117

NP_180873.1	3 ketoacyl CoA thiolase 2	1788.1	2.096	0.66
NP_568125.1	monodehydroascorbate reductase NADH	2724.8	2.075	0.56
NP_196728.1	NADP dependent malic enzyme 2	3428.6	2.075	0.52
NP_568098.1	ABA modulated tyrosine phosphorylated protein	4043.8	2.014	0.28
NP_201209.1	photosystem I reaction center subunit N	4434.9	1.954	0.92
NP_564192.2	glutamate glyoxylate aminotransferase	13593	1.935	0.37
NP_001119093.1	heat shock protein 70 family protein	2498.1	1.916	0.51
NP_178634.2	aconitate hydratase 3	1217.5	1.916	0.70
NP_568336.1	glutathione S transferase DHAR3	1686.3	1.896	0.22
NP_564497.1	cysteine proteinase RD21a	2959.9	1.859	0.17
NP_974958.1	lactate malate dehydrogenase family protein	1527.7	1.840	0.88
NP_179997.1	aminopeptidase family protein	2932.9	1.822	0.33
NP_849841.1	Monodehydroascorbate reductase	4167	1.804	0.62
NP_201145.1	adenylate kinase 1	2370.9	1.768	0.25
NP_001189587.1	aminopeptidase family protein	2059	1.682	0.54
NP_565178.1	glutathione S transferase TAU 19	2539.9	1.682	0.37
NP_175237.1	dihydrolipoyl dehydrogenase 1	7400.4	1.665	0.19
NP_001154203.1	thioredoxin M2	14414	1.649	0.41
NP_173732.1	putative phosphoglucomutase	1410.6	1.616	0.42
NP_196527.1	soluble inorganic pyrophosphatase 1	5165.8	1.584	0.25
NP_195506.1	serine transhydroxymethyltransferase 1	18634	1.568	0.22
NP_849646.1	aminomethyltransferase	6325.4	1.568	0.30
NP_199898.1	pyruvate dehydrogenase E1 beta	5171	1.568	0.57

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**Downregulated proteins**

NP_850903.1	small subunit ribosomal protein S1	1169.1	0.651	0.07
NP_001032018.1	beta ketoacyl acyl carrier protein synthase I	614.62	0.644	0.08
NP_051110.1	photosystem I subunit VII	16731	0.644	0.04
NP_001031217.1	PSI type III chlorophyll a b binding protein	3213	0.631	0.05
NP_849295.1	cytochrome b6 f complex iron sulfur subunit	10167	0.619	0.03
NP_197563.1	germin like protein subfamily 3 member 3	1350.9	0.607	0.07

NP_177958.1	glutathione S transferase TAU 20	715.69		0.566	0.06
NP_001030708.1	DNA topoisomerase like protein	914.23		0.522	0.04
NP_001030663.1	60S ribosomal protein L4 1	941.55		0.507	0.04
NP_188267.1	jacalin like lectin domain containing protein	583.76		0.454	0.03
NP_187537.1	beta glucosidase 23	5800.5		0.440	0.01
NP_197294.1	5 methyltetrahydropteroyltriglutamate homocysteine methyltransferase	4085.6		0.440	0.01
NP_974324.2	jacalin like lectin domain containing protein	583.76		0.427	0.02
NP_173459.1	DNA damage resistance protein DRT112	13375		0.395	0.01
NP_001031175.1	beta glucosidase 18	47.39		0.395	0.03
NP_001031879.1	isopropylmalate dehydrogenase 1	1075.5	Ler		
NP_177360.1	patellin 1	687.05	Ler		
NP_567934.1	LL diaminopimelate aminotransferase	959.35	Ler		
NP_001190035.1	Clp ATPase	1122.3	Ler		
NP_568437.1	tubulin beta 8 chain	1215.4	Ler		
NP_193130.1	adenosylhomocysteinase	8378.1	Ler		
NP_849650.1	vacuolar calcium binding protein like protein	3076.1	Ler		
NP_566174.1	14 3 3 like protein GF14 nu	6437.8	Ler		
NP_191008.1	aspartyl protease family protein	847.75	Ler		
NP_565265.1	MLP like protein 329	11653	Ler		
NP_001117244.1	L ascorbate peroxidase 1	14649	Ler		
NP_173669.1	patellin 2	783.06	Ler		
NP_565164.1	60S ribosomal protein L30 2	1569.8	Ler		
NP_191551.1	RAB GDP dissociation inhibitor 2	343	Ler		
NP_001189970.1	60S ribosomal protein L5 1	1405.3	Ler		
NP_001189805.1	60S ribosomal protein L23	2467.3	Ler		
NP_001190733.1	O acetylserine thiol lyase OAS TL isoform A1	2000.7	Ler		
NP_001118458.1	S adenosylmethionine synthase 3	1997.4	Ler		