

ZT Time	Functional annotation	Representative Genes
ZT1/ZT25	GO:0055085 Transmembrane transport (1,105e-4)	kfl00026_0230 S-type anion channel kfl00016_0070 ABC transporter B family kfl00024_0020 Sulfate transporter kfl00047_0080 Nitrate transporter
ZT7	GO:0006418 tRNA aminoacylation for protein translation (1,100e-04) ko00970 Aminoacyl-tRNA biosynthesis (7,782e-5)	kfl00024_0250 Histidyl-tRNA synthetase kfl00033_0130 Valyl-tRNA synthetase kfl00093_0080 Alanyl-tRNA synthetase kfl00458_0010 Methionyl-tRNA synthetase kfl00311_0110 Histidyl-tRNA synthetase
ZT9	GO:0006261 DNA-dependent DNA replication (1,090e-05) ko03030 DNA replication (7,375e-06) GO:0015979 Photosynthesis (2,802e-08) ko00196 Photosynthesis - antenna proteins (5,790e-04) GO:0006457 Protein folding (1,769e-05) ko01230 Biosynthesis of amino acids (1,543e-06) ko00196 Photosynthesis - antenna proteins (5,790e-04)	kfl00029_0270 DNA replication licensing factor, MCM6 component kfl00033_0310 DNA replication licensing factor, MCM4 component kfl00052_0340 DNA polymerase epsilon subunit B2 kfl00023_0070 Light harvesting chlorophyll a b-binding protein, lhca4 kfl00057_0180 psaE, photosystem I subunit IV kfl00098_0080 Light harvesting chlorophyll a b-binding protein, lhcb1.1 kfl00005_0040 Cyclophilin-like peptidyl-prolyl cis-trans isomerase family protein kfl00009_0760 Trigger factor type chaperone family protein kfl00076_0150 Rubisco subunit binding-protein beta subunit, (Rubb) kfl00018_0510 Bifunctional protein, aspartate kinase and homoserine dehydrogenase kfl00027_0520 N-acetyl-l-glutamate kinase kfl00038_0130 Argininosuccinate lyase kfl00023_0070 Light harvesting chlorophyll a b-binding protein, lhca4 kfl00098_0080 Light harvesting chlorophyll a b-binding protein, lhcb1.1 kfl00098_0090 Light harvesting chlorophyll a b-binding protein, lhcb1.2
ZT11	GO:0009069 Serine family amino acid metabolic process (6,669e-04) GO:0015672 Monovalent inorganic cation transport (4,843e-04)	kfl00057_0140 Serine hydroxymethyltransferase kfl00085_0160 Phosphoserine aminotransferase kfl00651_0010 D-3-phosphoglycerate dehydrogenase kfl00040_0210 Vacuolar H ⁺ -ATPase V1 sector, subunit F kfl00259_0040 Vacuolar H ⁺ -ATPase V1 sector, subunit H kfl00051_0310 Bile Acid:Sodium Symporter Family Protein
ZT13	GO:0016192 Vesicle-mediated transport (3,891e-06) GO:0006644 Phospholipid metabolic process (8,031e-05) GO:0042157 Lipoprotein metabolic process (9,599e-04)	kfl00005_0110 Vacuolar assembly/sorting protein kfl00039_0040 Sec23 protein transport family protein kfl00208_0020 Vesicle transport protein kfl00019_0580 ALG12; alpha-1,6-mannosyltransferase kfl00651_0080 Phosphatidylinositol-4-phosphate 5-kinase kfl00376_0040 PI4K; phosphatidylinositol 4-kinase kfl00099_0160 PIGC, GPI2; phosphatidylinositol glycan, class C

		kfi00280_0050 Myristoyl-CoA protein N-myristoyltransferase kfi00296_0070 PIGW; phosphatidylinositol glycan, class W
ZT15	GO:0034470 ncRNA processing (4,099e-04) GO:0061024 Membrane organization (3,997e-05) GO:0006457 Protein folding (1,743e-11)	kfi00006_0550 T-complex protein 1 alpha subunit kfi00061_0220 DnaJ heat shock family protein kfi00618_0060 TCP-1/cpn60 chaperonin family protein kfi00002_0100 TOM20 mitochondrial import outer membrane translocon protein kfi01180_0010 TIM9, mitochondrial import inner membrane translocon protein kfi00792_0020 TIM10, Mitochondrial import inner membrane protein kfi00006_0550 T-complex protein 1 alpha subunit kfi00507_0020 TCP-1/cpn60 chaperonin family protein kfi00618_0060 TCP-1/cpn60 chaperonin family protein
ZT17	GO:0006928 Movement of cell or subcellular component (5,213e-07) ko00071 Fatty acid degradation (0,0334)	kfi00018_0290 Kinesin (KAR3 subfamily) kfi00019_0100 Kinesin-like protein, putative kfi00146_0040 Kinesin-like protein, putative kfi00520_0080 Kinesin-like protein kfi00041_0220 Acyl-CoA oxidase kfi00112_0130 Aldehyde dehydrogenase kfi00548_0060 Enoyl-CoA hydratase kfi00666_0020 Ketoacyl-CoA Thiolase kfi00027_0510 Long-Chain Acyl-CoA Synthetase, plastid
ZT21	GO:0006412 Translation (1,362e-10) ko03010 Ribosome (2,444e-21)	kfi00001_0620 40S ribosomal protein S18 kfi00006_0040 60S ribosomal protein L17 kfi00142_0100 40S ribosomal protein S2 kfi00989_0050 60S ribosomal protein L44 kfi00008_0470 60S ribosomal protein L21 kfi00025_0220 60S ribosomal protein L9 kfi00032_0090 60S ribosomal protein L27A
Dawn	GO:0072330 Monocarboxylic acid biosynthetic process (1,371e-06) GO:0042221 Response to chemical (1,663e-03) GO:0055085 Transmembrane transport (8,731e-07) GO:0016051 Carbohydrate biosynthetic process (2,410e-03)	kfi00002_0620 Sterol 4-alpha-methyl-oxidase kfi00029_0060 Lipoate Synthase, plastid kfi00034_0420 Acetyl-CoA carboxylase 1 kfi00057_0040 Phosphoglycerate mutase kfi00174_0160 MATE efflux family protein kfi00021_0420 Thioredoxin reductase kfi00006_0170 Hemoglobin-like protein kfi00008_0360 ATP binding cassette subfamily B, MDR, PGP kfi00016_0170 Mitochondrial carrier protein kfi00021_0430 Voltage-gated shaker-like K ⁺ channel, subunit beta/KCNAB kfi00148_0080 Glucose-1-phosphate adenyltransferase kfi00208_0120 GDP-mannose pyrophosphorylase/mannose-1-phosphate guanylyltransferase kfi00228_0150 Sucrose-phosphatase

	<p>ko01110 Biosynthesis of secondary metabolites (0.01351)</p> <p>ko00910 Nitrogen metabolism (0.01634)</p>	<p>kfi00001_0440 D-isomer-specific 2-hydroxy acid dehydrogenase superfamily kfi00001_0860 Imidazoleglycerol-phosphate dehydratase kfi00003_0590 HPR1; hydroxypyruvate reductase 1 kfi00003_0720 S-adenosyl-L-methionine(SAM) dependent methyltransferases</p> <p>kfi00004_0270 Glutamine synthetase kfi00047_0080 Nitrate transporter kfi00186_0160 NADH-dependent glutamate synthase 1</p>
Day	<p>GO:0006418 tRNA aminoacylation for protein translation (5,175e-07) ko00970 Aminoacyl-tRNA biosynthesis (0,00345)</p> <p>GO:0008104 Protein localization (5,711e-04)</p> <p>GO:0019684 Photosynthesis, light reaction (1,699e-05)</p>	<p>kfi00024_0250 Histidyl-tRNA synthetase kfi00032_0320 Aspartyl/Asparaginyl-tRNA synthetase, class IIb kfi00033_0130 Valyl-tRNA synthetase kfi00093_0080 Alanyl-tRNA synthetase</p> <p>kfi00045_0050 SecY protein transport family protein kfi00071_0090 Signal recognition particle, subunit Srp54 kfi00232_0230 Clathrin heavy chain kfi00297_0050 Vacuolar protein sorting-associated protein</p> <p>kfi00009_0500 Light harvesting chlorophyll a b-binding protein, lhca1-like protein kfi00009_0510 Light harvesting chlorophyll a b-binding protein, lhca1-like protein kfi00517_0040 LHCA2; light-harvesting complex I chlorophyll a/b binding protein 2</p>
Night	<p>GO:0006518 Peptide metabolic process (5,196e-08)</p> <p>ko03010 Ribosome (4,253e-08)</p>	<p>kfi00006_0820 Mitochondrial ribosomal protein L21 precursor kfi00007_0490 Phytochelatin synthase kfi00008_0510 Ribosomal protein S6 family protein kfi00012_0050 Glutathione reductase kfi00014_0370 Translation initiation factor SUI1 kfi00015_0290 Elongation factor Ts</p> <p>kfi00001_0620 40S ribosomal protein S18 kfi00008_0470 60S ribosomal protein L21 kfi00025_0220 60S ribosomal protein L9 kfi00032_0090 60S ribosomal protein L27A</p>