Supplementary Table 12. Targets of flax miRNAs. Putative Flax miRNAs were found to target 1063 Unigenes. These targets were analyzed using the KEGG Automated Annotation Server which was able to categorize the targets according to their predicted function and network hierarchy. These 175 targets from the 1063 unigenes had KEGG orthology to proteins with a known function.

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| **Flax UNIGENE** | **KO#** | **Orthology** |
| FLAXSQ\_RP\_013\_F07\_15AUG2006\_053- | K00025 | MDH1; malate dehydrogenase  |
| Contig9375- | K00232 | E1.3.3.6, ACOX1, ACOX3; acyl-CoA oxidase  |
| Contig12169- | K00261 | E1.4.1.3; glutamate dehydrogenase (NAD(P)+)  |
| LUSGC1NG-RP-246\_D07\_02APR2007\_057- | K00688 | E2.4.1.1, glgP, PYG; starch phosphorylase  |
| Contig2294- | K00873 | PK, pyk; pyruvate kinase  |
| Contig11016- | K01338 | lon; ATP-dependent Lon protease  |
| Contig5255- | K01354 | ptrB; oligopeptidase B  |
| LUSGE1NG-RP-053\_B12\_23FEB2007\_094- | K01897 | ACSL, fadD; long-chain acyl-CoA synthetase  |
| Contig10417- | K02219 | CKS1; cyclin-dependent kinase regulatory subunit CKS1 |
| LUSLE4AD-T3-057\_C06\_16NOV2009\_029- | K02358 | tuf, TUFM; elongation factor Tu |
| LUSLE1AD\_Contig516- | K03094 | SKP1, CBF3D; S-phase kinase-associated protein 1 |
| Contig2149- | K03259 | EIF4E; translation initiation factor 4E |
| Contig13494- | K03347 | CUL1, CDC53; cullin 1 |
| Contig1427- | K03505 | POLD4; DNA polymerase delta subunit 4 |
| Contig4000- | K03881 | ND4; NADH-ubiquinone oxidoreductase chain 4  |
| Contig4450- | K04354 | PPP2R2; protein phosphatase 2 (formerly 2A), regulatory subunit B |
| Contig11941- | K04532 | APPBP1; amyloid beta precursor protein binding protein 1 |
| LUSTE1NG-RP-066\_F02\_12JAN2007\_006- | K04565 | E1.15.1.1C, sodC, SOD1; Cu/Zn superoxide dismutase  |
| LUSTC1NG\_Contig2170- | K05765 | CFL; cofilin |
| Contig4060- | K05868 | CCNB; cyclin B |
| Contig9486- | K06269 | PPP1C; protein phosphatase 1, catalytic subunit  |
| Contig7423- | K07198 | PRKAA, AMPK; 5'-AMP-activated protein kinase, catalytic alpha subunit  |
| Contig994- | K07375 | TUBB; tubulin beta |
| Contig13414- | K07874 | RAB1A; Ras-related protein Rab-1A |
| Contig6649- | K08057 | CALR; calreticulin |
| LUSME1NG\_Contig1480- | K08341 | GABARAP, ATG8, LC3; GABA(A) receptor-associated protein (autophagy-related protein 8) |
| LUSST4AD-T3-056\_A20\_15SEP2009\_080- | K08770 | UBC; ubiquitin C |
| LUSHE1NG-RP-250\_A10\_16NOV2007\_080- | K11087 | SNRPD1, SMD1; small nuclear ribonucleoprotein D1 |
| LUSHE1AD-RP-308\_N23\_16JUN2008\_084- | K11088 | SNRPD3, SMD3; small nuclear ribonucleoprotein D3 |
| LUSHE1NG-RP-264\_G05\_19NOV2007\_035- | K11251 | H2A; histone H2A |
| LUSHE1NG-RP-248\_A09\_16NOV2007\_079- | K11252 | H2B; histone H2B |
| LUSME2AD-T3-017\_K11\_07AUG2009\_038- | K11517 | HAO; (S)-2-hydroxy-acid oxidase  |
| Contig7264- | K11584 | PPP2R5; protein phosphatase 2 (formerly 2A), regulatory subunit B' |
| Contig11719- | K12471 | EPN; epsin |
| LUSGE1NG-RP-049\_D07\_23FEB2007\_057- | K12492 | ARFGAP1; ADP-ribosylation factor GTPase-activating protein 1 |
| LUSST1AD\_Contig633- | K12890 | SFRS1\_9; splicing factor, arginine/serine-rich 1/9 |
| Contig7351- | K13424 | WRKY33; WRKY transcription factor 33 |
| Contig5227- | K13448 | CML; calcium-binding protein CML |
| Contig8624- | K01868 | TARS, thrS; threonyl-tRNA synthetase  |
| Contig3351- | K02726 | PSMA2; 20S proteasome subunit alpha 2  |
| LUSTE1NG-RP-053\_D10\_11JAN2007\_074- | K02868 | RP-L11e, RPL11; large subunit ribosomal protein L11e |
| LUSHE1NG-RP-265\_F12\_19NOV2007\_086- | K02872 | RP-L13Ae, RPL13A; large subunit ribosomal protein L13Ae |
| LUSHE1NG-RP-247\_D04\_16NOV2007\_026- | K02873 | RP-L13e, RPL13; large subunit ribosomal protein L13e |
| LUSHE1NG-RP-258\_E08\_16NOV2007\_056- | K02877 | RP-L15e, RPL15; large subunit ribosomal protein L15e |
| LUSHE1NG-RP-257\_F08\_16NOV2007\_054- | K02880 | RP-L17e, RPL17; large subunit ribosomal protein L17e |
| LUSHE1NG-RP-256\_F02\_16NOV2007\_006- | K02883 | RP-L18e, RPL18; large subunit ribosomal protein L18e |
| LUSHE1NG-RP-251\_B10\_16NOV2007\_078- | K02889 | RP-L21e, RPL21; large subunit ribosomal protein L21e |
| LUSHE1NG-RP-259\_B07\_16NOV2007\_061- | K02894 | RP-L23e, RPL23; large subunit ribosomal protein L23e |
| LUSHE1AD\_Contig836- | K02898 | RP-L26e, RPL26; large subunit ribosomal protein L26e |
| Contig5555- | K02905 | RP-L29e, RPL29; large subunit ribosomal protein L29e |
| LUSHE1NG-RP-248\_A04\_16NOV2007\_032- | K02910 | RP-L31e, RPL31; large subunit ribosomal protein L31e |
| LUSTE1AD\_Contig540- | K02912 | RP-L32e, RPL32; large subunit ribosomal protein L32e |
| LUSHE1NG-RP-249\_C02\_16NOV2007\_012- | K02917 | RP-L35Ae, RPL35A; large subunit ribosomal protein L35Ae |
| LUSHE1NG-RP-249\_C11\_16NOV2007\_091- | K02920 | RP-L36e, RPL36; large subunit ribosomal protein L36e |
| LUSHE1NG-RP-246\_G04\_16NOV2007\_020- | K02921 | RP-L37Ae, RPL37A; large subunit ribosomal protein L37Ae |
| LUSHE1NG-RP-257\_B12\_16NOV2007\_094- | K02922 | RP-L37e, RPL37; large subunit ribosomal protein L37e |
| LUSHE1NG\_Contig329- | K02925 | RP-L3e, RPL3; large subunit ribosomal protein L3e |
| Contig1669- | K02933 | RP-L6, rplF; large subunit ribosomal protein L6 |
| LUSHE1NG-RP-266\_D04\_19NOV2007\_026- | K02943 | RP-LP2, RPLP2; large subunit ribosomal protein LP2 |
| LUSLE1AD\_Contig751- | K02946 | RP-S10, rpsJ; small subunit ribosomal protein S10 |
| LUSHE1NG-RP-262\_B08\_19NOV2007\_062- | K02947 | RP-S10e, RPS10; small subunit ribosomal protein S10e |
| Contig14097- | K02952 | RP-S13, rpsM; small subunit ribosomal protein S13 |
| LUSHE1NG-RP-249\_C10\_16NOV2007\_076- | K02955 | RP-S14e, RPS14; small subunit ribosomal protein S14e |
| LUSME1NG-UP-002\_H05\_06SEPT2006\_033- | K02958 | RP-S15e, RPS15; small subunit ribosomal protein S15e |
| Contig11480- | K02969 | RP-S20e, RPS20; small subunit ribosomal protein S20e |
| LUSHE1NG\_Contig223- | K02971 | RP-S21e, RPS21; small subunit ribosomal protein S21e |
| Contig11562- | K02975 | RP-S25e, RPS25; small subunit ribosomal protein S25e |
| LUSHE1NG-RP-262\_C07\_19NOV2007\_059- | K02980 | RP-S29e, RPS29; small subunit ribosomal protein S29e |
| LUSST1AD\_Contig511- | K02981 | RP-S2e, RPS2; small subunit ribosomal protein S2e |
| LUSHE1NG-RP-256\_H11\_16NOV2007\_081- | K02989 | RP-S5e, RPS5; small subunit ribosomal protein S5e |
| LUSHE1NG-RP-258\_D11\_16NOV2007\_089- | K02995 | RP-S8e, RPS8; small subunit ribosomal protein S8e |
| Contig3658- | K02998 | RP-SAe, RPS0; small subunit ribosomal protein SAe |
| LUSME1NG\_Contig1745- | K03062 | PSMC1, RPT2; 26S proteasome regulatory subunit T2 |
| LUSLE1AD\_Contig516- | K03094 | SKP1, CBF3D; S-phase kinase-associated protein 1 |
| Contig3430- | K03100 | lepB; signal peptidase I  |
| Contig14087- | K03104 | SRP14; signal recognition particle subunit SRP14 |
| LUSTE1NG-RP-097\_C07\_01FEB2007\_059- | K03113 | EIF1, SUI1; translation initiation factor 1 |
| Contig3287- | K03248 | EIF3G; translation initiation factor 3 subunit G |
| Contig2811- | K03249 | EIF3F; translation initiation factor 3 subunit F |
| Contig4457- | K03251 | EIF3D; translation initiation factor 3 subunit D |
| Contig2149- | K03259 | EIF4E; translation initiation factor 4E |
| Contig4576- | K03265 | ETF1, ERF1; peptide chain release factor subunit 1 |
| Contig13494- | K03347 | CUL1, CDC53; cullin 1 |
| Contig1427- | K03505 | POLD4; DNA polymerase delta subunit 4 |
| LUSGC1NG-RP-077\_D01\_24JAN2007\_009- | K03515 | REV1; DNA repair protein REV1  |
| Contig4450- | K04354 | PPP2R2; protein phosphatase 2 (formerly 2A), regulatory subunit B |
| Contig9486- | K06269 | PPP1C; protein phosphatase 1, catalytic subunit  |
| Contig7423- | K07198 | PRKAA, AMPK; 5'-AMP-activated protein kinase, catalytic alpha subunit  |
| Contig6649- | K08057 | CALR; calreticulin |
| Contig11381- | K08505 | SFT1; protein transport protein SFT1 |
| LUSTC1NG-RP-126\_G06\_07MAR2007\_036- | K10802 | HMGB1; high mobility group protein B1 |
| Contig943- | K10839 | RAD23, HR23; UV excision repair protein RAD23 |
| LUSHE1NG-RP-250\_A10\_16NOV2007\_080- | K11087 | SNRPD1, SMD1; small nuclear ribonucleoprotein D1 |
| LUSHE1AD-RP-308\_N23\_16JUN2008\_084- | K11088 | SNRPD3, SMD3; small nuclear ribonucleoprotein D3 |
| LUSTE1NG\_Contig342- | K11129 | NHP2, NOLA2; H/ACA ribonucleoprotein complex subunit 2 |
| Contig7264- | K11584 | PPP2R5; protein phosphatase 2 (formerly 2A), regulatory subunit B' |
| LUSTC1NG-RP-071\_E04\_05MAR2007\_024- | K12160 | SUMO, SMT3; small ubiquitin-related modifier |
| LUSGE1NG-RP-311\_F11\_28NOV2007\_085- | K12591 | RRP6, EXOSC10; exosome complex exonuclease RRP6  |
| 03-LUSEN1NG-RP-080\_H11\_11MAR2007\_081- | K12605 | CNOT2, NOT2; CCR4-NOT transcription complex subunit 2 |
| LUSHE1NG-RP-249\_G07\_16NOV2007\_051- | K12845 | SNU13, NHP2L; U4/U6 small nuclear ribonucleoprotein SNU13 |
| Contig10344- | K12856 | PRPF8, PRP8; pre-mRNA-processing factor 8 |
| LUSST1AD\_Contig633- | K12890 | SFRS1\_9; splicing factor, arginine/serine-rich 1/9 |
| Contig13400- | K13431 | SRPR; signal recognition particle receptor subunit alpha |
| Contig9261- | K14007 | SEC24; protein transport protein SEC24 |
| Contig7430- | K14493 | GID1; gibberellin receptor GID1  |
| LUSTC1NG-RP-186\_B02\_17MAR2007\_014- | K14495 | GID2, SLY1; F-box protein GID2 |
| Contig4378- | K14553 | UTP18; U3 small nucleolar RNA-associated protein 18 |
| Contig12990- | K14567 | UTP14; U3 small nucleolar RNA-associated protein 14 |
| LUSGC1NG-RP-108\_A02\_25JAN2007\_016- | K15362 | BRIP1, BACH1, FANCJ; fanconi anemia group J protein  |
| Contig14103- | K00012 | UGDH, ugd; UDPglucose 6-dehydrogenase  |
| Contig6832- | K00013 | hisD; histidinol dehydrogenase  |
| FLAXSQ\_RP\_013\_F07\_15AUG2006\_053- | K00025 | MDH1; malate dehydrogenase  |
| Contig1311- | K00026 | MDH2; malate dehydrogenase  |
| Contig4980- | K00053 | ilvC; ketol-acid reductoisomerase  |
| Contig3178- | K00161 | PDHA, pdhA; pyruvate dehydrogenase E1 component subunit alpha  |
| Contig9375- | K00232 | E1.3.3.6, ACOX1, ACOX3; acyl-CoA oxidase  |
| Contig12169- | K00261 | E1.4.1.3; glutamate dehydrogenase (NAD(P)+)  |
| LUSES4AD-T3-060\_C06\_15SEP2009\_029- | K00264 | GLT1; glutamate synthase (NADPH/NADH)  |
| LUSFL2AD-WB-011\_J15\_22NOV2008\_056- | K00279 | E1.5.99.12; cytokinin dehydrogenase  |
| Contig7929- | K00430 | E1.11.1.7; peroxidase  |
| Contig2802- | K00434 | E1.11.1.11; L-ascorbate peroxidase  |
| Contig983- | K00469 | MIOX; inositol oxygenase  |
| Contig2798- | K00605 | E2.1.2.10, gcvT; aminomethyltransferase  |
| LUSGC1NG-RP-246\_D07\_02APR2007\_057- | K00688 | E2.4.1.1, glgP, PYG; starch phosphorylase  |
| LUSGE1NG-RP-311\_B12\_28NOV2007\_094- | K00753 | E2.4.1.214; glycoprotein 3-alpha-L-fucosyltransferase  |
| Contig3038- | K00759 | E2.4.2.7, apt; adenine phosphoribosyltransferase  |
| Contig8948- | K00814 | GPT, ALT; alanine transaminase  |
| LUSTE1NG-RP-012\_A05\_08JAN2007\_047- | K00817 | hisC; histidinol-phosphate aminotransferase  |
| Contig2294- | K00873 | PK, pyk; pyruvate kinase  |
| Contig1487- | K00938 | E2.7.4.2, mvaK2; phosphomevalonate kinase  |
| Contig366- | K01179 | E3.2.1.4; endoglucanase  |
| LUSLE4AD-T3-040\_K13\_06OCT2009\_053- | K01183 | E3.2.1.14; chitinase  |
| LUSFL1AD\_Contig31- | K01213 | E3.2.1.67; galacturan 1,4-alpha-galacturonidase  |
| LUSFL1AD-WB-004\_G05\_07NOV2008\_025- | K01227 | E3.2.1.96; mannosyl-glycoprotein endo-beta-N-acetylglucosaminidase  |
| Contig11115- | K01466 | E3.5.2.5, allB; allantoinase  |
| Contig6263- | K01627 | kdsA; 2-dehydro-3-deoxyphosphooctonate aldolase (KDO 8-P synthase)  |
| Contig8250- | K01653 | E2.2.1.6S, ilvH, ilvN; acetolactate synthase I/III small subunit  |
| 03-LUSEN1NG-RP-073\_E03\_11MAR2007\_023- | K01657 | trpE; anthranilate synthase component I  |
| Contig144- | K01723 | AOS; hydroperoxide dehydratase  |
| Contig9156- | K01728 | E4.2.2.2, pel; pectate lyase  |
| Contig8500- | K01733 | E4.2.3.1, thrC; threonine synthase  |
| Contig3994- | K01735 | aroB; 3-dehydroquinate synthase  |
| Contig8990- | K01770 | ispF; 2-C-methyl-D-erythritol 2,4-cyclodiphosphate synthase  |
| LUSGC1NG-RP-245\_G05\_02APR2007\_035- | K01792 | E5.1.3.15; glucose-6-phosphate 1-epimerase  |
| Contig3597- | K01859 | E5.5.1.6; chalcone isomerase  |
| Contig9190- | K01895 | ACSS, acs; acetyl-CoA synthetase  |
| LUSGE1NG-RP-053\_B12\_23FEB2007\_094- | K01897 | ACSL, fadD; long-chain acyl-CoA synthetase  |
| LUSES1AD\_RP\_102\_L17\_15JULY2008\_069- | K01899 | LSC1; succinyl-CoA synthetase alpha subunit  |
| LUSTE1AD-RP-265\_D22\_15MAY2008\_093- | K01930 | E6.3.2.17; folylpolyglutamate synthase  |
| Contig10892- | K02260 | COX17; cytochrome c oxidase assembly protein subunit 17 |
| LUSHE1NG-RP-245\_H02\_16NOV2007\_002- | K02638 | petE; plastocyanin |
| Contig167- | K02694 | psaF; photosystem I subunit III |
| LUSHE1NG-RP-251\_C08\_16NOV2007\_060- | K02717 | psbP; photosystem II oxygen-evolving enhancer protein 2 |
| LUSHE1AD-RP-300\_L24\_13JUNE2008\_086- | K02721 | psbW; photosystem II PsbW protein |
| LUSLE1AD\_Contig315- | K02723 | psbY; photosystem II PsbY protein |
| Contig1427- | K03505 | POLD4; DNA polymerase delta subunit 4 |
| Contig8268- | K03526 | E1.17.7.1, gcpE, ispG; (E)-4-hydroxy-3-methylbut-2-enyl-diphosphate synthase  |
| Contig4499- | K03542 | psbS; photosystem II 22kDa protein |
| Contig11848- | K03844 | ALG11; alpha-1,2-mannosyltransferase  |
| Contig4000- | K03881 | ND4; NADH-ubiquinone oxidoreductase chain 4  |
| LUSST1AD\_Contig293- | K05279 | E2.1.1.76; flavonol 3-O-methyltransferase  |
| LUSLE3AD-T3-039\_O17\_30SEP2009\_065- | K05298 | GAPA; glyceraldehyde-3-phosphate dehydrogenase (NADP+) (phosphorylating)  |
| LUSST1AD-UP-101\_C04\_16JULY2008\_028- | K05929 | E2.1.1.103, NMT; phosphoethanolamine N-methyltransferase  |
| LUSGE1NG-RP-366\_A02\_11JAN2008\_016- | K06130 | LYPLA2; lysophospholipase II  |
| LUSHE1NG-RP-254\_C12\_16NOV2007\_092- | K08232 | E1.6.5.4; monodehydroascorbate reductase (NADH)  |
| Contig21- | K08910 | LHCA4; light-harvesting complex I chlorophyll a/b binding protein 4 |
| LUSHE1NG-RP-264\_A10\_19NOV2007\_080- | K08913 | LHCB2; light-harvesting complex II chlorophyll a/b binding protein 2 |
| Contig2358- | K08915 | LHCB4; light-harvesting complex II chlorophyll a/b binding protein 4 |
| LUSME2AD-T3-016\_O02\_07AUG2009\_001- | K09667 | OGT; polypeptide N-acetylglucosaminyltransferase  |
| LUSLE3AD-T3-011\_D09\_28SEPT2009\_045- | K09843 | E1.14.13.93; (+)-abscisic acid 8'-hydroxylase  |
| Contig3553- | K10257 | FAD8, desB; omega-3 fatty acid desaturase (delta-15 desaturase)  |
| LUSTE1NG\_Contig2025- | K10781 | FATB; fatty acyl-ACP thioesterase B  |
| LUSME2AD-T3-017\_K11\_07AUG2009\_038- | K11517 | HAO; (S)-2-hydroxy-acid oxidase  |
| Contig5897- | K13811 | PAPSS; 3'-phosphoadenosine 5'-phosphosulfate synthase  |
| Contig10664- | K15634 | gpmB; probable phosphoglycerate mutase  |