Molecular Identification and Characterization of LEA Proteins in Jujube Genome

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ARTICLE INFO	ABSTRACT
	LEA proteins, which are involved in the normal growth and development processes of plants, also play a protective role against abiotic stresses such as salt stress and drought. Although the *LEA* gene family has been identified in many plants to date, no comprehensive study of the characterization of LEA-encoding genes in the jujube (*Ziziphus jujuba* Mill.) genome have been performed. As being the best-known member of Rhamnaceae family, jujube (*Ziziphus jujuba* Mill.) is grown in Turkey as well as shows distribution especially in subtropical and tropical regions of the world. Jujube, containing high amounts of vitamin C and sugar; has economical and biological importance with anticancer and anti-inflammatory effects. In this study, it was aimed to define and characterize *LEA* genes in jujube genome in detail by using bioinformatics tools. The results of the study will provide comprehensive data about the *LEA* gene family and will present preliminary information for the functional research of jujube LEA proteins.
	ÖZ
	Bitkilerin normal büyüme ve gelişme süreçlerinde görev alan LEA proteinleri, özellikle tuz stresi ve kuraklık gibi abiyotik stresler karşısında da koruyucu rol üstlenmektedir. Bu zamana kadar birçok bitkide *LEA* gen ailesi tanımlanmış olmasına karşın, hünnap (*Ziziphus jujuba* Mill.) genomunda LEA kodlayan genlerin karakterizasyonuna dair kapsamlı bir çalışma yapılmamıştır. Rhamnaceae ailesinin en bilinen üyesi olan hünnap (*Ziziphus jujuba* Mill.), Türkiye'de yetiştirildiği gibi dünyada da özellikle subtropik ve tropik bölgelerde dağılım göstermektedir. Yüksek miktarda C vitamini ve şeker içeren hünnap; antikanser ve anti-inflamatuvar etkileri ile ekonomik ve biyolojik öneme sahiptir. Bu çalışmada biyoinformatik araçlar kullanılarak hünnap genomunda *LEA* genlerinin detaylı olarak tanımlanması ve karakterizasyonu amaçlanmıştır. Çalışma sonuçları, literature *LEA* gen ailesi ile ilgili kapsamlı bilgi sağlamakla birlikte hünnap LEA proteinleri ile ilgili fonksiyonel araştırmalara ön bilgi sunmaktadır.

1. Introduction

Plants always interact with the external environment and they do not have the ability to avoid like other living things, so they have to adapt to unsuitable environmental conditions. Stress is a situation that arises from the environmental conditions change so much that the normal growth and development of a plant is influenced negatively. Plants compete against many stress factors throughout their lifespan [1]. They adapt to environmental changes such as cold, salinity, drought, hormone applications, heavy metals, by regulating the expression of different stress genes such as various transcription factors, chaperones, osmotic preservatives, free radical scavengers [2]. LEA proteins that were

initially discovered in cottonseed by the high accumulation of embryogenesis in the ripening period are one of the families of proteins regulated under abiotic stress conditions. LEA proteins, first identified in cotton, were then discovered in seed, seedling and stem of many plants such as wheat, corn, rice, potato, apple, vine, tomato, soybean, carrot and Arabidopsis [3].

LEA proteins, which are involved in the normal plant development, are induced in conditions such as desiccation and ABA stress, thus conserving the plant from adverse conditions [4, 5]. RNA-seq analysis in *Prunus mume* (Chinese plum) showed that the 30 *PmLEA* genes were expressed in varying proportions in the flower, root, stem, leaf and fruit of the plant, and 22 of these genes were induced in high amounts in the flower of the plant. RNA-seq analysis in Chinese plum showed that the 30 *PmLEA* genes were expressed in variable rates in the flower, root, stem, leaf and fruit of the plant and 22 of these genes were stimulated in high amounts in the flower of the plant. In addition, RT-PCR performed in the same plant after ABA application, 19 *PmLEA* genes were detected to be up-regulated under ABA stress [6]. 26 *MeLEA* genes were identified in cassava plant (*Manihot esculenta* Crantz) after it was subjected to drought, salt, osmotic pressure, cold, ABA and H_2O_2 stress factors. Especially, 9 of 26 *MeLEA* genes took part in stress response and signaling [7]. In addition to these studies, LEA proteins protected the enzymes from aggregation and inactivation under stress conditions such as LDH, fumarase, citrate synthase, malate dehydrogenase [8].

Although there are different opinions on the classification of LEA proteins, based on conserved motif sequences, it is possible to classify as LEA (1-6), Dehydrin and Seed Maturation Protein (SMP). According to biochemical structure of LEA proteins, whereas Ala, Ser and Gly amino acids are situated in high quantity in the structure of highly hydrophilic LEA proteins; Cys and Trp amino acids are present in small amounts [8, 9]. Jujube (*Ziziphus jujuba* Mill.) is a bramble fruit tree that grows mainly in the subtropical and tropical regions and also America, Europe and Australia, especially in South and East Asia. In Turkey, jujube especially is grown in Mediterranean and Aegean Region also is found in the Central Anatolia and Marmara Region [10, 11]. Jujube, the most economically valuable member of the Rhamnaceae family, contains high vitamin C and sugar content and the cultivation sites are becoming widespread all over the world. Jujube also can grow in nutritionally poor soil and arid areas also can tolerate drought and salinity [12]. Jujube demonstrates neuroprotective activities, antioxidative, anti-inflammatory and anticancer activity in terms of its contents as triterpenic acid active substances, polysaccharide and flavonoid [13].

Liu et al. (2014) declared its whole genome sequence and in 2016, its chloroplast genome sequence was also completed. Jujube was found to contain 32000 genes [14]. However, no studies have been fulfilled to identify and characterize jujube genes other than *MAPKK* gene family [15]. In the present study, it was aimed to identify the *ZjuLEA* gene family and LEA proteins by revealing gene structure, conserved motifs, chromosomal distributions etc. in jujube by using bioinformatics tools.

2. Material and Method

Determination of *Lea* Genes in Jujube Genome

In order to ascertain *LEA* genes in jujube genome, firstly LEAP database was used to obtain LEA protein sequences (http://forge.info.univ-angers.fr/~gh/Leadb/index.php, PMID: 20359361). Secondly, jujube genome sequence was retrieved from NCBI database. Afterwards BLASTP search was run to detect homologous LEA protein sequences in jujube genome. Predicted ZjuLEA proteins were confirmed by analyzing conserved regions with Pfam database (https://pfam.xfam.org). Expasy PROTPARAM (https://web.expasy.org/protparam/) database was used to identify certain biochemical properties such as amino acid length, molecular weight, and theoretical isoelectric point of the proteins.

Phylogenetic Analysis and Identification of Conserved Motifs

Aligned amino acid sequences using ClustalW were utilized to conduct a phylogenetic tree with MEGA7 (Molecular Evolutionary Genetic Analysis) software. Genetic relationships were deduced from maximum likelihood method with 1000 bootstrap value. This tree was regulated in Interactive Tree of Life (ITOL) database [16] in order to determine the classes formed in the phylogenetic tree constructed. For detection of the conserved motifs of ZjuLEA proteins, MEME Suit online tool was used (http://meme-suite.org).

Chromosome and Exon-Intron Localizations of *ZjuLEA* Genes

Estimated positions of *ZjuLEA* genes were determined with PHYTOZOME12 database (https://phytozome.jgi.doe.gov/pz/portal.html). Exon-intron organizations of *ZjuLEAs* were enlightened via comparing coding sequences (CDS) with genomic sequences through Online Gene Structure Display Server (GSDS) tool (http://gsds.cbi.pku.edu.cn).

Gene Ontology Analysis and Homology Modelling of ZjuLEA Proteins

The Blast2GO program [17]) is a bioinformatics program that applies functional analogy, has loaded amino acid sequences of ZjuLEA proteins. Functional analysis of ZjuLEA proteins in terms of possible biological roles, cellular localization and molecular processes were provided with Blast2GO program (https://www.blast2go.com). Estimated three-dimensional structure of ZjuLEA proteins were anticipated with online protein structure prediction server Phyre2 (Protein Homology/ analogY Recognition Engine V 2.0).

Determination of ZjuLEA Gene Targetting miRNAs

In order to find out miRNAs targeting ZjuLEA transcripts, miRBase v21 (http://www.mirbase.org/) and psRNATarget (Plant Small RNA Target Analysis Server) were utilized (http://plantgrn.noble.org/psRNATarget/).

Orthologous Relationships of ZjuLEA Proteins

Amino acid sequences from *Arabidopsis thaliana,* banana (*Musa acuminate*), orange (*Citrus sinensis*) and peach (*Prunus persica*) were used for comparison of peptide sequences of ZjuLEA proteins with BlastP in Phytozome database. CLC Genomic Workbench was utilized to analyze duplication assessment of ZjuLEA proteins.

Synonymous and Non-synonymous Change Rates

ZjuLEA protein sequences and orthologs in peach, banana, orange and Arabidopsis were aligned using ClustalOmega online tool. PAL2NAL online tool was utilized to calculate homologous (Ks) and non-homologous (Ka) change rates via alignment of amino acid sequences of orthologous pairs and their respective cDNA sequences. Time (million years ago, Mya) of duplication and divergence of each *LEA* genes were calculated with the equation $T=Ks/2k$ ($k = 6.5 \times 10^{-9}$) [18].

2. Result and Discussion

Determination of *Lea* Genes in Jujube Genome

According to Blastp and Pfam analysis, a total of *93 LEA* genes (*ZjuLEA1-93*) were identified in jujube genome. *LEA* genes diversely distributed across various taxonomic groups. 79 *LEA* genes in cucumber, 74 *StLEA* genes in potato, 68 *SbLEA* in sorghum, 60 *VvLEA* in grape, 33 in tea plant and 27 members in tomato were reported in previous studies [18–23]. Although number of *LEA* genes shows great variety in plants, it seems that allopolyploids tend to have higher numbers. For example, in the study of cotton Magwanga et al. identified 242 *LEA* genes in *G. hirsutum*, 142 in *G. raimondii*, 136 in *G. arboretum.* Similarly, Liu et al. reported 121 *LEA* genes in wheat and Liang et al. confirmed 108 members in canola [24–26]. On the contrary, aquatic plants *Physcomitrella patens* and *Lotus japonicus* have only 18 and 19 *LEAs*, respectively suggesting terrestrial plants subjected to drought stress seem to have more *LEAs* than the aquatics [20, 27-28]. Generally, similar number and distribution of *LEA* genes are expected between close phylogenetic relationship and group classifications. However, being both members of Rosales, Chinese plum (*Prunus mume*) and jujube have distinct gene numbers as 30 and 93 *LEAs,* respectively. Evolutionary variations of the whole genomes and extensive changes in the environment could have contributed to this occurrence.

Amino acid length of ZjuLEA proteins varied between 89-515 amino acids in length. Molecular weight of the proteins ranged from 4.14982 kDa to 29.12380 kDa. Isoelectric points (pI) of ZjuLEA proteins changing from 4.72 to10.81 and most of the proteins (78 proteins) showed alkaline character (**Supplementary Table S1 in appendix**). Consistent with our results *Brachypodium distachyon*, cucumber and tomato LEA proteins also showed basic character [18, 29-30].

Phylogenetic Analysis and Identification of Conserved Motifs

According to conserved domain analysis, *ZjuLEA* genes classified into 6 main subfamilies namely *ZjuLEA1, ZjuLEA2, ZjuLEA3, ZjuLEA4, ZjuLEA5* (Small hydrophilic plant seed protein), *ZjuLEA6* (Late embryogenesis abundant protein 18). *ZjuLEA2* was the largest family with 60 members while *ZjuLEA4* and *ZjuLEA6* subfamilies contained only one gene each. Consistent with our results, LEA6 subfamily is the smallest group in various plant species like grape, wheat [21, 25]. In their work, with 60 genomes of diverse plant species Artur et al. stated *LEA6* group as the smallest subfamily with 89 identified genes while *LEA2* subfamily as the most abundant with 3126 genes [31]. Group 2 LEA proteins was found to accumulate in several plant tissues not only during normal growth conditions but also with desiccation stress [8]. Several previous studies on tea plant, grape, sorghum, potato, cucumber, cotton also reported *LEA2* genes as predominant group as well. Segmental and tandem duplications and transpositional events could be the main reasons of expansion of *LEA2* genes among higher plants [21, 31].

To understand the evolutionary relationships of 93 ZjuLEA proteins, a phylogenetic tree was created using maximum likelihood method with 1000 bootstrap value. Based on the phylogenetic tree, *ZjuLEAs* divided into six main clusters (Cluster1-6) (**Figure 1**). Although distributed to all of the clusters dominantly, *ZjuLEA2* genes mostly located in Cluster-2. The only members of *LEA4* and *LEA6* subfamilies placed in Cluster-6 and Cluster-5, respectively. Also, all members of the *LEA5* subfamily (*ZjuLEA-24, ZjuLEA-55* and *ZjuLEA-56*) located in Cluster-4.
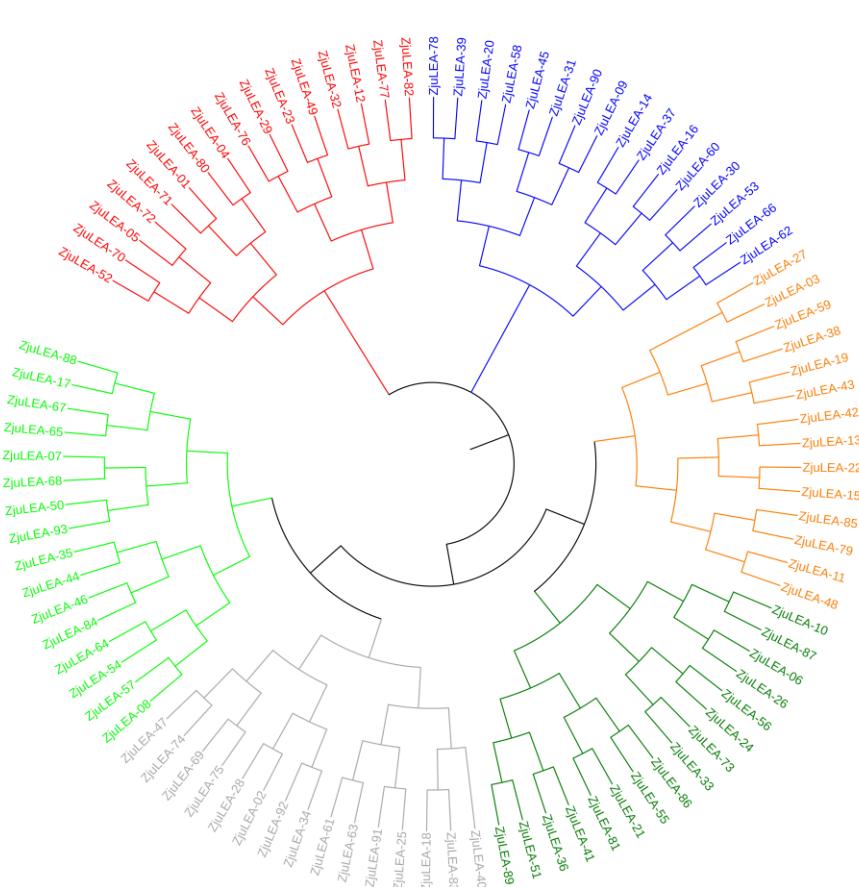
Figure 1. Phylogenetic tree of jujube LEA gene family. The proteins were divided into six distinct clusters: Cluster 1-red, Cluster 2-blue, Cluster 3-orange, Cluster 4-dark green, Cluster 5-grey, Cluster 6-light green colored

Chromosome and Exon-Intron Localizations of *ZjuLEA* Genes

In order to understand LEA subfamilies and phylogenetic tree profoundly, conserved motif compositions and exon-intron structure found in ZjuLEA proteins were examined. 37 of *ZjuLEA* genes had no introns whereas the other genes had one or two introns except *ZjuLEA8* which was the only gene with 3 introns (**Figure 2**). Major part of intronless genes were accumulated in *ZjuLEA2* subgroup. Members of *ZjuLEA1, ZjuLEA3, ZjuLEA5* subfamilies had only one intron region. Stress related genes reported to have smaller number of introns so as to respond immediately under stress conditions. Consistent with our results, Chinese plum, tomato and potato had one or two introns. All members of *LEA5* subfamily *(ZjuLEA24, ZjuLEA55 and ZjuLEA56)* localized in 4th cluster, supporting the phenomena that closely related *LEAs* had similar exon-intron feature [22, 24].
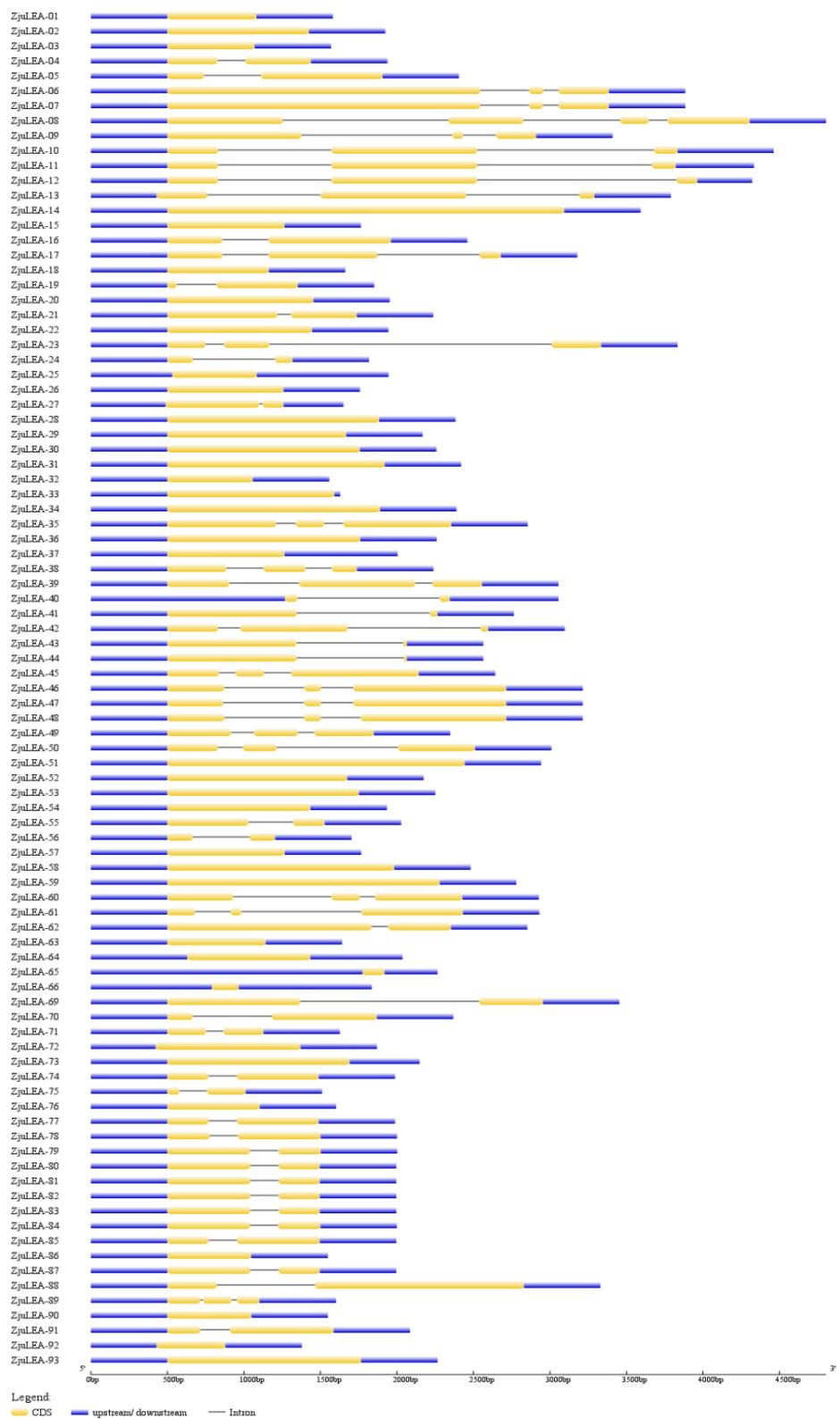
Figure 2. Exon-intron structure of *ZjuLEA* genes

On the other side, *LEA2* group members were predominant in all clusters of phylogenetic tree. Distribution of same group members between different clusters could be explained by significant motif composition differences. A total of twenty motifs predicted for ZjuLEA proteins (**Table 1**). Similar motif organization was observed between all LEA3 proteins sharing motif 1, motif 2 and motif 9 but located in different clusters of the phylogenetic tree. Some members (ZjuLEA02, ZjuLEA15, ZjuLEA20, ZjuLEA28, ZjuLEA63, ZjuLEA66, ZjuLEA68, ZjuLEA69, ZjuLEA93) of LEA2 proteins included motif 3, 4, 6 and 12 while some members (ZjuLEA01, ZjuLEA06, ZjuLEA25, ZjuLEA40, ZjuLEA53, ZjuLEA54, ZjuLEA58, ZjuLEA59, ZjuLEA76, ZjuLEA86, ZjuLEA89, ZjuLEA90) shared motif 3, 13, 14. However, motif 3 was the common conserved sequence present in all LEA2 proteins. Diverse motif patterns in the same group suggesting functional variations between the proteins [26, 32].

Table 1. 30 different motifs identified in ZjuLEA proteins

Motif No.	Sites	*E*-value	Amino acid sequence composition of the motif	Width
Motif 1	13	2.4e-480	GSGRNVVKKSGEEIVGSTEKVSWTPDPVTGYYRPENGAQEIDVAELRAML	50
Motif 2	12	5.4e-231	MARSFSNAKLLSALVVDGFSTAISRRGYA	29
Motif 3	51	4.0e-169	IJWLVLRPKKPKFTV	15
Motif 4	35	1.8e-150	ARNPNKKIGIYYDRL	15
Motif 5	4	7.6e-103	DYEVWLCDVSIGGAELLKSTQINKNGITYIDVPITFRPKDFGSALWDMMR	50
Motif 6	4	2.0e-094	EHENDKDKEKGGFIEKVKDFIHDIGEKIEEAIGFGKPTADVTAIHIPSIN	50
Motif 7	4	2.7e-093	RLTLPVEKTGEIPIPYKPDIDIEKIKFEQFSFEETVAVLHLKLENKNDFD	50
Motif 8	7	1.4e-122	IDINYLIESDGRKLVSGLIPDAGTIHAHGEETVKIPVSLIYDDIKNTYDD	50
Motif 9	12	2.2e-092	ASQGVVSSVARGGAG	15
Motif 10	19	3.0e-062	RSCCCCCTCWL	11
Motif 11	34	2.0e-113	LPPFYQGHKNTTVLSVVLGGQ	21
Motif 12	23	2.0e-088	TGVVPJDLKLLGRVRWKVGTW	21
Motif 13	15	3.2e-122	VKVKNPNFGSFKYDNSTVSFSYRGSVVGZVRIQKGKAKAR	40
Motif 14	15	4.2e-106	DLSSGVLTLNSNTKMTGKVKLJGIIKKKSAEMBCTISINV	41
Motif 15	7	6.8e-095	GHIDVDTPFGAMKLPISKEGGTTRLKKKKEDGGDDDDDED	41
Motif 16	3	4.6e-069	WIGTSWCWSENAMDNARERADIAAGNAKLRAQETMQDARENTNSWTDWAF	50
Motif 17	6	2.9e-059	AITYGEDKEATAYNEGKKPVEZSDAAAIZAGEPRDTGNYEFAPGGASKAA	50
Motif 18	3	1.4e-049	EEAKQKISIGSDNTEEAKVPMSEAIDFGIEKASNAYDEAKRKFNQASNMA	50
Motif 19	4	5.8e-044	YGVYVKCDVLVGIKKGVLGQVPLLGSPGC	29
Motif 20	4	6.7e-039	ENFYIGEGSDFTGVPTDMJSMNASVKLTFRNPATFFGIHVSSTPJDLSYS	50

ZjuLEA genes unevenly spread through all twelve chromosomes of jujube. Chromosome 1, which is the largest chromosome of jujube genome, included the highest content of genes with the number of thirteen [14]. Twelve genes located on Chromosome 12 and both Chromosome 2 and 8 had 10 *ZjuLEA* genes each. On the other side, Chromosome

7 and 10 had only one member *ZjuLEA38 and ZjuLEA51*, respectively. In addition, a total of 22 *ZjuLEA* genes could not place on any chromosome and indicated on scaffold base (**Figure 3**).
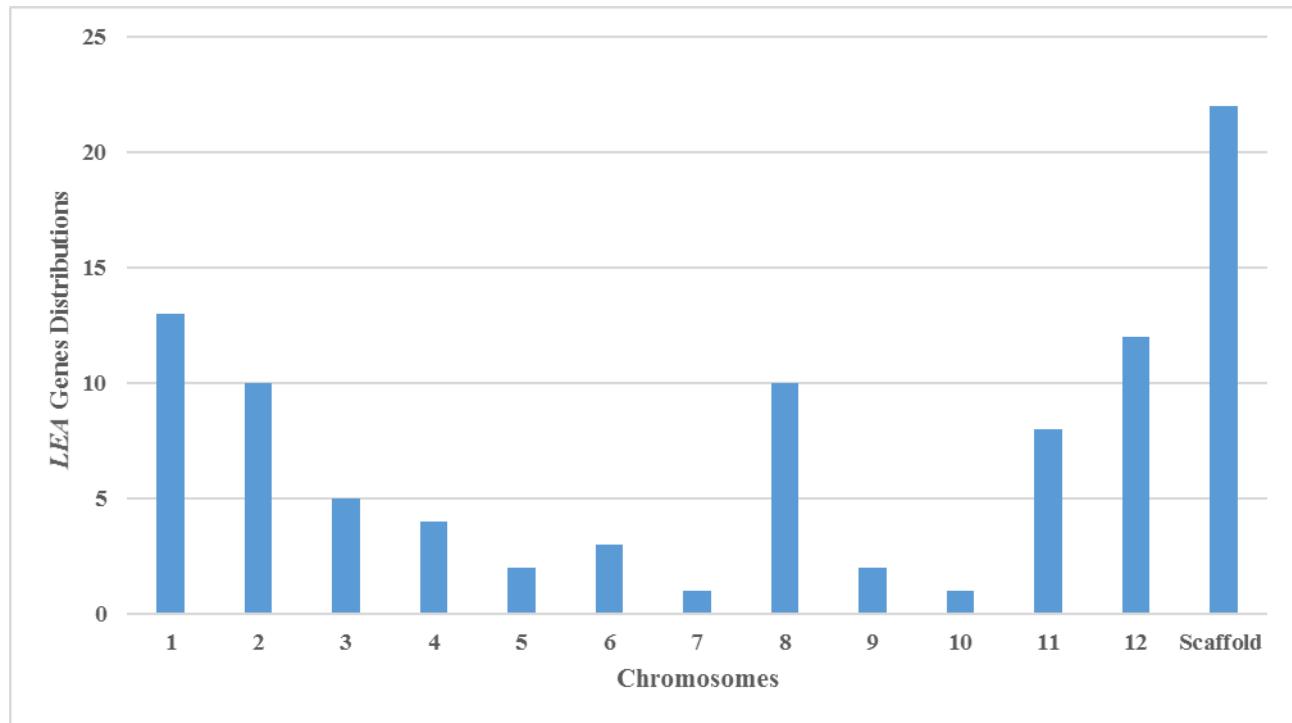
Figure 3. Chromosomal distribution of *LEA* genes in jujube

Gene Ontology Analysis and Homology Modelling of ZjuLEA Proteins

The cellular component, biological process and molecular function of *ZjuLEA* genes analysis were performed using the Blast2GO program. The ZjuLEA proteins mainly play part in response to stimulus and also in single-organism process, signaling, cellular process, regulation of biological process and biological regulation. LEA proteins especially overexpresses in stress conditions and mostly have role in protecting the organism. Altunoglu et al. [18] analyzed the LEA proteins in cucumber and they declared that these proteins mostly have role in response stimulus. LEA proteins of cotton exposed to drought stress was also investigated and they are mostly responsible for response stimulus. In addition, they have announced that most of them got signal transducer activity [24]. Almost all ZjuLEA proteins had signal transducer activity and some of them possessed catalytic activity. The cellular components of *LEA* genes of cotton [24] and *Vitis vinifera* [21] were exhibited in membrane and membrane parts. When investigated cellular components of ZjuLEA proteins, it was declared that most of them are distributed in the membrane and membrane parts. Also they appeared in cell part, cell, cell junction, symplast and organelle (**Figure 4**).
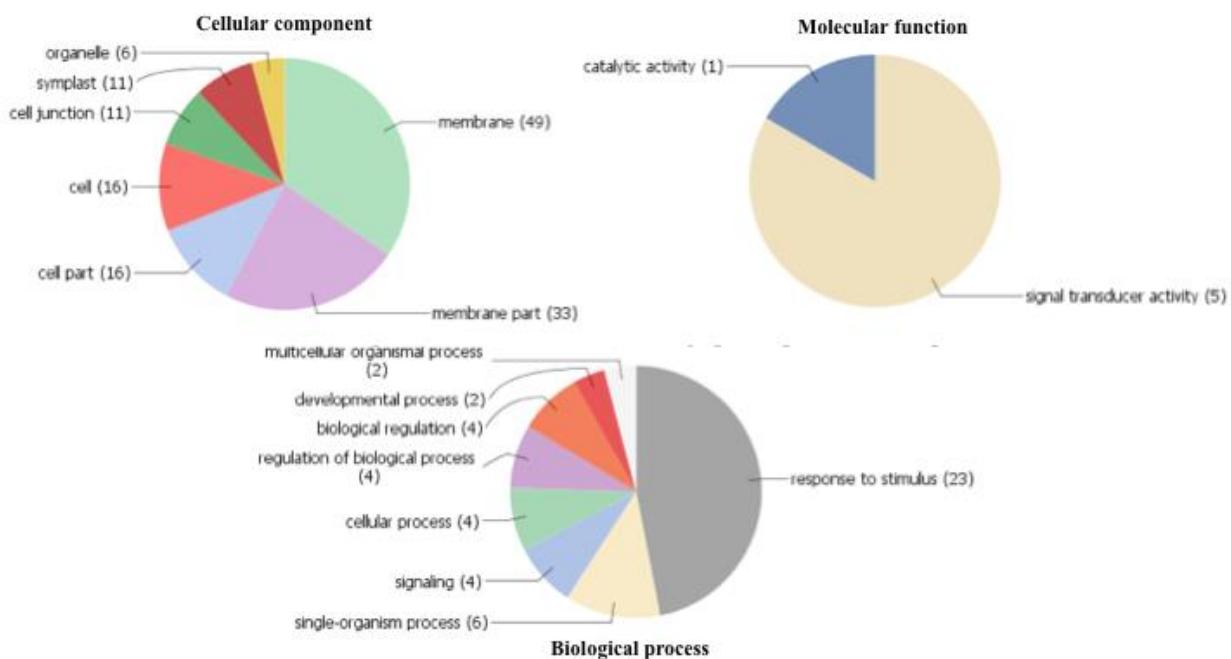
Figure 4. Gene ontology analysis of ZjuLEA proteins

Determination of ZjuLEA Gene Targetting miRNAs

MicroRNAs (miRNAs) which are approximately 21-24 base length are noncoding RNA molecules taking important part in regulation of gene expression in eukaryotes and viruses [33]. miRNAs are in interaction with mRNA that cause degradation and repression of translation [34]. When analyzed miRNAs targeting to *ZjuLEA* genes, the most targeted *ZjuLEA* genes by miRNAs are respectively *ZjuLEA-88* (33 miRNAs), *ZjuLEA-29* (31 miRNAs), *ZjuLEA-28* (30 miRNAs) and *ZjuLEA-6* (26 miRNAs) **(Figure 5)**. In addition, *ZjuLEA-24, ZjuLEA-38, ZjuLEA-55, ZjuLEA-57, ZjuLEA-61* and *ZjuLEA-64* genes was not targeted any miRNAs (**Supplementary Table S2 in appendix**). One of the most preserved miRNAs in plants during evolutionary process is miR156. miR156 and miR157 extremely similar and highly conserved in plants [35]. Kavas et al. [36] studied that the *SBP* genes of potato commonly targeted by miR156 and miR157. *HSP70* genes of common bean targeted by twenty-four miRNAs and one of them is miR156 [37]. In the present study, majority of *ZjuLEA* genes were targeted by miR156 (58 genes) and miR157 (24 genes).
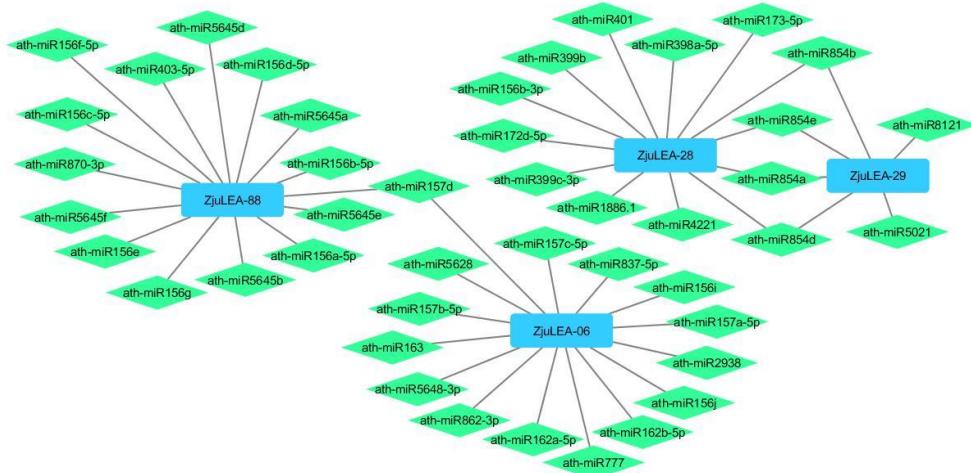
Figure 5. The most targeted *ZjuLEA* genes and their targeting miRNAs

Orthologous Relationships of ZjuLEA Proteins

Estimated three-dimensional structures of ZjuLEA proteins which aligns Hidden-Markov models search were done by selecting the intensive mode in the Phyre2 database. As a result of modeling ZjuLEA proteins, it was seen that α-helix structure dominated in ZjuLEA proteins (**Figure 6**). Despite both α-helix and β-sheets structure of LEA proteins are created during slow-drying, α-helix are only created during rapid-drying [38, 39]. LEA proteins are composed of a facultative and non-periodic linear α-helix which built the main hydrophobic interaction between monomers without thermodynamically dominant state [25]. α-helical structure was reported to be the dominant form under dry state of FTIR analysis in *Typha latifolia,* soybean, pea, a nematode and a rotifer [40]. According to the molecular function of ZjuLEA proteins, the α-helix structure correlates with the role of ZjuLEA proteins.
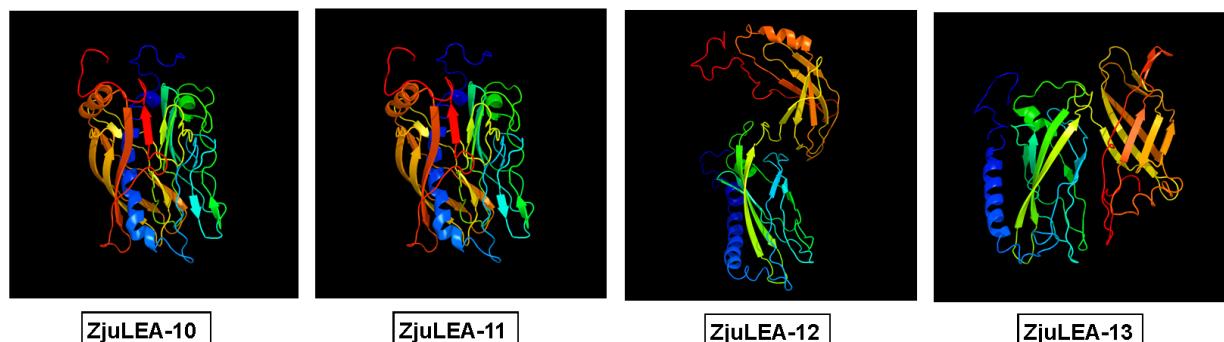
Figure 6. Predicted three-dimensional structure of LEA proteins

Synonymous and Non-synonymous Change Rates

To evaluate the timing of gene duplication results in genome, in addition to divergence of orthologues, non-synonymous (Ka) versus the synonymous (Ks) substitution rate (Ka/Ks) was calculated for 54 tandem duplicated *ZjuLEA* genes to assess evolutionary distribution of *ZjuLEA* gene family. Substitution rates estimated for orthologous genes of *ZjuLEA* from orange (*Citrus sinensis*), banana (*Musa accuminata*), peach (*Prunus persica*) and *Arabidopsis*

thaliana (**Supplementary Table S3 in appendix**). Mean average of Ka/Ks ratios between jujube and *Arabidopsis*, banana, orange and peach were 0.06, 1.11, 0.09 and 0.12, respectively. When the divergence times between *ZjuLEA* and genes from other fruit species were analyzed, the latest separated genes from *ZjuLEA* were peach genes with mean of 84 MYA (million years ago). The average divergence time of jujube from orange, *Arabidopsis* and banana was 90, 162 and 262 MYA, respectively (**Figure 7).** In addition, the most ortologous genes were determined between jujube and peach *LEA* genes. According to divergence time and ortologous genes of jujube and other plants, jujube and peach may be closer than other plants. Segmental and tandem duplications make possible gene family enlargement [23, 41]. Genome wide studies of *LEA* genes exhibited that 22 genes in tomato [30], eight genes in potato [42], eight genes in purple false brome [29], 17 genes in Chinese plum [6], 56 genes in cucumber [18] and 42 genes in Arabidopsis [40] appeared segmental and tandem duplication. These duplications can be dedicated to *LEA* gene family extension between various plants.
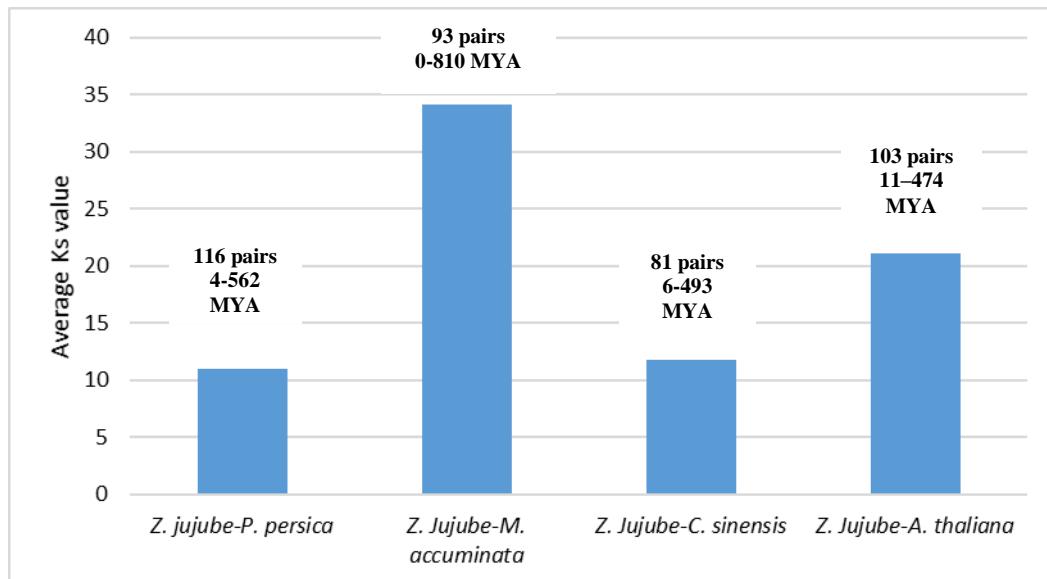
Figure 7. Estimation of gene duplications and divergence times (MYA) of *ZjuLEA* genes with orthologous *LEA* gene pairs between *Z. jujube*, *Prunus persica* (peach), *Musa accuminata* (banana), *Citrus sinensis* (orange) and *Arabidopsis thaliana*

As a result, a total of 93 *ZjuLEA* genes were identified and characterized in terms of phylogenetic analysis, estimation of 3D structure, miRNA identification and duplication events. These results can be used for identification of *LEA* genes in other organisms and functional characterization for agronomical traits in future studies.

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Appendix

Supplementary Table S1. Catalog of *ZjuLEA*s genes.

ID	Domain	NCBI Accession No.	Physical position on Ziziphus jujuba genome			Protein length (aa)	Molecular weight (Da)	pI	Instability index	Stable or unstable
			Chromosome	Start position (bp)	End Position (bp)					
ZjuLEA-01	LEA_2	XP_015883598.1	Chr1	13,803,284	13,803,865	193	21460,93	8,67	26,23	stable
ZjuLEA-02	LEA_2	XP_015884343.1	Chr1	14,115,965	14,116,889	225	25390,02	9,54	38,48	stable
ZjuLEA-03	LEA_2	XP_015883649.1	Chr1	14,119,099	14,199,668	189	21505,05	9,86	32,89	stable
ZjuLEA-04	LEA_1	XP_015895645.1	Chr1	30,737,488	30,738,425	105	11396,14	9,30	30,05	stable
ZjuLEA-05	Root cap	XP_015895968.1	Chr1	31,107,215	31,108,620	344	38130,23	7,83	34,88	stable
ZjuLEA-06	LEA_2	XP_015902379.1	Chr1	36,661,028	36,663,912	251	28119,34	9,68	41,28	unstable
ZjuLEA-07	LEA_2	XP_015902388.1	Chr1	36,661,028	36,663,912	235	26444,30	9,39	41,82	unstable
ZjuLEA-08	LEA_2	XP_015867106.1	Chr1	39,272,239	39,276,043	477	43200,00	10,04	69,51	unstable
ZjuLEA-09	LEA_2	XP_015867462.1	Chr1	39,467,779	39,470,188	217	24398,16	7,72	48,54	unstable
ZjuLEA-10	LEA_2	XP_015867988.1	Chr1	39,921,650	39,925,112	318	35360,27	4,72	21,29	stable
ZjuLEA-11	LEA_2	XP_015867996.1	Chr1	39,921,650	39,925,112	318	35360,27	4,72	21,29	stable
ZjuLEA-12	LEA_2	XP_015868000.1	Chr1	39,921,650	39,925,112	318	35360,27	4,72	21,29	stable
ZjuLEA-13	LEA_2	XP_015867981.1	Chr1	39,921,650	39,925,112	318	35360,27	4,72	21,29	stable
ZjuLEA-14	LEA_2	XP_015872567.1	Chr2	343,256	345,848	253	27580,43	10,53	49,23	unstable
ZjuLEA-15	LEA_2	XP_015873001.1	Chr2	337,886	338,65	215	23913,84	9,59	32,41	stable
ZjuLEA-16	LEA_2	XP_015873376.1	Chr2	2,716,331	2,718,509	275	30353,98	9,40	53.99	unstable
ZjuLEA-17	LEA_2	XP_015873377.1	Chr2	2,716,331	2,718,519	275	30353,98	9,04	53.98	unstable
ZjuLEA-18	UD	XP_015873480.1	Chr2	3,794,354	3,795,016	220	24426,92	9,16	57,72	unstable
ZjuLEA-19	UD	XP_015873626.1	Chr2	5,630,277	5,631,128	197	22881,57	9,79	49,76	unstable
ZjuLEA-20	LEA_2	XP_015873634.1	Chr2	5,640,567	5,641,520	199	22816,54	9,42	38,74	stable
ZjuLEA-21	Root cap	XP_015874391.1	Chr2	14,129,616	14,130,853	382	41380,89	8,48	12,96	stable
ZjuLEA-22	LEA_2	XP_015874632.1	Chr2	18,035,416	18,036,360	182	19846,74	5,85	29,00	stable
ZjuLEA-23	LEA_2	XP_015875454.1	Chr2	23,776,051	23,778,885	289	29826,80	5,10	34,01	stable

ZjuLEA-24	SMP	XP_015877411.1	Chr3	17,110,931	17,111,748	93	10012,93	6,13	27,33	stable
ZjuLEA-25	LEA_2	XP_015878291.1	Chr3	24,498,287	24,498,937	216	23655,41	9,71	32.88	stable
ZjuLEA-26	LEA_2	XP_015878292.1	Chr3	24,500,565	24,501,323	219	24453,40	9,52	53,07	unstable
ZjuLEA-27	LEA_2	XP_015878308.1	Chr3	25,504,871	24,505,816	195	21499,24	10,79	27,75	stable
ZjuLEA-28	LEA_2	XP_015878616.1	Chr3	26,268,493	26,269,876	210	23399,16	9,68	33,21	stable
ZjuLEA-29	LEA_2	XP_015879734.1	Chr4	7,802,571	7,803,783	261	28724,79	9,79	47,13	unstable
ZjuLEA-30	LEA_2	XP_015879927.1	Chr4	8,881,687	8,882,944	264	29014,69	9,65	48,63	unstable
ZjuLEA-31	LEA_2	XP_015880534.1	Chr4	15,484,146	15,485,565	246	27531,54	9,09	46,70	unstable
ZjuLEA-32	LEA_2	XP_015881075.1	Chr4	21,177,722	21,178,279	185	20787,64	9,47	23,22	stable
ZjuLEA-33	LEA_2	XP_015882906.1	Chr5	14,231,262	14,232,352	251	27717,63	9,76	35,89	stable
ZjuLEA-34	LEA_2	XP_015883846.1	Chr5	29,576,091	29,577,480	251	27689,68	9,82	37,45	stable
ZjuLEA-35	LEA_2	XP_015884283.1	Chr6	1,841,515	1,843,369	321	35486,67	10,03	62,89	unstable
ZjuLEA-36	LEA_2	XP_015884414.1	Chr6	2,839,148	2,840,407	269	29399,90	9,95	29,51	stable
ZjuLEA-37	LEA_2	XP_015885407.1	Chr6	9,811,092	9,812,096	256	28849,30	9,48	39,13	stbale
ZjuLEA-38	SMP	XP_015888177.1	Chr7	22,191,905	22,193,143	252	25797,56	4,76	36,97	stable
ZjuLEA-39	LEA_2	XP_015888818.1	Chr8	613,837	615,892	248	27867,81	10,81	45,07	unstable
ZjuLEA-40	LEA_2	XP_015888819.1	Chr8	820,289	821,417	220	24511,92	9,92	38,83	stable
ZjuLEA-41	LEA_2	XP_015888908.1	Chr8	1,526,917	1,529,582	241	26924,63	10,22	47,69	unstable
ZjuLEA-42	LEA_2	XP_015888909.1	Chr8	1,526,917	1,529,582	241	26924,63	10,22	47,69	unstable
ZjuLEA-43	LEA_2	XP_015888911.1	Chr8	1,526,917	1,529,582	203	22212,08	9,98	40,89	unstable
ZjuLEA-44	LEA_2	XP_015888912.1	Chr8	1,526,917	1,529,582	203	22212,08	9,98	40,89	unstable
ZjuLEA-45	LEA_2	XP_015889834.1	Chr8	6,769,735	6,771,377	319	35204,16	10,06	56,79	unstable
ZjuLEA-46	UD	XP_015890004.1	Chr8	7,855,860	7,858,074	379	41861,19	5,06	29,45	stable
ZjuLEA-47	UD	XP_015890005.1	Chr8	7,855,859	7,858,073	376	4149,82	5,11	28,86	stable
ZjuLEA-48	UD	XP_015890006.1	Chr8	7,855,859	7,858,073	363	40194,37	5,09	26,17	stable
ZjuLEA-49	SMP	XP_015891517.1	Chr9	1,713,945	1,715,293	260	26791,51	4,99	30,49	stable
ZjuLEA-50	UD	XP_015891973.1	Chr9	3,941,549	3,943,558	213	23681,82	9,79	42,51	stable
ZjuLEA-51	LEA_2	XP_015894546.1	Chr10	4,494,298	4,496,240	338	38414,09	10,32	57,77	unstable
ZjuLEA-52	LEA_2	XP_015896074.1	Chr11	801,828	803,002	226	23629.44	9,64	42,54	stable

ZjuLEA-53	LEA_2	XP_015896527.1	Chr11	4,190,247	4,191,497	218	24217,21	9,32	36,73	stable
ZjuLEA-54	LEA_2	XP_015896529.1	Chr11	4,185,916	4,186,850	210	23735,71	10,27	40,13	stable
ZjuLEA-55	LEA_5	XP_015897237.1	Crh11	13,796,194	13,797,221	113	12419,55	6,31	51,06	unstable
ZjuLEA-56	LEA_5	XP_015897238.1	Crh11	13,799,892	13,800,595	93	10349,41	6,92	41,95	unstable
ZjuLEA-57	UD	XP_015897483.1	Chr11	15,623,977	15,624,743	201	22395,21	9,21	32,45	stable
ZjuLEA-58	LEA_2	XP_015897772.1	Chr11	18,430,724	18,432,205	201	21448,91	9,75	34,73	stable
ZjuLEA-59	LEA_2	XP_015897785.1	Chr11	18,440,052	18,441,831	209	22946,51	9,95	30,20	stable
ZjuLEA-60	LEA_2	XP_015898307.1	Chr12	2,914,810	2,916,737	264	29491,83	9,75	48,03	unstable
ZjuLEA-61	LEA_2	XP_015898332.1	Chr12	3,213,226	3,215,156	210	23649,38	8,79	43,87	unstable
ZjuLEA-62	LEA_4	XP_015898588.1	Chr12	4,276,914	4,276,766	515	56357,80	5,97	20,71	stable
ZjuLEA-63	LEA_2	XP_015898720.1	Chr12	5,347,957	5,348,598	213	24084,20	9,82	33,51	stable
ZjuLEA-64	LEA_2	XP_015898846.1	Chr12	5,890,140	5,891,156	229	25656,04	9,80	24,07	stable
ZjuLEA-65	LEA_2	XP_015898847.1	Chr12	5,882,530	5,883,566	226	25489,68	9,64	32,78	stable
ZjuLEA-66	LEA_3	XP_015898848.1	Chr12	5,878,305	5,879,570	215	24457,35	9,98	31,54	stable
ZjuLEA-67	LEA_2	XP_015898851.1	Chr12	5,892,852	5,893,687	228	25619,85	9,67	27,42	stable
ZjuLEA-68	LEA_2	XP_015898858.1	Chr12	5,866,601	5,873,228	249	27763,80	9,51	45,00	unstable
ZjuLEA-69	LEA_2	XP_015898859.1	Chr12	5,866,601	5,873,228	249	27763,80	9,51	45,00	unstable
ZjuLEA-70	LEA_1	XP_015898949.1	Chr12	6,825,759	6,827,127	193	19646,19	9,10	15.86	stable
ZjuLEA-71	LEA_3	XP_015899882.1	Chr12	17,537,001	17,537,628	101	10735,18	9,39	47,97	unstable
ZjuLEA-72	LEA_3	XP_015870974.1	NW	425	1,37	253	27427,17	10,27	22,24	stable
ZjuLEA-73	LEA_2	XP_015872420.1	NW	734	1,924	254	29123.07	10,02	35,10	stable
ZjuLEA-74	LEA_3	XP_015870897.1	NW	781	1,768	99	10332,66	9,69	34,03	stable
ZjuLEA-75	LEA_3	XP_015872231.1	NW	986	1,496	103	10811,12	9,63	33,09	stable
ZjuLEA-76	LEA_2	XP_015866337.1	NW	1,663	2,265	200	22079,81	9,81	27.84	stable
ZjuLEA-77	LEA_3	XP_015870749.1	NW	1,758	2,745	99	10332,66	9,69	34,03	stable
ZjuLEA-78	LEA_3	XP_015869267.1	NW	1,769	2,769	99	10332,66	9,69	34,03	stable
ZjuLEA-79	LEA_3	XP_015870734.1	NW	5,818	6,819	99	10332,66	9,69	34,03	stable
ZjuLEA-80	LEA_3	XP_015870652.1	NW	6,055	7,05	99	10332,66	9,69	34,03	stable
ZjuLEA-81	LEA_6	XP_015870785.1	NW	6,177	7,172	99	10332,66	9,69	34,03	stable

ZjuLEA-82	LEA_3	XP_015870582.1	NW	6,44	7,435	99	10332,66	9,69	34,03	stable
ZjuLEA-83	LEA_3	XP_015870569.1	NW	6,443	7,438	99	10332,66	9,69	34,03	stable
ZjuLEA-84	LEA_3	XP_015868932.1	NW	8,513	9,512	99	10332,66	9,69	34,03	stable
ZjuLEA-85	LEA_3	XP_015868536.1	NW	19K	20K	99	10332,66	9,69	34,03	stable
ZjuLEA-86	LEA_2	XP_015867337.1	NW	22K	22K	200	22128,87	9,77	20,01	stable
ZjuLEA-87	LEA_3	XP_015869198.1	NW	23K	24K	99	10332,66	9,69	34,03	stable
ZjuLEA-88	UD	XP_015867416.1	NW	37K	39K	477	52808,53	9,14	38,33	stable
ZjuLEA-89	UD	XP_015867339.1	NW	45K	46K	182	20181,53	9,77	36,07	stable
ZjuLEA-90	UD	XP_015867340.1	NW	49K	49K	182	20223,53	9,78	31,90	stable
ZjuLEA-91	LEA_1	XP_015865991.1	NW	64k	65k	117	12951,86	9,50	36,70	stable
ZjuLEA-92	LEA_6	XP_015901635.1	NW	170K	171K	89	9697,56	5,31	48,74	unstable
ZjuLEA-93	LEA_2	XP_015900439.1	NW	480K	481K	215	24457,35	9,98	31,54	stable

UD: undefined
SMP: seed maturation protein

Supplementary Table S2. Targeted *ZjuLEA* genes and their targeting miRNAs.

miRNA_Acc.	Target_Acc.	Exp.	UPE	miRNA_aligned_fragment	Target_aligned_fragment	Inhibition
ath-miR5998a	ZjuLEA-27	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	AAAAAAAAAAAAAAAAACUGA	Translation
ath-miR5998b	ZjuLEA-27	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	AAAAAAAAAAAAAAAAACUGA	Translation
ath-miR837-5p	ZjuLEA-27	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	AAAAAAAAAAAAAAAACUGAU	Cleavage
ath-miR156d-3p	ZjuLEA-78	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	AAAAAAAGAAGAAGAGAGGGAGC	Cleavage
ath-miR837-5p	ZjuLEA-91	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	AAAAAAGCAAAAGAAGCUGAG	Cleavage
ath-miR777	ZjuLEA-06	5.0	-1.0	UACGCAUUGAGUUUCGUUGCUU	AAACGGUGAGACUUGAUUUGUA	Cleavage
ath-miR4243	ZjuLEA-50	5.0	-1.0	UUGAAAUUGUAGAUUUCGUAC	AAACUCGAUCUGUAAUUUAAA	Cleavage
ath-miR837-3p	ZjuLEA-31	5.0	-1.0	AAACGAACAAAAACUGAUGG	AAAUUAAUUCGUUGUUUUGUUU	Translation
ath-miR399c-5p	ZjuLEA-86	5.0	-1.0	GGGCAUCUUUCUAUUGGCAGG	AACGGCAAUGGGAAGAUGACU	Cleavage
ath-miR8165	ZjuLEA-76	5.0	-1.0	AAUGGAGGCAAGUGUGAAGGA	AACUCCACGGUUGCCUUCAGU	Cleavage
ath-miR413	ZjuLEA-21	5.0	-1.0	AUAGUUUCUCUUGUUCUGCAC	AAGAAGAACAAGAAAAACAAA	Cleavage
ath-miR4221	ZjuLEA-70	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	AAGAGUAUUGAAAAGAGGGGAA	Translation
ath-miR158a-5p	ZjuLEA-91	5.0	-1.0	CUUUGUCUACAAUUUUGGAAA	AAGCCAAAGUUGAAGAAAAGG	Cleavage
ath-miR1886.1	ZjuLEA-69	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	AAGCUCAAAUCACUUUUCUCA	Cleavage
ath-miR854a	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR859	ZjuLEA-62	5.0	-1.0	UCUCUCUGUUGUGAAGUCAAA	AAGGAUUAUACAACGGAGAAA	Cleavage
ath-miR773b-3p	ZjuLEA-37	5.0	-1.0	UUUGAUUCCAGCUUUUGUCUC	AAGUUGAAAACUGGAAGCAAA	Cleavage
ath-miR420	ZjuLEA-39	5.0	-1.0	UAAACUAAUCACGGAAAUGCA	AAUAUUUUGGUGGUUAUUUUG	Cleavage
ath-miR163	ZjuLEA-51	5.0	-1.0	UUGAAGAGGACUUGGAACUUCGAU	AAUCAUCCUUGAAGUUCUCUUCAA	Cleavage
ath-miR156g	ZjuLEA-34	5.0	-1.0	CGACAGAAGAGAGUGAGCAC	AAUCUCAUUUUCUUCUGAUG	Cleavage
ath-miR5648-3p	ZjuLEA-06	5.0	-1.0	AUCUGAAGAAAAUAGCGGCAU	AAUCUUUUAUUUUUUUUGGGU	Cleavage
ath-miR822-3p	ZjuLEA-14	5.0	-1.0	UGUGCAAAUGCUUUCUACAGG	AAUGUGAGAAGCGUGUGCAUG	Cleavage
ath-miR779.2	ZjuLEA-45	5.0	-1.0	UGAUUGGAAAUUUCGUUGACU	AAUUAUCAAAAUUAUCAAUUA	Cleavage
ath-miR5998a	ZjuLEA-21	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	ACAAGA-AAAACAAAGGCUGU	Cleavage
ath-miR5998b	ZjuLEA-21	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	ACAAGA-AAAACAAAGGCUGU	Cleavage
ath-miR399b	ZjuLEA-28	5.0	-1.0	UGCCAAAGGAGAGUUGCCCUG	ACAAGAAGCUCUUCUUUGGCU	Cleavage
ath-miR399c-3p	ZjuLEA-28	5.0	-1.0	UGCCAAAGGAGAGUUGCCCUG	ACAAGAAGCUCUUCUUUGGCU	Cleavage
ath-miR858b	ZjuLEA-31	5.0	-1.0	UUCGUUGUCUGUUCGACCUUG	ACAGCUCGUACGGACGACGCA	Cleavage
ath-miR5653	ZjuLEA-73	5.0	-1.0	UGGGUUGAGUUGAGUUGAGUUGGC	ACAGGCUCAUAUCAACUCAAGCUC	Cleavage
ath-miR5997	ZjuLEA-65	5.0	-1.0	UGAAACCAAGUAGCUAAAUAG	ACAUUUAUUUAUUUGUUUUUU	Cleavage
ath-miR834	ZjuLEA-17	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	ACCCUGCUGUUGCUGCUGCCU	Cleavage
ath-miR5014a-5p	ZjuLEA-65	5.0	-1.0	ACACUUAGUUUUGUACAACAU	ACCUUCCAGAAGACUAAGUGU	Cleavage
ath-miR8181	ZjuLEA-45	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	ACGUCACGUCCACACCCCUA	Cleavage
ath-miR826b	ZjuLEA-54	5.0	-1.0	UGGUUUUGGACACGUGAAAAU	AGAAUCCCGUAUUCAAAACCA	Translation

ath-miR414	ZjuLEA-46	5.0	-1.0	UCAUCUUCAUCAUCAUCGUCA	AGACGAUGGAGGUAGGGAUGA	Cleavage
ath-miR4239	ZjuLEA-13	5.0	-1.0	UUUGUUAUUUUCGCAUGCUCC	AGAGCA--CGAGAAUGACAAA	Cleavage
ath-miR2112-5p	ZjuLEA-11	5.0	-1.0	CGCAAAUGCGGAUAUCAAUGU	AGAUUUAUUUAUGCAUUUGUG	Translation
ath-miR5657	ZjuLEA-59	5.0	-1.0	UGGACAAGGUUAGAUUUGGUG	AGCAAGAUUUGGCUUUGUUCC	Cleavage
ath-miR408-5p	ZjuLEA-49	5.0	-1.0	ACAGGGAACAAGCAGAGCAUG	AGCCUUCUGCUUUUUCCCUGG	Cleavage
ath-miR1886.1	ZjuLEA-68	5.0	-1.0	UGAGAGAAGUGAGAUGAAAU	AGCUCAAAUCACUUUUCUCA	Cleavage
ath-miR837-3p	ZjuLEA-09	5.0	-1.0	AAACGAACAAAAAACUGAUGG	AGCUUGGUUUCUUGUUCUUUU	Translation
ath-miR156h	ZjuLEA-92	5.0	-1.0	UGACAGAAGAAAGAGAGCAC	AGGCUAAUUUUUUUUGUUA	Cleavage
ath-miR414	ZjuLEA-53	5.0	-1.0	UCAUCUUCAUCAUCAUCGUCA	AGGGGAUGAUCAUGAAUAUGG	Translation
ath-miR5997	ZjuLEA-50	5.0	-1.0	UGAAACCAAGUAGCUAAAUAG	AGGUGUAGCUAAUUGGUAUUA	Translation
ath-miR837-3p	ZjuLEA-58	5.0	-1.0	AAACGAACAAAAAACUGAUGG	AGGUUUGGUUUUUGUUUUUUU	Cleavage
ath-miR825	ZjuLEA-71	5.0	-1.0	UUCUCAAGAAGGUGCAUGAAC	AGUUUUCUUUCUUCUUGAGAA	Cleavage
ath-miR857	ZjuLEA-91	5.0	-1.0	UUUUGUAUGUUGAAGGUGUAU	AUACAGUUUUGAUAUAUAUAA	Cleavage
ath-miR834	ZjuLEA-04	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	AUACUAUGGCUCCUCCUACCA	Translation
ath-miR156a-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156b-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156c-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156d-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156e	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156f-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156g	ZjuLEA-88	5.0	-1.0	CGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR157d	ZjuLEA-88	5.0	-1.0	UGACAGAAGAUAGAGAGCAC	AUACUUAUUGUCUUUUGUCC	Cleavage
ath-miR5021	ZjuLEA-58	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	AUAUCUUCUUCUUGUUAUUG	Cleavage
ath-miR843	ZjuLEA-36	5.0	-1.0	UUUUAGGUCGAGCUUCAUUGGA	AUCAAAGGGACUCCACCUAAA	Cleavage
ath-miR163	ZjuLEA-07	5.0	-1.0	UUGAAGAGGACUUGGAACUUCGAU	AUCCGAGUUCCCGGUUUCCUUCAG	Cleavage
ath-miR854a	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR854b	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR854c	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR854d	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR854e	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR854a	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUAUU	Cleavage
ath-miR854b	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUAUU	Cleavage
ath-miR854c	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUAUU	Cleavage
ath-miR854d	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUAUU	Cleavage
ath-miR854e	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUAUU	Cleavage
ath-miR5663-3p	ZjuLEA-30	5.0	-1.0	UGAGAAUGCAAAUCCUUAGCU	AUCUAUGGCUUUGUAUUAUUA	Cleavage
ath-miR8181	ZjuLEA-27	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	AUCUCACUCCCCCAUUUUAA	Cleavage
ath-miR5019	ZjuLEA-35	5.0	-1.0	UGUUGGGAAAGAAAAACUCUU	AUGAUUUAUUUAUUCUCAAUA	Translation
ath-miR829-3p.1	ZjuLEA-40	5.0	-1.0	AGCUCUGAUACCAAAUGAUGGAAU	AUGGCAU-GUUUGGGAUUGGAGCU	Translation
ath-miR868-5p	ZjuLEA-62	5.0	-1.0	UCAUGUCGUAAUAGUAGUCAC	AUGGCUUCUAUUUCGUCAUGG	Cleavage

ath-miR5656	ZjuLEA-19	5.0	-1.0	ACUGAAGUAGAGAUUGGGUUU	AUGUUCUAUUUCUAUUUUAGA	Cleavage
ath-miR156d-3p	ZjuLEA-14	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	AUGUUGACGAGAAGUGAUUGAGA	Cleavage
ath-miR415	ZjuLEA-53	5.0	-1.0	AACAGAGCAGAAACAGAACAU	AUGUUUUCCAUUUGCUCUGUU	Cleavage
ath-miR865-3p	ZjuLEA-33	5.0	-1.0	UUUUUCCUCAAAUUUAUCCAA	AUUCAUACUUUUGAGGAAGAA	Cleavage
ath-miR5665	ZjuLEA-08	5.0	-1.0	UUGGUGGACAAGAUCUGGGAU	AUUGCAGAUCUUGUGCAUGAA	Cleavage
ath-miR780.1	ZjuLEA-15	5.0	-1.0	UCUAGCAGCUGUUGAGCAGGU	AUUUGUGCAGGAGCUGCUGGG	Translation
ath-miR870-3p	ZjuLEA-88	5.0	-1.0	UAAUUUGGUGUUUCUUCGAUC	AUUUUAUGAAAAGCCAAGUUA	Translation
ath-miR5641	ZjuLEA-36	5.0	-1.0	UGGAAGAAGAUGAUAGAAUUA	AUUUUUCUUUUCUCUUCUUUUA	Translation
ath-miR5022	ZjuLEA-03	5.0	-1.0	GUCAUG-GGGUAUGAUCGAAUG	AUUUUUGAUUAUAUUCACAUGAC	Cleavage
ath-miR5628	ZjuLEA-06	5.0	-1.0	GAAAUAGCGAAGAUAUGAUUA	CAAACAUAUCUUUGAUAAUUU	Cleavage
ath-miR5628	ZjuLEA-07	5.0	-1.0	GAAAUAGCGAAGAUAUGAUUA	CAAACAUAUCUUUGAUAAUUU	Cleavage
ath-miR156d-3p	ZjuLEA-74	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR4239	ZjuLEA-49	5.0	-1.0	UUUGUUAUUUUCGCAUGCUCC	CAACCUUGUGAAGAAACGAA	Cleavage
ath-miR5998a	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAAGAGCAAGAC-CAAAUUGU	Cleavage
ath-miR5998b	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAAGAGCAAGAC-CAAAUUGU	Cleavage
ath-miR5015	ZjuLEA-67	5.0	-1.0	UUGGUGUUAUGUGUAGUCUUC	CAAGGUUAAAUGUGACGUCAA	Cleavage
ath-miR5663-3p	ZjuLEA-53	5.0	-1.0	UGAGAAUGCAAAUCCUUAGCU	CAAUAGGGACUUGAAUUUUCA	Cleavage
ath-miR823	ZjuLEA-49	5.0	-1.0	UGGGUGGUGAUCAUAUAAGAU	CACUAAUAUGAGUACUACUCC	Translation
ath-miR5998a	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAGAAAAGAAAUACAAACUUC	Cleavage
ath-miR5998b	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAGAAAAGAAAUACAAACUUC	Cleavage
ath-miR397a	ZjuLEA-29	5.0	-1.0	UCAUUGAGUGCAGCGUUGAUG	CAGAGACGCUUCGCUUAAUGA	Translation
ath-miR157a-3p	ZjuLEA-62	5.0	-1.0	GCUCUCUAGCCUUCUGUCAUC	CAGCCGAGAAGGCUAGAGAGA	Cleavage
ath-miR157b-3p	ZjuLEA-62	5.0	-1.0	GCUCUCUAGCCUUCUGUCAUC	CAGCCGAGAAGGCUAGAGAGA	Cleavage
ath-miR858a	ZjuLEA-31	5.0	-1.0	UUUCGUUGUCUGUUCGACCUU	CAGCUCGUACGGACGACGCAG	Cleavage
ath-miR5642a	ZjuLEA-49	5.0	-1.0	UCUCGCGCUUGUACGGCUUU	CAGGCGGUGUAGGUGCGACA	Cleavage
ath-miR5642b	ZjuLEA-49	5.0	-1.0	UCUCGCGCUUGUACGGCUUU	CAGGCGGUGUAGGUGCGACA	Cleavage
ath-miR4221	ZjuLEA-46	5.0	-1.0	UUUUCCUCGUUGAAUUCUUGC	CAGGGAGAACAACAAAGGAAGA	Cleavage
ath-miR417	ZjuLEA-59	5.0	-1.0	GAAGGUAGUGAAUUUGUUCGA	CAUAUCACAUUCACUAUCUAC	Cleavage
ath-miR5662	ZjuLEA-66	5.0	-1.0	AGAGGUGACCAUUGGAGAUG	CAUCUCCGGUCGUUACCAUU	Translation
ath-miR5021	ZjuLEA-40	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	CAUUUUCCUUUUUCUUUGCA	Cleavage
ath-miR837-5p	ZjuLEA-20	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	CCAAGCAAACAAGAAGCAAAU	Cleavage
ath-miR5640	ZjuLEA-05	5.0	-1.0	UGAGAGAAGGAAUUAGAUUCA	CCAAUUCAGGUUCUUCUCUCU	Cleavage
ath-miR4245	ZjuLEA-37	5.0	-1.0	ACAAAGUUUUAUACUGACAAU	CCAGUGAGAAUGAAACUUUGG	Cleavage
ath-miR8181	ZjuLEA-22	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	CCAUUACUCCUCCACCACCA	Cleavage
ath-miR5020c	ZjuLEA-72	5.0	-1.0	UGGCAUGGAAGAAGGUGAGAC	CCCUUAACUCUUUCCUUGCCA	Cleavage
ath-miR398a-5p	ZjuLEA-28	5.0	-1.0	AAGGAGUGGCAUGUGAACACA	CCGGUUUGCCUGUUGCUCCUU	Cleavage
ath-miR395a	ZjuLEA-50	5.0	-1.0	CUGAAGUGUUUGGGGGAACUC	CCGUUCACCCAAACUCUCCAC	Cleavage
ath-miR395d	ZjuLEA-50	5.0	-1.0	CUGAAGUGUUUGGGGGAACUC	CCGUUCACCCAAACUCUCCAC	Cleavage
ath-miR395e	ZjuLEA-50	5.0	-1.0	CUGAAGUGUUUGGGGGAACUC	CCGUUCACCCAAACUCUCCAC	Cleavage
ath-miR5658	ZjuLEA-16	5.0	-1.0	AUGAUGAUGAUGAUGAUGAAA	CCUCGUCGUCGUCUUCGUCGG	Cleavage

ath-miR5017-3p	ZjuLEA-14	5.0	-1.0	UUAUACCAAAUUAAUAGCAAA	CCUUCUAGUUGUUUGGUGUAG	Cleavage
ath-miR1886.1	ZjuLEA-28	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	CCUUUCUCUUCUCUUCUCUCU	Translation
ath-miR869.1	ZjuLEA-39	5.0	-1.0	AUUGGUUCAAUUCUGGUGUUG	CGAGACC-GAAUUGGGUCAGU	Cleavage
ath-miR417	ZjuLEA-86	5.0	-1.0	GAAGGUAGUGAAUU--UGUUCGA	CGGAACACCAGUUCAUCACCUUC	Cleavage
ath-miR5654-3p	ZjuLEA-60	5.0	-1.0	UGGAAGAUGCUUUGGGAUUUAUU	CGGCAAUUUCAGAUCCUCUUCCG	Translation
ath-miR837-3p	ZjuLEA-54	5.0	-1.0	AAACGAACAAA-AAACUGAUGG	CUAAUAGUUUGUUUGUUUGUUU	Translation
ath-miR774b-5p	ZjuLEA-31	5.0	-1.0	UGAGAUGAAGAUAUGGGUGAU	CUCACCCACAUUUGCAUUUCU	Cleavage
ath-miR167c-3p	ZjuLEA-23	5.0	-1.0	UAGGUCAUGCUGGUAGUUUCACC	CUCGAAGCUACCGCCAUGACCGC	Translation
ath-miR172b-5p	ZjuLEA-08	5.0	-1.0	GCAGCACCAUUAAGAUUCAC	CUGAGUUUUG-UGGUGCUGU	Translation
ath-miR172b-5p	ZjuLEA-08	5.0	-1.0	GCAGCACCAUUAAGAUUCAC	CUGAGUUUUG-UGGUGCUGU	Translation
ath-miR172e-5p	ZjuLEA-08	5.0	-1.0	GCAGCACCAUUAAGAUUCAC	CUGAGUUUUG-UGGUGCUGU	Translation
ath-miR172e-5p	ZjuLEA-08	5.0	-1.0	GCAGCACCAUUAAGAUUCAC	CUGAGUUUUG-UGGUGCUGU	Translation
ath-miR846-5p	ZjuLEA-01	5.0	-1.0	CAUUCAAGGACUUCUAUUCAG	CUGAUGAGAAUUUCUUGGGUG	Translation
ath-miR8181	ZjuLEA-63	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	CUGCCACCCUUGCACCUCCU	Cleavage
ath-miR834	ZjuLEA-04	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	CUGCCUCUGCUACAGCUUCCA	Cleavage
ath-miR157a-3p	ZjuLEA-04	5.0	-1.0	GCUCUCU-AGCCUUCUGUCAUC	CUGGACAGAAGGCUCAGAGAGA	Cleavage
ath-miR157b-3p	ZjuLEA-04	5.0	-1.0	GCUCUCU-AGCCUUCUGUCAUC	CUGGACAGAAGGCUCAGAGAGA	Cleavage
ath-miR854a	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR854b	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR854c	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR854d	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR854e	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR854a	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR854b	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR854c	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR854d	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR854e	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR862-3p	ZjuLEA-06	5.0	-1.0	AUAUGCUGGAUCUACUUGAAG	CUUGAAGUAGCUUGAGCAUGU	Translation
ath-miR862-3p	ZjuLEA-07	5.0	-1.0	AUAUGCUGGAUCUACUUGAAG	CUUGAAGUAGCUUGAGCAUGU	Translation
ath-miR397b	ZjuLEA-45	5.0	-1.0	UCAUUGAGUGCAUCGUUGAUG	CUUGAAUGGUGCACCCAAUCA	Cleavage
ath-miR405a	ZjuLEA-22	5.0	-1.0	AUGAGUUGGGUCUAACCCAUAACU	CUUGAUGGGGUAGAGCUGGCUCAC	Translation
ath-miR405b	ZjuLEA-22	5.0	-1.0	AUGAGUUGGGUCUAACCCAUAACU	CUUGAUGGGGUAGAGCUGGCUCAC	Translation
ath-miR405d	ZjuLEA-22	5.0	-1.0	AUGAGUUGGGUCUAACCCAUAACU	CUUGAUGGGGUAGAGCUGGCUCAC	Translation
ath-miR5014a-3p	ZjuLEA-68	5.0	-1.0	UUGUACAAAUUUAAGUGUACG	CUUGCACAUAAAUUUUUCUAA	Cleavage
ath-miR5014a-3p	ZjuLEA-69	5.0	-1.0	UUGUACAAAUUUAAGUGUACG	CUUGCACAUAAAUUUUUCUAA	Cleavage
ath-miR854b	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUUAUU	Cleavage
ath-miR854c	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUUAUU	Cleavage
ath-miR854d	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUUAUU	Cleavage
ath-miR854e	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUUAUU	Cleavage
ath-miR5663-3p	ZjuLEA-30	5.0	-1.0	UGAGAAUGCAAAUCCUUAGCU	AUCUAUGGCUUUGUAUUAUUA	Cleavage

ath-miR8181	ZjuLEA-27	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	AUCUCACUCCCCCAUUUUAA	Cleavage
ath-miR5019	ZjuLEA-35	5.0	-1.0	UGUUGGGAAAGAAAAACUCUU	AUGAUUUAUUUAUUCUCAAUA	Translation
ath-miR829-3p.1	ZjuLEA-40	5.0	-1.0	AGCUCUGAUACCAAAUGAUGGAAU	AUGGCAU-GUUUGGGAUUGGAGCU	Translation
ath-miR868-5p	ZjuLEA-62	5.0	-1.0	UCAUGUCGUAAUAGUAGUCAC	AUGGCUUCUAUUUCGUCAUGG	Cleavage
ath-miR5656	ZjuLEA-19	5.0	-1.0	ACUGAAGUAGAGAUUGGGUUU	AUGUUCUAUUUCUAUUUUAGA	Cleavage
ath-miR156d-3p	ZjuLEA-14	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	AUGUUGACGAGAAGUGAUUGAGA	Cleavage
ath-miR415	ZjuLEA-53	5.0	-1.0	AACAGAGCAGAAACAGAACAU	AUGUUUUCCAUUUGCUCUGUU	Cleavage
ath-miR865-3p	ZjuLEA-33	5.0	-1.0	UUUUUCCUCAAAUUUAUCCAA	AUUCAUACUUUUGAGGAAGAA	Cleavage
ath-miR865-3p	ZjuLEA-34	5.0	-1.0	UUUUUCCUCAAAUUUAUCCAA	AUUCAUACUUUUGAGGAAGAA	Cleavage
ath-miR5665	ZjuLEA-08	5.0	-1.0	UUGGUGGACAAGAUCUGGGAU	AUUGCAGAUCUUGUGCAUGAA	Cleavage
ath-miR780.1	ZjuLEA-15	5.0	-1.0	UCUAGCAGCUGUUGAGCAGGU	AUUUGUGCAGGAGCUGCUGGG	Translation
ath-miR870-3p	ZjuLEA-88	5.0	-1.0	UAAUUUGGUGUUUCUUCGAUC	AUUUUAUGAAAAGCCAAGUUA	Translation
ath-miR5641	ZjuLEA-36	5.0	-1.0	UGGAAGAAGAUGAUAGAAUUA	AUUUUCUUUUCUCUUCUUUUA	Translation
ath-miR5022	ZjuLEA-03	5.0	-1.0	GUCAUG-GGGUAUGAUCGAAUG	AUUUUGAUUAUAUUCACAUGAC	Cleavage
ath-miR5628	ZjuLEA-06	5.0	-1.0	GAAAUAGCGAAGAUAUGAUUA	CAAACAUAUCUUUGAUAAUUU	Cleavage
ath-miR5628	ZjuLEA-07	5.0	-1.0	GAAAUAGCGAAGAUAUGAUUA	CAAACAUAUCUUUGAUAAUUU	Cleavage
ath-miR156d-3p	ZjuLEA-74	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR5654-3p	ZjuLEA-09	5.0	-1.0	UGGAAGAUGCUUUGGGAUUUAUU	CAACAUUCCCAAAGUACUUUCUC	Cleavage
ath-miR4239	ZjuLEA-49	5.0	-1.0	UUUGUUAUUUUCGCAUGCUCC	CAACCUUGUGAAGAAACGAA	Cleavage
ath-miR5998a	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAAGAGCAAGAC-CAAAUUGU	Cleavage
ath-miR5998b	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAAGAGCAAGAC-CAAAUUGU	Cleavage
ath-miR5015	ZjuLEA-67	5.0	-1.0	UUGGUGUUAUGUGUAGUCUUC	CAAGGUUAAAUGUGACGUCAA	Cleavage
ath-miR5663-3p	ZjuLEA-53	5.0	-1.0	UGAGAAUGCAAAUCCUUAGCU	CAAUAGGGACUUGAAUUUUCA	Cleavage
ath-miR823	ZjuLEA-49	5.0	-1.0	UGGGUGGUGAUCAUAUAAGAU	CACUAAUAUGAGUACUACUCC	Translation
ath-miR5998a	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAGAAAAGAAAUACAAACUUC	Cleavage
ath-miR5998b	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAGAAAAGAAAUACAAACUUC	Cleavage
ath-miR397a	ZjuLEA-29	5.0	-1.0	UCAUUGAGUGCAGCGUUGAUG	CAGAGACGCUUCGCUUAAUGA	Translation
ath-miR157a-3p	ZjuLEA-62	5.0	-1.0	GCUCUCUAGCCUUCUGUCAUC	CAGCCGAGAAGGCUAGAGAGA	Cleavage
ath-miR157b-3p	ZjuLEA-62	5.0	-1.0	GCUCUCUAGCCUUCUGUCAUC	CAGCCGAGAAGGCUAGAGAGA	Cleavage
ath-miR858a	ZjuLEA-31	5.0	-1.0	UUUCGUUGUCUGUUCGACCUU	CAGCUCGUACGGACGACGCAG	Cleavage
ath-miR5642a	ZjuLEA-49	5.0	-1.0	UCUCGCGCUUGUACGGCUUU	CAGGCGGUGUAGGUGCGACA	Cleavage
ath-miR5642b	ZjuLEA-49	5.0	-1.0	UCUCGCGCUUGUACGGCUUU	CAGGCGGUGUAGGUGCGACA	Cleavage
ath-miR4221	ZjuLEA-46	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	CAGGGAGAACAACAAAGGAAGA	Cleavage
ath-miR4221	ZjuLEA-47	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	CAGGGAGAACAACAAAGGAAGA	Cleavage
ath-miR4221	ZjuLEA-48	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	CAGGGAGAACAACAAAGGAAGA	Cleavage
ath-miR417	ZjuLEA-59	5.0	-1.0	GAAGGUAGUGAAUUUGUUCGA	CAUAUCACAUUCACUAUCUAC	Cleavage
ath-miR5662	ZjuLEA-66	5.0	-1.0	AGAGGUGACCAUUGGAGAUG	CAUCUCCGGUCGUUACCAUU	Translation
ath-miR5662	ZjuLEA-93	5.0	-1.0	AGAGGUGACCAUUGGAGAUG	CAUCUCCGGUCGUUACCAUU	Translation
ath-miR5021	ZjuLEA-40	5.0	-1.0	UGAGAAGAAGAAGAAGAAA	CAUUUUCCUUUUUCUUUGCA	Cleavage
ath-miR837-5p	ZjuLEA-20	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	CCAAGCAAACAAGAAGCAAAU	Cleavage

ath-miR5640	ZjuLEA-05	5.0	-1.0	UGAGAGAAGGAAUUAGAUUCA	CCAAUUCAGGUUCUUCUCUCU	Cleavage
ath-miR4245	ZjuLEA-37	5.0	-1.0	ACAAAGUUUUAUACUGACAAU	CCAGUGAGAAUGAAACUUUGG	Cleavage
ath-miR8181	ZjuLEA-22	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	CCAUUACUCCUCCACCACCA	Cleavage
ath-miR5020c	ZjuLEA-72	5.0	-1.0	UGGCAUGGAAGAAGGUGAGAC	CCCUUAACUCUUUCCUUGCCA	Cleavage
ath-miR398a-5p	ZjuLEA-28	5.0	-1.0	AAGGAGUGGCAUGUGAACACA	CCGGUUUGCCUGUUGCUCCUU	Cleavage
ath-miR395a	ZjuLEA-50	5.0	-1.0	CUGAAGUGUUUGGGGGAACUC	CCGUUCACCCAAACUCUCCAC	Cleavage
ath-miR395d	ZjuLEA-50	5.0	-1.0	CUGAAGUGUUUGGGGGAACUC	CCGUUCACCCAAACUCUCCAC	Cleavage
ath-miR395e	ZjuLEA-50	5.0	-1.0	CUGAAGUGUUUGGGGGAACUC	CCGUUCACCCAAACUCUCCAC	Cleavage
ath-miR5658	ZjuLEA-16	5.0	-1.0	AUGAUGAUGAUGAUGAUGAAA	CCUCGUCGUCGUCUUCGUCGG	Cleavage
ath-miR5017-3p	ZjuLEA-14	5.0	-1.0	UUAUACCAAAUUAAUAGCAAA	CCUUCUAGUUGUUUGGUGUAG	Cleavage
ath-miR1886.1	ZjuLEA-28	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	CCUUUCUCUUCUCUUCUCUCU	Translation
ath-miR1886.1	ZjuLEA-72	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	CCUUUCUUUUCUUUUCUCUUC	Translation
ath-miR401	ZjuLEA-28	5.0	-1.0	CGAAACUGGUGUCGACCGACA	CUUUGGUUGGUACCGGUUUGC	Cleavage
ath-miR403-5p	ZjuLEA-88	5.0	-1.0	UGUUUUGUGCUUGAAUCUAAUU	GAAAAGAUUAAAACACAGAGCA	Translation
ath-miR840-3p	ZjuLEA-19	5.0	-1.0	UUGUUUAGGUCCCUUAGUUUC	GAAACGUGGGGGUCUAAACCA	Cleavage
ath-miR420	ZjuLEA-73	5.0	-1.0	UAAACUAAUCACGGAAAUGCA	GAAAUUUUUGUGAUGAGUUCA	Cleavage
ath-miR5655	ZjuLEA-01	5.0	-1.0	AAGUAGACACAUAAGAAGGAG	GAAUUUCUUGGGGUGACUACUU	Translation
ath-miR869.2	ZjuLEA-76	5.0	-1.0	UCUGGUGUUGAGAUAGUUGAC	GACAGCGAGUUCAGCACCGGG	Cleavage
ath-miR5655	ZjuLEA-02	5.0	-1.0	AAGUAGACACAUAAGAAGGAG	GACCACCAUAUGUUUUUACUU	Cleavage
ath-miR2112-3p	ZjuLEA-22	5.0	-1.0	CUUUAUAUCCGCAUUUGCGCA	GACGCGGCUGUGGAUAUCGGG	Cleavage
ath-miR8171	ZjuLEA-59	5.0	-1.0	AUAGGUGGGCCAGUGGUAGGA	GACUGCUACUAGUCCACUCAU	Translation
ath-miR773b-3p	ZjuLEA-73	5.0	-1.0	UUUGAUUCCAGCUUU-UGUCUC	GAGAAACAAGGUUGGAAUCAAU	Cleavage
ath-miR5998a	ZjuLEA-71	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	GAGAAACUAAAGGCAAGCUGC	Translation
ath-miR5998b	ZjuLEA-71	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	GAGAAACUAAAGGCAAGCUGC	Translation
ath-miR838	ZjuLEA-04	5.0	-1.0	UUUUCUUCUACUUCUUGCACA	GAGGCAA-AAGCAGAAGAGAA	Translation
ath-miR841a-3p	ZjuLEA-49	5.0	-1.0	AUUUCUAGUGGGUCGUAUUCA	GAGGUGAGAGCCACUGGGAAU	Cleavage
ath-miR866-5p	ZjuLEA-33	5.0	-1.0	UCAAGGAACGGAUUUUGUUAA	GAUACAAUAUUUUUUCUUGA	Cleavage
ath-miR3932a	ZjuLEA-89	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GAUCAUUGUUAUCGCAAUUUU	Cleavage
ath-miR3932b-3p	ZjuLEA-90	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GAUCAUUGUUAUCGCAAUUUU	Cleavage
ath-miR868-3p	ZjuLEA-73	5.0	-1.0	CUUCUUAAGUGCUGAUAAUGC	GCAACACCAGUACCUAAGAAG	Cleavage
ath-miR834	ZjuLEA-15	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	GCAACGCUGCUUCUGCUGCUG	Translation
ath-miR5012	ZjuLEA-52	5.0	-1.0	UUUUACUGCUACUUGUGUUCC	GCAAUCUAAGUGGUAAUAAAG	Cleavage
ath-miR5027	ZjuLEA-05	5.0	-1.0	ACCGGUUGGAACUUGCCUUAA	GCAAUGCCAGUUUUAGGCGGU	Cleavage
ath-miR5636	ZjuLEA-49	5.0	-1.0	CGUAGUUGCAGAGCUUGACGG	GCGUCAAUGGCUGCAGCUGCG	Cleavage
ath-miR5645a	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR5645b	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR5645d	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR5645e	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR5645f	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR407	ZjuLEA-21	5.0	-1.0	UUUAAAUCAUAUACUUUUGGU	GCUAAUAGUGUAAGAGUUAAA	Cleavage

ath-miR5022	ZjuLEA-27	5.0	-1.0	GUCAUGGGGUAUGAUCGAAUG	GCUUGGAUCAUAUUACAUGUC	Cleavage
ath-miR773a	ZjuLEA-08	5.0	-1.0	UUUGCUUCCAGCUUUUGUCUC	GGAAAGGAAGCAGGAAGCAGA	Translation
ath-miR162a-5p	ZjuLEA-06	5.0	-1.0	UGGAGGCAGCGGUUCAUCGAUC	GGAAGGUGGACCUCUGCCUUUG	Translation
ath-miR173-5p	ZjuLEA-28	5.0	-1.0	UUCGCUUGCAGAGAGAAAUCAC	GGAAUUUUGCUUUGCAUGUGAU	Cleavage
ath-miR414	ZjuLEA-17	5.0	-1.0	UCAUCUUCAUCAUCAUCGUCA	GGACGAUAACGGUGAAGGUUA	Cleavage
ath-miR8166	ZjuLEA-36	5.0	-1.0	AGAGAGUGUAGAAAGUUUCUCA	GGAGCAGCCGUCUACGUUCUCU	Cleavage
ath-miR862-3p	ZjuLEA-69	5.0	-1.0	AUAUGCUGGAUCUACUUGAAG	GGCCAAAUAGACCCAGCUUAU	Translation
ath-miR8167a	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR8167b	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR8167c	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR8167d	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR8167e	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR8167f	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR3932a	ZjuLEA-86	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GGUCAUUGUUAUCACAGCUUU	Cleavage
ath-miR3932b-3p	ZjuLEA-76	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GGUCAUUGUUAUCACAGCUUU	Cleavage
ath-miR863-3p	ZjuLEA-14	5.0	-1.0	UUGAGAGCAACAAGACAUAAU	GUAAUGAUUUGUUGUUUCCAA	Cleavage
ath-miR5024-5p	ZjuLEA-58	5.0	-1.0	AUGACAAGGCCAAGAUAUAACA	GUACAUAUCUUCUUCUUGUUAU	Translation
ath-miR834	ZjuLEA-91	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	GUACCAUGGCCAGUGCUGCCA	Translation
ath-miR5631	ZjuLEA-91	5.0	-1.0	UGGCAGGAAAGACAUAAUUUU	GUAGUUUUGUUCUUCUUGCCU	Translation
ath-miR1886.1	ZjuLEA-30	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	GUAUUGAUUUUAUUUUUUUUA	Cleavage
ath-miR5021	ZjuLEA-29	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	GUCUCUUCCUCCUCUUCUCC	Cleavage
ath-miR171a-3p	ZjuLEA-23	5.0	-1.0	UGAUUGAGCCGCGCCAAUAUC	GUGGCCGCCGCGGCUCAAUCA	Cleavage
ath-miR4221	ZjuLEA-28	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	GUUAAGAUUCCAAAGAGGAGAA	Translation
ath-miR5020a	ZjuLEA-70	5.0	-1.0	UGGAAGAAGGUGAGACUUGCA	GUUAGGUUUCGUCGUUUUUCA	Cleavage
ath-miR5017-3p	ZjuLEA-58	5.0	-1.0	UUAUACCAAAUUAAUAGCAAA	GUUGUUAUUA-UUUGGUAGAA	Translation
ath-miR172d-5p	ZjuLEA-28	5.0	-1.0	GCAACAUCUUCAAGAUUCAGA	GUUUAAUUUUGAGAGUGUUGG	Cleavage
ath-miR5648-5p	ZjuLEA-39	5.0	-1.0	UUUGGAAAUAUUUGGCUUGACU	GUUUCAGCCGAAUAUUUUCAUU	Cleavage
ath-miR5021	ZjuLEA-09	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	GUUUCUUGUUCUUUUACUUC	Cleavage
ath-miR156j	ZjuLEA-06	5.0	-1.0	UGACAGAAGAGAGAGAGCAC	GUUUUCUCUCUCUUUUUUUU	Cleavage
ath-miR858b	ZjuLEA-56	5.0	-1.0	UUCGUUGUCUGUUCGACCUUG	UAAAGGAGGACAGACAAGGAA	Cleavage
ath-miR857	ZjuLEA-65	5.0	-1.0	UUUUUGUAUGUUGAAGGUGUAU	UAACGACUUUAACGAGCAGAA	Cleavage
ath-miR447a-3p	ZjuLEA-32	5.0	-1.0	UUGGGGACGAGAUGUUUUGUUG	UAAUAAAACUUUUCGUCCUGGA	Cleavage
ath-miR447b	ZjuLEA-32	5.0	-1.0	UUGGGGACGAGAUGUUUUGUUG	UAAUAAAACUUUUCGUCCUGGA	Cleavage
ath-miR837-5p	ZjuLEA-09	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	UACAAUGUGCAAGAAGCUGCU	Cleavage
ath-miR5023	ZjuLEA-11	5.0	-1.0	AUUGGUAGUGGAUAAGGGGGC	UACACUUUAUCUGCUCCUGAU	Cleavage
ath-miR156d-3p	ZjuLEA-60	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	UAGAUGAGAGAGAGAGAGGGGGG	Cleavage
ath-miR156h	ZjuLEA-52	5.0	-1.0	UGACAGAAGAAAGAGAGCAC	UAGUUUUUUUUUUUUUUGGCA	Cleavage
ath-miR4245	ZjuLEA-51	5.0	-1.0	ACAAAGUUUUAUACUGACAAU	UAUUUUUGUAUAAAAAUUUGA	Cleavage
ath-miR172d-5p	ZjuLEA-25	5.0	-1.0	GCAACAUCUUCAAGAUUCAGA	UCAAAAUCUUGAAGGUGUUCA	Cleavage
ath-miR842	ZjuLEA-26	5.0	-1.0	UCAUGGUCAGAUCCGUCAUCC	UCAUGGUGGUUCUGAUCGUAA	Cleavage

ath-miR5648-3p	ZjuLEA-73	5.0	-1.0	AUCUGAAGAAAAUAGCGGCAU	UCCUCCUUAUUUUCUUUGGAA	Cleavage
ath-miR396b-3p	ZjuLEA-36	5.0	-1.0	GCUCAAGAAAGCUGUGGGAAA	UCGAUCCCAGCUUUCUUCAGC	Cleavage
ath-miR8121	ZjuLEA-29	5.0	-1.0	AAAGUAUAAUGGUUUAGUGGUUUG	UCGUAAAAUUAACCAUUUUAUUUU	Cleavage
ath-miR778	ZjuLEA-41	5.0	-1.0	UGGCUUGGUUUAUGUACACCG	UCUCCUACAGGAACCAAGCCA	Cleavage
ath-miR157d	ZjuLEA-07	5.0	-1.0	UGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCA	Cleavage
ath-miR157a-5p	ZjuLEA-06	5.0	-1.0	UUGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCAU	Cleavage
ath-miR157b-5p	ZjuLEA-07	5.0	-1.0	UUGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCAU	Cleavage
ath-miR157c-5p	ZjuLEA-06	5.0	-1.0	UUGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCAU	Cleavage
ath-miR171b-3p	ZjuLEA-62	5.0	-1.0	UUGAGCCGUGCCAAUAUCACG	UCUGCUACUGGUGCUGCUCGA	Cleavage
ath-miR171c-3p	ZjuLEA-62	5.0	-1.0	UUGAGCCGUGCCAAUAUCACG	UCUGCUACUGGUGCUGCUCGA	Cleavage
ath-miR397a	ZjuLEA-65	5.0	-1.0	UCAUUGAGUGCAGCGUUGAUG	UCUUAGCGUUGCAUUUGAAGG	Cleavage
ath-miR837-5p	ZjuLEA-06	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	UGAAAGGAAUAAGAGAAUGCU	Cleavage
ath-miR837-5p	ZjuLEA-07	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	UGAAAGGAAUAAGAGAAUGCU	Cleavage
ath-miR156a-3p	ZjuLEA-60	5.0	-1.0	GCUCACUGCUCUUUCUGUCAGA	UGAGAGAGAGAGAGGGGGGAGC	Cleavage
ath-miR2938	ZjuLEA-06	5.0	-1.0	GAUCUUUUGAGAGGGUUCCAG	UGCAUAUUCUUUCAAAAGGUC	Cleavage
ath-miR777	ZjuLEA-50	5.0	-1.0	UACGCAUUGAGUUUCGUUGCUU	UGGCAGGUAAACUCGAUCUGUA	Cleavage
ath-miR835-5p	ZjuLEA-42	5.0	-1.0	UUCUUGCAUAUGUU--CUUUAUC	UGUAAAGUCGAUAUAUGAAAGAA	Cleavage
ath-miR5658	ZjuLEA-01	5.0	-1.0	AUGAUGAUGAUGAUGAUGAAA	UGUCACUAUCAUUUUCUUCAU	Cleavage
ath-miR870-3p	ZjuLEA-53	5.0	-1.0	UAAUUUGGUGUUUCUUCGAUC	UGUUGUCCAAAUACUGAAUUA	Cleavage
ath-miR397a	ZjuLEA-65	5.0	-1.0	UCAUUGAGUGCAGCGUUGAUG	UUACAACCUUGCUCUCAAUGC	Cleavage
ath-miR834	ZjuLEA-40	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	UUACCAGCGGCACUGCUGCUA	Translation
ath-miR833a-5p	ZjuLEA-40	5.0	-1.0	UGUUUGUUGUACUCGGUCUAGU	UUAUGAACGAGUAUAGCAAGUU	Cleavage
ath-miR865-5p	ZjuLEA-18	5.0	-1.0	AUGAAUUUGGAUCUAAUUGAG	UUCAAUGUGACCCGGAUUCGU	Translation
ath-miR829-5p	ZjuLEA-33	5.0	-1.0	ACUUUGAAGCUUUGAUUUGAA	UUCAGAAUGAAGCUUUAAGUU	Cleavage
ath-miR776	ZjuLEA-50	5.0	-1.0	UCUAAGUCUUCUAUUGAUGUU	UUCAUCCGUGGAAGUCUUCGA	Cleavage
ath-miR156a-3p	ZjuLEA-05	5.0	-1.0	GCUCACUGCUCUUUCUGUCAGA	UUCCAUGGAAAAAGCAAUGAGC	Translation
ath-miR854a	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR854b	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR854c	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR854d	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR854e	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR156i	ZjuLEA-35	5.0	-1.0	UGACAGAAGAGAGAGAGCAG	UUCCUUUCUUUAUUUUGUCC	Cleavage
ath-miR156j	ZjuLEA-35	5.0	-1.0	UGACAGAAGAGAGAGAGCAC	UUCCUUUCUUUAUUUUGUCC	Cleavage
ath-miR156g	ZjuLEA-88	5.0	-1.0	CGACAGAAGAGAGUGAGCAC	UUCUUCUUCUUCUUCUGUCG	Cleavage
ath-miR2934-5p	ZjuLEA-21	5.0	-1.0	UCUUUCUGCAAACGCCUUGGA	UUGAAGGUGUUUUGGGAAAGA	Cleavage
ath-miR855	ZjuLEA-35	5.0	-1.0	AGCAAAAGCUAAGGAAAAGGAA	UUGCUAUUUCCUCGCUUUUGUU	Translation
ath-miR846-3p	ZjuLEA-33	5.0	-1.0	UUGAAUUGAAGUGCUUGAAUU	UUGUAAAGCUUUUCAAUUCAU	Cleavage
ath-miR156h	ZjuLEA-58	5.0	-1.0	UGACAGAAGAAAGAGAGCAC	UUGUUUUUUUUUUUUUUUCU	Cleavage
ath-miR156b-3p	ZjuLEA-28	5.0	-1.0	UGCUCACCUCUCUUUCUGUCAGU	UUUAACUGACAGAGAGGUAAUCA	Cleavage
ath-miR824-3p	ZjuLEA-20	5.0	-1.0	CCUUCUCAUCGAUGGUCUAGA	UUUACACCGUCGAUGAGGGUU	Cleavage

ath-miR5021	ZjuLEA-52	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	UUUUAGUUUUUUUUUUUUUG	Cleavage
ath-miR5021	ZjuLEA-39	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	UUUUAUUUUUGUUUUUUUA	Cleavage
ath-miR835-3p	ZjuLEA-40	5.0	-1.0	UGGAGAAGAUACGCAAGAAAG	UUUUCUUUUUUAUUUUCUUCU	Cleavage
ath-miR1886.1	ZjuLEA-54	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	UUUUUUCUUUUUCUUUUUUUCA	Translation
ath-miR5655	ZjuLEA-01	5.0	-1.0	AAGUAGACACAUAAGAAGGAG	GAAUUUCUUGGGUGACUACUU	Translation
ath-miR5658	ZjuLEA-01	5.0	-1.0	AUGAUGAUGAUGAUGAUGAAA	UGUCACUAUCAUUUUCUUCAU	Cleavage
ath-miR846-5p	ZjuLEA-01	5.0	-1.0	CAUUCAAGGACUUCUAUUCAG	CUGAUGAGAAUUUCUUGGGUG	Translation
ath-miR5655	ZjuLEA-02	5.0	-1.0	AAGUAGACACAUAAGAAGGAG	GACCACCAUAUGUUUUUACUU	Cleavage
ath-miR5022	ZjuLEA-03	5.0	-1.0	GUCAUG-GGGUAUGAUCGAAUG	AUUUUGAUUAUAUUCACAUGAC	Cleavage
ath-miR5654-3p	ZjuLEA-03	5.0	-1.0	UGGAAGAUGCUUUGGGAUUUAUU	GAUGGAAGACAAAGCAUCAUCCA	Cleavage
ath-miR157a-3p	ZjuLEA-04	5.0	-1.0	GCUCUCU-AGCCUUCUGUCAUC	CUGGACAGAAGGCUCAGAGAGA	Cleavage
ath-miR157b-3p	ZjuLEA-04	5.0	-1.0	GCUCUCU-AGCCUUCUGUCAUC	CUGGACAGAAGGCUCAGAGAGA	Cleavage
ath-miR834	ZjuLEA-04	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	CUGCCUCUGCUACAGCUUCCA	Cleavage
ath-miR834	ZjuLEA-04	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	AUACUAUGGCUCCUCCUACCA	Translation
ath-miR838	ZjuLEA-04	5.0	-1.0	UUUUCUUCUACUUCUUGCACA	GAGGCAA-AAGCAGAAGAGAA	Translation
ath-miR156a-3p	ZjuLEA-05	5.0	-1.0	GCUCACUGCUCUUUCUGUCAGA	UUCCAUGGAAAAAGCAAUGAGC	Translation
ath-miR5027	ZjuLEA-05	5.0	-1.0	ACCGGUUGGAACUUGCCUUAA	GCAAUGCCAGUUUUAGGCGGU	Cleavage
ath-miR5640	ZjuLEA-05	5.0	-1.0	UGAGAGAAGGAAUUAGAUUCA	CCAAUUCAGGUUCUUCUCUCU	Cleavage
ath-miR156i	ZjuLEA-06	5.0	-1.0	UGACAGAAGAGAGAGAGCAG	UUUCUCUCUCUUUUUUUUU	Cleavage
ath-miR156j	ZjuLEA-06	5.0	-1.0	UGACAGAAGAGAGAGAGCAC	GUUUUCUCUCUCUUUUUUUU	Cleavage
ath-miR157a-5p	ZjuLEA-06	5.0	-1.0	UUGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCAU	Cleavage
ath-miR157b-5p	ZjuLEA-06	5.0	-1.0	UUGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCAU	Cleavage
ath-miR157c-5p	ZjuLEA-06	5.0	-1.0	UUGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCAU	Cleavage
ath-miR157d	ZjuLEA-06	5.0	-1.0	UGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCA	Cleavage
ath-miR162a-5p	ZjuLEA-06	5.0	-1.0	UGGAGGCAGCGGUUCAUCGAUC	GGAAGGUGGACCUCUGCCUUUG	Translation
ath-miR162b-5p	ZjuLEA-06	5.0	-1.0	UGGAGGCAGCGGUUCAUCGAUC	GGAAGGUGGACCUCUGCCUUUG	Translation
ath-miR163	ZjuLEA-06	5.0	-1.0	UUGAAGAGGACUUGGAACUUCGAU	AUCCGAGUUCCCGGUUUCCUUCAG	Cleavage
ath-miR2938	ZjuLEA-06	5.0	-1.0	GAUCUUUUGAGAGGGUUCCAG	UGCAUAUUCUUUCAAAAGGUC	Cleavage
ath-miR5628	ZjuLEA-06	5.0	-1.0	GAAAUAGCGAAGAUAUGAUUA	CAAACAUAUCUUUGAUAAUUU	Cleavage
ath-miR5648-3p	ZjuLEA-06	5.0	-1.0	AUCUGAAGAAAAUAGCGGCAU	AAUCUUUUAUUUUUUUUGGGU	Cleavage
ath-miR777	ZjuLEA-06	5.0	-1.0	UACGCAUUGAGUUUCGUUGCUU	AAACGGUGAGACUUGAUUUGUA	Cleavage
ath-miR837-5p	ZjuLEA-06	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	UGAAAGGAAUAAGAGAAUGCU	Cleavage
ath-miR862-3p	ZjuLEA-06	5.0	-1.0	AUAUGCUGGAUCUACUUGAAG	CUUGAAGUAGCUUGAGCAUGU	Translation
ath-miR156i	ZjuLEA-07	5.0	-1.0	UGACAGAAGAGAGAGAGCAG	UUUCUCUCUCUUUUUUUUU	Cleavage
ath-miR156j	ZjuLEA-07	5.0	-1.0	UGACAGAAGAGAGAGAGCAC	GUUUUCUCUCUCUUUUUUUU	Cleavage
ath-miR157a-5p	ZjuLEA-07	5.0	-1.0	UUGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCAU	Cleavage
ath-miR157b-5p	ZjuLEA-07	5.0	-1.0	UUGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCAU	Cleavage
ath-miR157c-5p	ZjuLEA-07	5.0	-1.0	UUGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCAU	Cleavage
ath-miR157d	ZjuLEA-07	5.0	-1.0	UGACAGAAGAUAGAGAGCAC	UCUCUUUUUGUCAUCUGUCA	Cleavage
ath-miR162a-5p	ZjuLEA-07	5.0	-1.0	UGGAGGCAGCGGUUCAUCGAUC	GGAAGGUGGACCUCUGCCUUUG	Translation

ath-miR162b-5p	ZjuLEA-07	5.0	-1.0	UGGAGGCAGCGGUUCAUCGAUC	GGAAGGUGGACCUCUGCCUUUG	Translation
ath-miR163	ZjuLEA-07	5.0	-1.0	UUGAAGAGGACUUGGAACUUCGAU	AUCCGAGUUCCCGGUUUCCUUCAG	Cleavage
ath-miR2938	ZjuLEA-07	5.0	-1.0	GAUCUUUUGAGAGGGUUCCAG	UGCAUAUUCUUUCAAAAGGUC	Cleavage
ath-miR5628	ZjuLEA-07	5.0	-1.0	GAAAUAGCGAAGAUAUGAUUA	CAAACAUAUCUUUGAUAAUUU	Cleavage
ath-miR5648-3p	ZjuLEA-07	5.0	-1.0	AUCUGAAGAAAAUAGCGGCAU	AAUCUUUUAUUUUUUUUGGGU	Cleavage
ath-miR777	ZjuLEA-07	5.0	-1.0	UACGCAUUGAGUUUCGUUGCUU	AAACGGUGAGACUUGAUUUGUA	Cleavage
ath-miR837-5p	ZjuLEA-07	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	UGAAAGGAAUAAGAGAAUGCU	Cleavage
ath-miR862-3p	ZjuLEA-07	5.0	-1.0	AUAUGCUGGAUCUACUUGAAG	CUUGAAGUAGCUUGAGCAUGU	Translation
ath-miR172b-5p	ZjuLEA-08	5.0	-1.0	GCAGCACCAUUAAGAUUCAC	CUGAGUUUUG-UGGUGCUGU	Translation
ath-miR172b-5p	ZjuLEA-08	5.0	-1.0	GCAGCACCAUUAAGAUUCAC	CUGAGUUUUG-UGGUGCUGU	Translation
ath-miR172e-5p	ZjuLEA-08	5.0	-1.0	GCAGCACCAUUAAGAUUCAC	CUGAGUUUUG-UGGUGCUGU	Translation
ath-miR172e-5p	ZjuLEA-08	5.0	-1.0	GCAGCACCAUUAAGAUUCAC	CUGAGUUUUG-UGGUGCUGU	Translation
ath-miR5665	ZjuLEA-08	5.0	-1.0	UUGGUGGACAAGAUCUCGGGAU	AUUGCAGAUCUUGUGCAUGAA	Cleavage
ath-miR773a	ZjuLEA-08	5.0	-1.0	UUUGCUUCCAGCUUUUGUCUC	GGAAAGGAAGCAGGAAGCAGA	Translation
ath-miR773a	ZjuLEA-08	5.0	-1.0	UUUGCUUCCAGCUUUUGUCUC	GGAAAGGAAGCAGGAAGCAGA	Translation
ath-miR5021	ZjuLEA-09	5.0	-1.0	UGAGAAGAAGAAGAAGAAA	GUUUCUUGUUCUUUUACUUC	Cleavage
ath-miR5654-3p	ZjuLEA-09	5.0	-1.0	UGGAAGAUGCUUUGGGAUUUAUU	CAACAUUCCCAAAGUACUUUCUC	Cleavage
ath-miR837-3p	ZjuLEA-09	5.0	-1.0	AAACGAACAAAAAACUGAUGG	AGCUUGGUUUCUUGUUCUUUU	Translation
ath-miR837-5p	ZjuLEA-09	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	UACAAUGUGCAAGAAGCUGCU	Cleavage
ath-miR2112-5p	ZjuLEA-10	5.0	-1.0	CGCAAAUGCGGAUAUCAAUGU	AGAUUUAUUUAUGCAUUUGUG	Translation
ath-miR4239	ZjuLEA-10	5.0	-1.0	UUUGUUAUUUUCGCAUGCUCC	AGAGCA--CGAGAAUGACAAA	Cleavage
ath-miR5023	ZjuLEA-10	5.0	-1.0	AUUGGUAGUGGAUAAGGGGGC	UACACUUUAUCUGCUCCUGAU	Cleavage
ath-miR2112-5p	ZjuLEA-11	5.0	-1.0	CGCAAAUGCGGAUAUCAAUGU	AGAUUUAUUUAUGCAUUUGUG	Translation
ath-miR4239	ZjuLEA-11	5.0	-1.0	UUUGUUAUUUUCGCAUGCUCC	AGAGCA--CGAGAAUGACAAA	Cleavage
ath-miR5023	ZjuLEA-11	5.0	-1.0	AUUGGUAGUGGAUAAGGGGGC	UACACUUUAUCUGCUCCUGAU	Cleavage
ath-miR2112-5p	ZjuLEA-12	5.0	-1.0	CGCAAAUGCGGAUAUCAAUGU	AGAUUUAUUUAUGCAUUUGUG	Translation
ath-miR4239	ZjuLEA-12	5.0	-1.0	UUUGUUAUUUUCGCAUGCUCC	AGAGCA--CGAGAAUGACAAA	Cleavage
ath-miR5023	ZjuLEA-12	5.0	-1.0	AUUGGUAGUGGAUAAGGGGGC	UACACUUUAUCUGCUCCUGAU	Cleavage
ath-miR2112-5p	ZjuLEA-13	5.0	-1.0	CGCAAAUGCGGAUAUCAAUGU	AGAUUUAUUUAUGCAUUUGUG	Translation
ath-miR4239	ZjuLEA-13	5.0	-1.0	UUUGUUAUUUUCGCAUGCUCC	AGAGCA--CGAGAAUGACAAA	Cleavage
ath-miR5023	ZjuLEA-13	5.0	-1.0	AUUGGUAGUGGAUAAGGGGGC	UACACUUUAUCUGCUCCUGAU	Cleavage
ath-miR156d-3p	ZjuLEA-14	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	AUGUUGACGAGAAGUGAUUGAGA	Cleavage
ath-miR5017-3p	ZjuLEA-14	5.0	-1.0	UUAUACCAAAUUAAUAGCAAA	CCUUCUAGUUGUUUGGUGUAG	Cleavage
ath-miR5654-3p	ZjuLEA-14	5.0	-1.0	UGGAAGAUGCUUUGGGAUUUAUU	UUUCUAUCACAAAGUUUUUUCCG	Cleavage
ath-miR822-3p	ZjuLEA-14	5.0	-1.0	UGUGCAAAUGCUUUCUACAGG	AAUGUGAGAAGCGUGUGCAUG	Cleavage
ath-miR863-3p	ZjuLEA-14	5.0	-1.0	UUGAGAGCAACAAGACAUAAU	GUAAUGAUUUGUUGUUUCCAA	Cleavage
ath-miR780.1	ZjuLEA-15	5.0	-1.0	UCUAGCAGCUGUUGAGCAGGU	AUUUGUGCAGGAGCUGCUGGG	Translation
ath-miR8167a	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR8167b	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR8167c	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation

ath-miR8167d	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR8167e	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR8167f	ZjuLEA-15	5.0	-1.0	AGAUGUGGAGAUCGUGGGGAUG	GGCCACCACGAUGUCUCCGUCU	Translation
ath-miR834	ZjuLEA-15	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	GCAACGCUGCUUCUGCUGCUG	Translation
ath-miR414	ZjuLEA-16	5.0	-1.0	UCAUCUUCAUCAUCAUCGUCA	GGACGAUAACGGUGAAGGUUA	Cleavage
ath-miR5658	ZjuLEA-16	5.0	-1.0	AUGAUGAUGAUGAUGAUGAAA	CCUCGUCGUCGUCUUCGUCGG	Cleavage
ath-miR834	ZjuLEA-16	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	ACCCUGCUGUUGCUGCUGCCU	Cleavage
ath-miR414	ZjuLEA-17	5.0	-1.0	UCAUCUUCAUCAUCAUCGUCA	GGACGAUAACGGUGAAGGUUA	Cleavage
ath-miR5658	ZjuLEA-17	5.0	-1.0	AUGAUGAUGAUGAUGAUGAAA	CCUCGUCGUCGUCUUCGUCGG	Cleavage
ath-miR834	ZjuLEA-17	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	ACCCUGCUGUUGCUGCUGCCU	Cleavage
ath-miR393b-3p	ZjuLEA-18	5.0	-1.0	AUCAUGCGAUCUCUUUGGAUU	UUUGUGAUGAGAUCGUAUAAU	Cleavage
ath-miR865-5p	ZjuLEA-18	5.0	-1.0	AUGAAUUUGGAUCUAAUUGAG	UUCAAUGUGACCCGGAUUCGU	Translation
ath-miR5656	ZjuLEA-19	5.0	-1.0	ACUGAAGUAGAGAUUGGGUUU	AUGUUCUAUUUCUAUUUUAGA	Cleavage
ath-miR8171	ZjuLEA-19	5.0	-1.0	AUAGGUGGGCCAGUGGUAGGA	UCUGAACUCUGGUCCAUUUAU	Cleavage
ath-miR840-3p	ZjuLEA-19	5.0	-1.0	UUGUUUAGGUCCCUUAGUUUC	GAAACGUGGGGGUCUAAACCA	Cleavage
ath-miR824-3p	ZjuLEA-20	5.0	-1.0	CCUUCUCAUCGAUGGUCUAGA	UUUACACCGUCGAUGAGGGUU	Cleavage
ath-miR837-5p	ZjuLEA-20	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	CCAAGCAAACAAGAAGCAAAU	Cleavage
ath-miR2934-5p	ZjuLEA-21	5.0	-1.0	UCUUUCUGCAAACGCCUUGGA	UUGAAGGUGUUUUGGGAAAGA	Cleavage
ath-miR407	ZjuLEA-21	5.0	-1.0	UUUAAAUCAUAUACUUUUGGU	GCUAAUAGUGUAAGAGUUAAA	Cleavage
ath-miR413	ZjuLEA-21	5.0	-1.0	AUAGUUUCUCUUGUUCUGCAC	AAGAAGAACAAGAAAAACAAA	Cleavage
ath-miR5998a	ZjuLEA-21	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	ACAAGA-AAAACAAAGGCUGU	Cleavage
ath-miR5998b	ZjuLEA-21	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	ACAAGA-AAAACAAAGGCUGU	Cleavage
ath-miR2112-3p	ZjuLEA-22	5.0	-1.0	CUUUAUAUCCGCAUUUGCGCA	GACGCGGCUGUGGAUAUCGGG	Cleavage
ath-miR405a	ZjuLEA-22	5.0	-1.0	AUGAGUUGGGUCUAACCCAUAACU	CUUGAUGGGGUAGAGCUGGCUCAC	Translation
ath-miR405b	ZjuLEA-22	5.0	-1.0	AUGAGUUGGGUCUAACCCAUAACU	CUUGAUGGGGUAGAGCUGGCUCAC	Translation
ath-miR405d	ZjuLEA-22	5.0	-1.0	AUGAGUUGGGUCUAACCCAUAACU	CUUGAUGGGGUAGAGCUGGCUCAC	Translation
ath-miR8181	ZjuLEA-22	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	CCAUUACUCCUCCACCACCA	Cleavage
ath-miR167c-3p	ZjuLEA-23	5.0	-1.0	UAGGUCAUGCUGGUAGUUUCACC	CUCGAAGCUACCGCCAUGACCGC	Translation
ath-miR171a-3p	ZjuLEA-23	5.0	-1.0	UGAUUGAGCCGCGCCAAUAUC	GUGGCCGCCGCGGCUCAAUCA	Cleavage
ath-miR172d-5p	ZjuLEA-25	5.0	-1.0	GCAACAUCUUCAAGAUUCAGA	UCAAAAUCUUGAAGGUGUUCA	Cleavage
ath-miR842	ZjuLEA-26	5.0	-1.0	UCAUGGUCAGAUCCGUCAUCC	UCAUGGUGGUUCUGAUCGUAA	Cleavage
ath-miR5022	ZjuLEA-27	5.0	-1.0	GUCAUGGGGUAUGAUCGAAUG	GCUUGGAUCAUAUUACAUGUC	Cleavage
ath-miR5998a	ZjuLEA-27	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	AAAAAAAAAAAAAAAAACUGA	Translation
ath-miR5998b	ZjuLEA-27	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	AAAAAAAAAAAAAAAAACUGA	Translation
ath-miR8181	ZjuLEA-27	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	AUCUCACUCCCCCAUUUUAA	Cleavage
ath-miR837-5p	ZjuLEA-27	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	AAAAAAAAAAAAAAAACUGAU	Cleavage
ath-miR156b-3p	ZjuLEA-28	5.0	-1.0	UGCUCACCUCUCUUUCUGUCAGU	UUUAACUGACAGAGAGGUAAUCA	Cleavage
ath-miR172d-5p	ZjuLEA-28	5.0	-1.0	GCAACAUCUUCAAGAUUCAGA	GUUUAAUUUUGAGAGUGUUGG	Cleavage
ath-miR173-5p	ZjuLEA-28	5.0	-1.0	UUCGCUUGCAGAGAGAAAUCAC	GGAAUUUUGCUUUGCAUGUGAU	Cleavage
ath-miR1886.1	ZjuLEA-28	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	CCUUUCUCUUCUCUUCUCUCU	Translation

ath-miR398a-5p	ZjuLEA-28	5.0	-1.0	AAGGAGUGGCAUGUGAACACA	CCGGUUUGCCUGUUGCUCCUU	Cleavage
ath-miR399b	ZjuLEA-28	5.0	-1.0	UGCCAAAGGAGAGUUGCCCUG	ACAAGAAGCUCUUCUUUGGCU	Cleavage
ath-miR399c-3p	ZjuLEA-28	5.0	-1.0	UGCCAAAGGAGAGUUGCCCUG	ACAAGAAGCUCUUCUUUGGCU	Cleavage
ath-miR401	ZjuLEA-28	5.0	-1.0	CGAAACUGGUGUCGACCGACA	CUUUGGUUGGUACCGGUUUGC	Cleavage
ath-miR4221	ZjuLEA-28	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	GUUAAGAUUCCAAAGAGGAGAA	Translation
ath-miR854a	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR854b	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR854c	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR854d	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR854e	ZjuLEA-28	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUCUUCUCUCUUCUCCUC	Cleavage
ath-miR397a	ZjuLEA-29	5.0	-1.0	UCAUUGAGUGCAGCGUUGAUG	CAGAGACGCUUCGCUUAAUGA	Translation
ath-miR5021	ZjuLEA-29	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	GUCUCUUCCUCCUCUUCUCC	Cleavage
ath-miR8121	ZjuLEA-29	5.0	-1.0	AAAGUAUAAUGGUUUAGUGGUUUG	UCGUAAAAUUAACCAUUUUAUUUU	Cleavage
ath-miR854a	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUUAUU	Cleavage
ath-miR854a	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR854b	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUUAUU	Cleavage
ath-miR854b	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR854c	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUUAUU	Cleavage
ath-miR854c	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR854d	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUUAUU	Cleavage
ath-miR854d	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR854e	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCUUCUUUUUUUUUAUU	Cleavage
ath-miR854e	ZjuLEA-29	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AUCCUCGCCGUUGUCCUCGUC	Cleavage
ath-miR1886.1	ZjuLEA-30	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	GUAUUGAUUUUAUUUUUUUUA	Cleavage
ath-miR5663-3p	ZjuLEA-30	5.0	-1.0	UGAGAAUGCAAAUCCUUAGCU	AUCUAUGGCUUUGUAUUAUUA	Cleavage
ath-miR854a	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR854b	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR854c	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR854d	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR854e	ZjuLEA-30	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	UUCCUCAUCAUUGUCGUCAUC	Cleavage
ath-miR774b-5p	ZjuLEA-31	5.0	-1.0	UGAGAUGAAGAUAUGGGUGAU	CUCACCCACAUUUGCAUUUCU	Cleavage
ath-miR837-3p	ZjuLEA-31	5.0	-1.0	AAACGAACAAAAACUGAUGG	AAAUUAAUUCGUUGUUUGUUU	Translation
ath-miR858a	ZjuLEA-31	5.0	-1.0	UUUCGUUGUCUGUUCGACCUU	CAGCUCGUACGGACGACGCAG	Cleavage
ath-miR858b	ZjuLEA-31	5.0	-1.0	UUCGUUGUCUGUUCGACCUUG	ACAGCUCGUACGGACGACGCA	Cleavage
ath-miR447a-3p	ZjuLEA-32	5.0	-1.0	UUGGGGACGAGAUGUUUUGUUG	UAAUAAAACUUUUCGUCCUGGA	Cleavage
ath-miR447b	ZjuLEA-32	5.0	-1.0	UUGGGGACGAGAUGUUUUGUUG	UAAUAAAACUUUUCGUCCUGGA	Cleavage
ath-miR829-5p	ZjuLEA-33	5.0	-1.0	ACUUUGAAGCUUUGAUUUGAA	UUCAGAAUGAAGCUUUAAGUU	Cleavage
ath-miR846-3p	ZjuLEA-33	5.0	-1.0	UUGAAUUGAAGUGCUUGAAUU	UUGUAAAGCUUUUCAAUUCAU	Cleavage
ath-miR865-3p	ZjuLEA-33	5.0	-1.0	UUUUUCCUCAAAUUUAUCCAA	AUUCAUACUUUUGAGGAAGAA	Cleavage
ath-miR866-5p	ZjuLEA-33	5.0	-1.0	UCAAGGAACGGAUUUUGUUAA	GAUACAAUAUUUUUUUCUUGA	Cleavage

ath-miR156g	ZjuLEA-34	5.0	-1.0	CGACAGAAGAGAGUGAGCAC	AAUCUCAUUUUCUUCUGAUG	Cleavage
ath-miR829-5p	ZjuLEA-34	5.0	-1.0	ACUUUGAAGCUUUGAUUUGAA	UUCAGAAUGAAGCUUUAAGUU	Cleavage
ath-miR865-3p	ZjuLEA-34	5.0	-1.0	UUUUUCCUCAAAUUUAUCCAA	AUUCAUACUUUUGAGGAAGAA	Cleavage
ath-miR866-5p	ZjuLEA-34	5.0	-1.0	UCAAGGAACGGAUUUUGUUAA	GAUACAAUAUUUUUUCUUGA	Cleavage
ath-miR156i	ZjuLEA-35	5.0	-1.0	UGACAGAAGAGAGAGAGCAG	UUCCUUUCUUUAUUUUGUCC	Cleavage
ath-miR156j	ZjuLEA-35	5.0	-1.0	UGACAGAAGAGAGAGAGCAC	UUCCUUUCUUUAUUUUGUCC	Cleavage
ath-miR5019	ZjuLEA-35	5.0	-1.0	UGUUGGGAAAGAAAAACUCUU	AUGAUUUAUUUAUUCUCAAUA	Translation
ath-miR855	ZjuLEA-35	5.0	-1.0	AGCAAAAGCUAAGGAAAAGGAA	UUGCUAUUUCCUCGCUUUUGUU	Translation
ath-miR396b-3p	ZjuLEA-36	5.0	-1.0	GCUCAAGAAAGCUGUGGGAAA	UCGAUCCCAGCUUUCUUCAGC	Cleavage
ath-miR5641	ZjuLEA-36	5.0	-1.0	UGGAAGAAGAUGAUAGAAUUA	AUUUUCUUUUCUCUUCUUUUA	Translation
ath-miR8166	ZjuLEA-36	5.0	-1.0	AGAGAGUGUAGAAAGUUUCUCA	GGAGCAGCCGUCUACGUUCUCU	Cleavage
ath-miR843	ZjuLEA-36	5.0	-1.0	UUUAGGUCGAGCUUCAUUGGA	AUCAAAGGGACUCCACCUAAA	Cleavage
ath-miR4245	ZjuLEA-37	5.0	-1.0	ACAAAGUUUUAUACUGACAAU	CCAGUGAGAAUGAAACUUUGG	Cleavage
ath-miR773b-3p	ZjuLEA-37	5.0	-1.0	UUUGAUUCCAGCUUUUGUCUC	AAGUUGAAAACUGGAAGCAAA	Cleavage
ath-miR420	ZjuLEA-39	5.0	-1.0	UAAACUAAUCACGGAAAUGCA	AAUAUUUUGGUGGUUAUUUUG	Cleavage
ath-miR5021	ZjuLEA-39	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	UUUUAUUUUUUGUUUUUUUA	Cleavage
ath-miR5648-5p	ZjuLEA-39	5.0	-1.0	UUUGGAAAUAUUUGGCUUGACU	GUUUCAGCCGAAUAUUUUCAUU	Cleavage
ath-miR869.1	ZjuLEA-39	5.0	-1.0	AUUGGUUCAAUUCUGGUGUUG	CGAGACC-GAAUUGGGUCAGU	Cleavage
ath-miR5021	ZjuLEA-40	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	CAUUUUCCUUUUUCUUUGCA	Cleavage
ath-miR829-3p.1	ZjuLEA-40	5.0	-1.0	AGCUCUGAUACCAAAUGAUGGAAU	AUGGCAU-GUUUGGGAUUGGAGCU	Translation
ath-miR833a-5p	ZjuLEA-40	5.0	-1.0	UGUUUGUUGUACUCGGUCUAGU	UUAUGAACGAGUAUAGCAAGUU	Cleavage
ath-miR834	ZjuLEA-40	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	UUACCAGCGGCACUGCUGCUA	Translation
ath-miR835-3p	ZjuLEA-40	5.0	-1.0	UGGAGAAGAUACGCAAGAAAG	UUUUUCUUUUUUAUUUUCUUCU	Cleavage
ath-miR778	ZjuLEA-41	5.0	-1.0	UGGCUUGGUUUAUGUACACCG	UCUCCUACAGGAACCAAGCCA	Cleavage
ath-miR835-5p	ZjuLEA-41	5.0	-1.0	UUCUUGCAUAUGUU--CUUUAUC	UGUAAAGUCGAUAUAUGAAAGAA	Cleavage
ath-miR778	ZjuLEA-42	5.0	-1.0	UGGCUUGGUUUAUGUACACCG	UCUCCUACAGGAACCAAGCCA	Cleavage
ath-miR835-5p	ZjuLEA-42	5.0	-1.0	UUCUUGCAUAUGUU--CUUUAUC	UGUAAAGUCGAUAUAUGAAAGAA	Cleavage
ath-miR854a	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR854b	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR854c	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR854d	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR854e	ZjuLEA-42	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	CUUCUUCUUCUUUUUCUUAUU	Cleavage
ath-miR778	ZjuLEA-43	5.0	-1.0	UGGCUUGGUUUAUGUACACCG	UCUCCUACAGGAACCAAGCCA	Cleavage
ath-miR835-5p	ZjuLEA-43	5.0	-1.0	UUCUUGCAUAUGUU--CUUUAUC	UGUAAAGUCGAUAUAUGAAAGAA	Cleavage
ath-miR778	ZjuLEA-44	5.0	-1.0	UGGCUUGGUUUAUGUACACCG	UCUCCUACAGGAACCAAGCCA	Cleavage
ath-miR835-5p	ZjuLEA-44	5.0	-1.0	UUCUUGCAUAUGUU--CUUUAUC	UGUAAAGUCGAUAUAUGAAAGAA	Cleavage
ath-miR397b	ZjuLEA-45	5.0	-1.0	UCAUUGAGUGCAUCGUUGAUG	CUUGAAUGGUGCACCCAAUCA	Cleavage
ath-miR779.2	ZjuLEA-45	5.0	-1.0	UGAUUGGAAAUUUCGUUGACU	AAUUAUCAAAAUUAUCAAUUA	Cleavage
ath-miR8181	ZjuLEA-45	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	ACGUCACGUCCACACCCCUA	Cleavage
ath-miR414	ZjuLEA-46	5.0	-1.0	UCAUCUUCAUCAUCAUCGUCA	AGACGAUGGAGGUAGGGAUGA	Cleavage

ath-miR4221	ZjuLEA-46	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	CAGGGAGAACAACAAAGGAAGA	Cleavage
ath-miR414	ZjuLEA-47	5.0	-1.0	UCAUCUUCAUCAUCAUCGUCA	AGACGAUGGAGGUAGGGAUGA	Cleavage
ath-miR4221	ZjuLEA-47	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	CAGGGAGAACAACAAAGGAAGA	Cleavage
ath-miR414	ZjuLEA-48	5.0	-1.0	UCAUCUUCAUCAUCAUCGUCA	AGACGAUGGAGGUAGGGAUGA	Cleavage
ath-miR4221	ZjuLEA-48	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	CAGGGAGAACAACAAAGGAAGA	Cleavage
ath-miR408-5p	ZjuLEA-49	5.0	-1.0	ACAGGGAACAAGCAGAGCAUG	AGCCUUCUGCUUUUUCCCUGG	Cleavage
ath-miR4239	ZjuLEA-49	5.0	-1.0	UUUGUUAUUUUCGCAUGCUCC	AGAGCCACUGGGAAUAACGAA	Cleavage
ath-miR4239	ZjuLEA-49	5.0	-1.0	UUUGUUAUUUUCGCAUGCUCC	CAACCUUGUGAAGAAAACGAA	Cleavage
ath-miR5636	ZjuLEA-49	5.0	-1.0	CGUAGUUGCAGAGCUUGACGG	GCGUCAAUGGCUGCAGCUGCG	Cleavage
ath-miR5642a	ZjuLEA-49	5.0	-1.0	UCUCGCGCUUGUACGGCUUU	CAGGCGGUGUAGGUGCGACA	Cleavage
ath-miR5642b	ZjuLEA-49	5.0	-1.0	UCUCGCGCUUGUACGGCUUU	CAGGCGGUGUAGGUGCGACA	Cleavage
ath-miR823	ZjuLEA-49	5.0	-1.0	UGGGUGGUGAUCAUAUAAGAU	CACUAAUAUGAGUACUACUCC	Translation
ath-miR841a-3p	ZjuLEA-49	5.0	-1.0	AUUUCUAGUGGGUCGUAUUCA	GAGGUGAGAGCCACUGGGAAU	Cleavage
ath-miR395a	ZjuLEA-50	5.0	-1.0	CUGAAGUGUUUGGGGGAACUC	CCGUUCACCCAAACUCUCCAC	Cleavage
ath-miR395d	ZjuLEA-50	5.0	-1.0	CUGAAGUGUUUGGGGGAACUC	CCGUUCACCCAAACUCUCCAC	Cleavage
ath-miR395e	ZjuLEA-50	5.0	-1.0	CUGAAGUGUUUGGGGGAACUC	CCGUUCACCCAAACUCUCCAC	Cleavage
ath-miR4243	ZjuLEA-50	5.0	-1.0	UUGAAAUUGUAGAUUUCGUAC	AAACUCGAUCUGUAAUUUAAA	Cleavage
ath-miR5997	ZjuLEA-50	5.0	-1.0	UGAAACCAAGUAGCUAAAUAG	AGGUGUAGCUAAUUGGUAUUA	Translation
ath-miR776	ZjuLEA-50	5.0	-1.0	UCUAAGUCUUCUAUUGAUGUU	UUCAUCCGUGGAAGUCUUCGA	Cleavage
ath-miR777	ZjuLEA-50	5.0	-1.0	UACGCAUUGAGUUUCGUUGCUU	UGGCAGGUAAACUCGAUCUGUA	Cleavage
ath-miR163	ZjuLEA-51	5.0	-1.0	UUGAAGAGGACUUGGAACUUCGAU	AAUCAUCCUUGAAGUUCUCUUCAA	Cleavage
ath-miR4245	ZjuLEA-51	5.0	-1.0	ACAAAGUUUUAUACUGACAAU	UAUUUUUGUAUAAAAAUUUGA	Cleavage
ath-miR780.1	ZjuLEA-51	5.0	-1.0	UCUAGCAGCUGUUGAGCAGGU	UAUUGCUAAACAAUUUCUAGA	Cleavage
ath-miR156h	ZjuLEA-52	5.0	-1.0	UGACAGAAGAAAGAGAGCAC	UAGUUUUUUUUUUUUUGGCA	Cleavage
ath-miR5012	ZjuLEA-52	5.0	-1.0	UUUUACUGCUACUUGUGUUCC	GCAAUCUAAGUGGUAAUAAAG	Cleavage
ath-miR5021	ZjuLEA-52	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	UUUUAGUUUUUUUUUUUUUUG	Cleavage
ath-miR414	ZjuLEA-53	5.0	-1.0	UCAUCUUCAUCAUCAUCGUCA	AGGGGAUGAUCAUGAAUAUGG	Translation
ath-miR415	ZjuLEA-53	5.0	-1.0	AACAGAGCAGAAACAGAACAU	AUGUUUUCCAUUUGCUCUGUU	Cleavage
ath-miR5663-3p	ZjuLEA-53	5.0	-1.0	UGAGAAUGCAAAUCCUUAGCU	CAAUAGGGACUUGAAUUUUCA	Cleavage
ath-miR870-3p	ZjuLEA-53	5.0	-1.0	UAAUUUGGUGUUUCUUCGAUC	UGUUGUCCAAAUACUGAAUUA	Cleavage
ath-miR1886.1	ZjuLEA-54	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	UUUUUCUUUUUCUUUUUUUCA	Translation
ath-miR826b	ZjuLEA-54	5.0	-1.0	UGGUUUUUGGACACGUGAAAAU	AGAAUCCCGUAUUCAAAACCA	Translation
ath-miR837-3p	ZjuLEA-54	5.0	-1.0	AAACGAACAAA-AAACUGAUGG	CUAAUAGUUUGUUUGUUUGUUU	Translation
ath-miR858b	ZjuLEA-56	5.0	-1.0	UUCGUUGUCUGUUCGACCUUG	UAAAGGAGGACAGACAAGGAA	Cleavage
ath-miR156h	ZjuLEA-58	5.0	-1.0	UGACAGAAGAAAGAGAGCAC	UUGUUUUUUUUUUUUUUUCU	Cleavage
ath-miR5017-3p	ZjuLEA-58	5.0	-1.0	UUAUACCAAAUUAAUAGCAAA	GUUGUUAUUA-UUUGGUAGAA	Translation
ath-miR5021	ZjuLEA-58	5.0	-1.0	UGAGAAGAAGAAGAAGAAAA	AUAUCUUCUUCUUGUUAUUG	Cleavage
ath-miR5024-5p	ZjuLEA-58	5.0	-1.0	AUGACAAGGCCAAGAUAUAAACA	GUACAUAUCUUCUUCUUGUUAU	Translation
ath-miR837-3p	ZjuLEA-58	5.0	-1.0	AAACGAACAAAAAACUGAUGG	AGGUUUGGUUUUUGUUUUUUU	Cleavage
ath-miR417	ZjuLEA-59	5.0	-1.0	GAAGGUAGUGAAUUUGUUCGA	CAUAUCACAUUCACUAUCUAC	Cleavage

ath-miR5657	ZjuLEA-59	5.0	-1.0	UGGACAAGGUUAGAUUUGGUG	AGCAAGAUUUGGCUUUGUUCC	Cleavage
ath-miR5998a	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAGAAAAGAAAUACAAACUUC	Cleavage
ath-miR5998a	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAAGAGCAAGAC-CAAAUUGU	Cleavage
ath-miR5998b	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAGAAAAGAAAUACAAACUUC	Cleavage
ath-miR5998b	ZjuLEA-59	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	CAAGAGCAAGAC-CAAAUUGU	Cleavage
ath-miR8171	ZjuLEA-59	5.0	-1.0	AUAGGUGGGCCAGUGGUAGGA	GACUGCUACUAGUCCACUCAU	Translation
ath-miR156a-3p	ZjuLEA-60	5.0	-1.0	GCUCACUGCUCUUUCUGUCAGA	UGAGAGAGAGAGAGGGGGGAGC	Cleavage
ath-miR156d-3p	ZjuLEA-60	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	UAGAUGAGAGAGAGAGAGGGGGG	Cleavage
ath-miR401	ZjuLEA-60	5.0	-1.0	CGAAACUGGUGUCGACCGACA	UUUCUGAUGAUACCGGUAUCG	Cleavage
ath-miR5654-3p	ZjuLEA-60	5.0	-1.0	UGGAAGAUGCUUUGGGAUUUAUU	CGGCAAUUUCAGAUCCUCUUCCG	Translation
ath-miR157a-3p	ZjuLEA-62	5.0	-1.0	GCUCUCUAGCCUUCUGUCAUC	CAGCCGAGAAGGCUAGAGAGA	Cleavage
ath-miR157b-3p	ZjuLEA-62	5.0	-1.0	GCUCUCUAGCCUUCUGUCAUC	CAGCCGAGAAGGCUAGAGAGA	Cleavage
ath-miR171b-3p	ZjuLEA-62	5.0	-1.0	UUGAGCCGUGCCAAUAUCACG	UCUGCUACUGGUGCUGCUCGA	Cleavage
ath-miR171c-3p	ZjuLEA-62	5.0	-1.0	UUGAGCCGUGCCAAUAUCACG	UCUGCUACUGGUGCUGCUCGA	Cleavage
ath-miR859	ZjuLEA-62	5.0	-1.0	UCUCUCUGUUGUGAAGUCAAA	AAGGAUUAUACAACGGAGAAA	Cleavage
ath-miR868-5p	ZjuLEA-62	5.0	-1.0	UCAUGUCGUAAUAGUAGUCAC	AUGGCUUCUAUUUCGUCAUGG	Cleavage
ath-miR8181	ZjuLEA-63	5.0	-1.0	UGGGGGUGGGGGGGUGACAG	CUGCCACCCUUGCACCUCCU	Cleavage
ath-miR156h	ZjuLEA-65	5.0	-1.0	UGACAGAAGAAAGAGAGCAC	UUUUUUUUUUUUUUUUUUCA	Cleavage
ath-miR397a	ZjuLEA-65	5.0	-1.0	UCAUUGAGUGCAGCGUUGAUG	UCUUAGCGUUGCAUUUGAAGG	Cleavage
ath-miR397a	ZjuLEA-65	5.0	-1.0	UCAUUGAGUGCAGCGUUGAUG	UUACAACCUUGCUCUCAAUGC	Cleavage
ath-miR5014a-5p	ZjuLEA-65	5.0	-1.0	ACACUUAGUUUUGUACAACAU	ACCUUCCAGAAGACUAAGUGU	Cleavage
ath-miR5997	ZjuLEA-65	5.0	-1.0	UGAAACCAAGUAGCUAAAUAG	ACAUUUAUUUAUUUGUUUUUU	Cleavage
ath-miR857	ZjuLEA-65	5.0	-1.0	UUUUGUAUGUUGAAGGUGUAU	UAACGACUUUAACGAGCAGAA	Cleavage
ath-miR5662	ZjuLEA-66	5.0	-1.0	AGAGGUGACCAUUGGAGAUG	CAUCUCCGGUCGUUACCAUU	Translation
ath-miR5015	ZjuLEA-67	5.0	-1.0	UUGGUGUUAUGUGUAGUCUUC	CAAGGUUAAAUGUGACGUCAA	Cleavage
ath-miR1886.1	ZjuLEA-68	5.0	-1.0	UGAGAGAAGUGAGAUGAAAU	AGCUCAAAUCACUUUUCUCA	Cleavage
ath-miR5014a-3p	ZjuLEA-68	5.0	-1.0	UUGUACAAAUUUAAGUGUACG	CUUGCACAUAAAAUUUUUCUAA	Cleavage
ath-miR862-3p	ZjuLEA-68	5.0	-1.0	AUAUGCUGGAUCUACUUGAAG	GGCCAAAUAGACCCAGCUUAU	Translation
ath-miR1886.1	ZjuLEA-69	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	AAGCUCAAAUCACUUUUCUCA	Cleavage
ath-miR5014a-3p	ZjuLEA-69	5.0	-1.0	UUGUACAAAUUUAAGUGUACG	CUUGCACAUAAAAUUUUUCUAA	Cleavage
ath-miR862-3p	ZjuLEA-69	5.0	-1.0	AUAUGCUGGAUCUACUUGAAG	GGCCAAAUAGACCCAGCUUAU	Translation
ath-miR4221	ZjuLEA-70	5.0	-1.0	UUUUCCUCUGUUGAAUUCUUGC	AAGAGUAUUGAAAAGAGGGGAA	Translation
ath-miR5020a	ZjuLEA-70	5.0	-1.0	UGGAAGAAGGUGAGACUUGCA	GUUAGGUUUCGUCGUUUUUCA	Cleavage
ath-miR5998a	ZjuLEA-71	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	GAGAAACUAAAGGCAAGCUGC	Translation
ath-miR5998b	ZjuLEA-71	5.0	-1.0	ACAGUUUGUGUUUUGUUUUGU	GAGAAACUAAAGGCAAGCUGC	Translation
ath-miR825	ZjuLEA-71	5.0	-1.0	UUCUCAAGAAGGUGCAUGAAC	AGUUUUCUUUCUUCUUGAGAA	Cleavage
ath-miR1886.1	ZjuLEA-72	5.0	-1.0	UGAGAGAAGUGAGAUGAAAUC	CCUUUCUUUUCUUUUCUCUUC	Translation
ath-miR5020c	ZjuLEA-72	5.0	-1.0	UGGCAUGGAAGAAGGUGAGAC	CCCUUAACUCUUUCCUUGCCA	Cleavage
ath-miR420	ZjuLEA-73	5.0	-1.0	UAAACUAAUCACGGAAAUGCA	GAAAUUUUUGUGAUGAGUUCA	Cleavage
ath-miR5648-3p	ZjuLEA-73	5.0	-1.0	AUCUGAAGAAAAUAGCGGCAU	UCCUCCUUAUUUUCUUUGGAA	Cleavage

ath-miR5653	ZjuLEA-73	5.0	-1.0	UGGGUUGAGUUGAGUUGAGUUGGC	ACAGGCUCAUAUCAACUCAAGCUC	Cleavage
ath-miR773b-3p	ZjuLEA-73	5.0	-1.0	UUUGAUUCCAGCUUU-UGUCUC	GAGAAACAAGGUUGGAAUCAAU	Cleavage
ath-miR868-3p	ZjuLEA-73	5.0	-1.0	CUUCUUAAGUGCUGAUAAUGC	GCAACACCAGUACCUAAGAAG	Cleavage
ath-miR156d-3p	ZjuLEA-74	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR854a	ZjuLEA-74	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-74	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-74	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-74	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-74	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854a	ZjuLEA-75	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-75	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-75	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-75	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-75	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR3932a	ZjuLEA-76	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GGUCAUUGUUAUCACAGCUUU	Cleavage
ath-miR3932b-3p	ZjuLEA-76	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GGUCAUUGUUAUCACAGCUUU	Cleavage
ath-miR417	ZjuLEA-76	5.0	-1.0	GAAGGUAGUGAAUU--UGUUCGA	CGGAACACCAGUUCAUCACCUUC	Cleavage
ath-miR8165	ZjuLEA-76	5.0	-1.0	AAUGGAGGCAAGUGUGAAGGA	AACUCCACGGUUGCCUUCAGU	Cleavage
ath-miR869.2	ZjuLEA-76	5.0	-1.0	UCUGGUGUUGAGAUAGUUGAC	GACAGCGAGUUCAGCACCGGG	Cleavage
ath-miR156d-3p	ZjuLEA-77	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR854a	ZjuLEA-77	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-77	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-77	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-77	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-77	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR156d-3p	ZjuLEA-78	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	AAAAAAAGAAGAAGAGAGGGAGC	Cleavage
ath-miR854a	ZjuLEA-78	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-78	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-78	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-78	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-78	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR156d-3p	ZjuLEA-79	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	AAAAAAAGAAGAAGAGAGGGAGC	Cleavage
ath-miR854a	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-79	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR156d-3p	ZjuLEA-80	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR854a	ZjuLEA-80	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-80	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage

ath-miR854c	ZjuLEA-80	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-80	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-80	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR156d-3p	ZjuLEA-81	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR854a	ZjuLEA-81	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-81	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-81	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-81	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-81	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR156d-3p	ZjuLEA-82	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR854a	ZjuLEA-82	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-82	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-82	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-82	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-82	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR156d-3p	ZjuLEA-83	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR854a	ZjuLEA-83	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-83	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-83	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-83	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-83	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR156d-3p	ZjuLEA-84	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	AAAAAAAGAAGAAGAGAGGGAGC	Cleavage
ath-miR854a	ZjuLEA-84	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-84	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-84	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-84	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-84	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR156d-3p	ZjuLEA-85	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR854a	ZjuLEA-85	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854b	ZjuLEA-85	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-85	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-85	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-85	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR3932a	ZjuLEA-86	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GGUCAUUGUUAUCACAGCUUU	Cleavage
ath-miR3932b-3p	ZjuLEA-86	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GGUCAUUGUUAUCACAGCUUU	Cleavage
ath-miR399c-5p	ZjuLEA-86	5.0	-1.0	GGGCAUCUUUCUAUUGGCAGG	AACGGCAAUGGGAAGAUGACU	Cleavage
ath-miR417	ZjuLEA-86	5.0	-1.0	GAAGGUAGUGAAUU--UGUUCGA	CGGAACACCAGUUCAUCACCUUC	Cleavage
ath-miR8165	ZjuLEA-86	5.0	-1.0	AAUGGAGGCAAGUGUGAAGGA	AACUCCACGGUUGCCUUCAGU	Cleavage
ath-miR156d-3p	ZjuLEA-87	5.0	-1.0	GCUCACUCUCUUUUUGUCAUAAC	CAAAGGAAAAAAAAAGAGGGAGC	Translation
ath-miR854a	ZjuLEA-87	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage

ath-miR854b	ZjuLEA-87	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854c	ZjuLEA-87	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854d	ZjuLEA-87	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR854e	ZjuLEA-87	5.0	-1.0	GAUGAGGAUAGGGAGGAGGAG	AAGCUUCUCUCUGCUCUCGUC	Cleavage
ath-miR156a-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156b-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156c-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156d-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156e	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156f-5p	ZjuLEA-88	5.0	-1.0	UGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156g	ZjuLEA-88	5.0	-1.0	CGACAGAAGAGAGUGAGCAC	AUACUUAUUGUCUUUUGUCC	Translation
ath-miR156g	ZjuLEA-88	5.0	-1.0	CGACAGAAGAGAGUGAGCAC	UUCUUCUUCUUCUUCUGUCG	Cleavage
ath-miR157d	ZjuLEA-88	5.0	-1.0	UGACAGAAGAUAGAGAGCAC	AUACUUAUUGUCUUUUGUCC	Cleavage
ath-miR403-5p	ZjuLEA-88	5.0	-1.0	UGUUUUGUGCUUGAAUCUAAUU	GAAAAGAUUAAAACACAGAGCA	Translation
ath-miR5645a	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR5645b	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR5645d	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR5645e	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR5645f	ZjuLEA-88	5.0	-1.0	AUUUGAGUCAUGUCGUUAAG	GCUAACGAUAUGGUUCAUAA	Cleavage
ath-miR870-3p	ZjuLEA-88	5.0	-1.0	UAAUUUGGUGUUUCUUCGAUC	AUUUUAUGAAAAGCCAAGUUA	Translation
ath-miR3932a	ZjuLEA-89	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GAUCAUUGUUAUCGCAAUUUU	Cleavage
ath-miR3932b-3p	ZjuLEA-89	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GAUCAUUGUUAUCGCAAUUUU	Cleavage
ath-miR3932a	ZjuLEA-90	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GAUCAUUGUUAUCGCAAUUUU	Cleavage
ath-miR3932b-3p	ZjuLEA-90	5.0	-1.0	AACUUUGUGAUGACAACGAAG	GAUCAUUGUUAUCGCAAUUUU	Cleavage
ath-miR158a-5p	ZjuLEA-91	5.0	-1.0	CUUUGUCUACAAUUUUGGAAA	AAGCCAAAGUUGAAGAAAAGG	Cleavage
ath-miR5631	ZjuLEA-91	5.0	-1.0	UGGCAGGAAAGACAUAAUUUU	GUAGUUUUGUUCUUCUUGCCU	Translation
ath-miR834	ZjuLEA-91	5.0	-1.0	UGGUAGCAGUAGCGGUGGUAA	GUACCAUGGCCAGUGCUGCCA	Translation
ath-miR837-5p	ZjuLEA-91	5.0	-1.0	AUCAGUUUCUUGUUCGUUUCA	AAAAAAGCAAAGAAGCUGAG	Cleavage
ath-miR857	ZjuLEA-91	5.0	-1.0	UUUUGUAUGUUGAAGGUGUAU	AUACAGUUUUGAUAUAUAUAA	Cleavage
ath-miR5662	ZjuLEA-93	5.0	-1.0	AGAGGUGACCAUUGGAGAUG	CAUCUCCGGUCGUUACCAUU	Translation

Supplementary Table S3. Calculation of divergence time rates and Ka/Ks ratios of orthologous *ZjuLEA* gene pairs between jujube and peach, banana, orange, Arabidopsis.

Ziziphus jujuba – Prunus persica

ID	Chr.	Gene IDs	Chr.	Ks	Ka	Ka/Ks	Mya
ZjuLEA-01	1	Prupe.4G024900.1	4	1,1502	0,3387	0,294470527	8,847692308
ZjuLEA-01	1	Prupe.3G218800.1	3	2,5452	0,4593	0,180457331	19,57846154
ZjuLEA-02	1	Prupe.4G026800.1	4	0,7995	0,1746	0,218386492	6,15
ZjuLEA-05	1	Prupe.4G188100.1	4	1,9660	0,2658	0,135198372	15,12307692
ZjuLEA-05	1	Prupe.4G188500.1	4	1,2114	0,2159	0,178223543	9,318461538
ZjuLEA-05	1	Prupe.6G099800.1	6	37,474	0,4794	0,01279287	288,2615385
ZjuLEA-05	1	Prupe.6G099900.1	6	52,8201	0,5049	0,009558861	406,3084615
ZjuLEA-05	1	Prupe.6G100000.1	6	30,0554	0,5422	0,018040019	231,1953846
ZjuLEA-05	1	Prupe.8G132700.1	8	33,2201	0,6496	0,019554426	255,5392308
ZjuLEA-05	1	Prupe.6G125100.1	6	51,5830	0,6513	0,012626253	396,7923077
ZjuLEA-05	1	Prupe.6G125200.1	6	29,6234	0,6546	0,022097396	227,8723077
ZjuLEA-05	1	Prupe.6G125400.1	6	52,0073	0,6583	0,012657838	400,0561538
ZjuLEA-05	1	Prupe.6G124900.1	6	53,591	0,6474	0,012080387	412,2384615
ZjuLEA-06	1	Prupe.3G032500.1	3	0,9706	0,3229	0,332680816	7,466153846
ZjuLEA-07	1	Prupe.3G032500.1	3	1,0005	0,3299	0,329735132	7,696153846
ZjuLEA-08	1	Prupe.3G068000.1	3	1,1825	0,1425	0,1205074	9,096153846
ZjuLEA-08	1	Prupe.7G232800.1	7	2,0427	0,1613	0,078964116	15,71307692
ZjuLEA-08	1	Prupe.1G433700.1	1	51,3224	0,4690	0,00913831	394,7876923
ZjuLEA-08	1	Prupe.7G132000.1	7	3,0526	0,5198	0,170281072	23,48153846
ZjuLEA-09	1	Prupe.3G070600.1	3	1,1256	0,3061	0,271943852	8,658461538
ZjuLEA-09	1	Prupe.7G229800.1	7	6,1849	0,4044	0,065385051	47,57615385
ZjuLEA-10	1	Prupe.7G271000.1	7	1,9692	0,1165	0,059161081	15,14769231
ZjuLEA-11	1	Prupe.7G271000.1	7	1,9692	0,1165	0,059161081	15,14769231
ZjuLEA-12	1	Prupe.7G271000.1	7	1,9692	0,1165	0,059161081	15,14769231
ZjuLEA-13	1	Prupe.7G271000.1	7	1,9692	0,1165	0,059161081	15,14769231
ZjuLEA-15	2	Prupe.7G097100.1	7	73,1645	0,4295	0,005870333	562,8038462
ZjuLEA-15	2	Prupe.6G141400.1	6	36,6064	0,4390	0,011992438	281,5876923
ZjuLEA-16	2	Prupe.6G155500.1	6	2,2058	0,2692	0,12204189	16,96769231
ZjuLEA-17	2	Prupe.6G155500.1	6	2,2058	0,2692	0,12204189	16,96769231
ZjuLEA-20	2	Prupe.6G114100.1	6	1,0711	0,3650	0,34077117	8,239230769
ZjuLEA-21	2	Prupe.6G099800.1	6	0,9899	0,1572	0,15880392	7,614615385
ZjuLEA-21	2	Prupe.6G099900.1	6	1,1249	0,1709	0,151924616	8,653076923

ZjuLEA-21	2	Prupe.6G100000.1	6	1,0066	0,2184	0,216968011	7,743076923
ZjuLEA-21	2	Prupe.4G188100.1	4	47,6558	0,5183	0,010875906	366,5830769
ZjuLEA-21	2	Prupe.8G132700.1	8	4,9670	0,8030	0,161667002	38,20769231
ZjuLEA-21	2	Prupe.6G125200.1	6	3,9513	0,6021	0,152380229	30,39461538
ZjuLEA-21	2	Prupe.6G125400.1	6	4,1171	0,6070	0,147433873	31,67
ZjuLEA-21	2	Prupe.6G125100.1	6	3,9448	0,6187	0,156839383	30,34461538
ZjuLEA-21	2	Prupe.6G124900.1	6	4,6032	0,7759	0,168556656	35,40923077
ZjuLEA-21	2	Prupe.4G188500.1	4	5,0221	0,5592	0,111347843	38,63153846
ZjuLEA-22	2	Prupe.6G132700.1	6	1,0675	0,0983	0,092084309	8,211538462
ZjuLEA-22	2	Prupe.6G132600.1	6	0,9982	0,1593	0,159587257	7,678461538
ZjuLEA-23	2	Prupe.6G337900.2	6	1,4330	0,1946	0,135799023	11,02307692
ZjuLEA-23	2	Prupe.6G337900.1	6	1,4330	0,1946	0,135799023	11,02307692
ZjuLEA-23	2	Prupe.1G014800.1	1	4,2446	0,3453	0,081350422	32,65076923
ZjuLEA-23	2	Prupe.8G238700.1	8	4,6795	0,4051	0,086569078	35,99615385
ZjuLEA-28	3	Prupe.2G319000.1	2	1,1101	0,1368	0,123232141	8,539230769
ZjuLEA-29	4	Prupe.1G564500.2	1	2,3629	0,2108	0,089212408	18,17615385
ZjuLEA-29	4	Prupe.1G564500.1	1	2,1983	0,2146	0,097620889	16,91
ZjuLEA-30	4	Prupe.8G267700.1	8	1,9813	0,2280	0,11507596	15,24076923
ZjuLEA-30	4	Prupe.5G245100.1	5	2,9113	0,4501	0,154604472	22,39461538
ZjuLEA-33	5	Prupe.5G245100.1	5	1,2546	0,1884	0,150167384	9,650769231
ZjuLEA-33	5	Prupe.8G267700.1	8	2,7167	0,3767	0,138660875	20,89769231
ZjuLEA-34	5	Prupe.5G245100.1	5	1,2921	0,1973	0,15269716	9,939230769
ZjuLEA-34	5	Prupe.8G267700.1	8	2,3240	0,3870	0,166523236	17,87692308
ZjuLEA-35	6	Prupe.1G433700.1	1	1,0787	0,1012	0,093816631	8,297692308
ZjuLEA-35	6	Prupe.7G132000.1	7	1,5646	0,2235	0,142848012	12,03538462
ZjuLEA-35	6	Prupe.8G173100.2	8	11,1645	0,4393	0,039347933	85,88076923
ZjuLEA-35	6	Prupe.7G232800.1	7	51,7706	0,4303	0,008311667	398,2353846
ZjuLEA-35	6	Prupe.8G173100.1	8	11,1788	0,4393	0,039297599	85,99076923
ZjuLEA-36	6	Prupe.1G411400.1	1	1,2440	0,1931	0,15522508	9,569230769
ZjuLEA-36	6	Prupe.3G049400.1	3	2,1369	0,4310	0,201694043	16,43769231
ZjuLEA-38	7	Prupe.1G014800.1	1	1,3057	0,1892	0,144903117	10,04384615
ZjuLEA-38	7	Prupe.8G238700.1	8	9,8861	0,3479	0,035190823	76,04692308
ZjuLEA-38	7	Prupe.6G337900.2	6	3,5743	0,3173	0,088772627	27,49461538
ZjuLEA-38	7	Prupe.6G337900.1	6	3,5966	0,3410	0,094811767	27,66615385
ZjuLEA-40	8	Prupe.2G178500.1	2	1,7442	0,2116	0,121316363	13,41692308
ZjuLEA-40	8	Prupe.5G109900.1	5	3,1281	0,3963	0,126690323	24,06230769
ZjuLEA-41	8	Prupe.2G198600.1	2	1,1364	0,2021	0,177842309	8,741538462

ZjuLEA-42	8	Prupe.2G198600.1	2	1,1364	0,2021	0,177842309	8,741538462
ZjuLEA-43	8	Prupe.2G198600.1	2	1,1766	0,1815	0,154258032	9,050769231
ZjuLEA-44	8	Prupe.2G198600.1	2	1,1766	0,1815	0,154258032	9,050769231
ZjuLEA-45	8	Prupe.7G132000.1	7	1,0707	0,1279	0,119454562	8,236153846
ZjuLEA-45	8	Prupe.1G433700.1	1	1,9274	0,2061	0,106931618	14,82615385
ZjuLEA-45	8	Prupe.3G068000.1	3	21,7749	0,5257	0,024142476	167,4992308
ZjuLEA-45	8	Prupe.8G173100.2	8	3,3434	0,4362	0,130465993	25,71846154
ZjuLEA-45	8	Prupe.8G173100.1	8	3,3434	0,4362	0,130465993	25,71846154
ZjuLEA-45	8	Prupe.7G132000.2	7	1,1850	0,1345	0,11350211	9,115384615
ZjuLEA-45	8	Prupe.7G232800.1	7	51,6645	0,4792	0,009275228	397,4192308
ZjuLEA-49	9	Prupe.8G238700.1	8	2,2082	0,2306	0,104428947	16,98615385
ZjuLEA-49	9	Prupe.1G014800.1	1	42,0122	0,2768	0,006588562	323,1707692
ZjuLEA-49	9	Prupe.6G337900.2	6	2,2986	0,3999	0,173975463	17,68153846
ZjuLEA-49	9	Prupe.6G337900.1	6	2,2441	0,4027	0,179448331	17,26230769
ZjuLEA-50	9	Prupe.8G270400.1	8	0,7539	0,0756	0,100278552	5,799230769
ZjuLEA-51	10	Prupe.1G242600.1	1	1,3355	0,3957	0,296293523	10,27307692
ZjuLEA-52	11	Prupe.5G121700.1	5	1,0158	0,1696	0,166962	7,813846154
ZjuLEA-53	11	Prupe.5G109900.1	5	2,3063	0,3012	0,130598795	17,74076923
ZjuLEA-53	11	Prupe.2G178500.1	2	53,6854	0,4111	0,007657575	412,9646154
ZjuLEA-54	11	Prupe.5G109800.1	5	1,5183	0,3202	0,210893763	11,67923077
ZjuLEA-57	11	Prupe.5G014700.1	5	1,5063	0,2253	0,149571798	11,58692308
ZjuLEA-58	11	Prupe.6G299500.1	6	18,8589	0,3382	0,017933177	145,0684615
ZjuLEA-59	11	Prupe.6G299100.1	6	1,6299	0,1908	0,117062396	12,53769231
ZjuLEA-60	12	Prupe.7G232800.1	7	1,3185	0,1132	0,085855138	10,14230769
ZjuLEA-60	12	Prupe.3G068000.1	3	1,733	0,2196	0,126716676	13,33076923
ZjuLEA-60	12	Prupe.1G433700.1	1	56,2377	0,4900	0,008713016	432,5976923
ZjuLEA-61	12	Prupe.7G229800.1	7	1,1620	0,1600	0,137693632	8,938461538
ZjuLEA-63	12	Prupe.7G111600.1	7	1,9749	0,3629	0,18375614	15,19153846
ZjuLEA-63	12	Prupe.7G111300.1	7	1,7586	0,3950	0,224610486	13,52769231
ZjuLEA-63	12	Prupe.7G111500.1	7	1,4938	0,3854	0,257999732	11,49076923
ZjuLEA-63	12	Prupe.7G112000.1	7	1,7836	0,3771	0,211426329	13,72
ZjuLEA-63	12	Prupe.7G111900.1	7	1,3303	0,4373	0,328722844	10,23307692
ZjuLEA-64	12	Prupe.7G097200.1	7	1,9794	0,2971	0,150095989	15,22615385
ZjuLEA-65	12	Prupe.7G097200.1	7	3,2306	0,3585	0,110970098	24,85076923
ZjuLEA-66	12	Prupe.7G097100.1	7	40,8204	0,1569	0,003843666	314,0030769
ZjuLEA-66	12	Prupe.6G141400.1	6	59,7211	0,4711	0,007888334	459,3930769
ZjuLEA-67	12	Prupe.7G097200.1	7	11,9984	0,2451	0,020427724	92,29538462

ZjuLEA-68	12	Prupe.7G097000.2	7	1,6993	0,3515	0,206849879	13,07153846
ZjuLEA-68	12	Prupe.7G097000.1	7	1,6993	0,3515	0,206849879	13,07153846
ZjuLEA-69	12	Prupe.7G097000.2	7	1,6993	0,3515	0,206849879	13,07153846
ZjuLEA-69	12	Prupe.7G097000.1	7	1,6993	0,3515	0,206849879	13,07153846
ZjuLEA-72	NW	Prupe.3G049400.1	3	1,6137	0,2223	0,137757948	12,41307692
ZjuLEA-73	NW	Prupe.6G029700.1	6	0,6353	0,1575	0,247914371	4,886923077
ZjuLEA-88	NW	Prupe.1G554000.1	1	2,1951	0,5063	0,230650084	16,88538462
ZjuLEA-93	NW	Prupe.7G097100.1	7	40,5207	0,1567	0,003867159	311,6976923
ZjuLEA-93	NW	Prupe.6G141400.1	6	59,7177	0,4711	0,007888783	459,3669231
Mean				11,04	0,33	0,124	84,89

Ziziphus jujuba – Musa accuminata

ID	Chr.	Gene IDs	Chr.	Ks	Ka	Ka/Ks	Mya
ZjuLEA-02	1	GSMUA_Achr6T29330_001	6	54,9718	0,4044	0,007356499	422,86
ZjuLEA-02	1	GSMUA_Achr9T11960_001	9	9,2994	0,4087	0,043949072	71,53384615
ZjuLEA-05	1	GSMUA_Achr9T12230_001	9	12,0977	0,3240	0,02678195	93,05923077
ZjuLEA-05	1	GSMUA_Achr1T17700_001	1	65,1613	0,3856	0,005917623	501,2407692
ZjuLEA-05	1	GSMUA_Achr11T06920_001	11	57,2259	0,4994	0,008726818	440,1992308
ZjuLEA-05	1	GSMUA_Achr11T01270_001	11	0,0976	9,661	98,98565574	0,750769231
ZjuLEA-08	1	GSMUA_Achr6T14060_001	6	2,5734	0,1864	0,072433357	19,79538462
ZjuLEA-08	1	GSMUA_Achr10T22080_001	10	47,3192	0,1971	0,004165328	363,9938462
ZjuLEA-08	1	GSMUA_Achr7T14390_001	7	2,7706	0,1930	0,069660001	21,31230769
ZjuLEA-08	1	GSMUA_Achr8T30310_001	8	34,9425	0,4427	0,012669385	268,7884615
ZjuLEA-08	1	GSMUA_Achr6T19670_001	6	4,6285	0,6785	0,146591768	35,60384615
ZjuLEA-08	1	GSMUA_Achr8T13200_001	8	28,259	0,5615	0,019869776	217,3769231
ZjuLEA-09	1	GSMUA_Achr8T15540_001	8	7,6231	0,4634	0,060788918	58,63923077
ZjuLEA-10	1	GSMUA_Achr10T04300_001	10	3,9818	0,1472	0,036968205	30,62923077
ZjuLEA-11	1	GSMUA_Achr10T04300_001	10	3,9814	0,1472	0,036971919	30,62615385
ZjuLEA-12	1	GSMUA_Achr10T04300_001	10	3,9821	0,1472	0,03696542	30,63153846
ZjuLEA-13	1	GSMUA_Achr10T04300_001	10	3,9815	0,1472	0,036970991	30,62692308
ZjuLEA-15	2	GSMUA_Achr7T03290_001	7	87,1577	0,4251	0,004877366	670,4438462
ZjuLEA-15	2	GSMUA_Achr8T34450_001	8	69,8797	0,4470	0,006396707	537,5361538
ZjuLEA-15	2	GSMUA_Achr9T08960_001	9	83,2025	0,4801	0,005770259	640,0192308
ZjuLEA-15	2	GSMUA_Achr10T04670_001	10	91,8446	0,4516	0,004917001	706,4969231
ZjuLEA-15	2	GSMUA_Achr6T19500_001	6	82,7191	0,4604	0,005565825	636,3007692
ZjuLEA-15	2	GSMUA_AchrUn_randomT27690_001	scaffold	82,7697	0,4725	0,005708611	636,69
ZjuLEA-16	2	GSMUA_Achr3T03620_001	3	5,2807	0,4819	0,091256841	40,62076923
ZjuLEA-17	2	GSMUA_Achr3T03620_001	3	5,2806	0,4819	0,091258569	40,62

ZjuLEA-21	2	GSMUA_Achr11T06920_001	11	54,2198	0,2884	0,00531909	417,0753846
ZjuLEA-21	2	GSMUA_Achr9T12230_001	9	16,3280	0,4880	0,02988731	125,6
ZjuLEA-21	2	GSMUA_Achr1T17700_001	1	29,8293	0,5388	0,018062777	229,4561538
ZjuLEA-21	2	GSMUA_Achr11T01270_001	11	50,1508	0,6090	0,012143376	385,7753846
ZjuLEA-28	3	GSMUA_Achr5T14440_001	5	3,8389	0,2742	0,071426711	29,53
ZjuLEA-28	3	GSMUA_Achr4T18020_001	4	2,3624	0,3067	0,129825601	18,17230769
ZjuLEA-30	4	GSMUA_Achr5T11970_001	5	8,0932	0,3613	0,044642416	62,25538462
ZjuLEA-30	4	GSMUA_Achr9T20600_001	9	7,0714	0,3930	0,055575982	54,39538462
ZjuLEA-30	4	GSMUA_Achr3T14210_001	3	43,3106	0,3783	0,008734582	333,1584615
ZjuLEA-30	4	GSMUA_Achr1T17720_001	1	12,6318	0,4031	0,031911525	97,16769231
ZjuLEA-33	5	GSMUA_Achr5T11970_001	5	9,3233	0,3225	0,034590756	71,71769231
ZjuLEA-33	5	GSMUA_Achr9T20600_001	9	8,2733	0,4069	0,049182309	63,64076923
ZjuLEA-33	5	GSMUA_Achr3T14210_001	3	57,5146	0,3712	0,006454013	442,42
ZjuLEA-34	5	GSMUA_Achr5T11970_001	5	9,0327	0,3257	0,036057879	69,48230769
ZjuLEA-34	5	GSMUA_Achr9T20600_001	9	6,8939	0,4144	0,060111113	53,03
ZjuLEA-34	5	GSMUA_Achr3T14210_001	3	57,0205	0,3761	0,006595873	438,6192308
ZjuLEA-35	6	GSMUA_Achr8T30310_001	8	5,8114	0,2043	0,03515504	44,70307692
ZjuLEA-35	6	GSMUA_Achr6T19670_001	6	9,4957	0,2426	0,025548406	73,04384615
ZjuLEA-35	6	GSMUA_Achr2T08190_001	2	13,3652	0,2472	0,018495795	102,8092308
ZjuLEA-35	6	GSMUA_Achr8T13200_001	8	9,1584	0,4124	0,0450297	70,44923077
ZjuLEA-35	6	GSMUA_Achr10T09590_001	10	7,9660	0,3517	0,044150138	61,27692308
ZjuLEA-35	6	GSMUA_Achr10T22080_001	10	51,7087	0,4520	0,008741276	397,7592308
ZjuLEA-35	6	GSMUA_Achr6T14060_001	6	50,5544	0,4483	0,008867675	388,88
ZjuLEA-35	6	GSMUA_Achr7T14390_001	7	51,0801	0,4560	0,008927156	392,9238462
ZjuLEA-38	7	GSMUA_Achr4T14830_001	4	11,5952	0,4389	0,03785187	89,19384615
ZjuLEA-38	7	GSMUA_Achr3T25520_001	3	4,2896	0,4076	0,095020515	32,99692308
ZjuLEA-38	7	GSMUA_Achr7T27190_001	7	40,7013	0,3908	0,009601659	313,0869231
ZjuLEA-38	7	GSMUA_Achr3T30940_001	3	10,4757	0,4100	0,039138196	80,58230769
ZjuLEA-41	8	GSMUA_AchrUn_randomT07400_001	scaffold	36,2127	0,2722	0,0075167	278,5592308
ZjuLEA-42	8	GSMUA_AchrUn_randomT07400_001	scaffold	35,3307	0,2722	0,007704348	271,7746154
ZjuLEA-43	8	GSMUA_AchrUn_randomT07400_001	scaffold	35,7558	0,2723	0,007615548	275,0446154
ZjuLEA-44	8	GSMUA_AchrUn_randomT07400_001	scaffold	37,5835	0,2723	0,007245201	289,1038462
ZjuLEA-45	8	GSMUA_Achr8T30310_001	8	35,0376	0,2390	0,006821243	269,52
ZjuLEA-45	8	GSMUA_Achr6T19670_001	6	4,8603	0,2698	0,055510977	37,38692308
ZjuLEA-45	8	GSMUA_Achr2T08190_001	2	4,0344	0,2518	0,062413246	31,03384615
ZjuLEA-45	8	GSMUA_Achr10T09590_001	10	5,1837	0,3357	0,064760692	39,87461538
ZjuLEA-45	8	GSMUA_Achr10T22080_001	10	10,7335	0,4917	0,045809848	82,56538462

ZjuLEA-45	8	GSMUA_Achr6T14060_001	6	50,4520	0,5002	0,009914374	388,0923077
ZjuLEA-45	8	GSMUA_Achr7T14390_001	7	50,0900	0,5058	0,010097824	385,3076923
ZjuLEA-45	8	GSMUA_Achr8T13200_001	8	12,0498	0,3982	0,033046192	92,69076923
ZjuLEA-45	8	GSMUA_Achr11T11990_001	11	5,4421	0,4218	0,077506845	41,86230769
ZjuLEA-49	9	GSMUA_Achr4T14830_001	4	22,7843	0,4533	0,019895279	175,2638462
ZjuLEA-49	9	GSMUA_Achr3T25520_001	3	41,1226	0,4392	0,010680259	316,3276923
ZjuLEA-49	9	GSMUA_Achr7T27190_001	7	42,2899	0,4541	0,010737788	325,3069231
ZjuLEA-50	9	GSMUA_Achr3T24270_001	3	1,9162	0,2029	0,105886651	14,74
ZjuLEA-50	9	GSMUA_Achr5T27110_001	5	2,3081	0,1976	0,085611542	17,75461538
ZjuLEA-50	9	GSMUA_Achr8T06470_001	8	2,4460	0,2043	0,083524121	18,81538462
ZjuLEA-52	11	GSMUA_Achr8T15980_001	8	66,4565	0,3379	0,005084529	511,2038462
ZjuLEA-59	11	GSMUA_Achr4T10340_001	4	57,8463	0,4660	0,008055831	444,9715385
ZjuLEA-60	12	GSMUA_Achr6T14060_001	6	2,8207	0,2299	0,081504591	21,69769231
ZjuLEA-60	12	GSMUA_Achr10T22080_001	10	9,2301	0,2545	0,027572832	71,00076923
ZjuLEA-60	12	GSMUA_Achr7T14390_001	7	3,6536	0,2499	0,068398292	28,10461538
ZjuLEA-60	12	GSMUA_Achr8T30310_001	8	12,5440	0,5209	0,041525829	96,49230769
ZjuLEA-66	12	GSMUA_Achr6T19500_001	6	91,2903	0,4482	0,004909613	702,2330769
ZjuLEA-66	12	GSMUA_Achr9T08960_001	9	94,643	0,3585	0,003787919	728,0230769
ZjuLEA-66	12	GSMUA_AchrUn_randomT27690_001	scaffold	76,9273	0,3644	0,00473694	591,7484615
ZjuLEA-66	12	GSMUA_Achr7T03290_001	7	83,4539	0,3731	0,004470732	641,9530769
ZjuLEA-66	12	GSMUA_Achr8T34450_001	8	75,7922	0,4577	0,00603888	583,0169231
ZjuLEA-66	12	GSMUA_Achr10T04670_001	10	105,4155	0,4081	0,003871347	810,8884615
ZjuLEA-67	12	GSMUA_Achr9T29680_001	9	9,9340	0,4174	0,042017314	76,41538462
ZjuLEA-73	NW	GSMUA_Achr9T27930_001	9	5,6464	0,3833	0,067883961	43,43384615
ZjuLEA-93	NW	GSMUA_Achr9T08960_001	9	89,3162	0,3588	0,004017188	687,0476923
ZjuLEA-93	NW	GSMUA_AchrUn_randomT27690_001	scaffold	78,4883	0,3648	0,004647826	603,7561538
ZjuLEA-93	NW	GSMUA_Achr7T03290_001	7	77,507	0,3729	0,004811178	596,2076923
ZjuLEA-93	NW	GSMUA_Achr8T34450_001	8	75,7868	0,4577	0,00603931	582,9753846
ZjuLEA-93	NW	GSMUA_Achr10T04670_001	10	105,4188	0,4078	0,00386838	810,9138462
ZjuLEA-93	NW	GSMUA_Achr6T19500_001	6	91,2570	0,4488	0,004917979	701,9769231
Mean				34,15	0,47	1,11	262,72

Ziziphus jujuba – Citrus sinensis

ID	Chr.	Gene IDs	Chr.	Ks	Ka	Ka/Ks	Mya
ZjuLEA-01	1	orange1.1g044545m	scaffold	1,6034	0,3814	0,237869527	12,33384615
ZjuLEA-02	1	orange1.1g042582m	scaffold	1,0722	0,3033	0,282876329	8,247692308
ZjuLEA-05	1	orange1.1g039782m	scaffold	1,8963	0,2049	0,108052523	14,58692308
ZjuLEA-05	1	orange1.1g042767m	scaffold	55,296	0,2496	0,004513889	425,3538462

ZjuLEA-05	1	orange1.1g040244m	scaffold	12,0606	0,5246	0,043497007	92,77384615
ZjuLEA-05	1	orange1.1g039053m	scaffold	50,9684	0,5143	0,010090566	392,0646154
ZjuLEA-08	1	orange1.1g022177m	scaffold	2,8697	0,1998	0,069624003	22,07461538
ZjuLEA-08	1	orange1.1g047795m	scaffold	50,1148	0,4939	0,009855372	385,4984615
ZjuLEA-08	1	orange1.1g020687m	scaffold	50,7671	0,4416	0,008698547	390,5161538
ZjuLEA-09	1	orange1.1g027729m	scaffold	10,0380	0,3829	0,038145049	77,21538462
ZjuLEA-09	1	orange1.1g028106m	scaffold	2,2757	0,3880	0,17049699	17,50538462
ZjuLEA-09	1	orange1.1g028822m	scaffold	14,6413	0,4267	0,029143587	112,6253846
ZjuLEA-10	1	orange1.1g018706m	scaffold	1,4349	0,0635	0,044253955	11,03769231
ZjuLEA-11	1	orange1.1g018706m	scaffold	1,4349	0,0635	0,044253955	11,03769231
ZjuLEA-12	1	orange1.1g018706m	scaffold	1,4349	0,0635	0,044253955	11,03769231
ZjuLEA-13	1	orange1.1g018706m	scaffold	1,4349	0,0635	0,044253955	11,03769231
ZjuLEA-15	2	orange1.1g028208m	scaffold	43,1877	0,2989	0,006920952	332,2130769
ZjuLEA-15	2	orange1.1g028399m	scaffold	28,9246	0,4045	0,013984636	222,4969231
ZjuLEA-16	2	orange1.1g025262m	scaffold	3,0625	0,3182	0,103902041	23,55769231
ZjuLEA-17	2	orange1.1g025262m	scaffold	3,0625	0,3182	0,103902041	23,55769231
ZjuLEA-20	2	orange1.1g028932m	scaffold	1,828	0,3424	0,187308534	14,06153846
ZjuLEA-21	2	orange1.1g039053m	scaffold	1,5038	0,1685	0,112049475	11,56769231
ZjuLEA-21	2	orange1.1g040244m	scaffold	1,5949	0,2060	0,129161703	12,26846154
ZjuLEA-21	2	orange1.1g039782m	scaffold	2,593	0,5731	0,221018126	19,94615385
ZjuLEA-21	2	orange1.1g042767m	scaffold	3,3209	0,4938	0,148694631	25,54538462
ZjuLEA-22	2	orange1.1g030102m	scaffold	1,2341	0,1403	0,113686087	9,493076923
ZjuLEA-23	2	orange1.1g046001m	scaffold	3,9468	0,2202	0,055792034	30,36
ZjuLEA-23	2	orange1.1g038380m	scaffold	9,9901	0,3540	0,035435081	76,84692308
ZjuLEA-23	2	orange1.1g035654m	scaffold	3,7042	0,4214	0,113762756	28,49384615
ZjuLEA-29	4	orange1.1g023930m	scaffold	3,5096	0,2525	0,071945521	26,99692308
ZjuLEA-30	4	orange1.1g045040m	scaffold	2,3066	0,2727	0,11822596	17,74307692
ZjuLEA-30	4	orange1.1g047356m	scaffold	1,9663	0,3766	0,191527234	15,12538462
ZjuLEA-33	5	orange1.1g047356m	scaffold	1,6312	0,2013	0,123406081	12,54769231
ZjuLEA-33	5	orange1.1g045040m	scaffold	4,1670	0,3726	0,089416847	32,05384615
ZjuLEA-34	5	orange1.1g047356m	scaffold	1,5558	0,2055	0,132086386	11,96769231
ZjuLEA-34	5	orange1.1g045040m	scaffold	3,7577	0,3869	0,102961918	28,90538462
ZjuLEA-35	6	orange1.1g020687m	scaffold	1,0492	0,1018	0,097026306	8,070769231
ZjuLEA-35	6	orange1.1g047795m	scaffold	1,2747	0,2443	0,191652938	9,805384615
ZjuLEA-35	6	orange1.1g021795m	scaffold	2,6532	0,4074	0,15355043	20,40923077
ZjuLEA-35	6	orange1.1g022177m	scaffold	55,977	0,4025	0,007190453	430,5923077
ZjuLEA-36	6	orange1.1g038352m	scaffold	1,4228	0,2706	0,190188361	10,94461538

ZjuLEA-38	7	orange1.1g038380m	scaffold	15,9296	0,1943	0,012197419	122,5353846
ZjuLEA-38	7	orange1.1g046001m	scaffold	11,3127	0,2805	0,024795142	87,02076923
ZjuLEA-38	7	orange1.1g035654m	scaffold	7,3915	0,3008	0,040695393	56,85769231
ZjuLEA-40	8	orange1.1g048098m	scaffold	5,3785	0,3939	0,073236032	41,37307692
ZjuLEA-41	8	orange1.1g038323m	scaffold	1,7873	0,2371	0,1326582	13,74846154
ZjuLEA-42	8	orange1.1g038323m	scaffold	1,7873	0,2371	0,1326582	13,74846154
ZjuLEA-43	8	orange1.1g038323m	scaffold	1,7873	0,2371	0,1326582	13,74846154
ZjuLEA-44	8	orange1.1g038323m	scaffold	1,7873	0,2371	0,1326582	13,74846154
ZjuLEA-45	8	orange1.1g047795m	scaffold	1,8001	0,1595	0,088606189	13,84692308
ZjuLEA-45	8	orange1.1g020687m	scaffold	2,6168	0,2058	0,078645674	20,12923077
ZjuLEA-45	8	orange1.1g021795m	scaffold	3,8795	0,4434	0,114293079	29,84230769
ZjuLEA-45	8	orange1.1g022177m	scaffold	11,0825	0,4449	0,040144372	85,25
ZjuLEA-49	9	orange1.1g038380m	scaffold	8,5836	0,3449	0,040181276	66,02769231
ZjuLEA-49	9	orange1.1g046001m	scaffold	6,6880	0,3890	0,058163876	51,44615385
ZjuLEA-49	9	orange1.1g027886m	scaffold	3,4697	0,2487	0,071677667	26,69
ZjuLEA-49	9	orange1.1g035654m	scaffold	13,1619	0,3918	0,029767739	101,2453846
ZjuLEA-50	9	orange1.1g028150m	scaffold	0,8510	0,0659	0,077438308	6,546153846
ZjuLEA-51	10	orange1.1g043069m	scaffold	1,6692	0,5074	0,303977954	12,84
ZjuLEA-52	11	orange1.1g048760m	scaffold	1,6320	0,2125	0,130208333	12,55384615
ZjuLEA-53	11	orange1.1g043236m	scaffold	6,0990	0,4289	0,070323004	46,91538462
ZjuLEA-57	11	orange1.1g029005m	scaffold	2,6048	0,3209	0,123195639	20,03692308
ZjuLEA-58	11	orange1.1g028071m	scaffold	8,5197	0,4693	0,055084099	65,53615385
ZjuLEA-59	11	orange1.1g028279m	scaffold	2,2076	0,3015	0,136573655	16,98153846
ZjuLEA-60	12	orange1.1g022177m	scaffold	1,8074	0,1474	0,081553613	13,90307692
ZjuLEA-60	12	orange1.1g047795m	scaffold	8,4307	0,5336	0,063292491	64,85153846
ZjuLEA-60	12	orange1.1g020687m	scaffold	12,0068	0,4487	0,03737049	92,36
ZjuLEA-61	12	orange1.1g028106m	scaffold	1,7938	0,2202	0,12275616	13,79846154
ZjuLEA-64	12	orange1.1g027210m	scaffold	1,9278	0,4072	0,211225231	14,82923077
ZjuLEA-65	12	orange1.1g027210m	scaffold	8,3177	0,4064	0,048859661	63,98230769
ZjuLEA-66	12	orange1.1g028399m	scaffold	64,2033	0,1853	0,002886144	493,8715385
ZjuLEA-66	12	orange1.1g028208m	scaffold	15,5101	0,3401	0,021927647	119,3084615
ZjuLEA-67	12	orange1.1g027210m	scaffold	16,6693	0,2859	0,01715129	128,2253846
ZjuLEA-68	12	orange1.1g026507m	scaffold	54,1430	0,4902	0,009053802	416,4846154
ZjuLEA-69	12	orange1.1g026507m	scaffold	54,1460	0,4902	0,0090533	416,5076923
ZjuLEA-72	NW	orange1.1g024226m	scaffold	1,5467	0,2656	0,171720437	11,89769231
ZjuLEA-73	NW	orange1.1g037451m	scaffold	0,7964	0,1988	0,249623305	6,126153846
ZjuLEA-88	NW	orange1.1g037813m	scaffold	49,0402	0,4391	0,008953879	377,2323077

ID	Chr.	Gene IDs	Chr.	Ks	Ka	Ka/Ks	Mya
ZjuLEA-93	NW	orange1.1g028399m	scaffold	64,2066	0,1856	0,002890669	493,8969231
ZjuLEA-93	NW	orange1.1g028208m	scaffold	15,4600	0,3401	0,021998706	118,9230769
Mean				**11,76**	**0,31**	**0,09**	**90,44**

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ID	Chr.	Gene IDs	Chr.	Ks	Ka	Ka/Ks	Mya
ZjuLEA-02	1	AT4G05220.1	4	7,8297	0,2924	0,037344981	60,22846154
ZjuLEA-02	1	AT1G61760.1	1	3,1959	0,3692	0,115523014	24,58384615
ZjuLEA-05	1	AT5G54370.1	5	37,2286	0,2754	0,007397538	286,3738462
ZjuLEA-05	1	AT4G27400.1	4	13,5971	0,3330	0,024490516	104,5930769
ZjuLEA-05	1	AT1G54890.1	1	8,9564	0,4062	0,045353044	68,89538462
ZjuLEA-05	1	AT5G60530.1	5	30,1448	0,5044	0,016732571	231,8830769
ZjuLEA-05	1	AT5G60520.1	5	49,1089	0,4936	0,010051131	377,7607692
ZjuLEA-05	1	AT3G19430.1	3	54,5870	0,59090	0,010824922	419,9
ZjuLEA-08	1	AT1G45688.1	1	50,7925	0,4931	0,009708126	390,7115385
ZjuLEA-08	1	AT3G24600.1	3	49,3062	0,6160	0,012493358	379,2784615
ZjuLEA-08	1	AT5G42860.1	5	46,3887	0,5181	0,011168668	356,8361538
ZjuLEA-09	1	AT1G52330.1	1	1,5145	0,4911	0,324265434	11,65
ZjuLEA-09	1	AT4G13270.1	4	4,8179	0,4918	0,102077669	37,06076923
ZjuLEA-09	1	AT1G52330.2	1	2,1340	0,5770	0,270384255	16,41538462
ZjuLEA-10	1	AT2G44060.2	2	4,6835	0,1568	0,033479236	36,02692308
ZjuLEA-10	1	AT2G44060.1	2	4,6841	0,1568	0,033474947	36,03153846
ZjuLEA-11	1	AT2G44060.2	2	4,6837	0,1568	0,033477806	36,02846154
ZjuLEA-11	1	AT2G44060.1	2	4,6839	0,1568	0,033476377	36,03
ZjuLEA-12	1	AT2G44060.2	2	4,6836	0,1568	0,033478521	36,02769231
ZjuLEA-12	1	AT2G44060.1	2	4,6834	0,1568	0,03347995	36,02615385
ZjuLEA-13	1	AT2G44060.2	2	4,6836	0,1568	0,033478521	36,02769231
ZjuLEA-13	1	AT2G44060.1	2	4,6838	0,1568	0,033477091	36,02923077
ZjuLEA-15	2	AT3G44220.1	3	47,9918	0,3864	0,008051375	369,1676923
ZjuLEA-15	2	AT3G11660.1	3	53,8475	0,4411	0,008191652	414,2115385
ZjuLEA-15	2	AT5G22200.1	5	19,5776	0,4003	0,020446837	150,5969231
ZjuLEA-15	2	AT5G06330.1	5	58,4695	0,4416	0,007552656	449,7653846
ZjuLEA-15	2	AT2G35960.1	2	55,1178	0,5004	0,009078737	423,9830769
ZjuLEA-15	2	AT3G52470.1	3	54,3270	0,5201	0,009573509	417,9
ZjuLEA-15	2	AT4G09590.1	4	57,0007	0,5785	0,010148998	438,4669231
ZjuLEA-15	2	AT2G35970.1	2	9,2790	0,5886	0,06343356	71,37692308
ZjuLEA-16	2	AT2G27080.1	2	2,8952	0,3315	0,114499862	22,27076923

ZjuLEA-16	2	AT2G27080.2	2	2,8953	0,3315	0,114495907	22,27153846
ZjuLEA-16	2	AT5G21130.1	5	2,4056	0,5085	0,211381776	18,50461538
ZjuLEA-17	2	AT2G27080.1	2	2,8953	0,3315	0,114495907	22,27153846
ZjuLEA-17	2	AT2G27080.2	2	2,8952	0,3315	0,114499862	22,27076923
ZjuLEA-17	2	AT5G21130.1	5	2,4056	0,5085	0,211381776	18,50461538
ZjuLEA-21	2	AT5G60530.1	5	3,6526	0,3005	0,082270164	28,09692308
ZjuLEA-21	2	AT5G60520.1	5	3,1582	0,2303	0,072921284	24,29384615
ZjuLEA-21	2	AT4G27400.1	4	51,1279	0,5274	0,010315307	393,2915385
ZjuLEA-21	2	AT5G54370.1	5	4,9119	0,5651	0,11504713	37,78384615
ZjuLEA-21	2	AT1G54890.1	1	11,7441	0,5378	0,045793207	90,33923077
ZjuLEA-21	2	AT3G19430.1	3	55,6488	0,6936	0,012463881	428,0676923
ZjuLEA-22	2	AT3G44380.1	3	2,1264	0,1798	0,084556057	16,35692308
ZjuLEA-23	2	AT3G22490.1	3	40,8769	0,3842	0,009398951	314,4376923
ZjuLEA-23	2	AT3G22500.1	3	40,7638	0,4223	0,010359682	313,5676923
ZjuLEA-28	3	AT5G53730.1	5	2,8131	0,2780	0,098823362	21,63923077
ZjuLEA-29	4	AT2G01080.1	2	4,1884	0,2472	0,059020151	32,21846154
ZjuLEA-30	4	AT5G36970.1	5	4,6606	0,3506	0,075226366	35,85076923
ZjuLEA-30	4	AT1G65690.1	1	4,8801	0,3320	0,068031393	37,53923077
ZjuLEA-30	4	AT1G54540.1	1	16,2181	0,5329	0,03285835	124,7546154
ZjuLEA-33	5	AT1G54540.1	1	3,3714	0,3525	0,104555971	25,93384615
ZjuLEA-33	5	AT5G36970.1	5	2,4691	0,3972	0,160868333	18,99307692
ZjuLEA-33	5	AT1G65690.1	1	4,0303	0,3972	0,098553458	31,00230769
ZjuLEA-34	5	AT1G54540.1	1	3,3980	0,3494	0,102825191	26,13846154
ZjuLEA-34	5	AT5G36970.1	5	2,3522	0,4034	0,171499022	18,09384615
ZjuLEA-34	5	AT1G65690.1	1	3,4702	0,4035	0,116275719	26,69384615
ZjuLEA-35	6	AT1G45688.1	1	4,3493	0,2141	0,049226312	33,45615385
ZjuLEA-35	6	AT5G42860.1	5	2,6598	0,2464	0,092638544	20,46
ZjuLEA-35	6	AT1G45688.2	1	13,7242	0,2095	0,015265006	105,5707692
ZjuLEA-38	7	AT3G22490.1	3	17,813	0,2516	0,014124516	137,0230769
ZjuLEA-38	7	AT3G22500.1	3	40,3235	0,2922	0,007246395	310,1807692
ZjuLEA-40	8	AT2G46150.1	2	2,08164	0,3856	0,185238562	16,01261538
ZjuLEA-41	8	AT4G01410.1	4	4,6628	0,4412	0,094621258	35,86769231
ZjuLEA-42	8	AT4G01410.1	4	4,6627	0,4412	0,094623287	35,86692308
ZjuLEA-43	8	AT4G01410.1	4	4,5570	0,3875	0,085034014	35,05384615
ZjuLEA-44	8	AT4G01410.1	4	4,5569	0,3875	0,08503588	35,05307692
ZjuLEA-45	8	AT1G45688.1	1	3,6651	0,2824	0,077051104	28,19307692
ZjuLEA-45	8	AT5G42860.1	5	4,1567	0,3164	0,076118074	31,97461538

ZjuLEA-45	8	AT1G45688.2	1	8,9626	0,2750	0,030683061	68,94307692
ZjuLEA-49	9	AT3G22490.1	3	10,5318	0,3604	0,034220171	81,01384615
ZjuLEA-49	9	AT3G22500.1	3	18,7711	0,3936	0,020968404	144,3930769
ZjuLEA-50	9	AT3G62580.1	3	2,1320	0,1168	0,05478424	16,4
ZjuLEA-51	10	AT3G26350.1	3	22,5589	0,5311	0,023542815	173,53
ZjuLEA-51	10	AT1G13050.1	1	3,5734	0,5617	0,157189232	27,48769231
ZjuLEA-51	10	AT1G13050.2	1	3,1249	0,3669	0,117411757	24,03769231
ZjuLEA-57	11	AT5G45320.1	5	51,1377	0,3666	0,007168879	393,3669231
ZjuLEA-60	12	AT3G24600.1	3	2,3343	0,5477	0,234631367	17,95615385
ZjuLEA-61	12	AT4G13270.1	4	3,7012	0,3581	0,096752405	28,47076923
ZjuLEA-65	12	AT2G35980.1	2	17,7180	0,4418	0,024935094	136,2923077
ZjuLEA-66	12	AT3G11660.1	3	36,0852	0,2414	0,006689723	277,5784615
ZjuLEA-66	12	AT3G52470.1	3	59,9217	0,2527	0,00421717	460,9361538
ZjuLEA-66	12	AT2G35960.1	2	37,6803	0,2718	0,007213318	289,8484615
ZjuLEA-66	12	AT3G44220.1	3	33,4892	0,2959	0,008835684	257,6092308
ZjuLEA-66	12	AT5G06330.1	5	47,1461	0,2887	0,006123518	362,6623077
ZjuLEA-66	12	AT5G22200.1	5	2,7797	0,3705	0,133287765	21,38230769
ZjuLEA-66	12	AT2G35970.1	2	61,5354	0,3723	0,006050176	473,3492308
ZjuLEA-66	12	AT4G09590.1	4	61,6527	0,3725	0,006041909	474,2515385
ZjuLEA-67	12	AT2G35980.1	2	48,8477	0,3540	0,007247015	375,7515385
ZjuLEA-67	12	AT3G11650.1	3	2,1927	0,4626	0,210972773	16,86692308
ZjuLEA-67	12	AT5G06320.1	5	61,0815	0,3833	0,006275222	469,8576923
ZjuLEA-67	12	AT2G35460.1	2	58,9563	0,5081	0,008618248	453,51
ZjuLEA-73	NW	AT4G26490.1	4	4,2939	0,3328	0,077505298	33,03
ZjuLEA-73	NW	AT5G56050.1	5	2,6475	0,3862	0,145873466	20,36538462
ZjuLEA-88	NW	AT1G72100.1	1	9,2716	0,5767	0,062200699	71,32
ZjuLEA-93	NW	AT3G11660.1	3	36,2633	0,2414	0,006656868	278,9484615
ZjuLEA-93	NW	AT3G52470.1	3	59,9135	0,2526	0,004216078	460,8730769
ZjuLEA-93	NW	AT2G35960.1	2	37,2470	0,2719	0,007299917	286,5153846
ZjuLEA-93	NW	AT3G44220.1	3	32,7745	0,2959	0,00902836	252,1115385
ZjuLEA-93	NW	AT5G06330.1	5	50,8205	0,2887	0,005680778	390,9269231
ZjuLEA-93	NW	AT5G22200.1	5	2,7797	0,3705	0,133287765	21,38230769
ZjuLEA-93	NW	AT2G35970.1	2	61,5368	0,3722	0,006048413	473,36
ZjuLEA-93	NW	AT4G09590.1	4	61,6591	0,3722	0,006036416	474,3007692
Mean				21,15	0,37	0,06	162,69