

# **Soybean LEAFY COTYLEDON 1: A Key Target for Genetic Enhancement of Oil Biosynthesis**

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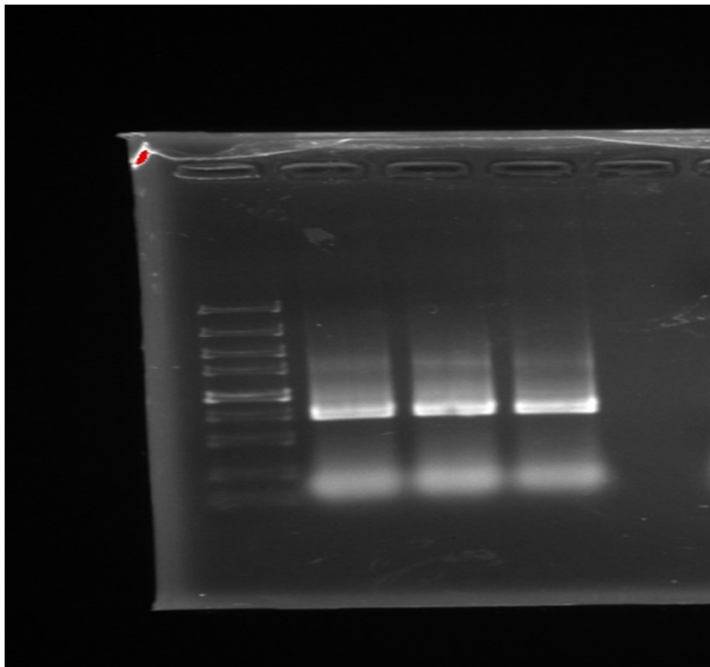
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## Glyma.17G005600 Gene-level FPKM values

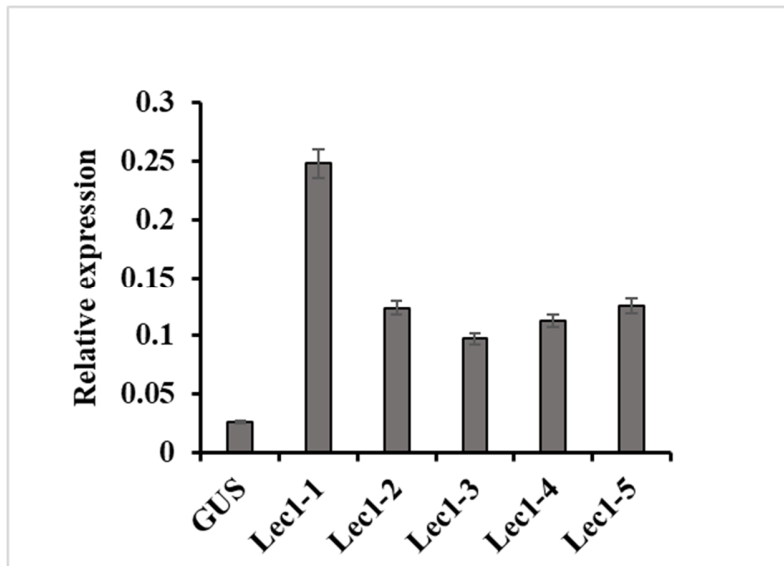
**Coefficient of variance:** 2.61246520544678  
(across samples below)

Pod :	19.483	<div></div>
Root Hairs :	0.018	
Leaves :	0.068	
Root :	0.000	
Nodules :	0.000	
Seed :	142.834	<div></div>
Sam :	0.000	
Stem :	0.000	
Flower :	0.283	

**Supplementary Fig. S1.** Predicted tissue specific expression of GmLEC1 retrieved from Phytozome



**Supplementary Fig. S2.** PCR amplification of GmLEC1 using seed cDNA.



**Supplementary Fig. S3. Expression of GmLEC1 in representative transgenic soybean hairy roots**

**Supplementary Data S1. Amino acid sequences and GenBank Id of proteins used to build phylogenetic tree**

>**AtLEC1** (GenBank ID: Q9SFD8.2)

MERGAPFSHYQLPKSISELNLDQHSSNNPTPMTSSVVVAGAGDKNNGIVVQQQPPCVARE  
QDQYMPIANVIRIMRKTLPSHAKISDDAKETIQECVSEYISFVTGEANERCQREQRKTITA  
EDILWAMSKLGFDDNYVDPLTVFINRYREIETDRGSALRGEPPSLRQTYGGNGIGFHGPSH  
GLPPPYPYGYGMLDQSMVMGGGRYYQNGSSGQDESSVGGGSSSSINGMPAFDHYGQY  
K

>**ZmLEC1** (GenBank ID: NP\_001105518.1)

MDSSSFLPAAGAENGSAAGGANNGGAAQQHAAPAIREQDRLMPIANVIRIMRRVLP  
AHAKISDDAKETIQECVSEYISFITGEANERCQREQRKTITAEDVLWAMSRLGFDDYVEPLG  
AYLHRYREFEGDARGVGLVPGAAPSRGGDHHPHSMSPAAMLKSRGPVSGAAMLPHHH  
HHHDMQMHAAMYGGTAVPPPAGPPHHGGFLMPHPQGSSHYLPYAYEPTYGGEHAMA  
AAYYGGAAYAPGNNGSGDGS GSGGGGGSASHTPQGS GGLEHPPHFPAYK

>**BnLEC1** (GenBank ID: ACB12186.1)

MERGAPLSHYQLPKSNSGLNLDQHNNSIPTMTGSIGACDDKNKTILPQQQPSMPREQDQ  
YMPIANVIRIMRKILPPHAKISDDAKETIQECVSEYISFVTGEANERCQREQRKTITAEDIL  
WAMSKLGFDDYVGPLNVFINRYREFETDRGCSLRGESSFKPVYGGSGMGFHHGPPPPGSY  
GYGMLDQSMVMGGGRYYHNGSGPDGSVGGGGGSSSSMNGMPVNYDQYGQYK

>**PcLEC1** (GenBank ID: ADR10435.1)

MMSEVGSPTSQDSRNSDGERENCAVREQDRFMPIANVIRIMRKVLP  
THAKISDDAKETIQECVSEYISFITSEANDRCQKEQRTITAEDVLWAMSKLGFDDYVEPLTIYLQKYRDAE  
GDHRGSIRGEPLPKKEMSGLANLSAGFQMGPPLYGTSGMGYYKDSITGSNINYDPY  
AQYK

**>Glyma.07G268100.1**

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EDVLWAMSKLGFDDYIEPLTMYLHRYRELEGDRTSMRGEPLGKRTVEYATLATAFVPP  
PFHHHNGYFGAAMPMTYVRETPPNAASSHHHHHGISNAHEPNARSI\*

**>Glyma.17G005600.1**

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SKLGFDDYIEPLTMYLHRYRELEGDRTSMRGEPLGKRTVEYATLGVATAFVPPPYHHH  
NGYFGAAMPMTYVREAPPNTASSHHHHHHHHHHHARGISNAHEPNARSI\*

**>Glyma.10G192000.1**

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QECVSEFISFITSEASEKCQKEKRKTINGDDLWAMATLGFEDYIEPLKVYLARYREAEG  
DTKGSARS GDGSARPDQVGLAGQNAQLVHQGSLNYIGLQVQPQHLVMPSMQGHE\*

**Supplementary Table S1. List of primers used in this study**

<b>Gene</b>	<b>Primer Sequence (5' to 3')</b>
GmLEC1-F	ATGGAAACTGGAGGCTTTCAC
GmLEC1-R	TTATATGGAGCGAGCATTTGGT
pDON-GmLEC1-F	GGGACAAGTTTgtacaaaaaagcaggctTCATGGAAACTGGAGGCT TTCAC
pDON-GmLEC1-R	GGGGACCACTTTGTACAAGaaagctgggtATTATATGGAGCGA GCATTTGGT
GmLEC1-qRT-F	ATGGAAACTGGAGGCTTTCACGG
GmLEC1-qRT-R	GTAGTCTAGTGTCACGTCGGTGT
GmActin-qRT-F	CTTCCCTCAGCACCTTCCAA
GmActin-qRT-R	GGTCCAGCTTTCACACTCCAT
18s univ-F	CTATCAACTTTCGATGGTAGG
18s univ-R	CCGTGTCAGG ATTGGGTAATTT

## Supplementary data S2. The coding DNA sequences of genes used to perform qRT-PCR

### GmLEC2/ Leafy cotyledon 2

>Glyma.20G035800.1 CDS

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CACCCGTCAATGTTAATCAAGAAAACAAAGTTGTTGACGACGATGATGATGATATCTATGGTGG
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### GmABI3/ Absciscic acid insensitive 3

>Glyma18g38490.2 CDS

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TCCACCAGAACCACAACAACAACCACCACTTCTCTTCTTCTCTCTCTCATCCTGGGCCGTGT
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TGATGCAACTTTGTCTTCCACTGCTTCCATGGAGGTTTCTCAACAGAAAAACCTCGATCCTGGG
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### GmTT2/Transparent Testa 2

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### GmMUM4/Mucilage Modified 4

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## GmGL2/ Glabra 2

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## **BCCP2/ BIOTIN CARBOXYL CARRIER PROTEIN 2**

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## **WRI1/ WRINKLED 1**

>Glyma.15G221600.1 CDS

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