

Table S1. Analysis of physical and chemical properties of LkDHNs.

gene name	Gene length(bp)	Number of amino acids	Molecular weight (kDa)	Isoelectric point
<i>LkDHN1</i>	585	194	21.7	6.26
<i>LkDHN2</i>	585	194	21.7	6.29
<i>LkDHN3</i>	609	202	22.6	5.94
<i>LkDHN4</i>	585	194	21.8	6.12

Table S2. Information on primers.

Primer Name	Sequence(5'-3')
LkDHN1 F:	ATGGCTGAACAAGCACCA
LkDHN1 R:	CTCTTCCCCTTCCTTCTT
LkDHN2 F:	ATGGCTGAACAAGCACCA
LkDHN2 R:	CTCTTCCCCTTCCTTCTT
LkDHN3 F:	ATGGCCGAACAAGCGCCG
LkDHN3 R:	CTCTTCCCCTTCCTTCTT
LkDHN4 F:	ATGGCTGAACAAGCACCA
LkDHN4 R:	CTCTTCCCCTTCCTTCTT
pET28a-LkDHN1 F:	CAGCAAATGGGTCGCGGATCCATGGCTGAACAAGCACCA
pET28a-LkDHN1 R:	GCAAGCTTGTCGACCGAGCTCTTACTCTTCCCCTTCCTTCTT
pET28a-LkDHN1 F:	CAGCAAATGGGTCGCGGATCCATGGCTGAACAAGCACCA
pET28a-LkDHN1 R:	GCAAGCTTGTCGACCGAGCTCTTACTCTTCCCCTTCCTTCTT
pET28a-LkDHN1 F:	CAGCAAATGGGTCGCGGATCCATGGCTGAACAAGCACCA
pET28a-LkDHN1 R:	CAGCAAATGGGTCGCGGATCCATGGCCGAACAAGCGCCG
pET28a-LkDHN1 F:	CAGCAAATGGGTCGCGGATCCATGGCTGAACAAGCACCA
pET28a-LkDHN1 R:	GCAAGCTTGTCGACCGAGCTCTTACTCTTCCCCTTCCTTCTT
pBI121-LkDHN1-GFP F:	TGGAGAGAACACGGGGGACTCTAGAATGGCTGAACAAGCACCA
pBI121-LkDHN1-GFP R:	TCACCATACCTCCTCCTCCGGATCCCTCTTCCCCTTCCTTCTT
pBI121-LkDHN2-GFP F:	TGGAGAGAACACGGGGGACTCTAGAATGGCTGAACAAGCACCA'
pBI121-LkDHN2-GFP R:	TCACCATACCTCCTCCTCCGGATCCCTCTTCCCCTTCCTTCTT
pBI121-LkDHN3-GFP F:	TGGAGAGAACACGGGGGACTCTAGAATGGCCGAACAAGCGCCG'

pBI121-LkDHN3-GFP R:	TCACCATACCTCCTCCTCCGGATCCCTCTTCCCCTTCCTTCTT
pBI121-LkDHN4-GFP F:	TGGAGAGAACACGGGGGACTCTAGAATGGCTGAACAAGCACCA'
pBI121-LkDHN4-GFP R:	TCACCATACCTCCTCCTCCGGATCCCTCTTCCCCTTCCTTCTT
CSE-probe F:	CCCACGGCATCCTCTTCACG
CSE-probe R:	CGGCGATCTTCTCCATGTCTCC
pET28a-probe F:	ATGTTATATCCCGCCGTTAACC
pET28a-probe R:	AATGAATCGGCCAACGC

Table S3. DHN information for alignment analysis.

Gene Id	Species	Symbol	Platform
KP234263.1	<i>Pinus massoniana</i>	PmaCSE	NCBI
AAD28175	<i>Picea glauca</i>	PgDHN	NCBI
KJ000690.1	<i>Stipa purpurea</i>	SpDHN	NCBI
JF320824	<i>Musa nana</i>	MuDHN	NCBI
ABS44866	<i>Oryza sativa</i>	OsDHN	NCBI
CAA62449	<i>Arabidopsis thaliana</i>	AtDHN	NCBI