

Supplementary Material

Comprehensive Bioinformatics and Expression Analysis of TCP Transcription Factors in *Liriodendron chinense* Reveals Putative Abiotic Stress Regulatory Roles

Table S1. List of primers used in the qRT-PCR.

Gene ID	Prime Name	Primer sequence
Lchi18883	LcTCP1.FOR	TGCTGCCGATGCTATTGCTGAG
Lchi18883	LcTCP1.REV	GCTGCTGTTGCTGTGCTGTTG
Lchi11973	LcTCP10.FOR	AGCAGCAGTAGCCATGAAGAAGAAG
Lchi11973	LcTCP10.REV	TTGGAGGAAGGGCGAGAAGG
Lchi04918	LcTCP11.FOR	CGCGAAAGACGGTCCAAGAACG
Lchi04918	LcTCP11.REV	CGAGGAAATAGACACCTGCTGCTG
Lchi13044	LcTCP12.FOR	GTGTGGATGATGCCGAGATGGATG
Lchi13044	LcTCP12.REV	TTTCTGGAGAGACCGAAGGGTAGAC
Lchi29056	LcTCP13.FOR	CCCAATCTTCGTCCTCCAAAGC
Lchi29056	LcTCP13.REV	TGTCGTCGGCAAATCCAAATG
Lchi14648	LcTCP14.FOR	ACAGCAAGGTTCCGACCATAAGAG
Lchi14648	LcTCP14.REV	CGGCATTCAGCAACCAATCTACAAC
Lchi35464	LcTCP15.FOR	AGCAGCAGTAGCCATGAAGAAGAAG
Lchi35464	LcTCP15.REV	TTGGAGGAAGGGCGAGAAGG
Lchi01522	LcTCP2.FOR	AACGGTCTATAACGGTAACGGAAC
Lchi01522	LcTCP2.REV	TCTTTGGCGGAGGGCTTCTAACG
Lchi09931	LcTCP3.FOR	TGGCGAGGAAGATGAGGAGGAAG
Lchi09931	LcTCP3.REV	TGGTATTGCTCGGATGCTGAAAC
Lchi33835	LcTCP4.FOR	GCCGCCGAAGAACCAAGAACG
Lchi33835	LcTCP4.REV	TGCTGCTGATGGTGTGGATGTTG
Lchi22568	LcTCP5.FOR	ACCCACACGGAGAGGGAGATTGC
Lchi22568	LcTCP5.REV	CTAACAGTCACGAGAGGCTTGC
Lchi14258	LcTCP6.FOR	TCAATTCCATCAGAACGCCCTCAG
Lchi14258	LcTCP6.REV	ACGCTTCTTGTGTCACCAGTATCC
Lchi02489	LcTCP7.FOR	CTCAGATCACAGACACCAAGCCATC
Lchi02489	LcTCP7.REV	CCCGTCATCTTCTGCCCCAAC
Lchi13620	LcTCP8.FOR	GTCGGCGTGTCTCAACCAACTAC
Lchi13620	LcTCP8.REV	GGCTTAGCTGCTCATGATCCAAGG
Lchi22938	LcTCP9.FOR	GTGGCTGGTATGGATGCTTCG
Lchi22938	LcTCP9.REV	AGGGAAGGTGTCGTTGAGTAGGTAC

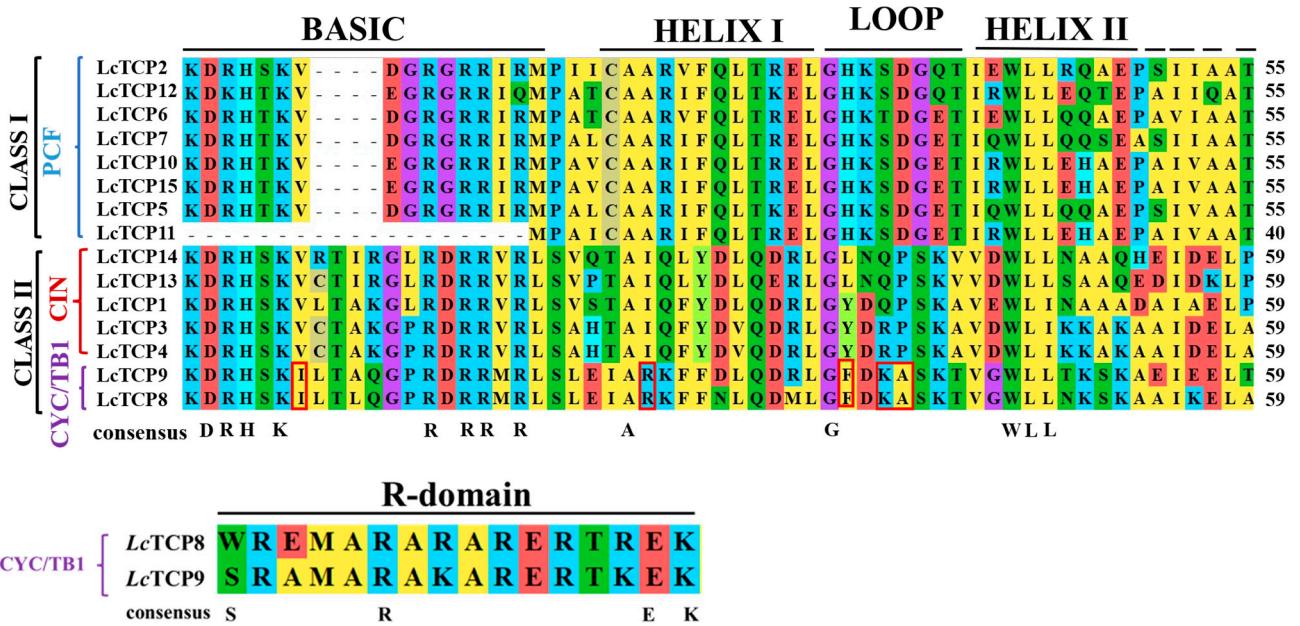


Figure S1. The alignment of full 15 *L. chinense* protein sequences constructed by Mega 11, different color schemes denote conserved amino acids within individual protein sequences. Classification of the identified TCPs shown in the far left described as Class I and II, showing the subfamilies PCF, CIN and CYC/TB1. Below is the R-domain in CYC/TB1 subclade, different color schemes denote the conserved amino acid consensus between the *LcTCP9* and *LcTCP8*.

1. PpTCP1	KVDG--RGRRI--RMPATCAARI FQL TRELGHKS DGETI EMLLQOSEQSI - - - - - I AAT
2. PpTCP2	KVDG--RGRRI--RMPATCAARI FQL TRELGHKS DGETI EMLLQOSEQSI - - - - - I AAT
3. PpTCP3	KNTAKPDRDRRV - - RLSVP TAVQFYDV DQL QDF QPSKAVE WLKKHAKAA DELEOLPSVROGEPA A FEGQPOT
4. PpTCP4	KVDG--RGRRI--RMPATCAARI FQL TRELGHKS DGETI EMLLQOSEQSI - - - - - I AAT
5. PpTCP5	KVDG--RGRRI--RMPATCAARI FQL TRELGHKS DGETI EMLLQOSEQSI - - - - - I AAT
6. PpTCP6	KVDG--RGRRI--RMPATCAARI FQL TRELGHKS DGETI EMLLQOSEQSI - - - - - I AAT
7. PpTCP7	KVNTAKGPRDRRRV - - RLSVP TAVQFYDV DQL QDF QPSKAVE WLKKHAKAA DELA QVPPMROE DPAV
8. SmTCP1	--TSKGLRDRRRV - - RLSVP TAVQFYDV DQL QDF QPSKAVE WLKKHAKAA DDL - - - - - I AAT
9. SmTCP2	--TARQPRDRRRV - - RLSVP TAVQFYDV DQL QDF QPSKAVE WLKKHAKAA - - - - - I AAT
10. SmTCP3	KVEG--RGRRI--RMPATCAARI FQL TRELGHKS DGETI EMLLQOSEQSI - - - - - I AAT
11. SmTCP4	KVEG--RGRRI--RMPATCAARI FQL TRELGHKS DGETI EMLLQOSEQSI - - - - - I AAT
12. SmTCP5	KVEG--RGRRI--RMPAVCAARI FQL TRELGHKS DGETI EMLLQOSEQSI - - - - - I AAT
13. SmTCP6	KVFTAKGPRDRRRV - - RLSVP TAVQFYDV DQL QDF QPSKAVE WLMKKAKNAI DEL - - - - - I AAT
14. OstTCP1	KVCTAKGPRDRRRV - - RLSAHTAIQFYDV DQL QDF QPSKAVE DWLKKNAKDA DKL DVLPAWQPTAG GAGA
15. OstTCP2	KVKTVKGPRDRRRV - - RLSPVPTAIQFYDV DQL QDF QPSKAVE DWLKKNAKDA DKLPLGCFPPQDH LCMG
16. OstTCP3	KVDG--RGRRI--RMPALCAARI FQL TRELGHKS DGETI TV QWLLOQAEPAI - - - - - VAAT
17. OstTCP4	KVNG--RGRRI--RMPIVCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - LAAT
18. OstTCP5	KVEG--RGRRI--RMPALCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
19. OsTCP7	KISTAGOMRDRRM - - RLSDVARKFFAL QDMLQDFDKASKTV QWLNNMSKAA RE - - - - - IMSD
20. OsTCP8	KVYTAKGPRDRRRV - - RLSDVATAIQFYDV DQL QDF QPSKAVE EMLINAASPAI DTLPS LDP
21. OsTCP9	KVAG--RGRRI--RMPAVMAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
22. OsTCP10	KVNG--RGRRI--RMPIVCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
23. OsTCP11	KVRTVKQGLRDRRV - - RLSVP TAIQFYDV DQL QDF QPSKVV DWLINAQAEID KLPPLD FPPH
24. OsTCP12	KVDG--RGRRI--RMPAICAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
25. OsTCP14	KVYTAGKPRDRRV - - RLSVP TAIQFYDV DQL QDF QPSKAVE EMLKAAAAD DKLP LDTA
26. OsTCP15	KIRATAQVRDRRM - - RLSPVQVARDFFAL QDKLQDFDKASRTV EMLLQOSEPAI NRL LPDS
27. OsTCP16	KVEG--RGRRI--RMPAACAAARI FQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
28. OsTCP17	KIRATAQVRDRRM - - RLSDVARDFAQDNL QDFDKASKTV DWLITOSKPAI DR - - - - - LAAD
29. OsTCP18	KVEG--RGRRI--RMPVNCARIAQOL TRELGHKS DGETI EMLLQOSEPAI - - - - - VAAT
30. OsTCP19	KVEG--RGRRI--RMPALCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - VAAT
31. OsTCP20	KVVTTSRGLRDRRCV - - RLSVP TMAIAFYDV DQL QDF QPSKAI EMLIRAAAAA DAF - - - - - LSLD
32. OsTCP21	KVDG--RGRRI--RMPALCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
33. OsTCP22	KVVISRQGLRDRRV - - RLSVP TAIIAFYDV QDNL QDF QPSKAI EMLIRAAAAA DALPSLDCSFA - - - - - LPAA
34. SITCP15	KVDG--RGRRI--RMPIVCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
35. SITCP11	KVDG--RGRRI--RMPAACAAARI FQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
36. SITCP28	KVLTVKQGLRDRRV - - RLSVP TAIQFYDV DQL QDF QPSKVV DWLNEAKHD DELPP LQIR
37. SITCP18	KVEG--RGRRI--RMPALCAARI FQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
38. SITCP1	KVSTAKGPKDRRRV - - RLSVP TAIQFYDV DQL QDF QPSKAVE DWLKKAEAKAA - - - - - D
39. SITCP5	KVCTVKGPRDRRV - - RLSVP TAIQFYDV DQL QDF QPSKAVE DWLIDAAKNE DELPP LQIP
40. SITCP7	KILTSQGHRDRRV - - RLSVP QVARFKFFDL QDMLQDFDKPSKT LDWLFTKS LAI EDL INDV
41. SITCP27	KVEG--RGRRI--RMPALCAARI FQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
42. SITCP21	KVEG--RGRRI--RMPAACAAARI FQL TRELGHKS DGETI EMLLERAEPAI - - - - - I AAT
43. SITCP26	GKILTAQGPRDRRRV - - RLSDNMARKFFDL QDMLQDFDKPSKT IDWLFTHS ELA EELT
44. SITCP4	KVCTIRQGLRDRRI - - RLSVP TAIQFYDV DQL QDF QPSKVV DWLLEATKL DTLPLP VPPE
45. SITCP16	KVDG--RGRRI--RMPALCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
46. SITCP9	KINTAHQPRDRRM - - RLSDLEIARKFFNL QDMLQDFDKASKTV EMLLTKSKS AV NDL VQKI
47. SITCP22	KICATAQGPRDRRV - - RLSDLHIARKFFDL QDMLQDFDKASKTV EMLFSKSNSNAA KDL DZEN TPQK
48. SITCP14	KVDG--RGRRI--RMPIVCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
49. SITCP23	KVDG--RGRRI--RMPATCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
50. SITCP25	KICTAGQPRDRRRM - - RLSDQIARKFFDL QDMLQDFDKASNTI EWLFSKSNSNAA KEL RNI
51. SITCP13	KVDG--RGRRI--RMPALCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT
52. SITCP8	KINTAQGPRDRRM - - RLSDAARKFFRL QDMLQDFDKASKTV EMLLTKSKS AV EEL VAAK
53. SITCP6	KVCTVKGGLRDRRI - - RLSVP TAIQFYDV DQL QDF QPSKVV DWLIDATKDE DKLPLP DZ
54. SITCP17	KVDG--RGRRI--RMPALCAARVFQL TRELGHKS DGETI EMLLQOSEPAI - - - - - I AAT

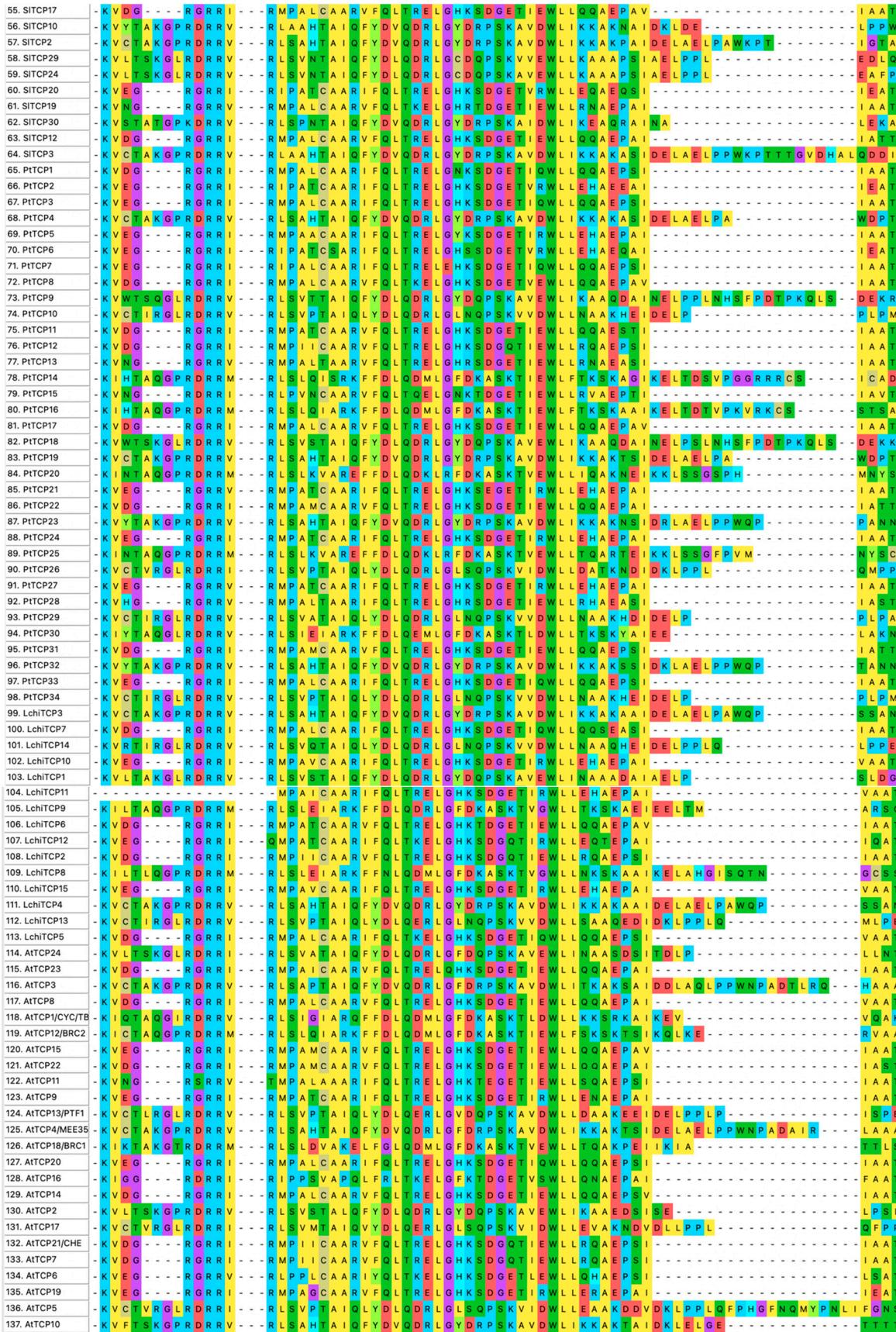


Figure S2. Multiple sequence alignment of the 137 proteins from 7 different plant species, showing the conserved TCP/bHLH domain in, *L. chinense*, *A. thaliana*, *O. sativa*, *S. lycopersicum*, *S. moellendorffii*, *P. trichorpa*, and *P. patens*. Different color schemes depict conserved amino sequences within different protein sequences.

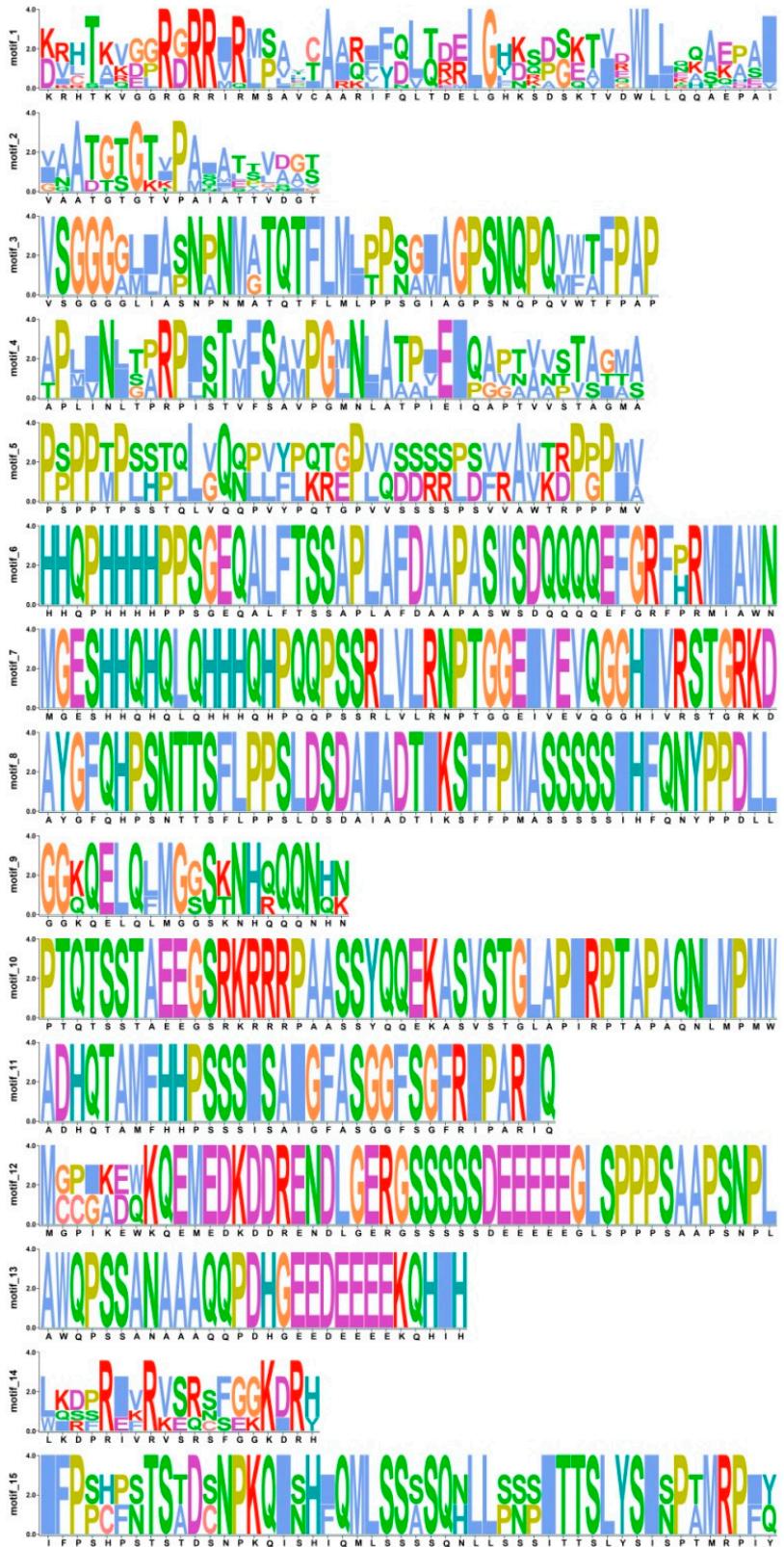


Figure S3. *LcTCP* motif domain arrangement, colorful letters represent different amino acid conserved in the motif .

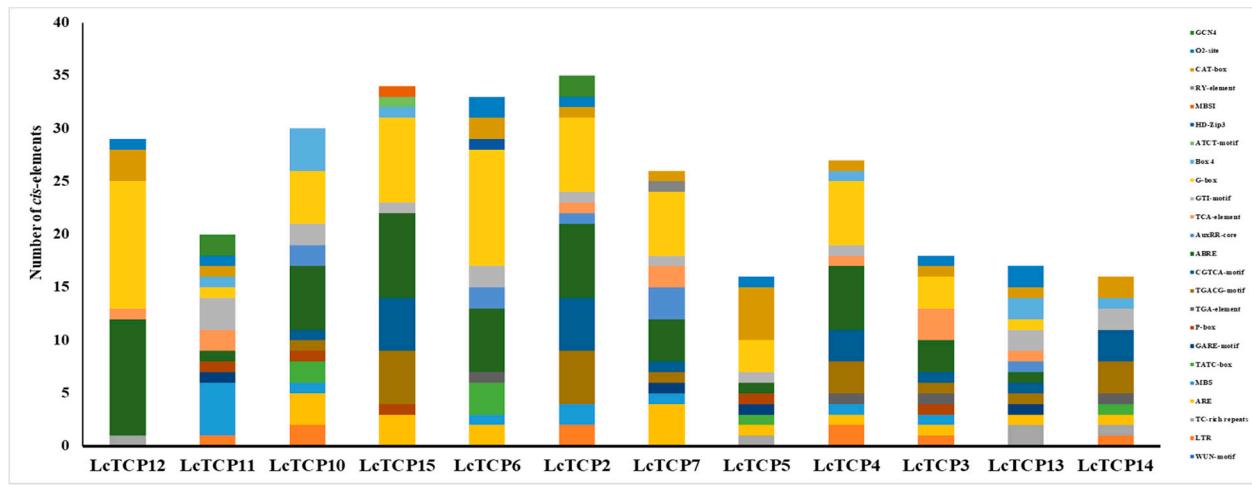


Figure S4. Summary of the cis-regulatory elements representation in different LcTCP proteins.