

## Supplementary material

### First insight into divergence, representation and chromosome distribution of reverse transcriptase fragments from L1 retrotransposons in peanut and wild relative species

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**Supplementary Fig. 1** Alignments of deduced amino acid *rt* sequences used for construction of Neighbor Joining trees: **A)** *Arachis* LINEs and LINEs from other species. *Arabidopsis thaliana* Ta11-1 (L47193), *Beta vulgaris* BvL2 (FM993987), *Zea mays* cin4 (Y00086), *Hordeum vulgare* BLIN (AJ270056), *Cannabis sativa* LINE-CS (AB013908), *Rattus norvegicus* L1 rat (U83119), *Homo sapiens* L1 hs (U93574), *Drosophila melanogaster* I (M14954), *Drosophila melanogaster* Jockey (M22874), *Gallus gallus* CR1 (U88211). The symbols “-”, “?” and “\*” indicates gaps, incomplete codons and stop codons, respectively.

Cin4 PISLINS-CMKIITKIMATRLAPRMEIVS----TTQNAFIQKRSIHDNFLVYQVKIKLHKSKQAAL---FVKLDISKAFDSLNLWAY--LLDVLKALGFTQKWRDWIATILGSSSSKIINGQQTKEIKHMRGVQRGD  
LINE-CS PISCCNA-LYKIATNVICNRLRTILPDLIA----DNQGGFVHGRPIAHNVLCQDLVRLYGRKN\*KPR--CMIKIDLKWAYDTEWDF-IEEMMVAFGFPNQFISLIMNCIRTPKFSLLLNGSMCGFFNAKRLGRQGD  
BLIN PISLHIH-VAKVLAKLLSIRLAPRLNNLVS----NVQNAFIPGRSLHDFLVRQSAARVHLQGLGAPRV---LLKLDLARAFDSVSWWF-LFEVLRCHGFGSRFLGWIALLLSSASTKVLNNGPPIAWHRRGLHQGD  
Tall-1 PISLCSV-LYKIIISKIMVRRLLQFPLDLVS----PNQSAFVAERLFDNLIHAHEVHGLRTHQKSVKGFIAIKSNMSKAFDRVSWFF-VRALLDALGFHQKVGWIMFMISVSYSVLINDKAFGNIVPSRGLRQGD  
LlRAT PISLMNI-NAKILNKILANRIQEHIKTIH----HDQVGFIPGMQGWFNIRKTNVVIH-YINKLKEQNH-MIISLDAEKAFDKIQHPF-MIKVLERIGIQGPLYNIVKAIYKSPVANIKLNGEKLAIPLKSGTRQGC  
LlHomo sapiens PISLMNI-DAKILNKILANRIQQHKKLH----HDQVGFIPGMQGWFNIRKSNVVIQ-HINRAKDKNH-MIISDAEKAFDKIQHPF-MKLTNKLKIGDITYFKIRAIYDKPTANIILNGKLEAFPLKTGTFRQGC  
BvL2 PISLCSI-IYKIIISKVITSRLKTVLGEIHH----PLQGAfVDPDRILQDNLIHAHEVFOAFRSKTEGPNGW-IAIKLDMEKAYDRLEWSY-IFMTLEKLGFSPYIWIWIKKEICSSSSFSVLVNGVPEKEFPSPRGIQRGD  
Jockey PTSLLPS-LGKIMERLILNRLLTCKDVTKAIPKQFQGRFLQHGTP--EQLHRVVNFALAEAMENKEYAVG---AFLDIQQAfDRVWHPG-LLYKAKRL-FPPQLYLVVKSFLBERTFHVSVVDGYKSSIKPIAAGVPQGS  
CR1 PVSLSV-PGKIMEQILLDDMLDHMRNERV--IRDSQHGFTRGRSCLTNLAFYDGVTAALVDEGKATD---VILDLTKAFDMVPHHI-LISKLEGGCGDGTWTHWIRNWLKGRQRVVTNGSMSRWRPVMVSGVPQGS  
IDm PISLNC-IAKILDKIIAKRLWVLVTYNNL--INDKQFGFKKSTSDCLLV-DYLIH-KSKMHTS----LVTLDLFRAFDRVGVHS-IQQQLQEMKTGPKIKYIKNFMSNRKITVRVGPHTSSPLPLFNPIQGS  
ALItri5 PISMVGV?YKVISKLLVRRMRRAVMPGLV---ETQSAFVKGKRIHDGALIACETVQWIRTRKLLKAA---IKLDFQKAYDRVKKWF-VDLVLQKMGFGQKRWAWMECVSSCSMSVLINGSPSKPFKMERGLRQGD  
ALItri3 PISMVGC-VYKVIS?VLVRRMR\*AMPGLV---ETQSAFVKGKRIHDGALIACETVHVLKIRKKEAV---IKLDFQKAYDRVKKWF-VNIVL\*KMGFRRRWRVWVMECISTTSMSVLINSSPTKPFKMERGLRQGD  
ALItri4 PISMVGC-VYKVISKVLVRRMRGVMGSLV---ET\*SAFVKGKRIHDGTFIACETVQ\*WIKLKKKAA---IKLDFQKAYDRVKKWF-VNIVL\*KMGFRRRWRVWVMECISTTSMSVLINSSPTKPFKMERGLRQGD  
ALItri1 PISMVGC-VYKVISKVMVRRRLRLVPLV---ETQSAFVKGKRIHDGALIACETVQWLRMRKKKAA---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVKECVGTASMSILINGSPSKPFKMERGLRQGD  
ALItri2 PISMVGY-VYKVISKMMVRRMRSMVMPGLV---ET\*SAFVKDRKIHDGALIACEIVQWLMKRRKAA---IKLDFQKAYDRVKKWF\*SF?VDIVLQKMGFGWRWRWRECVKECVGTASYMSILINGSPKPFKMERGLRQGD  
ALlbat9 PISMVGC-VYKVISKVLVRRMRRLMLGLV---ETQSTFVKGRKIHDG?LITCTV\*WIKMNRKSA---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVKECVGTASISVLI?ERPSSKPFKMERGLRQGD  
ALlbat3 PISMVGC-VYQVISKMLVRRMRAMPRLV---KTQSAFVKGKRIHDGALIACETVQWIKSRKKEAV---IKLDFQKAYDRVKKWF-VDLVLQKMGFGFR\*RGWMECVSTCSMSILINGLASELFPKIERGLRQGD  
ALlbat5 PISMVGC-VYKVISKVLVRRMRSMVMPGLV---ETQTAfVKDRKIHDGALIACETVHVLKIRKKEAV---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVKECVSTVMSVLVNGSPKPFKMERGLRQGD  
ALlbat2 PISMVGV?YKVISKMLVRRMR\*AVMPGLV?---ETEC?FVKGRKIHDGALIAC\*TV\*WIKLKKKAA---IKLDFQKAYDRVKKWF\*SF-VNIVLQKMGFGFR\*RVWVMECISTCSMSVLINGSPKPFKMER?LRQGD  
ALlbat4 PISMVGC-VYKVISKTLVRRMRRAVMPGLV---EIHSAFV\*GKKIHDGALITYESI\*WIKLKKKAA---IKLDF\*QAYDRVKKWF-VDLVLQKMSFRQRE?GWVMECVSMCSMSVLINSSPKMFKMRGLRQGD  
ALIipa2 PISMVGY-IYKVISKVMVRRMRSMVMPGLV---ETQSTFVKGRKIHDGALIARETV\*WIKMNRKSA---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVGTASMAILINGSLTKPFKMER?LRQGD  
ALIipa6 PISMVGY-IYKVISKVMVRRMRSMVMPGLAG---ETQSTFVKGRKIHDGALIARETV\*WIKMNRKSA---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVGTASMAILINGSLTKPFKMER?LRQGD  
ALIipa7 PISMVGC-INKVISKVLVRRMRSVIPGLV---ETQSAFVKGRKIHDGALILCETMQWLLKRRKKV---VI\*LDfQKAYDRVKK\*SF-LDIVL\*KMGFRRRWRWRECVGLASMSILINGSLKPFKMERGLRQGD  
ALIipa1 PISMVGC-VYKVISKVLVRRMRSMMPGLV---ETHTAfVGRKIHDGALIACETVHVLKIRKKEAV---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVKECVTMATISVLVNGSPKPFKMERGLRQGD  
ALIipa3 PISMVGC-VYKVISKVLVRRMRVMPGLV---ETQSAFVQGRKIHDGALIACETIQ\*WIKLKKKAA---IKLDFQKAYDRVKKWF-MDIVLQKMGFGWRWRWRECVKECVCMASMSLIVNGSPKPFKMERGLRQGD  
ALlcar3 PISMVGC-VYKVISKVLVRRMRSMVMPALV---ETQSAFVKGMKIHDGALIACETVNWLLKRRKKEA---IKLDFQKAYDRVKKWF-VNIVL\*KMGFGQEWRAWWMECVTTASMSVLINGSPSKPFKMERGLRQGD  
ALlcar6 PISMVGC-VYKVVSKVLVRRMRRAVMPGLV---ETQSAFVKSRKIHDGALIPCETVHLLKRRKKEA---IKLDFQKAYARVRSF-VNIVLQKMGFRRRWRWRECVTTASMSVLINGSPSKPFKMER?LRQGD  
ALlcar4 PISMVGC-VYKVISKMLIRMRRAVMLGLV---ET\*SAFVKGRKIHDGALIACETVQWIELK\*AT---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVSTCFMSVLINGSPSKPFKMER?LRQGD  
ALlcar5 PISMVGC-VSNIISKLLVRRMRDVPWPLV---ETQSAFVKGKRIHDGALIACETIQWIK\*RRKGA---IKLDFQKAYDRVKKWF-VDLVLQKMGFK\*RWG?VMECISTCSMSILINGSPSKPFKMERGFQRGD  
ALlcar7 PISMVGC-VCKVISKMLVRRMRRAVMPGLV---ETQSAFVKGKRIHDGALIACETVQWIKMRKMEAA---IKLDFQKAYDRVKKWF-VDLVLQKMGFGWRWRWRECVSSCSMSILVNGSPKPFKMERGLRQGD  
ALlgl1 PISMVGC-VYKVISKMLVRRMRVMPGLV---ETQSAFVKGKRIHDGALIACETVQWIKLKKKQAA---VIKLDfQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVTTASMSVLINGSPSKPFKMERGLRQGD  
ALlgl5 PISMVGC-VYKVISKMLVRRIRAIMP\*LVG---ETQSVFVKQKIHGDGALIACETVQWIKRQKKEA---IKLDFQKAYDRVKKWF-VDLVLQKMGFGWRWRWRECVSTCSMSVLINGSPSKPFKMER?LRQGD  
ALlgl4 PISMVGC-VYKVISKMLDRM\*AVIPGLV---ETQSTFVNS\*KIHDGALIACETVQWIKLKKKEVP---ITLGLFKAYDSVKKWF-VDSILQKMGFGGRW?GWVMECVSTCSMLLINGSPTKPFKMERGLRQGD  
ALlgl2 PISMVGC-VYKVISKVMVRRMRVMPGLV---ETQSAFVEGRKIHDGALIACEIVQWLMKRRKAA---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVGTASMSILVNGSPSKPFKMERGLRQGD  
ALldur2 PISMVGC-VYKVISKMLFRRMRRAVMPGLV---ETQSAFVNGRKIHDGALIVCETVQWIKMRKMEAA---IKLDFQKAYDRVKKWF-VDLVLQKMGFRQRWKAWMECLRSCMSVLINGSHSKPFKMERGLRQGD  
ALldur1 PISMVGC-VYKVVSKVLVRRMRSMVPLV---ETQT?--KGRKIHDGALIACETVHVLKIRKKEA---IKLDFYKAYDRVRSF-VNIVLQKMGFGWRWRWRECVSTATMSVMVNG?PSKPFNMERGLRQGD  
ALldur3 PISMVGC-VYKVVSKVLVRRMRAMPGLAG---ETQSAFVKGKRIHDGALIACETVHWHKRRK?AA---IKLDFQKAYDRVRIFF-VNIVLQKMGFGHRWRVWVMECVTTASMSVLINGSTKPFKMERGLRQGD  
ALldur7 PII??VGC-VYKVIKVMVRRMRSMVMLGLV---ETQNAFVKGKRIHDGALIACIVHVLKTRKKEA---IKLDFQKAYDRVKK\*SF-VNIVLQKMGFGWRWRWRECVSTIASMSILINDSPSKPFKMEK?LRQGD  
ALldur11 PISMVGC-VYKVISKMLFRRMRRAVMPGLV---ETQSAFVNGRKIHDGALIVCETVQWIKMRKMEAA---IKLDFQKAYDRVKKWF-VDLVLQKMGFRQRWKAWMECLRSCMSVLINGSHSKPFKMERGLRQGD  
ALlhel3 PISMVGC-VYKVISKLLVRRMRRAVMPGLV---ETQSAFVKGKRIHDGALIACETVQWIKARMKAA---IKLDFQKAYDRVKKWF-VDLVLQKMGFGWRWRWRECVSSCSMSVLINGSPSKPFKMER?LRQGD  
ALlhel1 PISMVGC-VYKAVISKVLVRRMRRAVMPGLVE---ETQSAFVKGKRIHDGALIACETVHVLKRRKKEA---IQLDfQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVTTASISILINGSLKPFKMER?LRQGD  
ALlhel6 PISMVGC-VYKVISKVLVRRMRSMVMPGLV---ETQSAFVKGKRIHDSALIAYETVQWIKTRKKEA---IKLDF\*QAYDRVRSF-VNIVLQKIGFGQRWINWGEKCVSTATVSVLNGSPSKPFKMER?LRQGD  
ALlhel4 PISMVGC-VYKVISKVLVRRMRVMPDLV---ETQSAFVQGRKIHDGTLITCETVQ\*LK\*RRKSA---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVSTATMALLING\*PSKPFKMP?LTHGD  
ALlhel5 PISMVGC-VYKVISKVLVRRMIVMPGLV---ETQSAFVKGKRIHDGGLIACETVHVLKRRKKEA---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVGTTSISVLINGSPKPFKMERGLRQGD  
ALlhypl PISMVGC-VYKVISKVLVRRMRSMVMPGLV---ETQTAfVKGKRIHDG?IACETVHVLKTRKKEA---IKLDFQKAYDRVRSF-VNIVLQKMGFGWRWRWRECVSTATMSVLVNRSPSKPFNIEERGLRQGD  
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ALlhypl2 PISMVGC-VYKVIKMLVRRMRSMVMPGLV---ETQSAFVKGKRIHDGVLIA\*KMVQCIKMRKMEAA---IKLDF\*QAYDRVKKWF-VDRVLQKMGFG\*R\*REWMECVSSCSMSVLINDPPSKPFKMERGLRQGD  
ALlhypl8 PISMVGC-VYKVISKMLFRRMRRAVMPGLV---ETQSAFVNGRKIHDGALIVCETVQWIKMRKMEAA---IKLDFQKAYDRVKKWF-VDLVLQKMGFRQRWKAWMECLRSCMSVLINGSHSKPFKMERGLRQGD  
ALlhypl9 PISMVGC-VYKVISKVLVRRMRSMMPAFV---ETQSAFVQGRKIHDGTLIACETVNWLLKRRKKEA---IKLDFQKAYDRVKKWF-VNIVLQKMGFGWRWRWRECVTTASMSVLINGSPSKPFNMERGLRQGD

