Table S2 Annotated genes in pea pan-plastomes.

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| Category | Group of Genes | Names of Genes |
| Photosynthesis | Subunits of photosystem I | *psaA,psaB,psaC,psaI,psaJ* |
|  | Subunits of photosystem II | *psbA,psbB,psbC,psbD,psbE,psbF,psbH,psbI,psbJ,psbK,psbL,psbM,psbN,psbT,psbZ* |
|  | Subunits of NADH dehydrogenase | *ndhA\*,ndhB\*,ndhC,ndhD,ndhE,ndhF,ndhG,ndhH,ndhI,ndhJ,ndhK* |
|  | Subunits of cytochrome b/f complex | *petA,petB\*,petD\*,petG,petL,petN* |
|  | Subunits of ATP synthase | *atpA,atpB,atpE,atpF\*,atpH,atpI* |
|  | Large subunit of rubisco | *rbcL* |
| Self-replication | Proteins of large ribosomal subunit | *rpl14,rpl16\*,rpl2\*,rpl20,rpl23,rpl32,rpl33,rpl36* |
|  | Proteins of small ribosomal subunit | *rps11,rps12\*\*,rps14,rps15,rps18,rps19,rps2,rps3,rps4,rps7,rps8* |
|  | Subunits of RNA polymerase | *rpoA,rpoB,rpoC1\*,rpoC2* |
|  | Ribosomal RNAs | *rrn16,rrn23,rrn4.5,rrn5* |
|  | Transfer RNAs | *trnA-UGC\*,trnC-GCA,trnD-GUC,trnE-UUC,trnF-GAA,trnG-GCC,trnG-UCC\*,trnH-GUG,trnI-CAU,trnI-GAU\*,trnK-UUU\*,trnL-CAA,trnL-UAA\*,trnL-UAG,trnM-CAU,trnN-GUU,trnP-UGG,trnQ-UUG,trnR-ACG,trnR-UCU,trnS-GCU,trnS-GGA,trnS-UGA,trnT-GGU,trnT-UGU,trnV-GAC,trnV-UAC\*,trnW-CCA,trnY-GUA,trnfM-CAU* |
| Other genes | Maturase | *matK* |
|  | Protease | *clpP\** |
|  | Envelope membrane protein | *cemA* |
|  | Acetyl-CoA carboxylase | *accD* |
|  | Cytochrome c biogenesis protein | *ccsA* |
| Genes of unknown function | Conserved hypothetical chloroplast ORF | *ycf1,ycf2,ycf3\*\*,ycf4* |

Notes: Gene\*: Gene with one intron; Gene\*\*: Gene with two introns.