Presence/absence file Sequence alignment >seq1 >seq1 ATC - - - CCCTGGACC 0001110000000000 >seq2 >seq2 ATCGTTCACTCC---0000000000000111 >seq3 >seq3 ATC---CCCTGGATC 0001110000000000 **IQ-TREE IQ-TREE** command 3 command 1 Phylogenetic tree INDEL reconstruction >Node1 0001110000000000 >Node2 0001110000000000 **IQ-TREE** command 2 Ancestral sequence Merged sequences reconstruction >Node1 >Node1 ATC---CCCTGGATC ATCGTTCCCTGGATC >Node2 >Node2

ATC---CCCTGGACC

ATCGTTCCCTGGACC