**alphaTub84D[KO]**

The following sequence was deleted in alphaTub84D[KO]:

5'- gacagggtttttcgtgcccccagagcaaaatcgattggtaaaagaaacgcgtttcgtataatatagatagttatctaatatctaatctaatatctgagttgttgtgaagccctttttcgtaaaacagagctactggcgatttacgtctgttcgaaatccattcccgggcattccaacgtatacgcccgcagagtcagaccccaaaatccgtaggcttacactttttccgttgattttccgtagtcgcgtgtgagaaaccgaaactcgaaacaagaaacccggaatcggaaaccccattaaaaatcaatatgcgcgaatgtatctctatccacgtgggccaggccggagtccagattggaaatgcctgctgggagctctattgcctggagcacggcatccagcccgatggccagatgccctccgacaagaccgtaggcggaggtgatgactcgtttaacaccttcttcagcgagactggagctggcaagcacgtgcctcgcgccgtgttcgtggatctggagcccactgtggtcgacgaggtccgtactggaacctaccgtcagctgttccaccccgagcaactgatcaccggtaaggaggatgcggccaacaactacgcccgtggccactacaccattggcaaggagatcgtcgacctggtgctggacaggatccgcaagctggccgatcaatgcaccggtctgcagggcttcctcatcttccactcgttcggtggaggtaccggctccggcttcacctcgctgctgatggagcgtctctccgtggactacggcaagaagtccaagctggagttcgccgtgtacccagctccgcaggtgtccaccgccgtggtggagccctacaactccatcctaaccacgcacaccaccctcgagcactccgactgcgcctttatggtggacaacgaggccatctacgacatctgtcgccgaaacctggacatcgaacgacccacttacactaacctgaatcgtttaatcggccaaatagtgtcctcgatcaccgcctctctgcgattcgatggagccctaaatgtggacctcaccgagttccagaccaacctggttccttacccccgcatccacttcccgctggtgacgtacgctcccgtcatctccgccgagaaggcctaccacgagcagctgtcggtggccgagatcaccaacgcctgcttcgagccagccaaccagatggtcaaggtggatccccgtcacggcaagtacatggcctgctgcatgctgtatcgcggcgatgtggtgcccaaggacgtgaacgccgccatcgccaccatcaagacaaagcgtaccattcagttcgtggactggtgccccaccggcttcaaggtgggcatcaactaccagccacccactgtcgtcccaggcggggatctggccaaggtgcagcgtgccgtgtgcatgttgtccaataccacggctattgccgaggcctgggcccgtctggaccacaagttcgatctgatgtacgccaagagggccttcgtccactggtatgttggtgagggcatggaggagggcgagttctccgaggcccgtgaggatctggctgccctcgagaaggactacgaggaggtcggcatggattccggtgacggtgagggcgagggtgctgaggagtactagagcggataggtgtgcatccctcaaaatct -3'

**alphaTub84B[K40R]**: The endogenous AAG (lysine) codon was substituted with an AGG (arginine) codon.

**alphaTub84B[K40A]**: The endogenous AAG (lysine) codon was substituted with an GCG (alanine) codon.

**alphaTub84B[KO-attP]**: alphaTub84B was deleted and replaced with attP and loxP sites (the sequence of the KO-attP allele is below). The alphaTub84B deletion endpoints are not equivalent to the deletion endpoints of alphaTub84D[KO]. The alphaTub84B[KO-attP] allele was created via CRISPR-Cas9 genome engineering and used a donor template. The alphaTub84D[KO] allele was created by NHEJ repair of a double-strand break induced by Cas9 and two gRNAs that flank alphaTub84D.

5'-gtttgtcaagcctcatagccggcagttcgaacgtatacgctctctgagtcagacctcgaaatcgtagctctacacaattctgtgaattttccttgtcgcgtgtgaaacacttccaataaaaactcaatatggtgagtactttaaaaaaaaatctagtgaaataatgctgaaaagaaatttgtgtgggcaaaattcaatgggcaaaaacgcgatgcggctttttctcaaaatggcggccggcctgcgttttttcctcaaaagtgatgacgtcatgcctgttttttttttttgttcgcaatgaggaatggctcttGCTAGCACATATGCAGGTACCGTAGTGCCCCAACTGGGGTAACCTTTGAGTTCTCTCAGTTGGGGGCGTAGTGTACC**ATAACTTCGTATAATGTATGCTATACGAAGTTAT**CACTAGTAAAGATCTCCATGCATAAGGCGCGCCTAGGCCTagctgctatcgaatttccagaaatacccaggcaaacgggcaggaaatgaagcacgggaggcagatgtgcttggaaaatgtgtacactgtattgacgagaaatgcacaaacgcacacattgcatgtaagaacgtgcatacatacatatatgtatgtacatacatacataaaatagcatt-3'

Lowercase: endogenous sequence flanking the deleted alphaTub84B.

Uppercase: exogenous sequence introduced into the genome

Uppercase, green highlight, underline: phiC31 attP sequence

Uppercase, yellow highlight, bold: LoxP sequence

Deleted region in alphaTub84B[KO-attP]: 5'- aaaatctagataaaaaaaatattcattatttctatgctgctggaacgcttcattaatcttaaaaattctaaattcggttaccatgatacttcgacgcataactgtagattttggatagaattaaagagaaaatggcgagagagtaaaattccggcgtcggcaaagtagagcaaaaaaatcagtataccatttagctacctctctcactcgcacgcagtgccggctcaagttgggcgcggctctgcaattatcgattttcttggggtgtgtaactaatcatccgttttcccttcctcctcatccacagcgtgaatgtatctctatccatgttggtcaggctggtgtccagattggaaacgcctgctgggagctctactgcttggagcacggcatccagcccgatggccagatgccgtctgacaagaccgtgggcggaggtgatgactcgttcaacaccttcttcagcgagactggagctggcaagcacgtgccccgcgccgtgtttgtggatctggaacccactgtggtcgatgaggtccgtaccggaacctaccgtcagctgttccaccccgagcagctgatcactggtaaggaggatgcggccaacaactacgcccgtggccactacaccatcggcaaggagatcgtcgatctggttctggacaggatccgcaagctggccgatcagtgcaccggtctgcagggcttcctcatcttccactcgttcggtggaggtaccggctccggcttcacctcgctgctgatggagcgtctctccgtggactacggcaagaagtccaagctggagttcgccatctacccagccccccaggtgtccactgccgtggtcgagccctacaactccatcctgaccacccacaccaccctggagcattccgactgcgccttcatggtcgacaacgaggctatctacgacatctgccgccgcaatctggacattgagcgccccacgtacaccaacctgaaccgtctgattggccagatcgtgtcctcgattaccgcctctctgcgattcgatggtgcccttaacgtggatctgactgagttccagaccaacttggtgccctacccacgtattcacttccctctggtgacctacgcccccgttatctccgccgagaaggcctaccacgagcagctgtcggtggctgagatcaccaacgcctgcttcgagccggccaaccagatggtcaagtgcgatccccgtcacggcaagtacatggcctgctgcatgctgtaccgcggtgatgttgtgcccaaggacgtcaacgccgctattgccaccatcaagaccaagcgcaccattcaattcgtcgactggtgccccactggcttcaaggttggcatcaactaccagccacccaccgtggtgcctggaggtgatttggccaaggtgcagcgtgccgtgtgcatgttgtccaacaccacggccatcgccgaggcctgggcccgtctggaccacaagttcgatctgatgtacgccaagcgtgccttcgtccactggtacgttggtgagggtatggaggagggagagttctccgaggcccgtgaggatttggctgccctcgagaaggactacgaggaggtcggcatggactccggtgacggcgagggtgagggcgctgaggagtactaagcgtcacgccacttcaacgctcgatgggagcgtcattggtgggcggggtaaccgtcgaaatcagtgtttacgcttccaatcgcaacaaaaaattcactgcaacactgaaaagcatacgaaaacgatgaagattgtacgagaaaccataaagtattttatccacaaagacacgtatagcagaaaagccaagttaactcggcgataagttgtgtacacaagaataaaatcggccagattcagtgttgtcagaaataagaaaaccccactgtttttctttgccttttctttctcccagcgatcattcatttcgtggtgaaagaacggggtcattgcacggagtttcgactgcgggaaagcagagctgccgttcacttcgtctataattagcgctttctattttccccgattcgggccgctgctgcgcttttccgcctgctgtttgtggcaagtgtagcagcaggctgtgcacgcagtgtggcatgcacttggctttccaccgttggtatcgattctctgggacgatgagtcattcctttcggggccacagcataatcgttgccagctcaccgaaatggtgacttcatttcttaactgccgtcaagcatgcgattgtacatacatacatatttacatatgtacatatttatgtgactatggtaggtcgatataatagcaatcaacgcaagcaaatgtgtcagtcctgcttacaggaacgattctatttagtaattttcgttgtataaagtaattatgtatgtatgtaagccccataaatctgaaacaattaggcaaaaccatgcgaagcttccgaatttaactacgagtctacgagttaaatatgtatgtatgtacgtattgaagtgaccgcgtttgtacatacacattatgtatgtactttgtgcaggcctttaatgggggttgatttgccaaaacgaaattggagcctaggtaaaccggttggttgttgtgttgtacttgtaagtatgtagacacatacatacataatccgcctgctccgtttgcgcccaatgcggcattttcatgaaacagaccgaagaggc -3'

**alphaTub84B[Tuba1a-tail]**: The endogenous C-terminal tail sequence, DGEGEGAEEY, was replaced by DGEGEEEGEEY, which corresponds to the C-terminal tail of human TUBA1A, the homolog of alphaTub84B. The replacement DNA sequence: 5'-ACGGCGAGGGTGAGGAAGAAGGAGAGGAGTACTAA-3'

**alphaTub84B[Delta3]**: The last three amino acids, EEY, were deleted from the C-terminal tail. The following DNA was deleted: 5'- GAGGAGTAC -3'.

**alphaTub84B[DeltaC]**: The last ten amino acids, DGEGEGAEEY, were deleted from the C-terminal end. The corresponding DNA sequence was deleted: 5'-gacggcgagggtgagggcgctgaggagtac -3'.