**Casper/klp10A cDNA construct**

KLP10A is an 805 amino acid protein with the motor domain at amino acids 275-617. The *klp10A* cDNA is 2,418 bp with the motor domain coded for by bases 832-1860. A full length cDNA clone (LD29208) was obtained from the DGRC.

The promoter is a region amplified from Oregon R genomic DNA containing sequences 5’ to the klp10A coding region that had high scores in the Reese promoter prediction utility. It was fused to the coding region amplified from the cDNA clone. The final construct was confirmed by DNA sequence analysis prior to recovering transformants.

atagatctCATGCAAATGAATAACCATCCACGTCGAATAATACCTAGTTC MCAK10Apro#1

ACCCTGATAAGGCACTCCCAATTTGTCTTATTAAACAGCTAATTTTGTTA

GGGCTTAAAAATACCCAACGTTATGTATGTCTAGTGTTGTCTAGTTTCGG

GGGGCGGAAAAGCCAATTGCACACAAATATACAAAGTATTGCCGAAACGT

TGATTCTTTCAATAAATAAGGCACATTTTAATGAACTTATGCTTATGCCA

ACAAAAGCGGTCGCTTATTTTTATTACTTATTGATATAAATTCCAAAACA

GCTGACATTTTTAACGGTTACTTTGCCTAGTGTTGGCCAAGACATCAATC

TTAATAATAAACTCTCAAGTTGTCAAAATTATACTTGTATTTCTACTAAA

AAGTCATAAATATACCCAAAAACTACTTAGCCAATAGTAACCCTGCTTAA

TATGGATTTTATTCACTTATTAACACGCCAATTGTCTCACTTTTCAAACA

CAACGGCTGATTGCCAGCACTGTTTGCGCTGCAGTCCAGTGCTGCGCAAC

GCGGCGGGGACAAAAAACAATGGCGAGGCGAAACTAAAAAATTGTGTTGC

TGACATCTGGTCGCTTGCAAAACTATTTCTAGCAGATTTTGTGATATTTC

GTTGTGATCGGTCGATAAATCCGCCAGTTTTTTTTTTAATGGAAAGTGCT

AACACATTGTAGCGGTTGGGAAGATAGCAGGAAAGGTGAGCGAAAGGCAG

AAGATTGCGAAAAATTCAATTAAATTTCCGCGACCGTCTGTTTTCTGCAT

CGGTGTGTGTTTGTGTTTGCTCGCAAGTGTGTGTGGGTGCTCTGTGTATG

ACGTAAAGCGATAAAGCAAACGCATTCCCCCCACTCCTTGCATATGTGTG

TGTGTGCAAGTGTTGTGTTTCTCTCTCATCAGTTTTGCATCTAATTAGGA

GCGGAAAGCATTGATTGGCTGCCAAACGCCGCGGTTTGTTGTTTTTTTCG

CTGCATTTCGGCCAAAAGGCTTGCCGCAGCTGCATATGTGTCGCTATGTG

TGTGTCAGTGTTGCACAGTGCCGCCAGTGCCCACAAAATGGGCGCACAAC

AACAAAAGCAGCAACTCGGTTGGGATTTTCGCGATCCTACGCTGGCTCGG

AGCTCCCCTTTTCCTATTTCCAATTCCCAGCCAGCGGGCTGCCGTTTTTC

CTTTTTGTTATCCGTTGCCAGACGCAACGAAAACGACAGTTGGCATTTGA

ATTCAGCACAAACACACATACTAACGCCGACCCGCAAGCAGCACACACAC

ACACACTGGGACACTCGAAAAAAAAAAAACAGACGCTGTCGGCGACCTCG

ACAAGCAGTTGGGTTCGATTTAGTTGTCAATGCCTTGAATTCGGTTCGGG

GCTTAGTTTCCACAAGTTTATCGCTCGTCAAGAAACAACGAAATAAAATT

ATTTTCGACCTAAAAAATCTGACTAAATTGTGTTTTTTGTTTATGTATTT

ATTTAGGCACATTTTGCACACCACAACGTAGTTACTACATCTACGACTAA

CGGAACTCCTCCTGCAAGCAGTGGAAGTTGCTGTCCATCAAGCAGTACTC

GGAGTTAACGCAGGATAAGCCGGGAGAAAGAGAAAGAGATCGGTGGAGAA

TAGAGATATACAGGTGGAGTCAAAGAGGAAGGATCATGGACATGATTACG klp10A coding region

GTGGGGCAGAGCGTCAAGATCAAGCGGACGGATGG MCAK10A#1-1

CCGCGTCCACATGGCCGTGGTGGCGGTGATCAACCAGTCGGGCAAGTGCA

TCACAGTCGAATGGTACGAGCGCGGCGAAACGAAGGGCAAGGAGGTAGAA

CTGGACGCCATACTCACGCTCAATCCGGAGCTAATGCAAGATACTGTCGA MCAK10Apro#2

ACAGCACGCCGCCCCGGAGCCCAAGAAACAAGCCACCGCGCCGATGAACC

TCTCGCGTAATCCCACACAATCGGCTATCGGTGGCAATCTCACCAGCCGT

ATGACCATGGCCGGAAACATGCTGAACAAGATCCAGGAAAGCCAGTCGAT

TCCCAATCCGATTGTCAGCAGCAATAGCGTGAATACAAACAGCAACTCCA

ACACTACGGCCGGCGGAGGTGGTGGCACCACAACGTCGACGACCACTGGA

TTACAGCGTCCACGGTACTCGCAAGCTGCTACCGGCCAGCAGCAGACAAG

GATCGCCTCGGCGGTGCCTAATAACACATTGCCCAATCCCAGCGCGGCAG

CCAGTGCTGGTCCGGCGGCACAAGGAGTCGCCACTGCGGCCACAACCCAG

GGAGCTGGCGGCGCTAGTACCCGGCGATCGCACGCATTGAAAGAGGTGGA

GCGACTGAAGGAGAATCGCGAGAAGCGACGCGCCCGACAGGCCGAGATGA

AGGAGGAGAAGGTGGCGCTGATGAACCAGGATCCGGGCAATCCAAACTGG

GAGACGGCGCAAATGATACGCGAATATCAGAGCACGCTGGAATTTGTGCC

GCTGCTCGATGGCCAGGCCGTCGATGACCATCAGATCACAGTGTGCGTGC

GCAAGCGTCCCATTAGCCGCAAGGAGGTCAATCGCAAGGAGATCGATGTC

ATTTCGGTGCCGCGCAAGGACATGCTCATCGTGCACGAGCCGCGCAGCAA

GGTCGACCTCACCAAGTTCCTGGAGAACCACAAGTTTCGCTTCGACTACG

CCTTCAACGACACGTGCGACAATGCCATGGTATACAAATACACAGCCAAG

CCGTTGGTGAAAACCATTTTCGAGGGCGGAATGGCGACGTGCTTCGCCTA

CGGCCAGACGGGATCGGGCAAAACGCACACCATGGGCGGTGAGTTTAATG

GAAAGGTGCAGGACTGCAAGAACGGCATCTACGCCATGGCGGCCAAGGAT

GTCTTTGTGACCCTGAATATGCCGCGTTACCGCGCCATGAATCTAGTCGT

CTCGGCCAGTTTCTTTGAGATTTACAGTGGCAAGGTCTTCGATCTTCTGT

CCGACAAGCAGAAACTGCGCGTCCTGGAGGATGGTAAACAGCAAGTGCAG

GTGGTGGGACTCACCGAGAAGGTGGTCGATGGCGTCGAGGAGGTACTGAA

GCTCATCCAGCACGGCAATGCTGCCCGAACATCCGGCCAGACGTCGGCCA

ACTCCAATTCGTCGCGTTCGCACGCCGTTTTCCAGATTGTGCTGCGGCCG

CAGGGCTCGACGAAGATCCATGGCAAGTTCTCGTTCATCGATCTGGCGGG

CAATGAGCGGGGCGTGGACACTTCCTCGGCCGATCGGCAGACGCGTATGG

AGGGTGCCGAGATTAACAAATCGCTGCTGGCCCTCAAGGAGTGCATTCGT

GCGTTGGGCAAACAGTCGGCCCACTTGCCCTTCCGTGTCTCCAAACTCAC

CCAGGTGCTGCGCGACTCGTTCATTGGCGAGAAGAGCAAGACGTGCATGA

TAGCCATGATCTCGCCGGGACTTAGCTCCTGCGAGCACACGCTCAACACG

CTGCGCTATGCGGATCGTGTCAAGGAGCTGGTGGTCAAGGATATCGTCGA

AGTTTGCCCTGGCGGCGACACCGAGCCCATCGAGATCACGGACGACGAGG

AGGAGGAGGAGCTCAACATGGTGCATCCGCACTCGCATCAGCTGCATCCC

AATTCGCATGCACCGGCCAGCCAGTCGAATAATCAGCGTGCTCCGGCCTC

TCATCACTCGGGGGCGGTCATTCACAACAATAATAATAACAACAACAAGA

ACGGAAACGCCGGCAACATGGACCTGGCCATGCTGAGTTCGCTGAGCGAA

CACGAGATGTCCGACGAGCTGATTGTGCAGCACCAGGCCATCGACGACCT

GCAGCAGACGGAGGAGATGGTGGTGGAGTATCATCGCACCGTTAATGCCA

CACTGGAGACCTTCCTCGCCGAGTCGAAGGCGCTGTACAATCTGACCAAC

TATGTGGACTACGACCAGGACTCGTACTGCAAACGGGGCGAGTCGATGTT

CTCGCAGCTGCTGGACATCGCCATCCAGTGCCGCGACATGATGGCCGAAT

ATCGCGCCAAGTTGGCCAAGGAGGAGATGCTGTCGTGCAGCTTCAA

TTCGCCGAATGGCAAGCGT ctt aag LK + S65T GFP MCAK10a#4

DmMCAK10A 805 amino acids 88616 Daltons

MDMITVGQSVKIKRTDGRVHMAVVAVINQSGKCITVEWYERGETKGKEVE

LDAILTLNPELMQDTVEQHAAPEPKKQATAPMNLSRNPTQSAIGGNLTSR

MTMAGNMLNKIQESQSIPNPIVSSNSVNTNSNSNTTAGGGGGTTTSTTTG

LQRPRYSQAATGQQQTRIASAVPNNTLPNPSAAASAGPAAQGVATAATTQ

GAGGASTRRSHALKEVERLKENREKRRARQAEMKEEKVALMNQDPGNPNW

ETAQMIREYQSTLEFVPLLDGQAVDDHQITVCVRKRPISRKEVNRKEIDV

ISVPRKDMLIVHEPRSKVDLTKFLENHKFRFDYAFNDTCDNAMVYKYTAK

PLVKTIFEGGMATCFAYGQTGSGKTHTMGGEFNGKVQDCKNGIYAMAAKD

VFVTLNMPRYRAMNLVVSASFFEIYSGKVFDLLSDKQKLRVLEDGKQQVQ

VVGLTEKVVDGVEEVLKLIQHGNAARTSGQTSANSNSSRSHAVFQIVLRP

QGSTKIHGKFSFIDLAGNERGVDTSSADRQTRMEGAEINKSLLALKECIR

ALGKQSAHLPFRVSKLTQVLRDSFIGEKSKTCMIAMISPGLSSCEHTLNT

LRYADRVKELVVKDIVEVCPGGDTEPIEITDDEEEEELNMVHPHSHQLHP

NSHAPASQSNNQRAPASHHSGAVIHNNNNNNNKNGNAGNMDLAMLSSLSE

HEMSDELIVQHQAIDDLQQTEEMVVEYHRTVNATLETFLAESKALYNLTN

YVDYDQDSYCKRGESMFSQLLDIAIQCRDMMAEYRAKLAKEEMLSCSFNS

PNGKR LK + S65T GFP