

Supplementary Table 4. Sequence encoding α -mannosidase in *HkyuLL 10* genome.

Encoding sequence	atgaaaaaagaaacgggtacatatcatctcacagtcattgggagcagagaatggtatatggcttatgaagaacatcatatgcgtttagcaatfta gtggatgatttactgatttattcaagaagatcctgagtttgatagctttcatttggatggacaacgattatttttagatgactatttgcagctacgctc ctgagcgtctgaggagtagacaagcagcgggttcagctggaaaattgaaaattggccattttatatcttacaagatgattcctcattagttctga atcaaacgttcgtaatatgcttgttggcgtaaagaatcggagcgttgggggctccagttgagttgggtatttccctgatacttttgggaat gggccaacgccacaatgatgaaagcggcagacttagcctgacgttttggctgagggagtgaaaccaatcgggttgataatcaagttt ggaacaatcagaggaagcctacagttcacaatttcagaaatgtggggggaagtcctgatgggacaaaaattcttgaattctatttccaatt ggtattcaaatgaaatgaaatcctgctgaaaaagcagcagcactgaaatfttgaatcaaaaaattagcagatgtgaaaaatttcttcacat cacatcttaaatgatgaatggcgtgagatcaaccagttcagaaaagttgagcaaaagcattcgttggcaaatgaaatcttccagattatg agtttcttacttaattggccaacttattagaagctgaaagtcagatttggaaaacttatctacgtaaacaggggactaacctcacagga aacgatgctgtgtacactttagcaaatcagcctcagctgagttatctcaacaatggaatacaaaagttgagcagttgaaaattgga cagaacctctcgcagtttagcttatcgggtgacagggagatccgcagcaaaatgacttatgcttggaaaatttggataatcaatcca catgatagatctgtgttctctgtgacgaagtctcgtgaaatgatgacagctttgaaaaagcgaatgaagtagggaaatattctctgat gatgactatttgaactcgtaaagcttacttgaagcacaatccttttgcgttttaatacagctggacattcaaaacaggtgagcgtga agtgaagtagtctttagcgaatattttaaagaaggaatcctgaaaaactttatgatgaaatgacagcgaacccaaggaactataaag taatcaatcgtgaaagcgaagtgccagctgaaatcagtgaaagaagtttatttgattatgattaccgaaagatcgttccgagttcctta catgaacgatttggaaagtgaatattttaaagaatgagtgcttttctgggaaagtttgatttggactactgacgatgacagcttt gataatgctctgacgtaataatgaaagtatgatttctgtaacaacaatgaaaatgaaagttgaaactgacagttaatcataatgaaatgga gtattttgataagtcgctcaataaagttttaaagatttcttcttgaagacactggtgataattggaatgaaatataatctattccaactaaaaat accaaaagcaatttttctactgacagctctgtaatttcaattactgacagagcagaatgagggaagttcagcttaacaagtgctgatgat tcctgaatctgctgacgaatattgtagaggaacaaaaaggtttggaattccgtatcgaatgctgctgctgataacttttgcctttag aggtacaagcaaatcactgtacgtaaaaattcaaaaaagttgatttgaaacagcattgataatcaaatgaaagatcagagactcgtgta ctatccagcgggattaacaagcgaatcacgaagctgacagatatttgaagtagtgacaagacctaattgatgctgaaactgggaaa atccaacaatccacagatcagcaagccttctgtaattcacaatgaaagaatggtttaaactgttgtaattttggtttaaataatgaaatg ctgacagcgaatattgcccacttacttagaggagttggagaactggtgattggggtacttccaacaccagagcgtcaaaccttagga ctgcatacttttaactatagtttagaatttcatgaccggcttacgaacgttatgaaacttatcaacatgcttatgttgcacaagttccatttcaacg gtagaactgacaaatccgtagcagcaaaaaacttaccgtcagctgggagaatattgaaatgatactgataaatttgcctacacggcattgaa acgtcgcgaatcagataatgcttagttttagaggctacaatatgctntccgactttgttga
Amino acid sequence	MKKKTVHIISHSHWDREWYMA YEEHMLRVNLVDDLLDLFKKDPEFDSFHLDGQTIILD DYLQVRPERREEVQAAVSAGKLIKGFYILQDDFLISSESNVRNMLVGRKESERWVAPVE LGYFPDTFGNMGQTPQMMKAAAGLSAAAFGRGVKPIGFDNQVLEQSEEAYSSQFSEMWW EGPDGTKILGILFANWYSNGNEIPAEEKAAALEFWNQKLADVEKFASTSHLLMMNGVDH QPVQKDLSKAIRLANELFPDYEFVHSNWPTYLEAVRSDLFENLSTVTGELTSQETDQWYT LANTASSRVYLKQWNTKVERQLENVTEPLASLAYRVTGEYPHDKLTYAWKTLMQNHP HDSICGCSVDEVHREMMTRFEKANEVGKYLADDALFELAKVIDFEGQHPFVVFNTAGHS KTGEAEVEVVLERKLFKEGIPEKLYDELKAQPKATYKVINREGQEVPAEISEEEVLFYD LPKDRFRVPYMKRFVKVFLNEMSAFWSWESFDLVLTDADSFDNSSVSNNESMISGQTI ENESLKLTVNHNGTSLIFDKSLNKVFKDLLVFEDTGDIGNEYIYFQPKNTKAIFSTDSPVEF SIITDRAEIAEVQLKQVLMIPESADELLDEEQKQVLEFRYRNAGRSDKLLPLEVTSKITVR KNSKKVDFETSIDNQMKDHLRLVLPAGLTSNHEADSIYEVVTRPNVMPETWENPTNP QHQQAFVNLHNEEYGLTVGNFGLNEYEITDSANIALTLRGGVGLGDWGYFPTPEAQLT GRHTFNYSLEFHGPAYERYETYQHAYVAQVPFSTVELTNPSAEKTLPSAGRILEIDTKFA ITALKRRESNGLVLRGYNMXSGLC