

Appendix 1. PCR Primers for 41 exons of *PIKFYVE* (primers for DHPLC).

Primers for	Primer Sequence		Annealing temperature (°C)
	Forward (5'→3')	Reverse (5'→3')	
Exon1	TCGATGCTGTTTGGGAATCAA	GAGCCACTGGAGACAAAG GA	55
Exon 2	TCATCTACT TCC TTCTCATTGCTG	CCTGCTATAAACAACCTAGGAAACA	55
Exon 3	TAACCGGGTGGGAGAACATA	ATGGCATGATCCCCATAAGC	55
Exon 4	TTTTGACTTTCGTATT CCATA	TGAAAATTGGCTTAACACTATCC	55
Exon 5	GATGAACTGTTGACCCAAGGA	CTGAAAGCACTCAAAGGTCAGA	55
Exon 6	TGTTAAAGCGCCTCATTGAA	TTCAGCTTTTAGAGCTACGGAAG	55
Exon 7	TCCTTTACCAAATTTCTCCCAAT	CAGTCACATGAACATTCTCTATGC	55
Exon 8	CACAGGAAAACATCTGAAAAGG	TCAGATTGGAGGAGGGTTAAG	55
Exon 9	CAAGGGCCATTTGAAATTCT	TTCCCACTGATGAAGAAAGACT	55
Exon 10	TTTATAGTGTGACAGCCTCAACA	TTTCATTTAGTTGGAGCCATAA	55
Exon 11	CCTTTCCTCCAATACCCTGA	ACCCACACCAAATACCCTCA	55
Exon 12	TGTGTGTGGGCGTATTCTCT	GCACCTTCTCTGTGCTAATCAA	55
Exon 13	TGTTCTTGCCTTTTTACACCAA	CCCTTTTAAAGAGGAATGATGC	55
Exon 14	TCTGTGAGCCGTAATTGAAATG	CAATCAGTCCTGCCTCATCA	55

Exon 15	TTGATCGTTGGTTGAAAGGA	CTGGGAAATCTTCCCTGAA	55
Exon 16	TGAAGAATTTTGCATTGTTCTGA	GAGTGACAGAGGTTTTGGTAAGC	55
Exon 17	TGTCCAGATACTGCATTTTACCA	TCTTGTATACCTACCATACGTGCAT	55
Exon 18	GGTTTCAGTGGGCATATATTGA	TGCCTATCCTCACTTACCCACTA	55
Exon 19a	TGTACTTCTGGATTGCCACCT	CATCACAGGGCAGAGACTCA	55
Exon 19b	GGGCTGTCCAAGAGCAGTA	CAGTGTCATCCTGTAGAGGGTCT	61
Exon 19c	ACTCCCTGTGGATGACCAAC	TCCCTGAGCAGCTGTTTCTT	55
Exon 19d	TTGCAGAGCAGGTTTACTGG	TGCCTTTGAGGAGTCATTCA	55
Exon 20	TGGAGGCTTTACAAATAGAGTGG	GCTGGAATTCTGTTCTTATGTGG	55
Exon 21	GATTGGGAGTGAAAAAGATGC	TGCACTATGAAAGTGAGGATCA	55
Exon 22	CACCGTGCTGTAGCTGAAGA	TGAACATACAGCACTGGAAGG	55
Exon 23	CTGGGTGACAGAGCGAGACT	TAAATGGGGAATCCCACAAA	55
Exon 24	GAAACTTTT CCTCTTATGCCTCA	CCAAGCATGCATAGCATACAA	55
Exon 25	TTTCAATTACATTTTGCATGTAGC	CAAGGAACAGAAACA ACTTCAGG	55
Exon 26	GCAGTTTCTTTTGGGGTATGTC	GAGGAAAGGAGAGTGACAGGAA	55
Exon 27	ACAGCACTCAAGGGGCTAGA	CAAATGGAAAACCCTACTGGA	55
Exon 28	TGGGTCCTGAGACCAAAAAG	TTCCCCTAATAGCAGCCTTC	55
Exon 29	GGAAGTAGGCATATGAATGAGCA	AAACAGAAAGCAAGGCATGAA	55
Exon 30	TCCGAAAGGAAAAGAACCAA	TGAAGCGAGCAACTAAGGAAA	55
Exon 31a	TCTGCATACATTTTGGCTTTC	CATTTTGCTTTATGTGAAAGATTCC	55

Exon 32	TGATTGCTTTTGTTCAGTTAACCA	TGAGTGCCACTATCTGAATCCT	55
Exon 33	TGTAGGTGGGCTTAGGTAGGAA	TCATAAGTAGTAAATCATTGCCAGA	55
Exon 34	GCATTACTCAGATTGATTAGCTTCA	GCCCCAGTTTCAGCACTAAG	55
Exon 35	GGAAAAGGAAAGGACAAAATG	TTCATTTCAAGAACTGGGACA	55
Exon 36	AACATGCAAAATGCCATCAT	TTCCTGCTGCATTTTCTGAG	55
Exon 37	AGGATCTTTGGAATGATGTGTT	CAAATTACCCAGCCTCAGGT	55
Exon 38	TTGCTGCTGTACTCACTTCTGA	CCAAAGGTACAAAAGGTTCCA	55
Exon 39	AATCATTTGTGGCAACCTGT	TTGACTCTGACTTCAATCATGAAA	55
Exon 40	ACCCTGAGAACAGCACTTGG	CACCCAATATTTCCCCACCT	55
Exon 41	CTTTCCTGCCCACTCAGACT	GGCATAACAGTGGTGAACAC	55