

Additional File 9 Primers used

Chromosome	Mutation	Forward primer	Reverse primer
2	PCHAS_020720 V2728F *	CTTTTGTTCATCATAATCCAG	GGTTTAGGTTTTGCAAAGAA
3	PCHAS_030200 T707N	CTGGAACAAGCACACAGC	TTCATTGGTGCTCCTGTATC
3	PCHAS_031370 T719N *	GAAACTAACAGGCCACAC	TAGCACAATGGGAAAATTAG
7	PCHAS_072830 S106N	TTTAAAGGGACTTGGAATG	ATAAATCTTCATTGATATCTGG
7	34bp del	CGTATAAAGGCTGTGACAAC	CAGGTTCGTTTTGTACATACC
10	PCHAS_101550 Y162H	GAGACGATGAGTGTTTACTTTCC	AATAGTACCTGTGTTGTAGTCGC
11	PCHAS_112780 A173E *	GGAGTGATAAGAATGATAATATGAGG	GTGTTCAAGTGCTGACATGC
14	intergenic SNP	CTTCACTATAAATATGCTGTTC	CATGCCGATACTTATTATATGC

These oligonucleotide primers were used to confirm the predicted mutations in AS lineage. Pairs of primers marked with * were also used for proportional sequencing.