

Supplementary Table

1 Primers for *POLE* sequencing.

Number	Forward	Reverse
seq01	ATGTAAATCAGAAATGCAGACACC	CACAAATACACAGTGACAACCTAG
seq02	CTCTATCAGCCTCAGGAAAACAAG	CAAAGACACGAGCCTCCTG
seq03	CACCTGTTTGCATGGAGAAATG	CAGTGAGCCAAAAGTGAGGTG
seq04	TAGGTGCCCTAGTTCTTTGTC	AAAATCCAGATTCTCACGGGTTAG
seq05	AGGATGTGGCCCTGGC	CCAGGGGCTTTTCCTCCC
seq06	TCTGCGTCCGTGCCAG	CTGCTTCTTCAGGTGCTCTG
seq07	CTCCTCTCTGAGTGGACTGG	GATGTGGCCTTGGCATCAG
seq08	CTTACTGATGGGCCACGAATG	CGAGGCAGATGAGGGAGAG
seq09	ACTGTGGTCTGGAGGCTG	ACTCCAGGGCACACGG
seq10	GAATAAGCTGAACCGAGACCTG	CTCGGATGTTCTGCTCCAC
seq11	TCTAAAGGGACTAAGGAAGGGAG	GAACTCGCCGACATCCAC
seq12	TCTCAGGATTATGTCGCAAATGAG	TACGTTAGTGTCTCTCCTCACAC
seq13	GTGAGCAGTCTTTTGTCTTTTGAG	ATCTTCTGAGTGATGGTGAAGAAG
seq14	CTCAGATTCTAGGGTGTTCGAG	CTCAAAGACAAAAGACTGCTCAC

seq15	CAGAGGATGAGCAGGAAAATGAG	CATCTACTAACCATGAGTCCCTTC
seq16	GACTGCGAGGAAGGCCTC	CTCCTCCTCCCCATCTCTTTC
seq17	AGAACAAGGTCGATTTCACTGAAG	CAAAGCTGGCTCGGGTG
seq18	TCTGGCTCTCCATGACTGTG	GTCACCAGGACCAGCCAG
seq19	TGAAGGAGATCACCCAGTACC	ATGTCTCTGGTTCTGGGGAGTAAG
seq20	GACAGTGACGGATTTGGACC	GTAGAAGTGCATCACCTGGTTG
seq21	CATTCTCCAGTCTCACCATGTC	AATTAAGGGCAAAGGATAAGACCC
seq22	GTCTGTTGCTGGTTCTGGAG	GATCACGTCGAAGCTGATCC
seq23	CTACCAGAGGACATCTCCACATTC	CTCATGGGCCTCGTCCTC
seq24	TCGCAGGCCTTCGAGATG	GCAAAGAAGAGGTCGGAGC
seq25	CACACTCATCGCTGTTCAAGTC	CAACGACAGTACTGTGCTCAC
seq26	GAAACTGACCTGAAGACCATCTG	TCCAAGACAGGAATTTCACTGG
seq27	CTGTACTCAGCAGAGCACG	TCAAGGCAAATGGAAGAAAAGAC
seq28	GAGTGCTTGTCGTGATTGAATTG	CGAACTTCGAAGGTGTGTTTG
seq29	CAGCCGCCCATCATGTG	CAATGTGCTGCCATGGAGG
seq30	CACCATCCAGCCCTTGC	CACATGATGGGCGGCTG
seq31	GTCGTATTCTCGCCAGGTAAATC	GTTTCTTTCCTCCATACCACCC

seq32	TTGTAATCATTGAGAGAGGTGGAC	CTCTGGCACTGAATACTCATAGAG
seq33	CTTTCAGATCAGCGAGACCAG	CAGGCTAGATCATGGGAAAGC
seq34	CCTGAGGTCTGGGATGGG	GCCACAGCCTGAACAG
seq35	GTCTGGAGTCGGCAGAGG	CTCTAACCTCCCATCCCAG
seq36	GCTGCTTGTGAGAAAGTCATG	GCAGGACCATCCCGGATG
seq37	CGAGGCCAAGTGCTCCTG	CCTCAGAGACAGACAGTATCACAG
seq38	GTTACCCAGGCTGGTCTCAAACCTC	GTGAGGCAGCTTTACGAGG
seq39	ACAAGGGTCTCTCTCTGATGG	GTCCTGTGTGTCACAAGGATC
seq40	TAAATAAGACACAGTGGTTAGCCC	ACAGTTTTTTAGCCCCACAGC
seq41	TAAGAGTTAGGATCAGATTTTGGG	TTTAAGAGTAGAGAACGCAACTGG
seq42	CATCTCTGAGAACCGTTCCATG	CTCACCTCTCCGTGATGGG
seq43	ATTAGAGAGCTCTTGAAATTGCAG	TAGACTTCTGCTCCCCGTAATC
seq44	TCAAGGGCTTTGAGGTCAAAC	CTTCTTGCTTCATCCTTCATCCC
seq45	AGAGAGGATGAGGCACAGC	TACAGAGCCATACACCTCTTCC
seq46	TCTTCACTCTTGTTTCTCAGGAAG	CAATCCATGTCCTTTCTAAAGCAC
seq47	ATGCATCAGAACTTCCTTCCTTC	CGTAGGTGAGTGAGGACGG
seq48	CTTGCTCCTCTCTTTCTCTGAAG	CAGAGCTTCAGGACCAGAGG

seq49	TCTGATACCCCCTGGAGGAG	CCTCCCTCCTTCCTTCCTG
seq50	CTTCTCAGGTGTGGAAAAGAAG	GACTCATCCATTCTCCATAAG
seq51	AATGTACACTCTTCATTGTACTGG	ATACAGCACCTCCATGTTCTTG
seq52	CATCTCCGTCGTGCTTAGATTAC	CTGAAACTGCCCTCACAGAG
seq53	CAAAGTGCTGGGATTACAGGTG	ATGTGGATCTTCTGTAGGCTTTC
seq54	TCTGTGCCTCCTTTTGAAGTTG	ATCTTTACAGCCGTGACCATG
seq55	CTTTACTTCCCGTGTGTCAGAGTC	ACACTCACCCACCCGTTTC
seq56	GAAGTGCACACGAGGCAAG	CTGACACGGGAAGTAAAGTCTC
seq57	GCTAGTGTGGGTGTGTTTCC	CCAAACACAGACTGGCTCTTC
seq58	CTTCCACGCCAACATCATCTTC	ACAAGAGTGGGAAGAATCTGAATC
seq59	TTCTCTCCTTTCACACTGAAGTTC	TTATTGAACTCCTGCTCTTGCTTG
seq60	CTCTTGATTTTTGATGGCCCTG	AGCTCCAGTGCATTTGGAATG
seq61	TTAGAATCATCCTGGCTTCTGTTC	CATCTGGATGCGTGCACAC
seq62	ACTTGCTTGTCTGTCCTCTTTC	CTGCAAGAGGCCTTCAGATC
seq63	TCTGAACTTTGGGAGAGGAATTTG	CTGCCAGTTACTCATAGAGAAG
seq64	GTGGGAACGCCATTTCTTG	GGTAGTTTCCAAGTGATACCTC
seq65	GGTGGGTGTTTCAGGGAGG	CAGGAGCTTACTTCCCAGAAG

seq66	ATGGGTGAATCCACAGAAGAATAG	ACTCTCCAGCACTGAAGAATATTC
seq67	CAGCTGAGTTAGTTGCTCTCTTG	CTGTTAGGAAATTCATGTGAGCAG
seq68	CTATTTCTCTTGAACCAATGAGCG	TTTGCTCACAAGACCAAAGTTTAC
seq69	GGCAAGGAAGGAAATGTATTTTACC	AATGTAGACTCTGGCCTCATTAC
seq70	CATTCTGACTTCCTGTATGCTACC	GACCTGAGTCTATGAAACACACTC
seq71	TTGTTTCTAAAGTGCTGAGTTTCC	TTTAGCTTGTCGCAGTCAGGG
seq72	CTTCTTTCACTCAGGGATGATGG	TTTAGATAAGGACCACGCTATGAC
seq73	CAGGAGAATGGCGTGAACC	GAGTGCCGAAACTGAGGAAG
seq74	GATGGACGGCGGCATTTTC	ATGGCACCCCTCCGGAG
seq75	TCCCAACCCACGGTG	CTCTGCTTCAGGGGAGAAATTTG
seq76	ACCCACCTCAGGCTG	CGAGGCGCTCCAATTGG

2 Primers for plasmid construction.

Primers	Sequences (5'-3')
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H_*POLE* WT

Primer-F1 TTGGTACCGAGCTCGGATCCGCCACCATGTCTCTGAGGAGCGGCG

Primer-R1 AATAATAGTCAACAGCGCTACCTAAGCGCTTATCTTCATCTAAAATCTCG

Primer-F2 TAGCGCTGTTGACTATTATTTTATTCAAGATGACGGAAGCAGATTTAAGG

Primer-R2 GCTGGATATCTGCAGAATTCCTAATGGCCCAGCTGTGGGT

H_*POLE*-P286R

Primer-F1 TTGGTACCGAGCTCGGATCCGCCACCATGTCTCTGAGGAGCGGCG

Primer-R1 GTCTCAGCATCTCGAAACTTGAGGGGCAGTTTGGTC

Primer-F2 AAGTTTCGAGATGCTGAGACAGACCAGATTATGATGA

Primer-R2 GCTGGATATCTGCAGAATTCCTAATGGCCCAGCTGTGGGT

H_*POLE*-V411L

Primer-F1 TTGGTACCGAGCTCGGATCCGCCACCATGTCTCTGAGGAGCGGCG

Primer-R1 TCTTGAGCCACCTGAGGCAGTCCATGTG

Primer-F2 CTGCCTCAGGTGGCTCAAGAGGGACAGTTACCTTCCTGTGG

Primer-R2 GCTGGATATCTGCAGAATTCCTAATGGCCCAGCTGTGGGT

H_ *POLE*-R375Q

Primer-F1 TTGGTACCGAGCTCGGATCCGCCACCATGTCTCTGAGGAGCGGCG

Primer-R1 AGACCGTGGACTGCTGCCTGGGCCTCCACAAATGGCCA

Primer-F2 AGGCAGCAGTCCACGGTCTG

Primer-R2 GCTGGATATCTGCAGAATTCCTAATGGCCCAGCTGTGGGT

H_ *POLE*-P452L

Primer-F1 TTGGTACCGAGCTCGGATCCGCCACCATGTCTCTGAGGAGCGGCG

Primer-R1 GCCAGAGTCTGCAGCTGCTCCGTGGCCATCCG

Primer-F2 AGCAGCTGCAGACTCTGGCCACGTATTCTGTG

Primer-R2 GCTGGATATCTGCAGAATTCCTAATGGCCCAGCTGTGGGT

3 shRNA sequences against *POLE*.

shRNA	Sequence (5'-3')
shRNA1	GCAGTGCAGTGGATTACTACT
shRNA2	GCTGAGACAGACCAGATTATG
shRNA3	GCTCTTCCCTTCAAGACTTTG
shRNA4	GGGAATTTCTTCTCTGGATGG

4 Quantitative real-time PCR primers

Gene	Sequence (5'-3')
GAPDH-F	GTCTCCTCTGACTTCAACAGCG
GAPDH-R	ACCACCCTGTTGCTGTAGCCAA
POLE-F	GGTGGGTGAAGAGGGACAGTTA
POLE-R	AGGTAGTAAGTGGCGACAGCATC
MLH1-F	CTTCGTGGGCTGTGTGAATCC
MLH1-R	CTAAGGCAAGCATGGCAAGGTC
MSH2-F	GATCATCACTTCGGTGGTCAGT
MLH2-R	GCCATTACAGGTGCATCAACAG
