

The E288K Colon Tumor Variant of DNA Polymerase Beta Is a Sequence Specific Mutator (Supporting Information)

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Table S1. PCR and Sequencing Primers

Primer	Sequence (5' to 3')	Purpose
E288K F	GAGAGCGCATGCCCTG AAA AAGGGCTTCAC	Mutagenenic PCR primers used in the site-directed mutagenesis reaction for the E288K variant. ¹
E288K R	GTGAAGCCCTT TTT CAGGGCATGCGCTCTC	
cII F	ACCACACCTATGGTGTATGCA	PCR and sequencing primers for the <i>λcII</i> gene.
cII R	GTCAATAAGACTCCTGTTGA	

¹ Codon 288 is shown in **bold** with the mutation underlined.

Table S2. DNA Oligonucleotides

DNA oligonucleotides that were used to construct the one-base gapped DNA substrates (Table 1) used in this study.

Oligo	Sequence 5' to 3'
AP	GGATTTGTTTCAGAACGCTCGGT
AD	GCCGCCGGGCGTTTGTATTGG
AT	CCAATAACAAACGCCCGGCGCAACCGAGCGTTCTGAACAAATCC
CP	TCTTGAATGGTGGGTCGTTGAC
CD	ACGACATGGCTCGATTGGCGCG
CT	CGCGCCAATCGAGCCATGTCGTCGTCAACGACCCACCATTCAAGA
GP	CGCGCCAATCGAGCCATGTCGT
GD	GTCAACGACCCACCATTCAAGA
GT	TCTTGAATGGTGGGTCGTTGACGACGACATGGCTCGATTGGCGCG
TP	CCAATAACAAACGCCCGGCGGC
TD	TCCGAGCGTTCTGAACAAATCC
TT	GGATTTGTTTCAGAACGCTCGGATGCCGCCGGGCGTTTGTATTGG

Figure S1. Circular Dichroism Spectra (a) and Thermal Denaturation Curves (b)

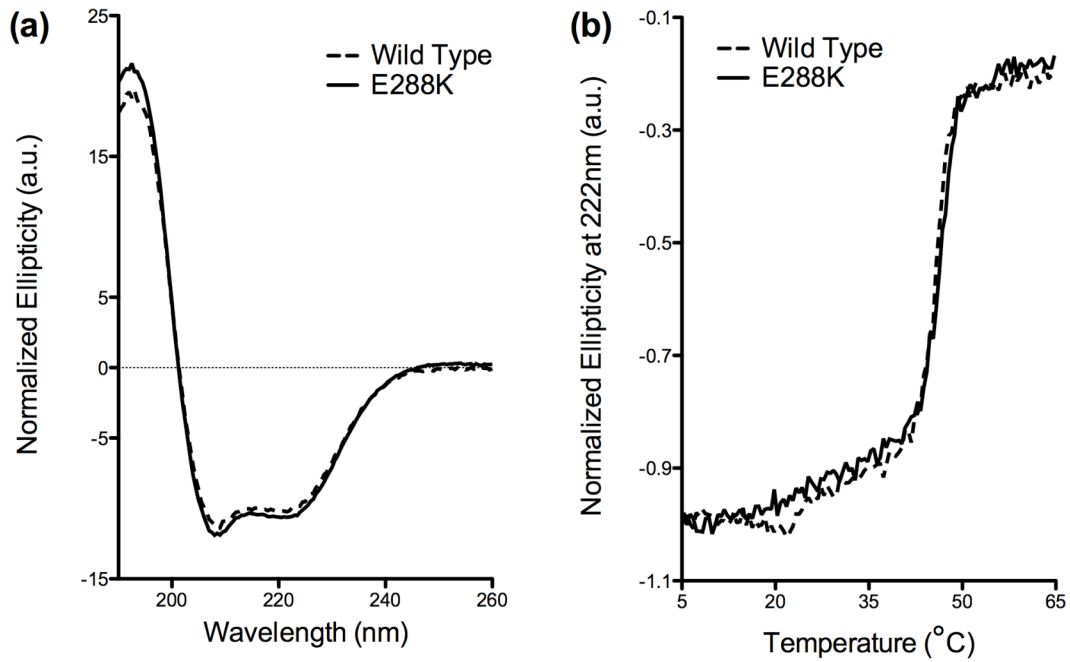


Figure S2. Pol Beta Expression in C127λb Cells

Western blot for pol beta. Exogenous HA-tagged pol beta E288K (pol beta-HA) is only expressed in the absence of Tet (NT), while endogenous wild-type pol beta (pol beta) can be seen in both Tet (T) and NoTet (NT) samples.

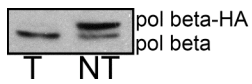


Figure S3. *λcII* Mutation Spectrum

DNA from cells either exogenously expressing E288K (NoTet) or not (Tet) was packaged into phage and DNA from mutant plaques was isolated, amplified, and sequenced. Mutations found in the *cII* gene of mutant plaques are compiled on the wild-type *cII* gene sequence. Mutations found in the DNA from cells expressing E288K (NoTet) are in red above the wild-type sequence, and mutations found in the DNA from cells not expressing E288K (Tet) are in blue below the wild-type sequence. (△ - one-base deletion; ▲ - one-base insertion)

