

**Table S1.** Kinetic parameters  $k_{pol}$  (1/s) for base pairings when the previously inserted nucleotide pair is a correct Watson-Crick pair [1].

<b>Base pairings</b>	<b>T</b>	<b>G</b>	<b>C</b>	<b>A</b>
<b>A</b>	25	0.08	0.1	0.0036
<b>C</b>	0.012	37	0.003	0.1
<b>G</b>	0.16	0.066	43	0.042
<b>T</b>	0.013	1.16	0.038	45

The identity of the template strand nucleotide is given in the rows (in the order A, C, G, T from top to bottom). The identity of the nucleotide inserted in the new DNA strand is given on the columns (in the order T, G, C, A from left to right).

## REFERENCES

1. Johnson AA, Johnson KA (2001) Fidelity of nucleotide incorporation by human mitochondrial DNA polymerase. *Journal of Biological Chemistry* 276: 38090-38096.