

Figure Captions

Figure S1. Map of recombinant plasmid pQE-30 of T7 WT.

Figure S2. CE analysis of mRNA integrity which transcribed by T7 RNAP G47A+884G.

Table Captions

Table S1. mRNA integrity and the yield of mRNA products (The experiments were replicated ≥ 3 times; error bars represent \pm SD).

Sequence Captions

SEQ NO.1. Optimized cDNA sequence of T7 RNA WT.

SEQ NO.2. Amino acids sequence of T7 RNAP WT.

SEQ NO.3. Original DNA template sequence.

SEQ NO.4. 512B sequence (5'-3').

SEQ NO.5. 30 nt.

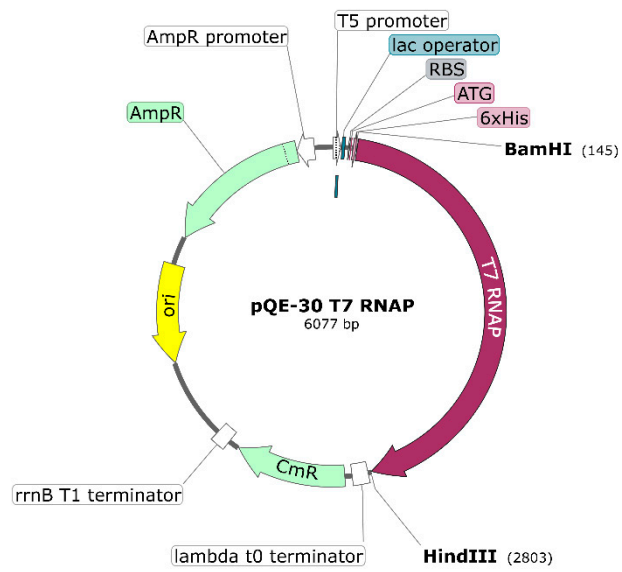


Figure S1. Map of recombinant plasmid pQE-30 of T7 WT.

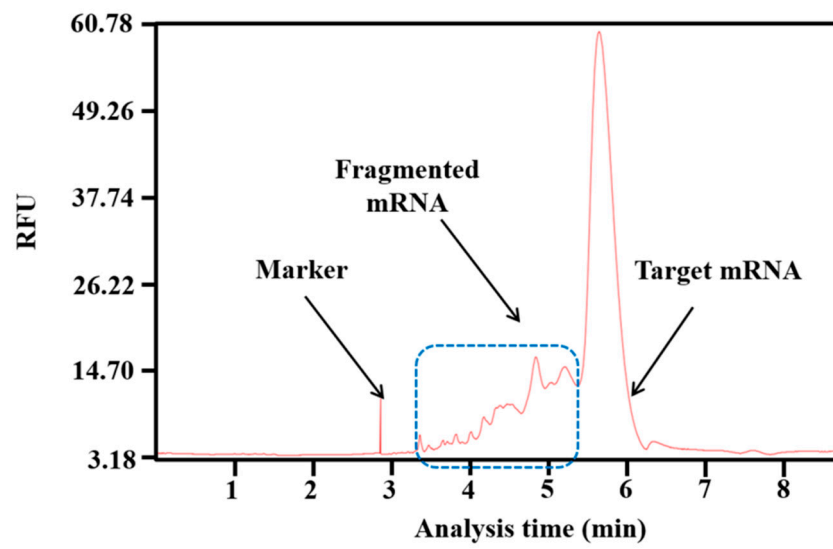


Figure S2. CE analysis of mRNA integrity which transcribed by T7 RNAP G47A+884G.

Table S1. mRNA integrity and the yield of mRNA products.

(The experiments were replicated ≥ 3 times; error bars represent \pm SD).

Substitutions	mRNA Integrity (%)	Yield of mRNA products (μ g)	Relative dsRNA content (%)
WT-U	85.75 \pm 0.88	228.80 \pm 2.34	100.00 \pm 14.78
G753A-U	81.28 \pm 0.69	230.69 \pm 5.24	17.76 \pm 1.37
G753M-U	62.00 \pm 0.42	220.20 \pm 3.17	189.70 \pm 20.27
G753N-U	82.85 \pm 1.31	221.93 \pm 30.20	22.04 \pm 2.81
G753C-U	74.73 \pm 3.87	137.39 \pm 3.71	29.39 \pm 2.06
G753Q-U	80.98 \pm 0.25	228.73 \pm 6.48	21.67 \pm 2.02
G753W-U	39.90 \pm 0.85	190.88 \pm 7.65	63.91 \pm 7.66
T763A-U	84.15 \pm 0.07	226.75 \pm 3.87	677.30 \pm 65.36
G47A+884G-U	76.15 \pm 2.83	45.72 \pm 27.13	/
G753A+K389A-U	85.98 \pm 0.93	239.62 \pm 19.96	20.12 \pm 1.81
WT-m1 Ψ	83.38 \pm 0.44	227.84 \pm 4.50	20.76 \pm 1.53
G753A- m1 Ψ	77.08 \pm 1.41	223.63 \pm 11.47	2.74 \pm 0.18
G753A+K389A- m1 Ψ	84.10 \pm 1.75	224.03 \pm 10.17	2.20 \pm 0.26

Sequences

SEQ NO.1. Optimized cDNA sequence of T7 RNA WT

ATGAATACAATTAACATAGCTAAAAATGATTTTCAGCGATATTGAACTGGCTG
CGATCCCGTTTAATACCTTGGCGGACCATTATGGTGAGCGTCTGGCGCGTGA
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SEQ NO.2. Amino acids sequence of T7 RNAP WT

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SEQ NO.3. Original DNA template sequence

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SEQ NO.4. 512B sequence (5'-3')

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SEQ NO.5. 30nt

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