Achieve precise PAGE mRNA poly(A) tail length analysis

EZ-QC™ mRNA Poly(A) Tail Length Assay Kit

Product Intro

3′-End polyadenylation is a critical modification that influences mRNA stability and expression levels, with longer tails generally providing increased stability and translation efficiency. Tail length analyses using reverse transcription, PCR, or RNase H digestion are tedious and time consuming, and LC-MS analysis has strict size limitations. The EZ-QC™ mRNA Poly(A) Tail Length Assay Kit uses fluorescence-based PAGE to simplify analysis and allow for precise poly(A) tail length quantitation without size limitations.

Benefits

- **Versatile:** Assess poly(A) tail lengths up to ~500 bases.
- **Budget-friendly:** Uses common PAGE lab equipment to perform QC analysis, in contrast to specialized instrumentation, such as LC-MS.
- **One-day analysis:** Complete poly(A) tail length analysis in less than one day.
- **High precision:** Proprietary Poly(A) 20-mer Ladder provides precise sizing of poly(A) tail length.
- **High specificity:** RNase A digestion of mRNA products ensures analysis of only poly(A) tails.

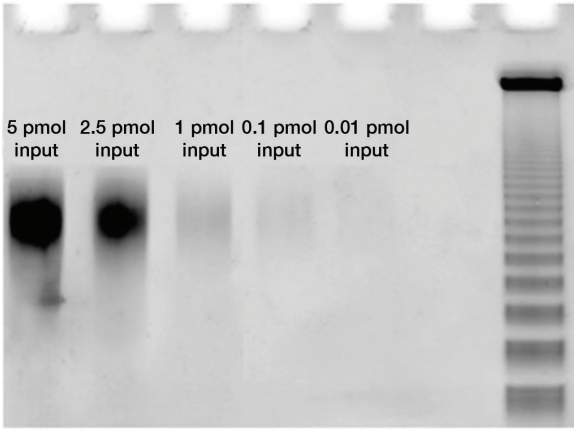
Product Description

The EZ-QC™ mRNA Poly(A) Tail Length Assay is a novel method combining RNase digestion and polyacrylamide gel electrophoresis (PAGE) enhanced with a proprietary RNA Poly(A) 20-mer Ladder, offering a reliable and straightforward solution for researchers. RNase A is used to selectively digest non-adenine residues in the mRNA sample, leaving only poly(A) tails intact. PAGE is used to separate poly(A) tails based on size, providing high-resolution analysis of RNA fragments. The inclusion of the Poly(A) 20-mer Ladder serves as a molecular weight marker, facilitating precise measurement of poly(A) tail lengths.

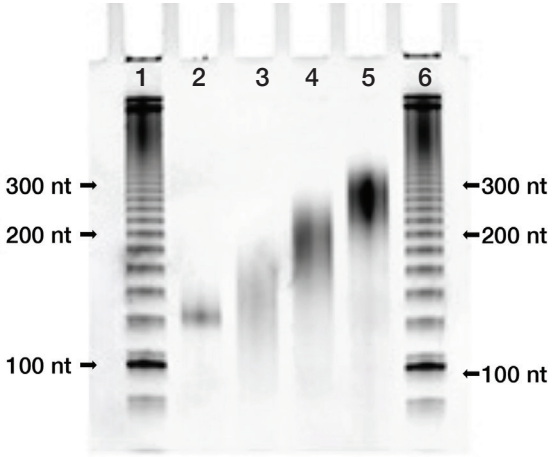
For determination of percent capped RNA content, CELLSCRIPT™ also offers the EZ-QC™ XBG mRNA Capping Efficiency Assay Kit (for mRNA with an XBG 5′ UTR), EZ-QC™ mRNA Capping Efficiency Assay Kit (for mRNA with any known 5′ UTR sequence) and EZ-QC™ mRNA Cap 1 Efficiency Assay Kit for complete mRNA characterization.

Product Performance

Figure 1. Input titration of EZ-QC™ mRNA Poly(A) Tail Length Assay Kit. As little as 0.1 pmol mRNA input is detectable and measurable using gel analysis software. Input poly(A)-tailed RNA amounts can be easily modified depending on sample availability.



Quantitative detection



Lane 1: EZ-QC™ Poly(A) 20-mer Ladder
Lane 2: 120 nt poly(A) tail (template encoded)
Lane 3: 136 nt poly(A) tail (15 min enzymatic addition)
Lane 4: 193 nt poly(A) tail (30 min enzymatic addition)
Lane 5: 261 nt poly(A) tail (60 min enzymatic addition)
Lane 6: EZ-QC™ Poly(A) 20-mer Ladder

Figure 2A: Polyacrylamide gel showing poly(A) tail lengths ranging from 120 nt to 261 nt from the EZ-QC™ mRNA Poly(A) Tail Length Assay Kit. A single assay run can resolve a wide variety of different tail lengths and sample tail types.

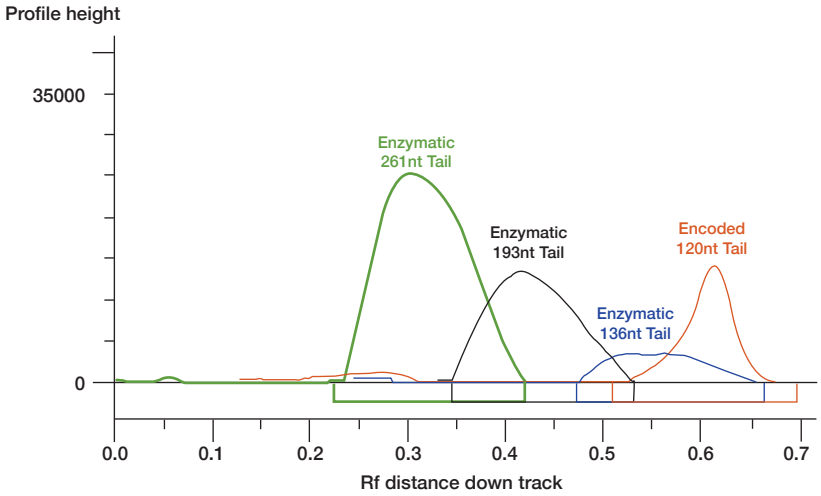


Figure 2B: Distribution of signal from analysis of the polyacrylamide gel with average tail lengths calculated. The tail length is accompanied by a correlation in the overall peak uniformity and signal intensity to help determine optimal enzymatic conditions.

Ordering information

Catalog Number	Description
PAT240910	EZ-QC™ mRNA Poly(A) Tail Length Assay Kit (10 reactions)

Visit **cellscript.com** for more information