

Enzymatic RNA production

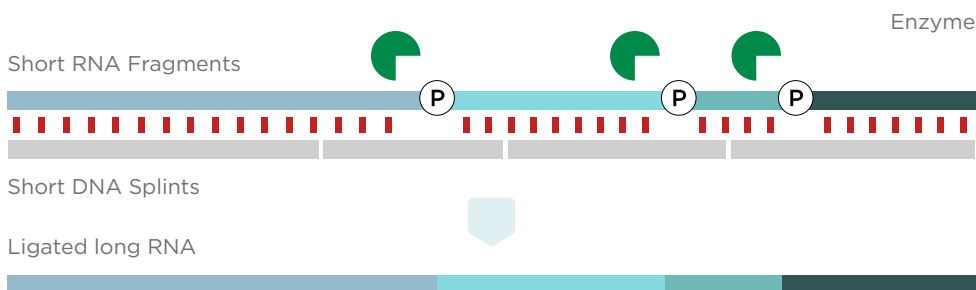


Long chain RNA production

Over 600 mer RNA production with chemical modification.

Summary of Production:

- **Concept: To obtain long chain RNAs in high yield & quality**



WO2024048684 Method For Producing Nucleic Acid Molecule

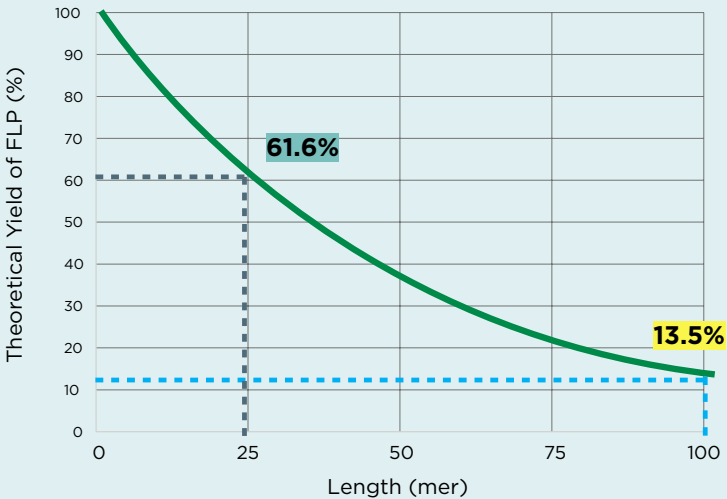
Providing long RNAs such as sgRNA and pre-miRNA

- With chemical modification (2'-F, 2'-MOE, LNA etc.).
- For analytical standard etc.

• Introduction: Chemical Synthesis vs Enzymatic Ligation

Long chain RNAs are obtained in higher yield by enzymatic ligation.

Yield of Chemical Synthesis
(Coupling efficiency: 98.0%/elongation)



100 MER SYNTHESIS

Solid Phase

13.5% yield

Solid phase synthesis of the 25 mer fragments

61.6%

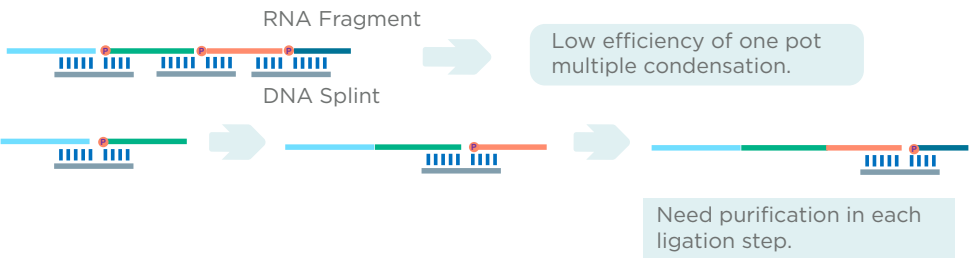
Enzymatic
Ligation

90%

$61.6\% \times 0.9 \times 0.9 \times 0.9 = 44.9\% \text{ yield}$

• Conventional Ligation Methods
of Long RNA Production from Fragments

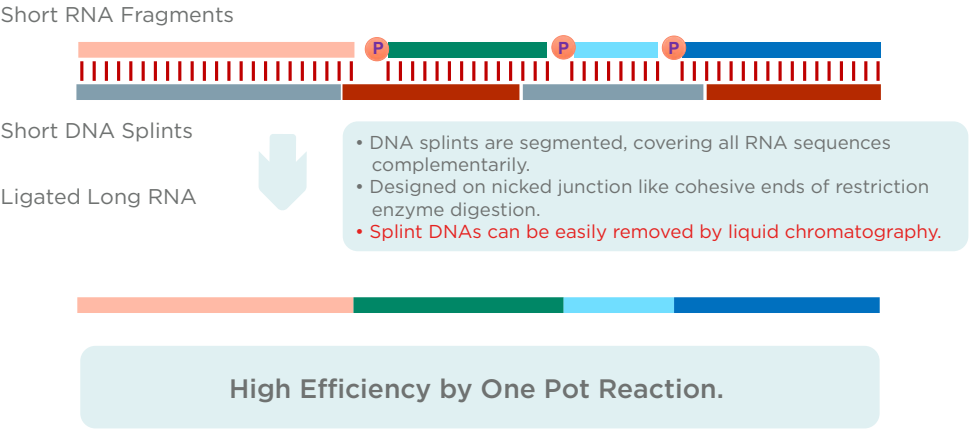
Conventional Method - 1



Conventional Method - 2

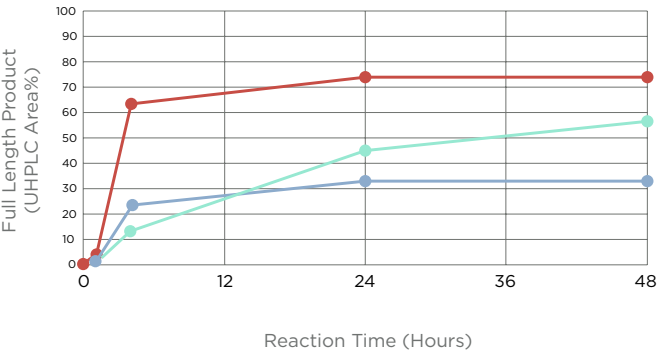
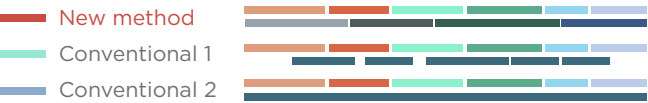


• New Method of Long RNA Production from Fragments



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• 100 mer ssRNA Synthesis: UHPLC Analysis of the Products



This new method for multiple ligation on long RNA production is superior to conventional methods.