

**Technical Note** 

# Elevate<sup>™</sup> and Adept<sup>™</sup> Workflow Sequences

Library prep primer and oligo sequences with library structure and plate layouts

### Introduction

The Element AVITI™ System is compatible with the Element Elevate Library Prep Workflow and Element Adept Library Compatibility Workflow. Library design can pose certain challenges, such as compatibility, custom primers, custom libraries, and low-diversity amplicon sequencing. This technical note provides sequences associated with both workflows to help optimize next-generation sequencing experiments.

## Elevate library design

The Elevate Workflow prepares libraries that include Read 1 and Read 2 sequencing primers and SP5 and SP27 outer primers (Table 1). Figure 1 presents the library structure, which adds three random and diverse bases to the 9 bp Index 1 sequence.

#### Sequencing Primers

Read 15' CGTGCTGGATTGGCTCACCAGACACCTTCCGACAT

Read 2 5' AGTTGACAAGCGGTAGCCTGCACACCTTCCGACAT

**Outer Primers** 

SP5 5' Phosphate-CATGTAATGCACGTACTTTCAGGGT

SP27 5' GATCAGGTGAGGCTGCGACGACT

Table 1. Elevate primer sequences

## Adept library design

The Adept Workflow circularizes a library prepared with a third-party assay and anneals a long and short splint oligo. The resulting library includes third-party indexes and adapters and an Element short splint oligo (Figure 2).

## Adapter plate layouts

The Elevate Workflow includes two index and adapter formats: a short adapter with an index plate containing a pair of index primers in each well to add indexes via PCR and an adapter plate containing a ligation-based long adapter with unique dual indexes (UDIs) in each well. The *Element Elevate Library Prep Workflow Guide (MA-OOO4)* depicts the plate layout. Although the contents are different, both plates share a layout with OO1 in well A1 through O96 in well H12:

- The Elevate Index and Adapter Kit provides primers EIP\_UA\_001 through EIP\_UA\_096.
- The Elevate Long UDI Adapter Kit Set A provides adapters ELP\_UA\_001 through ELP\_UA\_096.

### Conclusion

An Elevate library is comprised exclusively of Element components while an Adept library supports third-party components. Knowledge of library structure and sequences can help labs design new assays and facilitate research.



Figure 1. An Elevate library includes sequencing primers, outer primers, and UDIs. RC indicates a reverse complement.

#### Long Splint

5'-TCGCCGTATCATTACCCTGAAAGTACGTGCATTACATGGATCAGGTGAGGCTGCGACGACTCAAGCAGAAGACGGCATACGA-3'

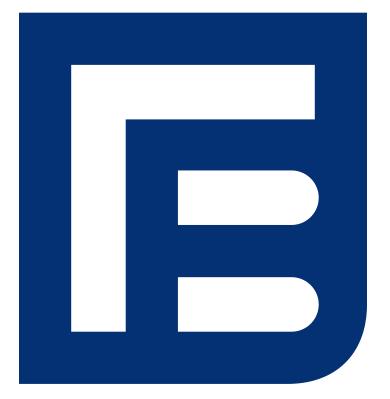
#### **Short Splint**

5'-AGTCGTCGCAGCCTCACCTGATCCATGTAATGCACGTACTTTCAGGGT

Figure 2. An Adept library anneals both a long and short splint oligo.

# For us, sequencing is only the beginning.

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