

# Illumina Adapter Sequences

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## Introduction

This document lists the index adapter sequences for Illumina library prep kits. The sequences are grouped into sections for AmpliSeq for Illumina, TruSight kits, Nextera kits, and TruSeq kits, with an appendix that lists TruSeq controls and information for legacy Illumina kits.

Sequencing on the MiniSeq, NextSeq, and HiSeq 3000/4000 systems follow a different dual-indexing workflow than other Illumina systems, which requires the reverse complement of the i5 index adapter sequence.

- If you are creating a sample sheet manually for the MiniSeq, NextSeq, or HiSeq 3000/4000 systems, include the reverse complement of the sequence on your sample sheet.
- If you are using the Illumina Experiment Manager (IEM), BaseSpace Prep tab, or Local Run Manager to record the adapter sequences, the software creates the reverse complement automatically.

## AmpliSeq for Illumina Panels

AmpliSeq Comprehensive Cancer Panel for Illumina, AmpliSeq Cancer HotSpot Panel v2 for Illumina, AmpliSeq Focus Panel for Illumina, AmpliSeq Comprehensive Panel v3 for Illumina, AmpliSeq BRCA Panel for Illumina, AmpliSeq Immune Response Panel for Illumina, AmpliSeq Transcriptome Human Gene Expression Panel for Illumina, AmpliSeq Exome Panel for Illumina, AmpliSeq Custom DNA Panel for Illumina.

These combinatorial dual index adapters have been arranged in the plate to enforce the recommended pairing strategy.

### Index 1 (i7) Adapters

CAAGCAGAAGACGGCATACGAGAT [ i 7 ] GTCTCGTGGGCTCGGAGATGTGTATAAGAGACAG

### Index 2 (i5) Adapters

AATGATACGGCGACCACCGAGATCTACAC [ i 5 ] TCGTCGGCAGCGTCAGATGTGTATAAGAGACAG

### Adapter Trimming

The following sequence is needed for adapter trimming.

CTGTCTCTTATACACATCT

### Index 1 (i7) Adapters

i7 Index Name	i7 Bases for Sample Sheet
Q7005	GTGAATAT
Q7006	ACAGGCGC
Q7007	CATAGAGT
Q7008	TGCGAGAC
Q7015	TCTCTACT
Q7016	CTCTCGTC
Q7017	CCAAGTCT

i7 Index Name	i7 Bases for Sample Sheet
Q7018	TTGGACTC
Q7023	GCAGAATT
Q7024	ATGAGGCC
Q7025	ACTAAGAT
Q7026	GTCGGAGC

## Index 2 (i5) Adapter

i5 Index Name	i5 Bases for Sample Sheet MiSeq	i5 Bases for Sample Sheet MiniSeq, NextSeq
Q5001	AGCGCTAG	CTAGCGCT
Q5002	GATATCGA	TCGATATC
Q5007	ACATAGCG	CGCTATGT
Q5008	GTGCGATA	TATCGCAC
Q5009	CCAACAGA	TCTGTTGG
Q5010	TTGGTGAG	CTCACCAA
Q5013	AACCGCGG	CCGCGGTT
Q5014	GGTTATAA	TTATAACC

## TruSight Amplicon Panels

Includes TruSight Myeloid Sequencing Panel and TruSight Tumor 26.

## Index 1 (i7) Adapters

i7 Index Name	i7 Bases for Sample Sheet
A701	ATCACGAC
A702	ACAGTGGT
A703	CAGATCCA
A704	ACAAACGG
A705	ACCCAGCA
A706	AACCCCTC

i7 Index Name	i7 Bases for Sample Sheet
A707	CCCAACCT
A708	CACCACAC
A709	GAAACCCA
A710	TGTGACCA
A711	AGGGTCAA
A712	AGGAGTGG

## Index 2 (i5) Adapter

i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
A501	TGAACCTT	AAGGTTCA
A502	TGCTAAGT	ACTTAGCA
A503	TGTTCTCT	AGAGAACA
A504	TAAGACAC	GTGTCTTA
A505	CTAATCGA	TCGATTAG
A506	CTAGAACA	TGTTCTAG
A507	TAAGTTCC	GGAACCTA
A508	TAGACCTA	TAGGTCTA

## TruSight Cardio

## Index 1 (i7) Adapters

i7 Index Name	i7 Bases for Sample Sheet
N701	TAAGGCGA
N702	CGTACTAG
N703	AGGCAGAA
N704	TCCTGAGC
N705	GGACTCCT
N706	TAGGCATG

i7 Index Name	i7 Bases for Sample Sheet
N707	CTCTCTAC
N708	CAGAGAGG
N709	GCTACGCT
N710	CGAGGCTG
N711	AAGAGGCA
N712	GTAGAGGA

## Index 2 (i5) Adapter

i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet NextSeq, HiSeq 3000/4000
E502	CTCTCTAT	ATAGAGAG
E503	TATCCTCT	AGAGGATA
E504	AGAGTAGA	TCTACTCT
E505	GTAAGGAG	CTCCTTAC

## TruSight One

## Index 1 (i7) Adapters

i7 Index Name	i7 Bases for Sample Sheet
N701	TAAGGCGA
N702	CGTACTAG
N703	AGGCAGAA
N704	TCCTGAGC
N705	GGA CTCCT
N706	TAGGCATG
N707	CTCTCTAC
N708	CAGAGAGG
N709	GCTACGCT
N710	CGAGGCTG



**i7 Index Name                      i7 Bases for Sample Sheet**

N711	AAGAGGCA
N712	GTAGAGGA

## Index 2 (i5) Adapter

<b>i5 Index Name</b>	<b>i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500</b>	<b>i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000</b>
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E502	CTCTCTAT	ATAGAGAG
E503	TATCCTCT	AGAGGATA
E504	AGAGTAGA	TCTACTCT
E505	GTAAGGAG	CTCCTTAC

## TruSight Rapid Capture

Includes TruSight Cancer and TruSight Inherited Disease.

## Index 1 (i7) Adapters

**i7 Index Name                      i7 Bases for Sample Sheet**

N701	TAAGGCGA
N702	CGTACTAG
N703	AGGCAGAA
N704	TCCTGAGC
N705	GGA CTCCT
N706	TAGGCATG
N707	CTCTCTAC
N708	CAGAGAGG
N709	GCTACGCT
N710	CGAGGCTG
N711	AAGAGGCA
N712	GTAGAGGA

## Index 2 (i5) Adapter

i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
E501	TAGATCGC	GCGATCTA
E502	CTCTCTAT	ATAGAGAG
E503	TATCCTCT	AGAGGATA
E504	AGAGTAGA	TCTACTCT
E505	GTAAGGAG	CTCCTTAC
E506	ACTGCATA	TATGCAGT
E507	AAGGAGTA	TACTCCTT
E508	CTAAGCCT	AGGCTTAG

## TruSight Tumor 15

## Index 1 (i7) Adapters

i7 Index Name	i7 Bases for Sample Sheet
R701	ATCACG
R702	CGATGT
R703	TTAGGC
R704	TGACCA
R705	ACAGTG
R706	GCCAAT
R707	CAGATC
R708	ACTTGA
R709	GATCAG
R711	GGCTAC
R712	CTTGTA

## Index 2 (i5) Adapter

i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
A501	TGAACCTT	AAGGTTCA
A502	TGCTAAGT	ACTTAGCA

## TruSight RNA Pan-Cancer Panel

## Universal Adapter

5' AATGATACGGCGACCACCGAGATCTACACTCTTTCCCTACACGACGCTCTTCCGATCT

Adapter, Index 1–12

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[6 bases]ATCTCGTATGCCGTCTTCTGCTTG

Adapter, Index 13

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[6 bases]CAATCTCGTATGCCGTCTTCTGCTTG

Adapter, Index 14

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[6 bases]GTATCTCGTATGCCGTCTTCTGCTTG

Adapter, Index 15 and Index 21

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[6 bases]GAATCTCGTATGCCGTCTTCTGCTTG

Adapter, Index 16 and Index 19

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[6 bases]CGATCTCGTATGCCGTCTTCTGCTTG

Adapter, Index 18

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[6 bases]ACATCTCGTATGCCGTCTTCTGCTTG

Adapter, Index 20 and Index 27

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[6 bases]TTATCTCGTATGCCGTCTTCTGCTTG

Adapter, Index 22

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[6 bases]TAATCTCGTATGCCGTCTTCTGCTTG

Adapter, Index 23 and Index 25

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[6 bases]ATATCTCGTATGCCGTCTTCTGCTTG

## Index Adapters

In this set of adapters, index numbering does not include numbers 17, 24, or 26.

LT Set A/B	Index Name	6-Base Sequence for Sample Sheet
B	AR001	ATCACG
A	AR002	CGATGT

LT Set A/B	Index Name	6-Base Sequence for Sample Sheet
B	AR003	TTAGGC
A	AR004	TGACCA
A	AR005	ACAGTG
A	AR006	GCCAAT
A	AR007	CAGATC
B	AR008	ACTTGA
B	AR009	GATCAG
B	AR010	TAGCTT
B	AR011	GGCTAC
A	AR012	CTTGTA
A	AR013	AGTCAA
A	AR014	AGTTCC
A	AR015	ATGTCA
A	AR016	CCGTCC
A	AR018	GTCCGC
A	AR019	GTGAAA
B	AR020	GTGGCC
B	AR021	GTTTCG
B	AR022	CGTACG
B	AR023	GAGTGG
B	AR025	ACTGAT
B	AR027	ATTCCT

## Illumina Nextera Adapters

### Nextera Transposase Adapters

(Used for Nextera tagmentation)

#### Read 1

5' TCGTCGGCAGCGTCAGATGTGTATAAGAGACAG

#### Read 2

5' GTCTCGTGGGCTCGGAGATGTGTATAAGAGACAG

### Nextera Index Kit – PCR Primers

#### Index 1 Read

5' CAAGCAGAAGACGGCATACGAGAT[i7]GTCTCGTGGGCTCGG

#### Index 2 Read

5' AATGATACGGCGACCACCGAGATCTACAC[i5]TCGTCGGCAGCGTC

### Nextera Index Kit - Index 1 (i7) Adapters

Bases in Adapter	i7 Index Name	i7 Bases for Sample Sheet
TCGCCTTA	N701	TAAGGCGA
CTAGTACG	N702	CGTACTAG
TTCTGCCT	N703	AGGCAGAA
GCTCAGGA	N704	TCCTGAGC
AGGAGTCC	N705	GGACTCCT
CATGCCTA	N706	TAGGCATG
GTAGAGAG	N707	CTCTCTAC
CCTCTCTG	N708	CAGAGAGG
AGCGTAGC	N709	GCTACGCT
CAGCCTCG	N710	CGAGGCTG
TGCCTCTT	N711	AAGAGGCA
TCCTCTAC	N712	GTAGAGGA

## Nextera Index Kit - Index 2 (i5) Adapters

The i5 index names vary for different Nextera products.

- N50x—Nextera DNA
- S50x—Nextera XT
- H50x—Nextera DNA Flex
- E50x—Nextera Enrichment and Nextera Rapid Capture Enrichment

Bases in Adapter	i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
TAGATCGC	[N/S/E]501	TAGATCGC	GCGATCTA
CTCTCTAT	[N/S/E]502	CTCTCTAT	ATAGAGAG
TATCCTCT	[N/S/E]503	TATCCTCT	AGAGGATA
AGAGTAGA	[N/S/E]504	AGAGTAGA	TCTACTCT
GTAAGGAG	[N/S/E]505	GTAAGGAG	CTCCTTAC
ACTGCATA	[N/S/E]506	ACTGCATA	TATGCAGT
AAGGAGTA	[N/S/E]507	AAGGAGTA	TACTCCTT
CTAAGCCT	[N/S/E]508	CTAAGCCT	AGGCTTAG
GCGTAAGA	[N/S/E]517	GCGTAAGA	TCTTACGC

## Nextera XT Index Kit v2 - Index 1 (i7) Adapters

Bases in Adapter	i7 Index Name	i7 Bases for Sample Sheet
TCGCCTTA	N701	TAAGGCCGA
CTAGTACG	N702	CGTACTAG
TTCTGCCT	N703	AGGCAGAA
GCTCAGGA	N704	TCCTGAGC
AGGAGTCC	N705	GGACTCCT
CATGCCTA	N706	TAGGCATG
GTAGAGAG	N707	CTCTCTAC
CAGCCTCG	N710	CGAGGCTG
TGCCTCTT	N711	AAGAGGCA
TCCTCTAC	N712	GTAGAGGA

Bases in Adapter	i7 Index Name	i7 Bases for Sample Sheet
TCATGAGC	N714	GCTCATGA
CCTGAGAT	N715	ATCTCAGG
TAGCGAGT	N716	ACTCGCTA
GTAGCTCC	N718	GGAGCTAC
TACTACGC	N719	GCGTAGTA
AGGCTCCG	N720	CGGAGCCT
GCAGCGTA	N721	TACGCTGC
CTGCGCAT	N722	ATGCGCAG
GAGCGCTA	N723	TAGCGCTC
CGCTCAGT	N724	ACTGAGCG
GTCTTAGG	N726	CCTAAGAC
ACTGATCG	N727	CGATCAGT
TAGCTGCA	N728	TGCAGCTA
GACGTCGA	N729	TCGACGTC

## Nextera XT Index Kit v2 - Index 2 (i5) Adapters

Bases in Adapter	i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
CTCTCTAT	S502	CTCTCTAT	ATAGAGAG
TATCCTCT	S503	TATCCTCT	AGAGGATA
GTAAGGAG	S505	GTAAGGAG	CTCCTTAC
ACTGCATA	S506	ACTGCATA	TATGCAGT
AAGGAGTA	S507	AAGGAGTA	TACTCCTT
CTAAGCCT	S508	CTAAGCCT	AGGCTTAG
CGTCTAAT	S510	CGTCTAAT	ATTAGACG
TCTCTCCG	S511	TCTCTCCG	CGGAGAGA
TCGACTAG	S513	TCGACTAG	CTAGTCGA

Bases in Adapter	i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
TTCTAGCT	S515	TTCTAGCT	AGCTAGAA
CCTAGAGT	S516	CCTAGAGT	ACTCTAGG
GCGTAAGA	S517	GCGTAAGA	TCTTACGC
CTATTAAG	S518	CTATTAAG	CTTAATAG
AAGGCTAT	S520	AAGGCTAT	ATAGCCTT
GAGCCTTA	S521	GAGCCTTA	TAAGGCTC
TTATGCGA	S522	TTATGCGA	TCGCATAA

## Nextera DNA CD Indexes - Index 1 (i7) Adapters

Bases in Adapter	i7 Index Name	i7 Bases for Sample Sheet
TCGCCTTA	H701	TAAGGCGA
CTAGTACG	H702	CGTACTAG
TTCTGCCT	H703	AGGCAGAA
AGGAGTCC	H705	GGACTCCT
CATGCCTA	H706	TAGGCATG
GTAGAGAG	H707	CTCTCTAC
CAGCCTCG	H710	CGAGGCTG
TGCCTCTT	H711	AAGAGGCA
TCCTCTAC	H712	GTAGAGGA
TCATGAGC	H714	GCTCATGA
AGGCTCCG	H720	CGGAGCCT
GAGCGCTA	H723	TAGCGCTC



## Nextera DNA CD Indexes - Index 2 (i5) Adapters

Bases in Adapter	i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
TATCCTCT	H503	TATCCTCT	AGAGGATA
GTAAGGAG	H505	GTAAGGAG	CTCCTTAC
ACTGCATA	H506	ACTGCATA	TATGCAGT
CGTCTAAT	H510	CGTCTAAT	ATTAGACG
TCGACTAG	H513	TCGACTAG	CTAGTCGA
CCTAGAGT	H516	CCTAGAGT	ACTCTAGG
GCGTAAGA	H517	GCGTAAGA	TCTTACGC
TTATGCGA	H522	TTATGCGA	TCGCATAA

## IDT for Illumina UD Indexes

These unique dual (UD) index adapters have been duplexed in the plate to enforce the recommended pairing strategy.

## Index 1 (i7) Adapters

GATCGGAAGAGCACACGTCTGAACTCCAGTCAC [ i7 ] ATCTCGTATGCCGTCTTCTGCTTG

## Index2 (i5) Adapters

AATGATACGGCGACCACCGAGATCTACAC [ i5 ] ACACTCTTTCCCTACACGACGCTCTTCCGATCT

UD Index Name	i7 Bases for Sample Sheet	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
UDI0001	CCGCGGTT	AGCGCTAG	CTAGCGCT
UDI0002	TTATAACC	GATATCGA	TCGATATC
UDI0003	GGACTTGG	CGCAGACG	CGTCTGCG
UDI0004	AAGTCCAA	TATGAGTA	TACTCATA
UDI0005	ATCCACTG	AGGTGCGT	ACGCACCT
UDI0006	GCTTGTCA	GAACATAC	GTATGTTC
UDI0007	CAAGCTAG	ACATAGCG	CGCTATGT
UDI0008	TGGATCGA	GTGCGATA	TATCGCAC

UD Index Name	i7 Bases for Sample Sheet	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
UDI0009	AGTTCAGG	CCAACAGA	TCTGTTGG
UDI0010	GACCTGAA	TTGGTGAG	CTCACCAA
UDI0011	TCTCTACT	CGCGGTTC	GAACCGCG
UDI0012	CTCTCGTC	TATAACCT	AGGTTATA
UDI0013	CCAAGTCT	AAGGATGA	TCATCCTT
UDI0014	TTGGACTC	GGAAGCAG	CTGCTTCC
UDI0015	GGCTTAAG	TCGTGACC	GGTCACGA
UDI0016	AATCCGGA	CTACAGTT	AACTGTAG
UDI0017	TAATACAG	ATATTCAC	GTGAATAT
UDI0018	CGGCGTGA	GCGCCTGT	ACAGGCGC
UDI0019	ATGTAAGT	ACTCTATG	CATAGAGT
UDI0020	GCACGGAC	GTCTCGCA	TGCGAGAC
UDI0021	GGTACCTT	AAGACGTC	GACGTCTT
UDI0022	AACGTTCC	GGAGTACT	AGTACTCC
UDI0023	GCAGAATT	ACCGGCCA	TGGCCGGT
UDI0024	ATGAGGCC	GTTAATTG	CAATTAAC
UDI0025	ACTAAGAT	AACCGCGG	CCGCGGTT
UDI0026	GTCGGAGC	GGTTATAA	TTATAACC
UDI0027	CTTGGTAT	CCAAGTCC	GGACTTGG
UDI0028	TCCAACGC	TTGGACTT	AAGTCCAA
UDI0029	CCGTGAAG	CAGTGGAT	ATCCACTG
UDI0030	TTACAGGA	TGACAAGC	GCTTGTCA
UDI0031	GGCATTCT	CTAGCTTG	CAAGCTAG
UDI0032	AATGCCTC	TCGATCCA	TGGATCGA
UDI0033	TACCGAGG	CCTGAACT	AGTTCAGG
UDI0034	CGTTAGAA	TTCAGGTC	GACCTGAA
UDI0035	AGCCTCAT	AGTAGAGA	TCTCTACT
UDI0036	GATTCTGC	GACGAGAG	CTCTCGTC
UDI0037	TCGTAGTG	AGACTTGG	CCAAGTCT
UDI0038	CTACGACA	GAGTCCAA	TTGGACTC
UDI0039	TAAGTGGT	CTTAAGCC	GGCTTAAG
UDI0040	CGGACAAC	TCCGGATT	AATCCGGA
UDI0041	ATATGGAT	CTGTATTA	TAATACAG

UD Index Name	i7 Bases for Sample Sheet	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
UDI0042	GCGCAAGC	TCACGCCG	CGGCGTGA
UDI0043	AAGATACT	ACTTACAT	ATGTAAGT
UDI0044	GGAGCGTC	GTCCGTGC	GCACGGAC
UDI0045	ATGGCATG	AAGGTACC	GGTACCTT
UDI0046	GCAATGCA	GGAACGTT	AACGTTCC
UDI0047	GTTCCAAT	AATTCTGC	GCAGAATT
UDI0048	ACCTTGGC	GGCCTCAT	ATGAGGCC
UDI0049	ATATCTCG	ATCTTAGT	ACTAAGAT
UDI0050	GCGCTCTA	GCTCCGAC	GTCGGAGC
UDI0051	AACAGGTT	ATACCAAG	CTTGGTAT
UDI0052	GGTGAACC	GCGTTGGA	TCCAACGC
UDI0053	CAACAATG	CTTCACGG	CCGTGAAG
UDI0054	TGGTGGCA	TCCTGTAA	TTACAGGA
UDI0055	AGGCAGAG	AGAATGCC	GGCATTCT
UDI0056	GAATGAGA	GAGGCATT	AATGCCTC
UDI0057	TGCGGCGT	CCTCGGTA	TACCGAGG
UDI0058	CATAATAC	TTCTAACG	CGTTAGAA
UDI0059	GATCTATC	ATGAGGCT	AGCCTCAT
UDI0060	AGCTCGCT	GCAGAATC	GATTCTGC
UDI0061	CGGAACTG	CACTACGA	TCGTAGTG
UDI0062	TAAGGTCA	TGTCGTAG	CTACGACA
UDI0063	TTGCCTAG	ACCACTTA	TAAGTGGT
UDI0064	CCATTCGA	GTTGTCCG	CGGACAAC
UDI0065	ACACTAAG	ATCCATAT	ATATGGAT
UDI0066	GTGTCGGA	GCTTGCGC	GCGCAAGC
UDI0067	TTCCTGTT	AGTATCTT	AAGATACT
UDI0068	CCTTCACC	GACGCTCC	GGAGCGTC
UDI0069	GCCACAGG	CATGCCAT	ATGGCATG
UDI0070	ATTGTGAA	TGCATTGC	GCAATGCA
UDI0071	ACTCGTGT	ATTGGAAC	GTTCCAAT
UDI0072	GTCTACAC	GCCAAGGT	ACCTTGGC
UDI0073	CAATTAAC	CGAGATAT	ATATCTCG
UDI0074	TGGCCGGT	TAGAGCGC	GCGCTCTA

UD Index Name	i7 Bases for Sample Sheet	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
UDI0075	AGTACTCC	AACCTGTT	AACAGGTT
UDI0076	GACGTCTT	GGTTCACC	GGTGAACC
UDI0077	TGCGAGAC	CATTGTTG	CAACAATG
UDI0078	CATAGAGT	TGCCACCA	TGGTGGCA
UDI0079	ACAGGCGC	CTCTGCCT	AGGCAGAG
UDI0080	GTGAATAT	TCTCATTC	GAATGAGA
UDI0081	AACTGTAG	ACGCCGCA	TGCGGCGT
UDI0082	GGTCACGA	GTATTATG	CATAATAC
UDI0083	CTGCTTCC	GATAGATC	GATCTATC
UDI0084	TCATCCTT	AGCGAGCT	AGCTCGCT
UDI0085	AGGTTATA	CAGTTCCG	CGGAACTG
UDI0086	GAACCGCG	TGACCTTA	TAAGGTCA
UDI0087	CTCACCAA	CTAGGCAA	TTGCCTAG
UDI0088	TCTGTTGG	TCGAATGG	CCATTCGA
UDI0089	TATCGCAC	CTTAGTGT	ACACTAAG
UDI0090	CGCTATGT	TCCGACAC	GTGTCGGA
UDI0091	GTATGTTC	AACAGGAA	TTCTGTGT
UDI0092	ACGCACCT	GGTGAAGG	CCTTCACC
UDI0093	TACTCATA	CCTGTGGC	GCCACAGG
UDI0094	CGTCTGCG	TTCACAAT	ATTGTGAA
UDI0095	TCGATATC	ACACGAGT	ACTCGTGT
UDI0096	CTAGCGCT	GTGTAGAC	GTCTACAC

## TruSeq CD Indexes

Combinatorial dual (CD) index adapters for use with TruSeq (formally known as TruSeq HT).

### D501–D508 Adapters

AATGATACGGCGACCACCGAGATCTACAC[ i5 ]ACACTCTTTCCCTACACGACGCTCTTCCGATCT

### D701–D712 Adapters

GATCGGAAGAGCACACGTCTGAACTCCAGTCAC[ i7 ]ATCTCGTATGCCGTCTTCTGCTTG

## Index 1 (i7) Adapters

i7 Index Name	i7 Bases for Sample Sheet
D701	ATTACTCG
D702	TCCGGAGA
D703	CGCTCATT
D704	GAGATTCC
D705	ATTCAGAA
D706	GAATTCGT
D707	CTGAAGCT
D708	TAATGCGC
D709	CGGCTATG
D710	TCCGCGAA
D711	TCTCGCGC
D712	AGCGATAG

## Index 2 (i5) Adapters

i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
D501	TATAGCCT	AGGCTATA
D502	ATAGAGGC	GCCTCTAT
D503	CCTATCCT	AGGATAGG
D504	GGCTCTGA	TCAGAGCC
D505	AGGCGAAG	CTTCGCCT
D506	TAATCTTA	TAAGATTA
D507	CAGGACGT	ACGTCCTG
D508	GTA CTGAC	GTCAGTAC

## TruSeq Single Indexes

Index sequences are 6 bases as underlined. Enter the underlined 6 bases on the sample sheet.

### TruSeq Universal Adapter

5' AATGATACGGCGACCACCGAGATCTACACTCTTTCCCTACACGACGCTCTTCCGATCT

### TruSeq Index Adapters (Index 1–27)

Index numbers 17, 24, and 26 are reserved.

#### TruSeq Adapter, Index 1

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACATCACGATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 2

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACCGATGTATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 3

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACTTAGGCATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 4

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACTGACCAATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 5

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACACAGTGATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 6

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGCCAATATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 7

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACCAGATCATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 8

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACACTTGAATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 9

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGATCAGATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 10

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACTAGCTTATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 11

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGGCTACATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 12

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACCTTGTAATCTCGTATGCCGTCTTCTGCTTG

#### TruSeq Adapter, Index 13

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACAGTCAACAATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 14

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACAGTTCCGTATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 15

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACATGTCAGAATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 16

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACCCGTCCCGATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 18

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGTCGCACATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 19

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGTTGAAACGATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 20

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGTTGGCTTATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 21

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGTTTCGGAATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 22

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACCGTACGTAATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 23

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGAGTGGATATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 25

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACACTGATATATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Adapter, Index 27

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACATTCCTTTATCTCGTATGCCGTCTTCTGCTTG

## TruSeq Amplicon Kits

Includes TruSeq Custom Amplicon 1.5, TruSeq Amplicon Cancer Panel, and TruSeq Custom Amplicon Low Input.

### Index 1 (i7) Adapters

i7 Index Name	i7 Bases for Sample Sheet
A701	ATCACGAC
A702	ACAGTGGT
A703	CAGATCCA
A704	ACAAACGG

i7 Index Name	i7 Bases for Sample Sheet
A705	ACCCAGCA
A706	AACCCCTC
A707	CCCAACCT
A708	CACCACAC
A709	GAAACCCA
A710	TGTGACCA
A711	AGGGTCAA
A712	AGGAGTGG

## Index 2 (i5) Adapter

i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
A501	TGAACCTT	AAGGTTCA
A502	TGCTAAGT	ACTTAGCA
A503	TGTTCTCT	AGAGAACA
A504	TAAGACAC	GTGTCTTA
A505	CTAATCGA	TCGATTAG
A506	CTAGAACA	TGTTCTAG
A507	TAAGTTCC	GGA ACTTA
A508	TAGACCTA	TAGGTCTA

## TruSeq DNA Methylation

## Index PCR Primers

5' CAAGCAGAAGACGGCATACGAGAT[ 6 bases ]GTGACTGGAGTTCAGACGTGTGCTCTTCCGATCT

## Index Adapters

Index Name	6-Base Sequence for Sample Sheet
Index 1	ATCACG
Index 2	CGATGT



Index Name	6-Base Sequence for Sample Sheet
Index 3	TTAGGC
Index 4	TGACCA
Index 5	ACAGTG
Index 6	GCCAAT
Index 7	CAGATC
Index 8	ACTTGA
Index 9	GATCAG
Index 10	TAGCTT
Index 11	GGCTAC
Index 12	CTTGTA

## TruSeq Ribo Profile

### 3' Adapter

5' AGATCGGAAGAGCACACGTCT

### Forward PCR Primer

5' ATGATACGGCGACCACCGAGATCTACACGTTTCAGAGTTCTACAGTCCGACG

### Index PCR Primers

5' CAAGCAGAAGACGGCATACGAGAT[ 6 bases ]GTGACTGGAGTTCAGACGTGTGCTCTTCCGATCT

### Index Adapters

Index Name	Six-Base Sequence for Sample Sheet
A001	ATCACG
A002	CGATGT
A003	TTAGGC
A004	TGACCA
A005	ACAGTG
A006	GCCAAT

Index Name	Six-Base Sequence for Sample Sheet
A007	CAGATC
A008	ACTTGA
A009	GATCAG
A010	TAGCTT
A011	GGCTAC
A012	CTTGTA

## TruSeq Synthetic Long-Read DNA

Double-stranded DNA adapter containing long-range PCR primer binding site, sequencing primer binding site, and end marker sequence.

### Long Reads Adapter

5' CCGGTTCTTCCCTGCCGAACCCTATCTTCGTCGGCAGCGTCAGATGTGTATAAGAGACAGTACGCTTGCAT

## TruSeq Small RNA

### RNA 5' Adapter (RA5)

5' GUUCAGAGUUCUACAGUCCGACGAUC

### RNA 3' Adapter (RA3)

5' TGAATTCTCGGGTGCCAAGG

### Stop Oligo (STP)

5' GAAUCCACCACGUUCCCGUGG

### RNA RT Primer (RTP)

5' GCCTTGGCACCCGAGAATTCCA

### RNA PCR Primer (RP1)

5' AATGATACGGCGACCACCGAGATCTACACGTTTCAGAGTTCTACAGTCCGA

### RNA PCR Index Primers (RPI1–RPI48)

Index sequence is 6 bases as underlined. Enter the underlined 6 bases on the sample sheet. Index sequences are read in the reverse complement in TruSeq small RNA libraries.

RNA PCR Primer, Index 1 (RPI1)

5' CAAGCAGAAGACGGCATAACGAGATCGTGATGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 2 (RPI2)

5' CAAGCAGAAGACGGCATAACGAGATACATCGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 3 (RPI3)

5' CAAGCAGAAGACGGCATAACGAGATGCCTAAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 4 (RPI4)

5' CAAGCAGAAGACGGCATAACGAGATTGGTCAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 5 (RPI5)

5' CAAGCAGAAGACGGCATAACGAGATCACTGTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 6 (RPI6)

5' CAAGCAGAAGACGGCATAACGAGATATTGGCGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 7 (RPI7)

5' CAAGCAGAAGACGGCATAACGAGATGATCTGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 8 (RPI8)

5' CAAGCAGAAGACGGCATAACGAGATTCAAGTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 9 (RPI9)

5' CAAGCAGAAGACGGCATAACGAGATCTGATCGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 10 (RPI10)

5' CAAGCAGAAGACGGCATAACGAGATAAGCTAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 11 (RPI11)

5' CAAGCAGAAGACGGCATAACGAGATGTAGCCGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 12 (RPI12)

5' CAAGCAGAAGACGGCATAACGAGATTACAAGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 13 (RPI13)

5' CAAGCAGAAGACGGCATAACGAGATTTGACTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 14 (RPI14)

5' CAAGCAGAAGACGGCATAACGAGATGGAAGTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 15 (RPI15)

5' CAAGCAGAAGACGGCATAACGAGATTGACATGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 16 (RPI16)

5' CAAGCAGAAGACGGCATAACGAGATGGAACGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 17 (RPI17)

5' CAAGCAGAAGACGGCATAACGAGATCTCTACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 18 (RPI18)

5' CAAGCAGAAGACGGCATAACGAGATGCGGACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 19 (RPI19)

5' CAAGCAGAAGACGGCATAACGAGATTTTTCACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 20 (RPI20)

5' CAAGCAGAAGACGGCATAACGAGATGGCCACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 21 (RPI21)

5' CAAGCAGAAGACGGCATAACGAGATCGAAACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 22 (RPI22)

5' CAAGCAGAAGACGGCATAACGAGATCGTACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 23 (RPI23)

5' CAAGCAGAAGACGGCATAACGAGATCCACTCGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 24 (RPI24)

5' CAAGCAGAAGACGGCATAACGAGATGCTACCGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 25 (RPI25)

5' CAAGCAGAAGACGGCATAACGAGATATCAGTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 26 (RPI26)

5' CAAGCAGAAGACGGCATAACGAGATGCTCATGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 27 (RPI27)

5' CAAGCAGAAGACGGCATAACGAGATAGGAATGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 28 (RPI28)

5' CAAGCAGAAGACGGCATAACGAGATCTTTTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 29 (RPI29)

5' CAAGCAGAAGACGGCATAACGAGATTAGTTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 30 (RPI30)

5' CAAGCAGAAGACGGCATAACGAGATCCGGTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 31 (RPI31)

5' CAAGCAGAAGACGGCATAACGAGATATCGTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 32 (RPI32)

5' CAAGCAGAAGACGGCATAACGAGATTGAGTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 33 (RPI33)

5' CAAGCAGAAGACGGCATAACGAGATCGCCTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 34 (RPI34)

5' CAAGCAGAAGACGGCATAACGAGATGCCATGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 35 (RPI35)

5' CAAGCAGAAGACGGCATAACGAGATAAAATGGTGAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 36 (RPI36)

5' CAAGCAGAAGACGGCATAACGAGATTGTTGGTGAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 37 (RPI37)

5' CAAGCAGAAGACGGCATAACGAGATATTCGGTGAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 38 (RPI38)

5' CAAGCAGAAGACGGCATAACGAGATAGCTAGGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 39 (RPI39)

5' CAAGCAGAAGACGGCATAACGAGATGTATAGGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 40 (RPI40)

5' CAAGCAGAAGACGGCATAACGAGATTCTGAGGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 41 (RPI41)

5' CAAGCAGAAGACGGCATAACGAGATGTCGTCGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 42 (RPI42)

5' CAAGCAGAAGACGGCATAACGAGATCGATTAGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 43 (RPI43)

5' CAAGCAGAAGACGGCATAACGAGATGCTGTAGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 44 (RPI44)

5' CAAGCAGAAGACGGCATAACGAGATATTATAGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 45 (RPI45)

5' CAAGCAGAAGACGGCATAACGAGATGAAATGAGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 46 (RPI46)

5' CAAGCAGAAGACGGCATAACGAGATTCGGGAGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 47 (RPI47)

5' CAAGCAGAAGACGGCATAACGAGATCTTCGAGTAAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 48 (RPI48)

5' CAAGCAGAAGACGGCATAACGAGATTGCCGAGTAAGTTCCTTGGCACCCGAGAATTCCA

## TruSeq Targeted RNA Expression

Index 1 (i7) Adapters

i7 Index Name	i7 Bases for Sample Sheet	i7 Index Name	i7 Bases for Sample Sheet
R701	ATCACG	R725	ACTGAT

i7 Index Name	i7 Bases for Sample Sheet	i7 Index Name	i7 Bases for Sample Sheet
R702	CGATGT	R726	ATGAGC
R703	TTAGGC	R727	ATTCCT
R704	TGACCA	R728	CAAAAG
R705	ACAGTG	R729	CAACTA
R706	GCCAAT	R730	CACCGG
R707	CAGATC	R731	CACGAT
R708	ACTTGA	R732	CACTCA
R709	GATCAG	R733	CAGGCG
R710	TAGCTT	R734	CATGGC
R711	GGCTAC	R735	CATTTT
R712	CTTGTA	R736	CCAACA
R713	AGTCAA	R737	CGGAAT
R714	AGTTCC	R738	CTAGCT
R715	ATGTCA	R739	CTATAC
R716	CCGTCC	R740	CTCAGA
R717	GTAGAG	R741	GACGAC
R718	GTCCGC	R742	TAATCG
R719	GTGAAA	R743	TACAGC
R720	GTGGCC	R744	TATAAT
R721	GTTTCG	R745	TCATTC
R722	CGTACG	R746	TCCCGA
R723	GAGTGG	R747	TCGAAG
R724	GGTAGC	R748	TCGGCA

## Index 2 (i5) Adapter

i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
A501	TGAACCTT	AAGGTTCA

i5 Index Name	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
A502	TGCTAAGT	ACTTAGCA
A503	TGTTCTCT	AGAGAACA
A504	TAAGACAC	GTGTCTTA
A505	CTAATCGA	TCGATTAG
A506	CTAGAACA	TGTTCTAG
A507	TAAGTTCC	GGAACCTA
A508	TAGACCTA	TAGGTCTA

## Appendix

### Process Controls for TruSeq Kits

Included in TruSeq DNA PCR-Free, TruSeq Nano DNA, TruSeq RNA (v1/v2/LT/HT), and TruSeq Exome Kits.

#### CTE2 - 150bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCTACGTTCCAAATGCAGCGAGCTCGTATAACCCTTTAAG
AGTTGCTCTTTTTGTTTGGTAAGTTGCAAATCGAAGTTTTAGATTGAGTTCTACGTCGAGCGGCCGCGAT
```

#### CTE2 - 250bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCTTATCTGTCAAAACCGCTAATGTCCGTTCTAAGACCGT
CTGGAGAACACTTGGCCATCAGTGCTTTTGAACCTTTTTTTTTCACAGGTCCCTTCCGATTACACTGAGAAGCTGACCACAC
CTGCTAGAAGATGGAGGTATGCAGCCCGTTAGTAGGAGTAATACTACCCAGCTTATAACCCCTCAAACGTAGGGCAGATGG
CGGCCGCGAT
```

#### CTE2 - 350bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCTAGAGACCATTTCGCGATTCCATGAGACTCCAAGGGTTC
TGCACAACCTTATGCACCTCTATTAGATCATTGTGTTCTACGAAGCCTGGACTGCATTACATATTCACAACCAACATGAGA
AGAGCGGAATAGATGGCCGGATGTTTGGTGGCTTTGATATATTGTGAGGAGCATTGCGAACCCCTAGAGCTGTCCGGTCAA
ATAACCCCTCACAATAAGTGTAATGTATGGGATAATCAAAAGACTAAGGGAGGGCTTTTATAGAAGGCGTGAGGTCAAT
GCTATCCCCCTCTGAAGACGCGGCCGCGAT
```

#### CTE2 - 450bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCGTATACGTTTCTAATTTGTAGTTAACGGTTGGATACCA
CTTTGAGGCATGTAATATGGTACTGAGCTTCGGCACAGGGCTCAAATTGCATCATTAAATGTCTCCGATGTGGCTATATG
TCATGGATAAAGGCAGCCCCCTATATCTTTTTTTGTGGCAGCATGGGTCCATCAAAGCAATTATTCAGGGTCTTAATGAC
CTCCACAGCTCTAAACGTAATTCATCTGGCTTTGCCTGTACTTACTTCCTCCATGAAAAAAGTGTTGATAATGCTCATA
ATGCTGCCCAGCAATTTCTCCCTTCTCAAGACTATTCTGGCTTCTCGGTACTTAAAAACAGGGCTTAGAGTATGGCTG
CTGACAAAATTGCACTCTAAACGCTAGCTTAGGTCTTCTGCGGCCGCGAT
```

#### CTE2 - 550bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCGTTAGCTATCGTTTCGCGAGAAAGTTAGTAGACACACAG
GACCCAGGCGTGCAAGTCAATTTTCAGCTGACTACACCGATTCTGGTTAAAAGAGCCTATGGCCACCCTTATTTTAGAGAA
AAAAAACACACCTCTAATGTGTTGGGCACTAGAAAAAGCTAACTACCTAGTCCGTTTCTGGACGACTTCATTGGGAATA
ACATAACCCCCACTGTGATTAAGACTGGCACTGTCTAATGCTTTCTTCAATAGGTTTGGCTCATGTGTGATTCCCTCTG
GCAAACCTTATAGAGGACAAGCAGAATAAACCAATTCAAGGTGCTTGTAGCTGAAGGCCTGGCCTGCCTGACAGTTAATTA
TGAGCATGTCTTGCCCTTCATGGTGGATATTACAGCTGAAAGTGGTATTGGCATTTTTTTCTGAGGACACAACGAGGAA
ATCTGATAAATACGGCCACCTGAAGTCTAGCTCGGAGTTAACAATTTACCACGTTTATAGAGCGGCCGCGAT
```

#### CTE2 - 650bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCGCTCGCACTTAGCCTGTTAAGGGGTTTCGCGCTCGTCTA
GTCTGTGCTGTTGCCTGGATAGTAAATTATCATGGTACAACTTTTAAAGAGCCAGTTAAATGGAGATGGATTTAAAAAGA
GTTATTGTAAAGTCTCCCCAGGTGTGTCATTAAATATCCCAACAGATTGCCCTGGCCTGACCCCTAAATGCAATTTTGG
GATTCCTTTTATGTTGCTTTTATTAAATGTACCAGCGCAGTAAAAAAGCACAAAGTATATTGTTTATGTAACCTACTA
TCTCATTTGCACTGGTTACATGGCAGCTTCAGACTGACTAAACTACACTTTTCCCACCATGGTTCAAAGATCAACAGAA
CTGGGCCAACAAAAGCAATTTTTTTCATGTGGTCTAACTACCACTTATTATGAGTTAAGTTACTTTTAGGTTTAAATCA
CAGCAGTTTTTCCCTCCACACCTCCCAGAGATACTTTTCAGGGTGGCTAAACTTGGCTAAAGGCTTCCGGACCAACCCCTG
TTTCTTTATGGTGCTTGTGTCCTGACAACCGCGTAAGGCATGGAAATTCAGCTATTTATCCGATCGTTTATATGGGCGTG
CGGCCGCGAT
```



## CTE2 - 750bp

ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCTTGACCGTTAATTCATATATCGAAGTAGCAGGTTGTT  
GCCCCGCTGATGTTGCCACTACTTGCTCATGACAGTTTTTTTAGGCAATGCAAACACTACTATTTGATATTTTTTCCAAG  
TACAGTTGTAGGGTACTCCTTATACTGATTCTTCTGAGCCTGTACGGGGAGCATTAGGTACTGATGTAGTAGGAGTTGAG  
CTTCACAAATTCACCAGGTAAGCCCAATTTATTTTCTGCTTGGACAGGTCCACCTCATATGGGTCTGTCTAATATATTA  
AAAGAGGGATTTTCTTTGCTGTATTGCAGCCCAGTATATCTGTTACTTACAGTAGTAGTCCATTATTGCTGGCCTAGGGG  
CTTTTGCTCCTACACGAACACCCTCTGTAAAATTTAGGTGCTCCTTAGAGTCAAACCATTTCATGGAGCGCTCTGTGCA  
TCTACCAACTATCGCTAAGCATTCACTTGGTTGGTTTAAAGTGGAGGCAACTCCATTATCTTCTAGCATACCCTTCCCAGG  
CTACATGTAGAAAGAGATCTGTTGGGCCCCACTATTTTTTCAACCAGGGAAGCCTACTTTAGTTATAGCTTGCCAGAGAT  
TTTCTGTGTCTGTAGAAAGTCACTCACTTTTAAACACCAGGAGGTGGATGTGGGGCCAGGAAATATGTCAATAACGATACG  
GGACTTCTAACAGTGA CTGCGGCCGCGAT

## CTE2 - 850bp

ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCTTAAGTCGTGTCCTTCTCCTACGATCTTGTGAACGATG  
GATATTTTCTTTCTAAACTTTAAACAAACAGTGGAGAGATGTTGTTGTGTGTGGAACGACGCTTAGCCTACCGAGGAAGA  
TCCAGACTACAATAGAATATGTGGCCAAAACCTCTCCGCAACTTCAGCAGCAAAAAGGATATTATTGACATAACCTCCTCA  
CAAAAAGTACACAAATGGCTAAATAACAGAGCCCCCTCTTTTTACTAGGGAAATGGTGGATGTGGACTTTAGAATTTAAGA  
TAATAAAGCTCTTGATCCCAATGTTATTTCCATGTGAGGGACATTAAATTGAGTAACCTTTGCCACATACCCTCTCCCAG  
AGTCCATTCTCTAAACTTGAAGCTCCGCCCCCTTTTTACGCACATTAGGCTTCCAATTACGGTCAATGGTCTTGAAGATT  
GGGAGCTTTTGAAGAGTAATAAGAACCATCACAAAAGGAACCCAGAAGCCGGGAGTGTCTACCAAAAAAATTCAAGGGT  
TAAAAAAAAGTGACATTTTCTCCTGTTTTTACACATGATTTTGAATGCTGATGGGTCCACGTCCAGCTCTAAAGGTAGG  
TTCATGGTTCTCCAAAGTTGCTTTCTTGTGAGAATTGAGCCACATCAGGTAGGTGGGAAGTAGATCAGTGAGGATGCTT  
CACATGTGTGGGCACTGGGAACAGAATGCTTCAATAACACGAGCTGACGAGGGCCGCTATGAAAAAAAAGATTCTCTGT  
GCCCCCTGGCGCCTCCGCACTTAAAGAATTGATGACCGTGCGGCCGCGAT

## CTE1 - 123bp

GATCCTACGTTCCAAATGCAGCGAGCTCGTATAACCCTTTAAGAGTTGCTCTTTTTGTTTGGTAAGTTGCAAATCGAAGT  
TTTAGATTGAGTTCTACGTGAGCGGCCGCGATATCCTGCAGATGCA

## CTE1 - 223bp

GATCCTTATCTGTCAAAACCGCTAATGTCCGTTCTAAGACCGTCTGGAGAACACTTGCCCATCAGTGCTTTTTGAACCTTT  
TTTTTACAGGTCCCTTCCGATTACACTGAGAAGCTGACCACACCTGCTAGAAGATGGAGGTATGCAGCCCGTTAGTAGGA  
GTAATACTACCCAGCTTATAACCCTCAAACGTAGGGCAGATGGCGGCCGCGATATCCTGCAGATGCA

## CTE1 - 323bp

GATCCTAGAGACCATTTCGCGATTCCATGAGACTCCAAGGGTTCTGCACAACCTTATGCACCTCTATTAGATCATTGTGTTT  
TACGAAGCCTGGACTGCATTACATATTACAACCAACATGAGAAGAGCGGAATAGATGGCCGGATGTTTGGTGGCTTTGA  
TATATTGTGAGGAGCATTGCGAACCCTAGAGCTGTCCGGTCAAATAACCCCTCACATAAGTGAATGTATGTTGGGATAA  
TCAAAGACTAAGGGAGGGCTTTTATAGAAGGCGTGAGGTATGCTATCCCCCTCTGAAGACGCGGCCGCGATATCCTGC  
AGATGCA

## CTE1 - 423bp

GATCCGTATACGTTTCTAATTTGTAGTTAACGGTTGGATACCACTTTGAGGCATGTAATATGGTACTGAGCTTCGGCACA  
GGGCTCAAATTCATCATTAAATGTCTCCGATGTGGCTATATGTATGGATAAAGGCAGCCCCCTATATCTTTTTTTGTG  
GCAGCATGGGTCCATCAAAGCAATTATTCAGGGTCTTAATGACCTCCACAGCTCTAAACGTAATTCATCTGGCTTTGCCT  
GTACTTACTTCTCCATGAAAAAAGTGTTGATAATGCTCATAATGCTGCCAGCAATTTCTCCCTTCTCAAGACTATT  
CTGGCTTCTGGGTACTTAAAAACAGGGCTTAGAGTATGGCTGCTGACAAAATTGCACTCTAAACGCTAGCTTAGGTCTT  
CTGCGGCCGCGATATCCTGCAGATGCA

## CTE1 - 523bp

GATCCGTTAGCTATCGTTTCGCGAGAAAGTTAGTAGACACACAGGACCCAGGCGTGCAAGTCAATTTAGCTGACTACACC  
GATTCTGGTTAAAGAGCCTATGGCCACCCTTATTTTAGAGAAAAAAACCACACCTCTAATGTGTTGGGCAGTAGAAAA  
AGCTAACTACCTAGTCCGTTTCTGGACGACTTCATTGGGAATAACATACCCCCCACTGTGATTAAGACTGGCACTGTCTT

AATGCTTTCTTCAATAGGTTTGGCTCATGTGTGATTCCCTCTGGCAAACCTTATAGAGGACAAGCAGAATAAACCAATTCA  
AGGTCGTTGTAGCTGAAGGCCTGGCCTGCCTGACAGTTAATTATGAGCATGTCTTGCCCTTCATGGTGGATATTCACAGC  
TGAAAGTGGTATTGGCATTCTTTCTGAGGACACAACGAGGAAATCTGATAAATACGGCCACCTGAAGTCTAGCTCGGAG  
TTAACAATTTACCACGTTTAGAGCGGCCGCGATATCCTGCAGATGCA

#### CTE1 - 623bp

GATCCGCTCGCACTTAGCCTGTTAAGGGGTTTCGCGCTCGTCTAGTCTGTGCTGTTGCCTGGATAGTAAATTATCATGGTA  
CAAACCTTTTAAAGAGCCAGTTAAATGGAGATGGATTTAAAAAGAGTTATTGTAAAGTCTCCCCAGGTGTGTCAATAATAT  
CCCAACAGATTGCCCTGGCCTGACCCCTAAATGCAATTTGGGATTCCCTTTTAGTTGCTTTCATTAAAATGTACCAGC  
GCAGTAAAAAAGCACAAAGTATATTGTTTATGTAACCTCACTATCTCATTTGCACTGGTTACATGGCAGCTTCAGACTGA  
CTAAAACCTACACTTTTCCCACCATGGTTCAAAGATCAACAGAACTGGGCCAACAAAAGCAATTTTTCATGTGGTCTAAC  
TACCAACTTATTATGAGTTAAGTTACTTTTAGGTTTAAATCACAGCAGTTTTCCTCCACACCTCCCAGAGATACTTT  
CAGGGTGGCTAACTTGGCTAAAGGCTTCCGGACCAACCCTTGTTTCTTTATGGTGTCTGTGTCTGACAACCGCGTAAG  
GCATGGAATTCAGCTATTTATCCGATCGTTTATATGGGCGTGCGGCCGCGATATCCTGCAGATGCA

#### CTE1 - 723bp

GATCCTTGACCGTTAATTCATATATCGAAGTAGCAGGTTGTTGCCCGCCTGATGTTGCCACTACTTGCTCATGACAGT  
TTTTTTAGGCAATGCAAACCTACTATTTGATATTTTTTCCAAGTACAGTTGTAGGGTACTCCTTATACTGATTCTTCTGA  
GCCTGTACGGGAGCATTAGGTACTGATGTAGTAGGAGTTGAGCTTCACAAATTCACCAGGTAAGCCCCAAATTTATTTTC  
TGCTTGACAGGTCCACCTCACATGGGTCTGTCTAATATATTAAGAGGGATTTTCTTTGCTGTATTGCAGCCCAGTAT  
ATCTGTTACTTACAGTAGTAGTCCATTATTGCTGGCCTAGGGGCTTTTGTCTCTACACGAACACCACTCTGTAAATTTG  
AGGTCGTCCTTAGAGTCAAACCATTCATGGAGCGCTCTGTGCATCTACCAACTATCGCTAAGCATTCACTTGGTTGGTTT  
AAGTGGAGGCAACTCCATTATCTTCTAGCATACCCTTCCCAGGCTACATGTAGAAAGAGATCTGTTGGGCCCCACTATTT  
TTTCAACCAGGGAAGCCTACTTTAGTTATAGCTTGCCAGAGATTTTCTGTGTCTATGTAGAAGTCATCCACTTTTAACACC  
AGGAGGTGGATGTGGGGCCAGGAAATATGTCAATAACGATACGGGACTTCTAACAGTGACTCGCGGCCGCGATATCCTGC  
AGATGCA

#### CTE1 - 823bp

GATCCTTAAGTCGTGTCTTCTCCTACGATCTTGTGAACGATGGATATTTTCTTTCTAAACCTTTAAACAAACAGTGGAGA  
GATGTTGTTGTGTGTGGAACGACGCTTAGCCTACCGAGGAAGATCCAGACTACAATAGAATATGTGGCCAAAACCTCTCCG  
CAACTTCAGCAGCAAAAAGGATATTATTGACATAACCTCCTCACAAAAGTACACAAATGGCTAAATAACAGAGCCCCCTC  
TTTTTACTAGGGAATGGTGGATGTGGACTTTAGAATTTAAGATAATAAAGCTCTTGATCCCAATGTTATTTCCATGTGA  
GGGACATTAAATTGAGTAACCTTTGCCACATAACCCTCTCCAGAGTCCATTCTCTAAACCTTGAAGCTCCGCCCCCTTTT  
ACGCACATTAGGCTTCCAATTACGGTCAATGGTCTTGAAGATTGGGAGCTTTTGAAGAGTAATAAGAACCATCACAAAA  
GGAACCCAGAAGCCGGGAGTGTCTACCAAAAAAATTCAAGGGTTAAAAAAGTGACATTTTCTCCTGTTTTTTACACAT  
GATTTTGAATGCTGATGGGTCCACGTCCAGCTCTAAAGGTAGGTTTCATGGTTCTCAAAGTTGCTTTCTTGTGAGAATTG  
AGCCACATCAGGTAGGTGGGGAAGTAGATCAGTGAGGATGCTTACATGTGTGGGCACTGGGAACAGAATGCTTCAATAA  
CACGAGCTGACGAGGGCCCGCTATGAAAAAAGATTCTCTGTGCCCCCTGGCGCCTCCGCACTTAAAGAATTGATGACC  
GTGCGGCCGCGATATCCTGCAGATGCA

#### CTA - 150bp

GGGGGATCCTACGTTCCAAATGCAGCGAGCTCGTATAACCCTTTAAGAGTTGCTCTTTTTGTTTGGTAAGTTGCAAATCG  
AAGTTTTAGATTGAGTTCTACGTCGAGCGGCCGCGATATCCTGCAGATGCATCCAGTACTAGTATGGCCC

#### CTA - 250bp

GGGGGATCCTTATCTGTCAAACCGCTAATGTCCGTTCTAAGACCGTCTGGAGAACACTTGCCCATCAGTGCTTTTGAAC  
CTTTTTTTCACAGGTCCCTTCCGATTACACTGAGAAGCTGACCACACCTGCTAGAAGATGGAGGTATGCAGCCCCGTTAGT  
AGGAGTAATACTACCCAGCTTATAACCCTCAAACGTAGGGCAGATGGCGGCCGCGATATCCTGCAGATGCATCCAGTACT  
AGTATGGCCC

#### CTA - 350bp

GGGGGATCCTAGAGACCATTGCGGATTCCATGAGACTCCAAGGGTTCTGCACAACCTTATGCACCTCTATTAGATCATTGT  
GTTCTACGAAGCCTGGACTGCATTACATATTCACAACCAACATGAGAAGAGCGGAATAGATGGCCGGATGTTTGGTGGCT

TTGATATATTGTGAGGAGCATTGCGAACCCTAGAGCTGTCCGGTCAAATAACCCCCTCACATAAGTGTAATGTCATGGG  
ATAATCAAAAGACTAAGGGAGGGCTTTTATAGAAGGCGTGAGGTCATGCTATCCCCCTCTGAAGACGCGGCCGCGATATC  
CTGCAGATGCATCCAGTACTAGTATGGCCC

#### CTA - 450bp

GGGGGATCCGTATACGTTTCTAATTTGTAGTTAACGGTTGGATACCACTTTGAGGCATGTAATATGGTACTGAGCTTCGG  
CACAGGGCTCAAATTCATCATTAAATGTCTCCGATGTGGCTATATGTCATGGATAAAGGCAGCCCCCTATATCTTTTTT  
TGTGGCAGCATGGGTCCATCAAAGCAATTATTTCAGGGTCTTAATGACCTCCACAGCTCTAAACGTAATTCATCTGGCTTT  
GCCTGTACTTACTTCTCCATGAAAAAAGTGTGATAATGCTCATAATGCTGCCAGCAATTTCTCCCTTCTCAAGAC  
TATTCTGGCTTCTGGGTACTTAAAAACAGGGCTTAGAGTATGGCTGCTGACAAAATTGCACTCTAAACGCTAGCTTAGG  
TCTTCTGCGGCCGCGATATCCTGCAGATGCATCCAGTACTAGTATGGCCC

#### CTA - 550bp

GGGGGATCCGTTAGCTATCGTTCGCGAGAAAGTTAGTAGACACACAGGACCCAGGCGTGCAAGTCAATTTTCAGCTGACTA  
CACCGATTCTGGTTAAAGAGCCTATGGCCACCCTTATTTTATAGAGAAAAAAACCACACCTCTAATGTGTTGGGCACTAG  
AAAAAGCTAACTACCTAGTCCGTTTCTGGACGACTTCATTGGGAATAACATACCCCCCACTGTGATTAAGACTGGCACTG  
TCCTAATGCTTTTCTCAATAGGTTTGGCTCATGTGTGATTCCCTCTGGCAAACCTTATAGAGGACAAGCAGAATAAACCAA  
TTCAAGGTCGTTGTAGCTGAAGGCCTGGCCTGCCTGACAGTTAATTATGAGCATGTCTTGCCCTTCATGGTGGATATTCA  
CAGCTGAAAGTGGTATTGGCATTTTTTTCTGAGGACACAACGAGGAAATCTGATAAATACGGCCACCTGAAGTCTAGCTC  
GGAGTTACAATTTACCACGTTTAGAGCGGCCGCGATATCCTGCAGATGCATCCAGTACTAGTATGGCCC

#### CTA - 650bp

GGGGGATCCGCTCGCACTTAGCCTGTAAAGGGTTTCGCGCTCGTCTAGTCTGTGCTGTTGCCTGGATAGTAAATTATCAT  
GGTACAAACTTTTAAAGAGCCAGTTAAATGGAGATGGATTTAAAAAGAGTTATTGTAAAGTCTCCCCAGGTGTGTCATTAA  
ATATCCCAACAGATTGCCCTGGCCTGACCCCTAAATGCAATTTTGGGATTCCCTTTTAGTTGCTTTTCATTAAATGTAC  
CAGCGCAGTAAAAAAGCACAAAGTATATTGTTTATGTAACCTCACTATCTCATTTGCACTGGTTACATGGCAGCTTCAGA  
CTGACTAAACTACACTTTTCCACCATGGTTCAAAGATCAACAGAACTGGGCCAACAAAAGCAATTTTTTTCATGTGGTC  
TAACTACCAACTTATTATGAGTTAAGTTACTTTTAGGTTTAAATCACAGCAGTTTTTCCCTCCACACCTCCCAGAGATA  
CTTTTCAGGGTGGCTAAACTTGGCTAAAGGCTTCCGGACCAACCCTTGTTTCTTTATGGTGTCTGTGCTGACAACCGCG  
TAAGGCATGGAAATTCAGCTATTTATCCGATCGTTTATATGGGCGTGCGGCCGCGATATCCTGCAGATGCATCCAGTACT  
AGTATGGCCC

#### CTA - 750bp

GGGGGATCCTTGGACCGTTAATTCATATATCGAAGTAGCAGGTTGTTGCCCGCCTGATGTTGCCACTACTTGCTCATGA  
CAGTTTTTTTTAGGCAATGCAAACTACTATTTGATATTTTTTCCAAGTACAGTTGTAGGGTACTCCTTATACTGATTCTT  
CTGAGCCTGTACGGGAGCATTAGGTACTGATGTAGTAGGAGTTGAGCTTCACAAATTCACCAGGTAAGCCCCAATTTAT  
TTTCTGCTTGGACAGGTCCACCTCACATGGGTCTGTCTAATATATTAAGAGGGATTTTCTTTGCTGTATTGCAGCCCA  
GTATATCTGTTACTTACAGTAGTAGTCCATTATTGCTGGCCTAGGGGCTTTTGCTCCTACACGAACACCACTCTGTAAAA  
TTTGAGGTCGTCCTTAGAGTCAAACCATTTCATGGAGCGCTCTGTGCATCTACCAACTATCGCTAAGCATTCACTTGGTTG  
GTTTAAGTGGAGGCAACTCCATTATCTTCTAGCATACCCTTCCCAGGCTACATGTAGAAAGAGATCTGTTGGGCCCCACT  
ATTTTTTTCACCCAGGGAAGCCTACTTTAGTTATAGCTTGCCAGAGATTTTCTGTGTCTGTGTAGTATAGTATCCACTTTTAA  
CACCAGGAGGTGGATGTGGGGCCAGGAAATATGTCAATAACGATACGGGACTTCTAACAGTGACTCGCGGCCGCGATATC  
CTGCAGATGCATCCAGTACTAGTATGGCCC

#### CTA - 850bp

GGGGGATCCTTAAGTCGTGTCTTCTCCTACGATCTTGTGAACGATGGATATTTTCTTTCTAAACTTTAAACAAACAGTG  
GAGAGATGTTGTTGTGTGTGGAACGACGCTTAGCCTACCGAGGAAGATCCAGACTACAATAGAATATGTGGCCAAAACCTC  
TCCGCAACTTCAGCAGCAAAAAGGATATTATTGACATAACCTCCTCACAAAAAGTACACAAATGGCTAAATAACAGAGCC  
CCTCTTTTTTACTAGGGAATGGTGGATGTGGACTTTAGAATTTAAGATAATAAAGCTCTTGATCCCAATGTTATTTCCAT  
GTGAGGGACATTAAATTGAGTAACCTTTGCCACATACCCTCTCCCAGAGTCCATTCTCTAAAACCTTGAAGCTCCGCCCT  
TTTTACGCACATTAGGCTTCCAATTACGGTCAATGGTCTTGAAGATTGGGAGCTTTTGAAGAGTAATAAGAACCATCACA  
AAAAGGAACCCAGAAGCCGGGAGTGTCTACCAAAAAAATTCAAGGGTAAAAAAAAGTGACATTTTCTCCTGTTTTTTTAC  
ACATGATTTTGAATGCTGATGGGTCCACGTCCAGCTCTAAAGGTAGGTTTCATGGTTCTCCAAAGTTGCTTTCTTGTCAGA

ATTGAGCCACATCAGGTAGGTGGGGAAGTAGATCAGTGAGGATGCTTCACATGTGTGGGCACTGGGAACAGAATGCTTCA  
ATAACACGAGCTGACGAGGGCCCGCTATGAAAAAAGATTCTCTGTGCCCCCTGGCGCCTCCGCACTTAAAGAATTGAT  
GACCGTGCGGCCGCGATATCCTGCAGATGCATCCAGTACTAGTATGGCCC

#### CTL - 150bp

AGTATGGCCCCGGGGGATCCTACGTTCCAAATGCAGCGAGCTCGTATAACCCTTTAAGAGTTGCTCTTTTTGTTTGGTAAG  
TTGCAAATCGAAGTTTTAGATTGAGTTCTACGTCGAGCGGCCGCGATATCCTGCAGATGCATCCAGTACA

#### CTL - 250bp

AGTATGGCCCCGGGGGATCCTTATCTGTCAAAACCGCTAATGTCCGTTCTAAGACCGTCTGGAGAACACTTGCCCATCAGT  
GCTTTTGAACCTTTTTTTCACAGGTCCCTTCCGATTACACTGAGAAGCTGACCACACCTGCTAGAAGATGGAGGTATGCA  
GCCCCGTTAGTAGGAGTAATACTACCCAGCTTATAACCCTCAAACGTAGGGCAGATGGCGGCCGCGATATCCTGCAGATGC  
ATCCAGTACA

#### CTL - 350bp

AGTATGGCCCCGGGGGATCCTAGAGACCATTTCGCGATTCCATGAGACTCCAAGGGTTCTGCACAACCTTATGCACCTCTATT  
AGATCATTGTGTTCTACGAAGCCTGGACTGCATTACATATTACAACCAACATGAGAAGAGCGGAATAGATGGCCGGATG  
TTTGGTGGCTTTGATATATTGTGAGGAGCATTGCGAACCTAGAGCTGTCCGGTCAAATAACCCCTCACAATAAGTGTA  
ATGTCATGGGATAATCAAAAGACTAAGGGAGGGCTTTTATAGAAGGCGTGAGGTCATGCTATCCCCCTCTGAAGACGCGG  
CCGCGATATCCTGCAGATGCATCCAGTACA

#### CTL - 450bp

AGTATGGCCCCGGGGGATCCGTATACGTTTCTAATTTGTAGTTAACGGTTGGATACCACTTTGAGGCATGTAATATGGTAC  
TGAGCTTCGGCACAGGGCTCAAATTGCATCATTAAATGTCTCCGATGTGGCTATATGTCATGGATAAAGGCAGCCCCCTA  
TATCTTTTTTTGTGGCAGCATGGGTCCATCAAAGCAATTATTAGGGTCTTAATGACCTCCACAGCTCTAAACGTAATTC  
ATCTGGCTTTGCCTGTACTTACTTCCCTCCATGAAAAAAGTGTGATAATGCTCATAATGCTGCCAGCAATTTCTCTCC  
TTCTCAAGACTATTCTGGCTTCTGGGTACTTAAAAACAGGGCTTAGAGTATGGCTGCTGACAAAATTGCACTCTAAACG  
CTAGCTTAGGTCTTCTGCGGCCGCGATATCCTGCAGATGCATCCAGTACA

#### CTL - 550bp

AGTATGGCCCCGGGGGATCCGTTAGCTATCGTTTCGCGAGAAAGTTAGTAGACACACAGGACCCAGGCGTGCAAGTCAATTT  
CAGCTGACTACACCGATTCTGGTTAAAGAGCCTATGGCCACCCTTATTTTAGAGAAAAAAACCACACCTCTAATGTGT  
TGGGCACTAGAAAAAGCTAACTACCTAGTCCGTTTCTGGACGACTTCATTGGGAATAACATACCCCCCACTGTGATTAAG  
ACTGGCACTGTCCTAATGCTTTCTTCAATAGGTTTGGCTCATGTGTGATTCCCTCTGGCAAACCTTATAGAGGACAAGCAG  
AATAAACCAATTCAAGGTCGTTGTAGCTGAAGGCCTGGCCTGCCTGACAGTTAATTATGAGCATGTCTTGCCCTTCATGG  
TGGATATTACAGCTGAAAGTGGTATTGGCATTTTTTTCTGAGGACACAACGAGGAAATCTGATAAATACGGCCACCTGA  
AGTCTAGCTCGGAGTTAACAATTTACCACGTTTAGAGCGGCCGCGATATCCTGCAGATGCATCCAGTACA

#### CTL - 650bp

AGTATGGCCCCGGGGGATCCGCTCGCACTTAGCCTGTTAAGGGGTTTCGCGCTCGTCTAGTCTGTGCTGTTGCCTGGATAGT  
AAATTATCATGGTACAACTTTTTAAGAGCCAGTTAAATGGAGATGGATTTAAAAAGAGTTATTGTAAAGTCTCCCCAGGT  
GTGTCATTAAATATCCCAACAGATTGCCCTGGCCTGACCCCTAAATGCAATTTTGGGATTCCCTTTTAGTTGCTTTTCAT  
TAAAATGTACCAGCGCAGTAAAAAAGCACAAAGTATATTGTTTATGTAACCTCACTATCTCATTGCACTGGTTACATGG  
CAGCTTCAGACTGACTAAACTACACTTTTCCACCATGGTTCAAAGATCAACAGAACTGGGCCAACAAAAGCAATTTTT  
TCATGTGGTCTAACTACCAACTTATTATGAGTTAAGTTACTTTTAGGTTTAAATCACAGCAGTTTTTCCCTCCACACCT  
CCCAGAGATACTTTAGGGTGGCTAAACTTGGCTAAAGGCTTCCGGACCAACCCTTGTTTCTTTATGGTGCTTGTGTCCT  
GACAACCGCGTAAGGCATGGAAATTAGCTATTTATCCGATCGTTTATATGGGCGTGCGGCCGCGATATCCTGCAGATGC  
ATCCAGTACA

#### CTL - 750bp

AGTATGGCCCCGGGGGATCCTTGGACCGTTAATTCATATATCGAAGTAGCAGGTTGTTGCCCCGCCTGATGTTGCCACTAC  
TTGCTCATGACAGTTTTTTTTAGGCAATGCAAACTACTATTTGATATTTTTTCCAAGTACAGTTGTAGGGTACTCCTTAT  
ACTGATTCTTCTGAGCCTGTACGGGAGCATTAGGTACTGATGTAGTAGGAGTTGAGCTTCACAAATTCACCAGGTAAGC

CCAAATTTATTTTCTGCTTGGACAGGTCCACCTCACATGGGTCTGTCTAATATATTTAAAGAGGGATTTTCTTTGCTGTA  
TTGCAGCCAGTATATCTGTTACTTACAGTAGTAGTCCATTATTGCTGGCCTAGGGGCTTTTGCTCCTACACGAACACCA  
CTCTGTAAATTTGAGGTCGTCCTTAGAGTCAAACCATTTCATGGAGCGCTCTGTGCATCTACCAACTATCGCTAAGCATT  
CACTTGGTTGGTTTAAAGTGGAGGCAACTCCATTATCTTCTAGCATACCCTTCCCAGGCTACATGTAGAAAGAGATCTGTT  
GGGCCCCACTATTTTTTACCCAGGGAAGCCTACTTTAGTTATAGCTTGCCAGAGATTTTCTGTGTCATGTAGAAGTCAT  
CCACTTTTAACACCAGGAGGTGGATGTGGGGCCAGGAAATATGTCAATAACGATACGGGACTTCTAACAGTGAAGTCGCGG  
CCGCGATATCCTGCAGATGCATCCAGTACA

#### CTL - 850bp

AGTATGGCCCCGGGGGATCCTTAAGTCGTGTCCTTCTCCTACGATCTTGTGAACGATGGATATTTTCTTTCTAA  
ACTTTAAACAAACAGTGGAGAGATGTTGTTGTGTGTGGAACGACGCTTAGCCTACCGAGGAAGATCCAGACTA  
CAATAGAATATGTGGCCAAAACCTCTCCGCAACTTCAGCAGCAAAAAGGATATTATTGACATAACCTCCTCACA  
AAAAGTACACAAATGGCTAAATAACAGAGCCCCCTCTTTTTTACTAGGGAATGGTGGATGTGGACTTTAGAATT  
TAAGATAATAAAGCTCTTGATCCCAATGTTATTTCCATGTGAGGGACATTAAATTGAGTAACCTTTGCCACAT  
ACCCTCTCCAGAGTCCATTCTCTAAAACCTTGAAGCTCCGCCCCCTTTTTACGCACATTAGGCTTCCAATTACG  
GTCAATGGTCTTGAAGATTGGGAGCTTTTGAAGAGTAATAAGAACCATCACAAAAGGAACCCAGAAGCCGGG  
AGTGTCTACCAAAAAAATTCAAGGGTTAAAAAAAAGTGACATTTTCTCCTGTTTTTACACATGATTTTGAAT  
GCTGATGGGTCCACGTCCAGCTCTAAAGGTAGGTTTCATGGTTCTCCAAAGTTGCTTTCTTGTGAGAATTGAGC  
CACATCAGGTAGGTGGGGAAGTAGATCAGTGAGGATGCTTCACATGTGTGGGCACTGGGAACAGAATGCTTCA  
ATAACACGAGCTGACGAGGGCCCGCTATGAAAAAAAAGATTCTCTGTGCCCCCTGGCGCCTCCGCACTTAAAG  
AATTGATGACCGTGCGCCGCGATATCCTGCAGATGCATCCAGTACALegacy Kits

The kits listed in this section are no longer sold.

## Nextera DNA Sample Prep Kit (Epicentre Biotechnologies)

### (Obsolete)

As a replacement, use catalog # FC-121-1030 or catalog #FC-121-1031.

### Transposon Sequences

5' -GCCTCCCTCGCGCCATCAGAGATGTGTATAAGAGACAG

5' -GCCTTGCCAGCCCGCTCAGAGATGTGTATAAGAGACAG

### Adapters (showing optional bar code)

5' -AATGATACGGCGACCACCGAGATCTACACGCTCCCTCGCGCCATCAG

5' -CAAGCAGAAGACGGCATACGAGAT[**barcode**]CGGTCTGCCTTGCCAGCCCGCTCAG-3'

### PCR Primers

5' -AATGATACGGCGACCACCGA

5' -CAAGCAGAAGACGGCATACGA

## Oligonucleotide Sequences for Genomic DNA

### (Obsolete)

### Adapters

5' P-GATCGGAAGAGCTCGTATGCCGTCTTCTGCTTG

5' ACACTCTTTCCCTACACGACGCTCTTCCGATCT

### PCR Primers

5' AATGATACGGCGACCACCGAGATCTACACTCTTTCCCTACACGACGCTCTTCCGATCT

5' CAAGCAGAAGACGGCATACGAGCTCTTCCGATCT

### Genomic DNA Sequencing Primer

5' ACACTCTTTCCCTACACGACGCTCTTCCGATCT

## Oligonucleotide Sequences for Paired End DNA

(Obsolete)

### PE Adapters

5' P-GATCGGAAGAGCGGTTCAGCAGGAATGCCGAG

5' ACACTCTTTCCCTACACGACGCTCTTCCGATCT

### PE PCR Primer 1.0

5' AATGATACGGCGACCACCGAGATCTACACTCTTTCCCTACACGACGCTCTTCCGATCT

### PE PCR Primer 2.0

5' CAAGCAGAAGACGGCATACGAGATCGGTCTCGGCATTCCTGCTGAACCGCTCTTCCGATCT

### PE Read 1 Sequencing Primer

5' ACACTCTTTCCCTACACGACGCTCTTCCGATCT

### PE Read 2 Sequencing Primer

5' CGGTCTCGGCATTCCTGCTGAACCGCTCTTCCGATCT

## Oligonucleotide Sequences for the Multiplexing Sample Prep Oligo Only Kit

(Obsolete)

### Multiplexing Adapters

5' P-GATCGGAAGAGCACACGTCT

5' ACACTCTTTCCCTACACGACGCTCTTCCGATCT

## Multiplexing PCR Primer 1.0

5' AATGATACGGCGACCACCGAGATCTACACTCTTTCCCTACACGACGCTCTTCCGATCT

## Multiplexing PCR Primer 2.0

5' GTGACTGGAGTTCAGACGTGTGCTCTTCCGATCT

## Multiplexing Read 1 Sequencing Primer

5' ACACTCTTTCCCTACACGACGCTCTTCCGATCT

## Multiplexing Index Read Sequencing Primer

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAC

## Multiplexing Read 2 Sequencing Primer

5' GTGACTGGAGTTCAGACGTGTGCTCTTCCGATCT

## PCR Primer Index Sequences 1–12

## PCR Primer, Index 1

5' CAAGCAGAAGACGGCATACGAGATCGTGATGTGACTGGAGTTC

## PCR Primer, Index 2

5' CAAGCAGAAGACGGCATACGAGATACATCGGTGACTGGAGTTC

## PCR Primer, Index 3

5' CAAGCAGAAGACGGCATACGAGATGCCTAAGTGACTGGAGTTC

## PCR Primer, Index 4

5' CAAGCAGAAGACGGCATACGAGATTGGTCAGTGACTGGAGTTC

## PCR Primer, Index 5

5' CAAGCAGAAGACGGCATACGAGATCACTGTGTGACTGGAGTTC

## PCR Primer, Index 6

5' CAAGCAGAAGACGGCATACGAGATATTGGCGTGACTGGAGTTC

## PCR Primer, Index 7

5' CAAGCAGAAGACGGCATACGAGATGATCTGGTGACTGGAGTTC

## PCR Primer, Index 8

5' CAAGCAGAAGACGGCATACGAGATTCAAGTGTGACTGGAGTTC

## PCR Primer, Index 9

5' CAAGCAGAAGACGGCATACGAGATCTGATCGTGACTGGAGTTC

## PCR Primer, Index 10

5' CAAGCAGAAGACGGCATACGAGATAAGCTAGTGACTGGAGTTC

## PCR Primer, Index 11

5' CAAGCAGAAGACGGCATACGAGATGTAGCCGTGACTGGAGTTC

## PCR Primer, Index 12

5' CAAGCAGAAGACGGCATACGAGATTACAAGGTGACTGGAGTTC

## Oligonucleotide Sequences for the v1 and v1.5 Small RNA Kits

## (Obsolete)

## RT Primer

5' CAAGCAGAAGACGGCATACGA

## 5' RNA Adapter

5' GUUCAGAGUUCUACAGUCCGACGAUC

## 3' RNA Adapter

5' P-UCGUAUGCCGUCUUCUGCUUGUIdT

## v1.5 Small RNA 3' Adapter

5' /5rApp/ATCTCGTATGCCGTCTTCTGCTTG/3ddC/

## Small RNA PCR Primer 1

5' CAAGCAGAAGACGGCATACGA

## Small RNA PCR Primer 2

5' AATGATACGGCGACCACCGACAGGTTTCAGAGTTCTACAGTCCGA

## Small RNA Sequencing Primer

5' CGACAGGTTTCAGAGTTCTACAGTCCGACGATC



## Revision History

Document	Date	Description of Change
Document # 1000000002694 v05	February 2018	Updated IDT for Illumina to include all 96 indexes.
Document # 1000000002694 v04	January 2018	Added AmpliSeq for Illumina Panels
Document # 1000000002694 v03	October 2017	Corrected the i5 bases for sample sheet insertion for the MiSeq and HiSeq sequencers concerning the Nextera DNA Flex kits. Updated section headers for TruSeq CD Indexes and reordered TruSeq sections.
Document # 1000000002694 v02	September 2017	Added adapters for Nextera DNA Flex kits.
Document # 1000000002694 v01	February 2016	Corrected i5 adapter names for TruSight One to E502–E505. Added adapters for TruSight RNA Pan-Cancer, TruSeq DNA Methylation, and TruSeq Ribo Profile. Added MiniSeq where appropriate for reverse complement sequences. Added introduction, which explains when the reverse complement is required in the sample sheet.
Document # 1000000002694 v00	October 2015	Added information for the following TruSight kits: TruSight Cardio, TruSight Myeloid Sequencing Panel, TruSight One, TruSight Rapid Capture, TruSight Tumor 15, and TruSight Tumor 26. Created a TruSeq Amplicon section for TruSeq Custom Amplicon 1.5, TruSeq Amplicon Cancer Panel, and TruSeq Custom Amplicon Low Input. Marked obsolete kits as <b>obsolete</b> . Grouped legacy kit information in new section titled Legacy Kits. Reformatted and reorganized the contents, and assigned document # 1000000002694.

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