

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 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.

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
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	GGAACTTA
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
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
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
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
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	TAAGGCCGA
N702	CGTACTAG
N703	AGGCAGAA
N704	TCCTGAGC
N705	GGACTCCT
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
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

LT Set A/B	Index Name	6-Base Sequence for Sample Sheet
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' CAAGCAGAAGACGGCATAACGAGAT[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

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 Entry on Sample Sheet
TCGCCTTA	N701	TAAGGCGA
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
TCATGAGC	N714	GCTCATGA
CCTGAGAT	N715	ATCTCAGG

Bases in Adapter	i7 Index Name	i7 Bases for Entry on Sample Sheet
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
TTCTAGCT	S515	TTCTAGCT	AGCTAGAA
CCTAGAGT	S516	CCTAGAGT	ACTCTAGG

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
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 Entry on Sample Sheet
TCGCCTTA	H701	TAAGGCGA
CTAGTACG	H702	CGTACTAG
TTCTGCCT	H703	AGGCAGAA
AGGAGTCC	H705	GGACTCCT
CATGCCTA	H706	TAGGCATG
GTAGAGAG	H707	CTCTCTAC
CAGCCTCG	H710	CGAGGCTG
TGCCCTCT	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

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
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 index adapters have been duplexed in the plate to enforce the recommended pairing strategy.

Index 1 (i7) Adapters

GATCGGAAGAGCACACGTCTGAACTCCAGTCAC [i 7] ATCTCGTATGCCGTCTTCTGCTTG

Index2 (i5) Adapters

AATGATACGGCGACCACCGAGATCTACAC [i 5] ACACTCTTCCCTACACGACGCTCTTCCGATCT

UD Index Name	i7 Bases for Entry on 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	GCTTGTC A	GAACATAC	GTATGTTC
UDI0007	CAAGCTAG	ACATAGCG	CGCTATGT
UDI0008	TGGATCGA	GTGCGATA	TATCGCAC
UDI0009	AGTTCAGG	CCAACAGA	TCTGTTGG
UDI0010	GACCTGAA	TTGGTGAG	CTCACCAA
UDI0011	TCTCTACT	CGCGGTTC	GAACCGCG

UD Index Name	i7 Bases for Entry on Sample Sheet	i5 Bases for Sample Sheet NovaSeq, MiSeq, HiSeq 2000/2500	i5 Bases for Sample Sheet MiniSeq, NextSeq, HiSeq 3000/4000
UDI0012	CTCTCGTC	TATAACCT	AGGTTATA
UDI0013	CCAAGTCT	AAGGATGA	TCATCCTT
UDI0014	TTGGA CTC	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	GTTAATG	CAATTAAC

TruSeq CD Indexes

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

i7 Index Name	i7 Bases for Sample Sheet
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' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGATGTATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 3

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACTTAGGCATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 4

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACTGACCAATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 5

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAACAGTGATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 6

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAAGCCAATATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 7

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAACAGATCATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 8

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAACTTGAATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 9

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAAGATCAGATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 10

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACTAGCTTATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 11

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAAGGCTACATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 12

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACTTGTAAATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 13

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAAGTCAACAATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 14

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAAGTTCCGTATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 15

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAATGTCAGAATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 16

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAACCGTCCCGATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 18

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAAGTCCGCACATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 19

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAAGTAAACGATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 20

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCAAGTGGCCTTATCTCGTATGCCGTCTTCTGCTTG

TruSeq Adapter, Index 21

5' GATCGGAAGAGCACACGTCTGAACTCCAGTCACGTTCGGAATCTCGTATGCCGTCTTCTGCTTG

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
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	GGAACTTA
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 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 Name	6-Base Sequence for Sample Sheet
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
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' TGGAATTCTCGGGTGCCAAGG

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' CAAGCAGAAGACGGCATAACGAGATTGGAAGTGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 15 (RPI15)

5' CAAGCAGAAGACGGCATAACGAGATTGACATGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 16 (RPI16)

5' CAAGCAGAAGACGGCATAACGAGATTGGACGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 17 (RPI17)

5' CAAGCAGAAGACGGCATAACGAGATTCTCTACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 18 (RPI18)

5' CAAGCAGAAGACGGCATAACGAGATTGCGGACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 19 (RPI19)

5' CAAGCAGAAGACGGCATAACGAGATTTTTACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 20 (RPI20)

5' CAAGCAGAAGACGGCATAACGAGATTGGCCACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 21 (RPI21)

5' CAAGCAGAAGACGGCATAACGAGATTCGAAACGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 22 (RPI22)

5' CAAGCAGAAGACGGCATAACGAGATTCGTACGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

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' CAAGCAGAAGACGGCATAACGAGATCTTTTGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 29 (RPI29)

5' CAAGCAGAAGACGGCATAACGAGATTAGTTGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 30 (RPI30)

5' CAAGCAGAAGACGGCATAACGAGATCCGGTGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 31 (RPI31)

5' CAAGCAGAAGACGGCATAACGAGATATCGTGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 32 (RPI32)

5' CAAGCAGAAGACGGCATAACGAGATTGAGTGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 33 (RPI33)

5' CAAGCAGAAGACGGCATAACGAGATCGCCTGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 34 (RPI34)

5' CAAGCAGAAGACGGCATAACGAGATGCCATGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 35 (RPI35)

5' CAAGCAGAAGACGGCATAACGAGATAAAATGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 36 (RPI36)

5' CAAGCAGAAGACGGCATAACGAGATTGTTGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 37 (RPI37)

5' CAAGCAGAAGACGGCATAACGAGATATTCGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 38 (RPI38)

5' CAAGCAGAAGACGGCATAACGAGATAGCTAGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 39 (RPI39)

5' CAAGCAGAAGACGGCATAACGAGATGTATAGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 40 (RPI40)

5' CAAGCAGAAGACGGCATAACGAGATTCTGAGGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 41 (RPI41)

5' CAAGCAGAAGACGGCATAACGAGATGTCGTCGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 42 (RPI42)

5' CAAGCAGAAGACGGCATAACGAGATCGATTAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 43 (RPI43)

5' CAAGCAGAAGACGGCATAACGAGATGCTGTAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 44 (RPI44)

5' CAAGCAGAAGACGGCATAACGAGATATTATAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 45 (RPI45)

5' CAAGCAGAAGACGGCATAACGAGATGAAATGAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 46 (RPI46)

5' CAAGCAGAAGACGGCATAACGAGATTCGGGAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 47 (RPI47)

5' CAAGCAGAAGACGGCATAACGAGATCTTCGAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

RNA PCR Primer, Index 48 (RPI48)

5' CAAGCAGAAGACGGCATAACGAGATTGCCGAGTGACTGGAGTTCCTTGGCACCCGAGAATTCCA

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
R702	CGATGT	R726	ATGAGC
R703	TTAGGC	R727	ATTCTT
R704	TGACCA	R728	CAAAAG
R705	ACAGTG	R729	CAACTA
R706	GCCAAT	R730	CACCGG
R707	CAGATC	R731	CACGAT
R708	ACTTGA	R732	CACTCA
R709	GATCAG	R733	CAGGCG

i7 Index Name	i7 Bases for Sample Sheet	i7 Index Name	i7 Bases for Sample Sheet
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	GTC CGC	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
A502	TGCTAAGT	ACTTAGCA
A503	TGTTCTCT	AGAGAACA
A504	TAAGACAC	GTGTCTTA
A505	CTAATCGA	TCGATTAG
A506	CTAGAACA	TGTTCTAG
A507	TAAGTTCC	GGAACTTA
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

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCTTATCTGTCAAACCGCTAATGTCCGTTCTAAGACCGT
CTGGAGAACAACCTTGCCCATCAGTGCTTTTGAACCTTTTTTTTTCACAGGTCCTTCCGATTACACTGAGAAGCTGACCACAC
CTGCTAGAAGATGGAGGTATGCAGCCCGTTAGTAGGAGTAATACTACCCAGCTTATAACCCTCAAACGTAGGGCAGATGG
CGGCCGCGAT
```

CTE2 - 350bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCTAGAGACCATTTCGCGATTCCATGAGACTCCAAGGGTTC
TGCACAACCTTATGCACCTCTATTAGATCATTGTGTTCTACGAAGCCTGGACTGCATTACATATTCACAACCAACATGAGA
AGAGCGGAATAGATGGCCGGATGTTTGGTGGCTTTGATATATTGTGAGGAGCATTGCGAACCCCTAGAGCTGTCCGGTCAA
ATAACCCCTCACAATAAGTGTAAATGTCATGGGATAATCAAAGACTAAGGGAGGGCTTTTATAGAAGGCGTGAGGTCAAT
GCTATCCCCCTCTGAAGACGCGGCCGCGAT
```

CTE2 - 450bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCGTATAACGTTTCTAATTTGTAGTTAACGGTTGGATACCA
CTTTGAGGCATGTAATATGGTACTGAGCTTCGGCACAGGGCTCAAATTGCATCATTAAATGTCTCCGATGTGGCTATATG
TCATGGATAAAGGCAGCCCCCTATATCTTTTTTTTGTGGCAGCATGGGTCCATCAAAGCAATTATTCAGGGTCTTAATGAC
CTCCACAGCTCTAAACGTAATTCATCTGGCTTTGCCTGTACTTACTTCCTCCATGAAAAAAGTGTGATAATGCTCATA
ATGCTGCCAGCAATTTCTCCCTTCTCAAGACTATTCTGGCTTCTGGGTACTTAAAAACAGGGCTTAGAGTATGGCTG
CTGACAAAATTGCACTCTAAACGCTAGCTTAGGTCTTCTGCGGCCGCGAT
```

CTE2 - 550bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCGTTAGCTATCGTTTCGCGAGAAAGTTAGTAGACACACAG
GACCCAGGCGTGCAAGTCAATTTTCAGCTGACTACACCGATTCTGGTTAAAAGAGCCTATGGCCACCCTTATTTTAGAGAA
AAAAAACACACCTCTAATGTGTTGGGCACTAGAAAAAGCTAACTACCTAGTCCGTTTCTGGACGACTTCATTGGGAATA
ACATAACCCCACTGTGATTAAGACTGGCACTGTCTAATGCTTTCTTCAATAGGTTTGGCTCATGTGTGATTCCCTCTG
GCAAACCTTATAGAGGACAAGCAGAATAAACCAATTCAAGGTCTGTTGTAGCTGAAGGCCTGGCCTGCCTGACAGTTAATTA
TGAGCATGTCTTGCCCTTCATGGTGGATATTCACAGCTGAAAGTGGTATTGGCATTTTTTTTCTGAGGACACAACGAGGAA
ATCTGATAAATACGGCCACCTGAAGTCTAGCTCGGAGTTAAACAATTTACCACGTTTATAGAGCGGCCGCGAT
```

CTE2 - 650bp

```
ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCGCTCGCACTTAGCCTGTTAAGGGGTTTCGCGCTCGTCTA
GTCTGTGCTGTTGCCTGGATAGTAAATTATCATGGTACAACTTTTAAAGAGCCAGTTAAATGGAGATGGATTTAAAAAGA
GTTATTGTAAAGTCTCCCCAGGTGTGTCATTAAATATCCCAACAGATTGCCCTGGCCTGACCCCTAAATGCAATTTTGG
GATTCCTTTTTAGTTGCTTTTCATTAAATGTACCAGCGCAGTAAAAAAGCACAAAGTATATTGTTTATGTAACCTACTA
TCTCATTTGCACTGGTTACATGGCAGCTTCAGACTGACTAAAACCTACACTTTTCCACCATGGTTCAAAGATCAACAGAA
CTGGGCAACAAAAGCAATTTTTTTCATGTGGTCTAACTACCAACTTATTATGAGTTAAGTTACTTTTTAGGTTTTAAATCA
CAGCAGTTTTTCCCTCCACACCTCCAGAGATACTTTTCAGGGTGGCTAAACTTGGCTAAAGGCTTCCGGACCAACCCTTG
TTTTTTATGGTGTCTGTGCTGACAACCGCGTAAGGCATGAAATTCAGCTATTTTATCCGATCGTTTATATGGGCGTG
CGGCCGCGAT
```

CTE2 - 750bp

ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCTTGGACCGTTAATTCATATATCGAAGTAGCAGGTTGTT
GCCCCGCTGATGTTGCCACTACTTGGCTCATGACAGTTTTTTTTAGGCAATGCAAACACTATTTGATATTTTTTCCAAG
TACAGTTGTAGGGTACTCCTTATACTGATTCTTCTGAGCCTGTACGGGGAGCATTAGGTACTGATGTAGTAGGAGTTGAG
CTTCACAAATTCACCAGGTAAGCCCAAATTTATTTTCTGCTTGGACAGGTCCACCTCACATGGGTCTGTCTAATATATTA
AAAGAGGGATTTTCTTTGCTGTATTGCAGCCCAGTATATCTGTTACTTACAGTAGTAGTCCATTATTGCTGGCCTAGGGG
CTTTTGGCTCCTACACGAACACCCTCTGTAAAATTTGAGGTGCTCCTTAGAGTCAAACCATTTCATGGAGCGCTCTGTGCA
TCTACCAACTATCGCTAAGCATTCACTTGGTTGGTTTAAAGTGGAGGCAACTCCATTATCTTCTAGCATAACCCTTCCCAGG
CTACATGTAGAAAGAGATCTGTTGGGCCCCACTATTTTTTACCCAGGGAAGCCTACTTTAGTTATAGCTTGCCAGAGAT
TTTTCTGTGTATGTAGAAAGTCACTCCACTTTTAAACACCAGGAGGTGGATGTGGGGCCAGGAAATATGTCAATAACGATACG
GGACTTCTAACAGTGAAGTCTCGCGCCGCGAT

CTE2 - 850bp

ATCCTGCAGATGCATCCAGTACTAGTATGGCCCGGGGATCCTTAAAGTCGTGTCTTCTCCTACGATCTTGTGAACGATG
GATATTTTTCTTTCTAAACTTTAAACAAACAGTGGAGAGATGTTGTTGTGTGTGGAACGACGCTTAGCCTACCGAGGAAGA
TCCAGACTACAATAGAATATGTGGCCAAAACCTCTCCGCAACTTCAGCAGCAAAAAGGATATTATTGACATAACCTCCTCA
CAAAAAGTACACAAATGGCTAAATAACAGAGCCCCCTTTTTTACTAGGGAAATGGTGGATGTGGACTTTAGAATTTAAGA
TAATAAAGCTCTTGATCCCAATGTTATTTCCATGTGAGGGACATTAAATTTAGTAACCTTTGCCACATAACCCTCTCCCAG
AGTCCATTCTCTAAAACCTTGAAGCTCCGCCCCTTTTTACGCACATTAGGCTTCCAATTACGGTCAATGGTCTTGAAGATT
GGGAGCTTTTTGAAGAGTAATAAGAACCATCACAAAAGGAACCCAGAAGCCGGGAGTGTCTACCAAAAAAATTCAAGGGT
TAAAAAAAAGTGACATTTTCTCCTGTTTTTACACATGATTTTGAATGCTGATGGGTCCACGTCCAGCTCTAAAGGTAGG
TTCATGGTTCTCCAAAGTTGCTTTCTTGTGAGAATTGAGCCACATCAGGTAGGTGGGGAAGTAGATCAGTGAGGATGCTT
CACATGTGTGGGCACTGGGAACAGAATGCTTCAATAACACGAGCTGACGAGGGCCGCTATGAAAAAAAAGATTCTCTGT
GCCCCCTGGCGCCTCCGCACTTAAAGAATTGATGACCGTGCAGGCGCGAT

CTE1 - 123bp

GATCCTACGTTCCAAATGCAGCGAGCTCGTATAACCCTTTAAGAGTTGCTCTTTTTGTTTGGTAAGTTGCAAATCGAAGT
TTTAGATTGAGTTCTACGTCGAGCGGCCGCGATATCCTGCAGATGCA

CTE1 - 223bp

GATCCTTATCTGTCAAAACCGCTAATGTCCGTTCTAAGACCGTCTGGAGAACAACCTTGCCCATCAGTGCTTTTTGAACCTTT
TTTTTACAGGTCCCTTCCGATTACACTGAGAAGCTGACCACACCTGCTAGAAGATGGAGGTATGCAGCCCCGTTAGTAGGA
GTAATACTACCCAGCTTATAACCCTCAAACGTAGGGCAGATGGCGGCCGCGATATCCTGCAGATGCA

CTE1 - 323bp

GATCCTAGAGACCATTTCGCGATTCCATGAGACTCCAAGGGTTCTGCACAACCTTATGCACCTCTATTAGATCATTGTGTTT
TACGAAGCCTGGACTGCATTACATATTCACAACCAACATGAGAAGAGCGGAATAGATGGCCGGATGTTTGGTGGCTTTGA
TATATTGTGAGGAGCATTGCGAACCTTAGAGCTGTCCGGTCAAATAACCCCTCACATAAAGTGAATGTATGGGATAA
TCAAAGACTAAGGGAGGGCTTTTTATAGAAGGCGTGAGGTATGCTATCCCCCTCTGAAGACGCGGCCGCGATATCCTGC
AGATGCA

CTE1 - 423bp

GATCCGTATACGTTTCTAATTTGTAGTTAACGGTTGGATACCCTTTGAGGCATGTAATATGGTACTGAGCTTCGGCACA
GGGCTCAAATTCATCATTAAATGTCTCCGATGTGGCTATATGTCATGGATAAAGGCAGCCCCCTATATCTTTTTTTTGTG
GCAGCATGGGTCCATCAAAGCAATTATTCAAGGTTCTAATGACCTCCACAGCTCTAAACGTAATTCATCTGGCTTTGCCT
GTACTTACTTCCCTCCATGAAAAAAGTGTGATAATGCTCATAATGCTGCCAGCAATTTCTCCCTTCTCAAGACTATT
CTGGCTTCTGGTACTTAAAAACAGGGCTTAGAGTATGGCTGCTGACAAAATTGCACTCTAAACGCTAGCTTAGGTCTT
CTGCGGCCGCGATATCCTGCAGATGCA

CTE1 - 523bp

GATCCGTTAGCTATCGTTTCGCGAGAAAGTTAGTAGACACACAGGACCCAGGCGTGCAAGTCAATTTAGCTGACTACACC
GATTCTGGTTAAAGAGCCTATGGCCACCCTTATTTTTAGAGAAAAAAAACCACACCTCTAATGTGTTGGGCACTAGAAAA
AGCTAACTACCTAGTCCGTTTCTGGACGACTTCATTGGGAATAACATACCCCCACTGTGATTAAGACTGGCACTGTCTT

AATGCTTTCTTCAATAGGTTTGGCTCATGTGTGATTCCCTCTGGCAAACCTTATAGAGGACAAGCAGAATAAACCAATTCA
AGGTCGTTGTAGCTGAAGGCCTGGCCTGCCTGACAGTTAATTATGAGCATGTCTTGCCCTTCATGGTGGATATTCACAGC
TGAAAGTGGTATTGGCATTFTTTTTCTGAGGACACAACGAGGAAATCTGATAAATACGGCCACCTGAAGTCTAGCTCGGAG
TTAACAATTTACCACGTTTAGAGCGGCCGCGATATCCTGCAGATGCA

CTE1 - 623bp

GATCCGCTCGCACTTAGCCTGTTAAGGGGTTTCGCGCTCGTCTAGTCTGTGCTGTTGCCTGGATAGTAAATTATCATGGTA
CAAACTTTTAAGAGCCAGTTAAATGGAGATGGATTTAAAAAGAGTTATTGTAAAGTCTCCCCAGGTGTGTCAATAATAT
CCCAACAGATTGCCCTGGCCTGACCCCTAAATGCAATTTGGGATTCCCTTTTAGTTGCTTTCATTAATAATGTACCAGC
GCAGTAAAAAAGCACAAAGTATATTGTTTATGTAACCTCACTATCTCATTTGCACTGGTTACATGGCAGCTTCAGACTGA
CTAAAACTACACTTTTCCCACCATGGTTCAAAGATCAACAGAAGTGGGCCAACAAAAGCAATTTTTTTCATGTGGTCTAAC
TACCAACTTATTATGAGTTAAGTTACTTTTAGGTTTAAATCACAGCAGTTTTTCCCTCCACACCTCCCAGAGATACTTT
CAGGGTGGCTAAACTTGGCTAAAGGCTTCCGGACCAACCCTTGTTCCTTATGGTGTCTGTGTCTGACAACCGCGTAAG
GCATGGAATTCAGCTATTTATCCGATCGTTTATATGGGCGTGGGCCGCGATATCCTGCAGATGCA

CTE1 - 723bp

GATCCTTGGACCGTTAATTCATATATCGAAGTAGCAGGTTGTTGCCCGCCTGATGTTGCCACTACTTGCTCATGACAGT
TTTTTTAGGCAATGCAAACCTACTATTTGATATTTTTTCCAAGTACAGTTGTAGGGTACTCCTTATACTGATTCTTCTGA
GCCTGTACGGGGAGCATTAGGTACTGATGTAGTAGGAGTTGAGCTTCACAAATTCACCAGGTAAGCCCAAATTTATTTTC
TGCTTGGACAGGTCCACCTCACATGGGTCTGTCTAATATATTAAGAGGGATTTTTCTTTGCTGTATTGCAGCCCAGTAT
ATCTGTTACTTACAGTAGTAGTCCATTATTGCTGGCCTAGGGGCTTTTGTCTTACACGAACACCCTCTGTAAATTTG
AGGTCGTCCTTAGAGTCAAACCATTTCATGGAGCGCTCTGTGCATCTACCAACTATCGCTAAGCATTCACTTGGTTGGTTT
AAGTGGAGGCAACTCCATTATCTTCTAGCATAACCCTTCCAGGCTACATGTAGAAAGAGATCTGTTGGGCCCCACTATTT
TTTACCCAGGGAAGCCTACTTTAGTTATAGCTTGGCAGAGATTTTTCTGTGTCTGTGTAGAAAGTCACTTTTAAACACC
AGGAGGTGGATGTGGGGCCAGGAAATATGTCAATAACGATACGGGACTTCTAACAGTGACTCGCGGCCGCGATATCCTGC
AGATGCA

CTE1 - 823bp

GATCCTTAAGTTCGTGTCCTTCTCCTACGATCTTGTGAACGATGGATATTTTTCTTTCTAAACTTTAAACAAACAGTGGAGA
GATGTTGTTGTGTGTGGAACGACGCTTAGCCTACCGAGGAAGATCCAGACTACAATAGAATATGTGGCCAAAACCTCTCCG
CAACTTCAGCAGCAAAAAGGATATTATTGACATAACCTCCTCACAAAAGTACACAAATGGCTAAATAACAGAGCCCCTC
TTTTTACTAGGGAATGGTGGATGTGGACTTTAGAATTTAAGATAATAAAGCTCTTGATCCCAATGTTATTTCCATGTGA
GGGACATTAATTTGAGTAACCTTTGCCACATAACCCTCTCCAGAGTCCATTCTCTAAAACCTTGAAGCTCCGCCCTTTTT
ACGCACATTTAGGCTTCCAATTACGGTCAATGGTCTTGAAGATTGGGAGCTTTTGAAGAGTAATAAGAACCATCACAAAA
GGAACCCAGAAGCCGGGAGTGTCTACCAAAAAAATTCAAGGGTTAAAAAAGTGCATTTTTCTCCTGTTTTTTTACACAT
GATTTTTGAATGCTGATGGGTCCACGTCCAGCTCTAAAGGTAGGTTTCATGGTTCTCAAAGTTGCTTTCTTGTGAGAATTG
AGCCACATCAGGTAGGTGGGGAAGTAGATCAGTGAGGATGCTTACATGTGTGGGCACTGGGAACAGAATGCTTCAATAA
CACGAGCTGACGAGGGCCCGCTATGAAAAAAGATTCTCTGTGCCCTTGGCGCCTCCGCACCTTAAAGAATTGATGACC
GTGCGGCCGCGATATCCTGCAGATGCA

CTA - 150bp

GGGGGATCCTACGTTCCAAATGCAGCGAGCTCGTATAACCCTTTAAGAGTTGCTCTTTTTGTTTGGTAAGTTGCAAATCG
AAGTTTTAGATTGAGTTCTACGTCGAGCGGCCGCGATATCCTGCAGATGCATCCAGTACTAGTATGGCCC

CTA - 250bp

GGGGGATCCTTATCTGTCAAACCGCTAATGTCCGTTCTAAGACCGTCTGGAGAACACTTGCCCATCAGTGCTTTTTGAAC
CTTTTTTTCACAGGTCCCTTCCGATTACACTGAGAAGCTGACCACACCTGCTAGAAGATGGAGGTATGCAGCCCCTTAGT
AGGAGTAATACTACCAGCTTATAACCCTCAAACGTAGGGCAGATGGCGGCCGCGATATCCTGCAGATGCATCCAGTACT
AGTATGGCCC

CTA - 350bp

GGGGGATCCTAGAGACCATTTCGCGATTCCATGAGACTCCAAGGGTTCTGCACAACCTTATGCACCTCTATTAGATCATTGT
GTTCTACGAAGCCTGGACTGCATTACATATTCACAACCAACATGAGAAGAGCGGAATAGATGGCCGGATGTTTGGTGGCT

TTGATATATTGTGAGGAGCATTGCGAACCTAGAGCTGTCCGGTCAAATAACCCCTCACATAAGTGTAATGTCATGGG
ATAATCAAAGACTAAGGGAGGGCTTTTATAGAAGGCGTGAGGTCATGCTATCCCCCTCTGAAGACGCGGCCGATATC
CTGCAGATGCATCCAGTACTAGTATGGCCC

CTA - 450bp

GGGGGATCCGTATACGTTTCTAATTTGTAGTTAACGGTTGGATACCACTTTGAGGCATGTAATATGGTACTGAGCTTCGG
CACAGGGCTCAAATTCATCATTAAATGTCTCCGATGTGGCTATATGTCATGGATAAAGGCAGCCCCCTATATCTTTTTT
TGTGGCAGCATGGGTCCATCAAAGCAATTATTCAGGGTCTTAATGACCTCCACAGCTCTAAACGTAATTCATCTGGCTTT
GCCTGTACTTACTTCCATGAAAAAAGTGTGGATAATGCTCATAATGCTGCCAGCAATTTCTCCCTTCTCAAGAC
TATTCTGGCTTCCCTGGGTACTTAAAAACAGGGCTTAGAGTATGGCTGCTGACAAAATTGCACTCTAAACGCTAGCTTAGG
TCTTCTGCGGCCGCGATATCCTGCAGATGCATCCAGTACTAGTATGGCCC

CTA - 550bp

GGGGGATCCGTTAGCTATCGTTCGCGAGAAAGTTAGTAGACACACAGGACCCAGGCGTGCAAGTCAATTTAGCTGACTA
CACCGATTCTGGTTAAAAGAGCCTATGGCCACCCTTATTTTAGAGAAAAAAAACCACACCTCTAATGTGTTGGGCCTAG
AAAAAGCTAACTACCTAGTCCGTTTCTGGACGACTTCATTGGGAATAACATACCCCCACTGTGATTAAGACTGGCACTG
TCCTAATGCTTTTCTCAATAGGTTTGGCTCATGTGTGATTCCCTCTGGCAAACCTTATAGAGGACAAGCAGAATAAACCAA
TTCAAGGTCGTTGTAGCTGAAGGCCTGGCCTGCCTGACAGTTAATTATGAGCATGTCTTGCCCTTCATGGTGGATATTCA
CAGCTGAAAGTGGTATTGGCATTTTTTTCTGAGGACACAACGAGGAAATCTGATAAATACGGCCACCTGAAGTCTAGCTC
GGAGTTACAATTTACCACGTTTAGAGCGGCCGCGATATCCTGCAGATGCATCCAGTACTAGTATGGCCC

CTA - 650bp

GGGGGATCCGCTCGCACTTAGCCTGTTAAGGGTTTCGCGCTCGTCTAGTCTGTGCTGTTGCCTGGATAGTAAATTATCAT
GGTACAAACTTTTAAAGAGCCAGTTAAATGGAGATGGATTTAAAAGAGTTATTGTAAAGTCTCCCCAGGTGTGTCATTAA
ATATCCCAACAGATTGCCCTGGCCTGACCCCTAAATGCAATTTTGGGATTCCCTTTTAGTTGCTTTCATTAATGTAC
CAGCGCAGTAAAAAAGCACAAAGTATATTGTTTATGTAACCTCACTATCTCATTTGCACTGGTTACATGGCAGCTTCAGA
CTGACTAAAACCTACTTTTTCCACCATGGTTCAAAGATCAACAGAAGTGGGCCAACAAAAGCAATTTTTTTCATGTGGTC
TAACTACCAACTTATTATGAGTTAAGTTACTTTTTAGGTTTAAAATCACAGCAGTTTTTCCCTCCACACCTCCCAGAGATA
CTTTTCAGGGTGGCTAAACTTGGCTAAAGGCTTCCGGACCAACCCTTGTTCCTTATGGTGTCTGTGCTGCAACCCGCG
TAAGGCATGGAAATTCAGCTATTTATCCGATCGTTTATATGGGCGTGCGGCCGCGATATCCTGCAGATGCATCCAGTACT
AGTATGGCCC

CTA - 750bp

GGGGGATCCTTGGACCGTTAATTCATATATCGAAGTAGCAGGTTGTTGCCCGCCTGATGTTGCCACTACTTGCTCATGA
CAGTTTTTTTTAGGCAATGCAAACTACTATTTGATATTTTTTCCAAGTACAGTTGTAGGGTACTCCTTATACTGATTCTT
CTGAGCCTGTACGGGAGCATTAGGTACTGATGTAGTAGGAGTTGAGCTTCAAAATTACCAGGTAAGCCCAAATTTAT
TTTCTGCTTGGACAGGTCCACCTCACATGGGTCTGTCTAATATATTAAGAGGGATTTTTCTTTGCTGTATTGCAGCCCA
GTATATCTGTTACTTACAGTAGTAGTCCATTATTGCTGGCCTAGGGGCTTTTTGCTCCTACACGAACACCCTCTGTAAAA
TTTGAGGTCGTCCTTAGAGTCAAACCATTATGGAGCGCTCTGTGCATCTACCAACTATCGCTAAGCATTCACTTGGTTG
GTTTAAAGTGGAGGCAACTCCATTATCTTCTAGCATAACCCTTCCCAGGCTACATGTAGAAAGAGATCTGTTGGGCCCACT
ATTTTTTACCAGGGAAGCCTACTTTAGTTATAGCTTCCAGAGATTTTTCTGTGTCATGTAGAAGTCACTACTTTTAA
CACCAGGAGGTGGATGTGGGGCCAGGAAATATGTCAATAACGATACGGGACTTCTAACAGTACTCGCGGCCGCGATATC
CTGCAGATGCATCCAGTACTAGTATGGCCC

CTA - 850bp

GGGGGATCCTTAAAGTCGTGTCTTCTCCTACGATCTTGTGAACGATGGATATTTTCTTTCTAAACTTTAAACAAACAGTG
GAGAGATGTTGTTGTGTGGAACGACGCTTAGCCTACCGAGGAAGATCCAGACTACAATAGAATATGTGGCCAAAACCTC
TCCGCAACTTCAGCAGCAAAAAGGATATTATTGACATAACCTCCTCACAAAAGTACACAAATGGCTAAATAACAGAGCC
CCTCTTTTTTACTAGGGAAATGGTGGATGTGGACTTTAGAATTTAAGATAATAAAGCTCTTGATCCCAATGTTATTTCCAT
GTGAGGGACATTAATTTAGTAACCTTTGCCACATACCCTCTCCCAGAGTCCATTCTCTAAAACCTTGAAGCTCCGCCCT
TTTTACGCACATTAGGCTTCCAATTACGGTCAATGGTCTTGAAGATTGGGAGCTTTTGAAGAGTAATAAGAACCATCACA
AAAAGGAACCCAGAAGCCGGGAGTGTCTACCAAAAAAATTCAAGGGTAAAAAAAAGTGACATTTTCTCCTGTTTTTTAC
ACATGATTTTTGAATGCTGATGGGTCCACGTCCAGCTCTAAAGGTAGGTTTATGGTTCTCCAAAGTTGCTTTCTGTGTCAGA

ATTGAGCCACATCAGGTAGGTGGGGAAGTAGATCAGTGAGGATGCTTCACATGTGTGGGCACTGGGAACAGAATGCTTCA
ATAACACGAGCTGACGAGGGCCCGCTATGAAAAAAGATTCTCTGTGCCCCCTGGCGCCTCCGCACTTAAAGAATTGAT
GACCGTGCGGCCGCGATATCCTGCAGATGCATCCAGTACTAGTATGGCCC

CTL - 150bp

AGTATGGCCCCGGGGATCCTACGTTCCAAATGCAGCGAGCTCGTATAACCCTTTAAGAGTTGCTCTTTTTGTTTTGGTAAG
TTGCAAATCGAAGTTTTAGATTGAGTTCTACGTGCGAGCGGCCGCGATATCCTGCAGATGCATCCAGTACA

CTL - 250bp

AGTATGGCCCCGGGGATCCTTATCTGTCAAAACCGCTAATGTCCGTTCTAAGACCGTCTGGAGAACACTTGCCCATCAGT
GCTTTTTGAACCTTTTTTTCACAGGTCCCTTCCGATTACACTGAGAAGCTGACCACACCTGCTAGAAGATGGAGGTATGCA
GCCGTTAGTAGGAGTAATACTACCCAGCTTATAACCCTCAAACGTAGGGCAGATGGCGGCCGCGATATCCTGCAGATGC
ATCCAGTACA

CTL - 350bp

AGTATGGCCCCGGGGATCCTAGAGACCATTGCGGATTCCATGAGACTCCAAGGGTTCTGCACAACCTTATGCACCTCTATT
AGATCATTGTGTTCTACGAAGCCTGGACTGCATTACATATTACAACCAACATGAGAAGAGCGGAATAGATGGCCGGATG
TTTTGGTGGCTTTGATATATTGTGAGGAGCATTGCGAACCTAGAGCTGTCCGGTCAAATAACCCCTCACAATAAGTGTA
ATGTCATGGGATAATCAAAAGACTAAGGGAGGGCTTTTTATAGAAGGCGTGAGGTCATGCTATCCCCCTCTGAAGACGCG
CCGCGATATCCTGCAGATGCATCCAGTACA

CTL - 450bp

AGTATGGCCCCGGGGATCCGTATACGTTTCTAATTTGTAGTTAACGGTTGGATACCACTTTGAGGCATGTAATATGGTAC
TGAGCTTCGGCACAGGGCTCAAATTGCATCATTAAATGTCTCCGATGTGGCTATATGTCATGGATAAAGGCAGCCCCCTA
TATCTTTTTTTGTGGCAGCATGGGTCCATCAAAGCAATTATTGAGGGTCTTAATGACCTCCACAGCTCTAAACGTAATTC
ATCTGGCTTTGCCTGTACTTACTTCCCTCCATGAAAAAAGTGTGATAATGCTCATAATGCTGCCAGCAATTTCTCCC
TTCTCAAGACTATTCTGGCTTCCCTGGGTACTTAAAAACAGGGCTTAGAGTATGGCTGCTGACAAAATTGCACTCTAAACG
CTAGCTTAGGTCTTCTGCGGCCGCGATATCCTGCAGATGCATCCAGTACA

CTL - 550bp

AGTATGGCCCCGGGGATCCGTTAGCTATCGTTGCGGAGAAAGTTAGTAGACACACAGGACCCAGGCGTGCAAGTCAATTT
CAGCTGACTACACCGATTCTGGTTAAAAGAGCCTATGGCCACCCTTATTTTAGAGAAAAAAACCACACCTCTAATGTGT
TGGGCACTAGAAAAAGCTAACTACCTAGTCCGTTTCTGGACGACTTCATTGGGAATAACATACCCCCCACTGTGATTAAG
ACTGGCACTGTCTAATGCTTTCTTCAATAGGTTTGGCTCATGTGTGATTCCCTCTGGCAAACCTTATAGAGGACAAGCAG
AATAAACCAATTCAAGGTCGTTGTAGCTGAAGGCCTGGCCTGCCTGACAGTTAATTATGAGCATGTCTTGGCCTTCATGG
TGGATATTCACAGCTGAAAGTGGTATTGGCATTTTTTCTGAGGACACAACGAGGAAATCTGATAAATACGGCCACCTGA
AGTCTAGCTCGGAGTTAAACAATTTACCACGTTTAGAGCGGCCGCGATATCCTGCAGATGCATCCAGTACA

CTL - 650bp

AGTATGGCCCCGGGGATCCGCTCGCACTTAGCCTGTTAAGGGGTTGCGCCTCGTCTAGTCTGTGCTGTTGCCTGGATAGT
AAATTATCATGGTACAACTTTTTAAGAGCCAGTTAAATGGAGATGGATTTAAAAGAGTTATTGTAAAGTCTCCCCAGGT
GTGTCATTAATATCCCAACAGATTGCCCTGGCCTGACCCCTAAATGCAATTTGGGATTCCCTTTTAGTTGCTTTTCAT
TAAAATGTACCAGCGCAGTAAAAAAGCACAAAGTATATTGTTTATGTAACCTCACTATCTCATTGCACTGGTTACATGG
CAGCTTCAGACTGACTAAAACCTACTTTTTCCACCATGGTTCAAAGATCAACAGAACTGGGCCAACAAAAGCAATTTTT
TCATGTGGTCTAACTACCAACTTATTATGAGTTAAGTTACTTTTTAGGTTTAAAATCACAGCAGTTTTTCCCTCCACACCT
CCCAGAGATACTTTGAGGTTGGCTAAACTTGGCTAAAGGCTTCCGGACCAACCCTTGTTCCTTTATGGTGCTTGTGTCCT
GACAACCGGTAAGGCATGGAATTCAGCTATTTATCCGATCGTTTATATGGGCGTGCGGCCGCGATATCCTGCAGATGC
ATCCAGTACA

CTL - 750bp

AGTATGGCCCCGGGGATCCTTGGACCGTTAATTCATATATCGAAGTAGCAGGTTGTTGCCCCGCCTGATGTTGCCACTAC
TTGCTCATGACAGTTTTTTTTAGGCAATGCAAACTACTATTTGATATTTTTTCCAAGTACAGTTGTAGGGTACTCCTTAT
ACTGATTCTTCTGAGCCTGTACGGGAGCATTAGGTAAGTACTGATGTAGTAGGAGTTGAGCTTCACAAATTCACCAGGTAAGC

CCAAATTTATTTTCTGCTTGGACAGGTCCACCTCACATGGGTCTGTCTAATATATTTAAAAGAGGGATTTTCTTTGCTGTA
TTGCAGCCCAGTATATCTGTTACTTACAGTAGTAGTCCATTATTGCTGGCCTAGGGGCTTTTGTCTCTACACGAACACCA
CTCTGTAAAATTTGAGGTCGTCCTTAGAGTCAAACCATTATGAGGAGCGCTCTGTGCATCTACCAACTATCGCTAAGCATT
CACTTGGTTGGTTTAAAGTGGAGGCAACTCCATTATCTTCTAGCATACCCTTCCCAGGCTACATGTAGAAAGAGATCTGTT
GGGCCCCACTATTTTTTACCAGGGAAGCCTACTTTAGTTATAGCTTGGCAGAGATTTTCTGTGTCATGTAGAAGTCAT
CCACTTTTAAACACCAGGAGGTGGATGTGGGGCCAGGAAATATGTCAATAACGATACGGGACTTCTAACAGTGACTCGCGG
CCGCGATATCCTGCAGATGCATCCAGTACA

CTL - 850bp

AGTATGGCCCGGGGATCCTTAAGTCGTGTCCTTCTCCTACGATCTTGTGAACGATGGATATTTTCTTTCTAA
ACTTTAAACAAACAGTGGAGAGATGTTGTTGTGTGTGGAACGACGCTTAGCCTACCGAGGAAGATCCAGACTA
CAATAGAATATGTGGCCAAAACCTCTCCGCAACTTCCAGCAGCAAAAAGGATATTATTGACATAACCTCCTCACA
AAAAGTACACAAATGGCTAAATAACAGAGCCCTCTTTTTACTAGGGAATGGTGGATGTGGACTTTAGAATT
TAAGATAATAAAGCTCTTGATCCCAATGTTATTTCCATGTGAGGGACATTAAATTGAGTAACCTTTGCCACAT
ACCCTCTCCAGAGTCCATTCTCTAAAACCTTGAAGCTCCGCCCTTTTTACGCACATTAGGCTTCCAATTACG
GTCAATGGTCTTGAAGATTGGGAGCTTTTGAAGAGTAATAAGAACCATCACAAAAGGAACCCAGAAGCCGGG
AGTGTCTACCAAAAAAATTCAAGGGTTAAAAAAAAGTGACATTTCTCCTGTTTTTTACACATGATTTTGAAT
GCTGATGGGTCCACGTCCAGCTCTAAAGGTAGGTTTCATGGTTCTCAAAGTTGCTTTCTTGTGAGAATTGAGC
CACATCAGGTAGGTGGGGAAGTAGATCAGTGAGGATGCTTCACATGTGTGGGCACTGGGAACAGAATGCTTCA
ATAACACGAGCTGACGAGGGCCCGCTATGAAAAAAAAGATTCTCTGTGCCCCCTGGCGCCTCCGCACTTAAAG
AATTGATGACCGTGCGGCCGCGATATCCTGCAGATGCATCCAGTACA

Legacy 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-121-1031.

Transposon Sequences

5' -GCCTCCCTCGCGCCATCAGAGATGTGTATAAGAGACAG

5' -GCCTTGCCAGCCCGCTCAGAGATGTGTATAAGAGACAG

Adapters (showing optional bar code)

5' -AATGATACGGCGACCACCGAGATCTACACGCCTCCCTCGCGCCATCAG

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

PCR Primers

5' -AATGATACGGCGACCACCGA

5' -CAAGCAGAAGACGGCATAACGA

Oligonucleotide Sequences for Genomic DNA

(Obsolete)

Adapters

5' P-GATCGGAAGAGCTCGTATGCCGTCTTCTGCTTG

5' ACACTCTTTCCCTACACGACGCTCTTCCGATCT

PCR Primers

5' AATGATACGGCGACCACCGAGATCTACACTCTTTCCCTACACGACGCTCTTCCGATCT

5' CAAGCAGAAGACGGCATAACGAGCTCTTCCGATCT

Genomic DNA Sequencing Primer

5' ACACTCTTTCCCTACACGACGCTCTTCCGATCT

Oligonucleotide Sequences for Paired End DNA

(Obsolete)

PE Adapters

5' P-GATCGGAAGAGCGGTTTCAGCAGGAATGCCGAG

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' CAAGCAGAAGACGGCATAACGAGATCGTGATGTGACTGGAGTTC

PCR Primer, Index 2

5' CAAGCAGAAGACGGCATAACGAGATACATCGGTGACTGGAGTTC

PCR Primer, Index 3

5' CAAGCAGAAGACGGCATAACGAGATGCCTAAGTGACTGGAGTTC

PCR Primer, Index 4

5' CAAGCAGAAGACGGCATAACGAGATTGGTCAGTGACTGGAGTTC

PCR Primer, Index 5

5' CAAGCAGAAGACGGCATAACGAGATCACTGTGTGACTGGAGTTC

PCR Primer, Index 6

5' CAAGCAGAAGACGGCATAACGAGATATTGGCGTGACTGGAGTTC

PCR Primer, Index 7

5' CAAGCAGAAGACGGCATAACGAGATGATCTGGTGACTGGAGTTC

PCR Primer, Index 8

5' CAAGCAGAAGACGGCATAACGAGATTCAAGTGTGACTGGAGTTC

PCR Primer, Index 9

5' CAAGCAGAAGACGGCATAACGAGATCTGATCGTGACTGGAGTTC

PCR Primer, Index 10

5' CAAGCAGAAGACGGCATAACGAGATAAGCTAGTGACTGGAGTTC

PCR Primer, Index 11

5' CAAGCAGAAGACGGCATAACGAGATGTAGCCGTGACTGGAGTTC

PCR Primer, Index 12

5' CAAGCAGAAGACGGCATAACGAGATTACAAGGTGACTGGAGTTC

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

(Obsolete)

RT Primer

5' CAAGCAGAAGACGGCATAACGA

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' CAAGCAGAAGACGGCATAACGA

Small RNA PCR Primer 2

5' AATGATACGGCGACCACCGACAGGTTTCAGAGTTCTACAGTCCGA

Small RNA Sequencing Primer

5' CGACAGGTTTCAGAGTTCTACAGTCCGACGATC

Revision History

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

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