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Supplementary information

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Enhancing RNA base editing on mammalian transcripts with small nuclear RNAs

In the format provided by the authors and unedited

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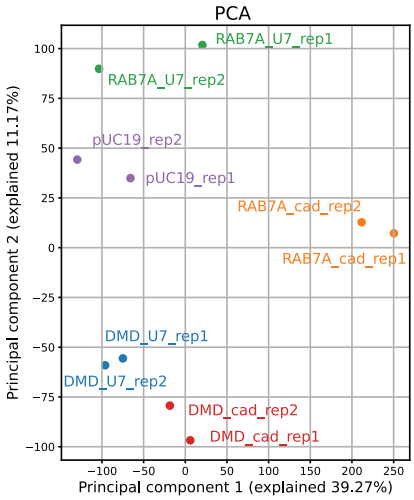
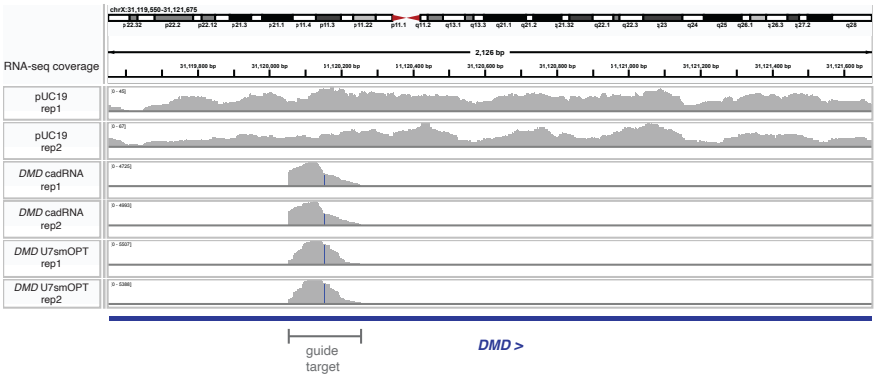
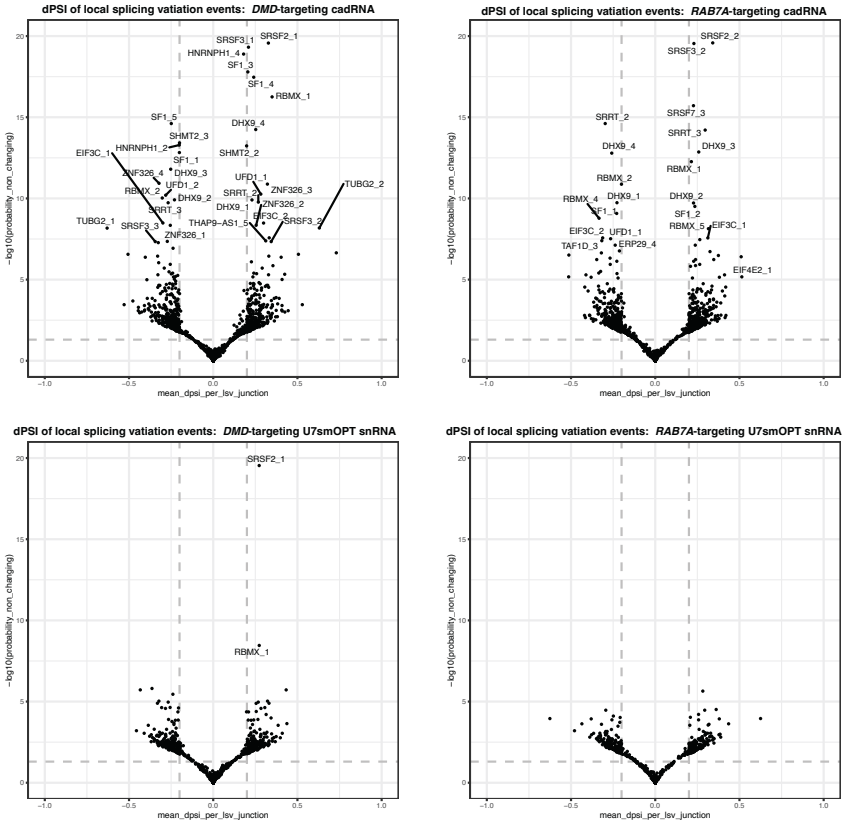


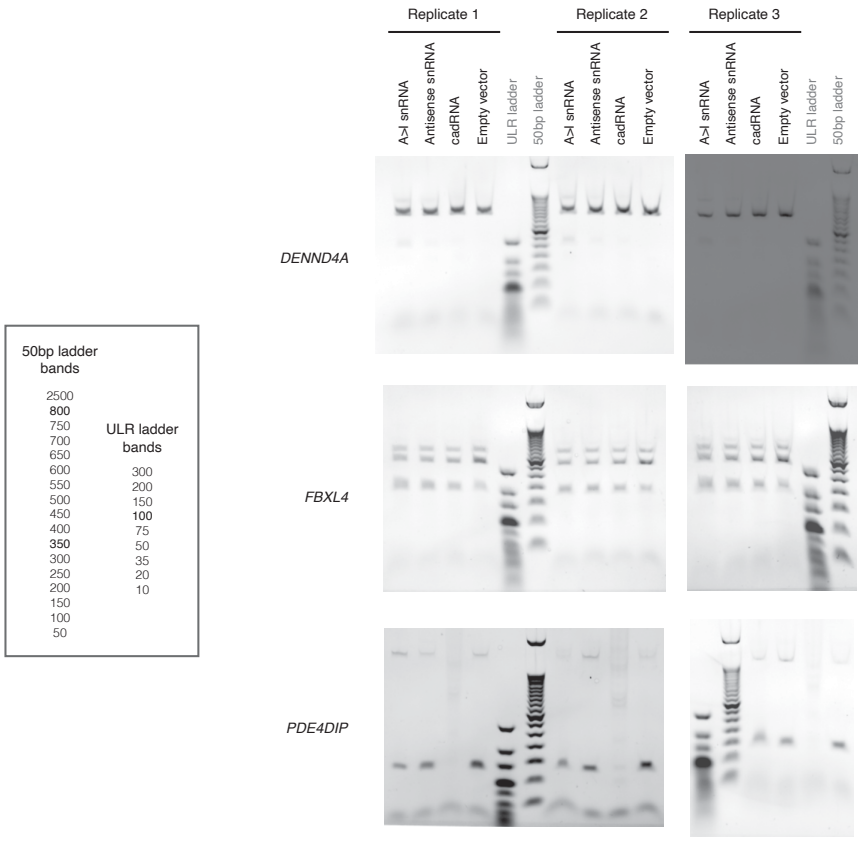
Supplementary Figure 1: Principal Component Analysis (PCA) plot of RNA-guided A>I base editor RNA sequencing data. PCA plot of RNA sequencing samples analyzed in Fig. 2, with each of two replicates colored by sample (pUC19, *RAB7A*-targeting cadRNA, *RAB7A*-targeting U7smOPT snRNA, *DMD*-targeting cadRNA, and *DMD*-targeting U7smOPT snRNA).



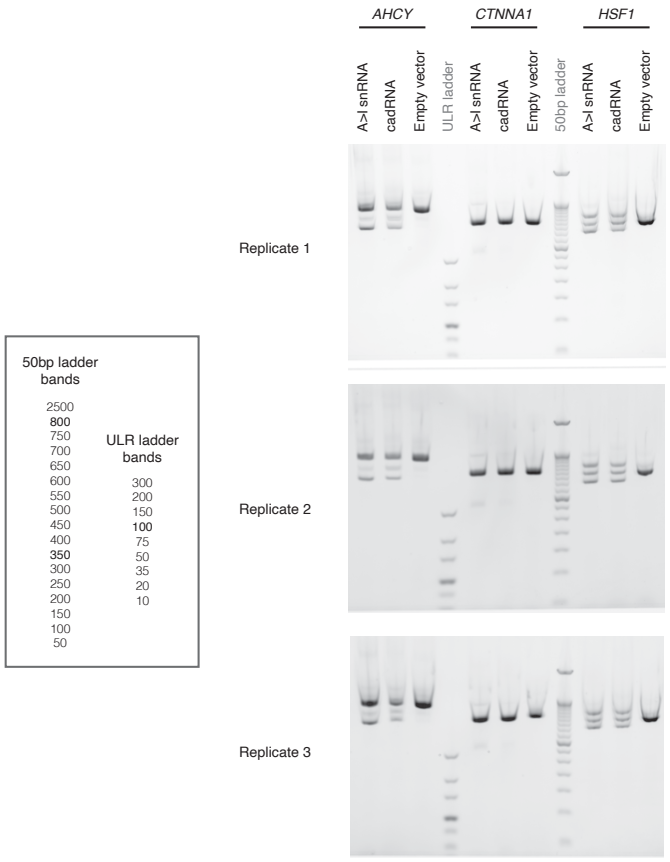
Supplementary Figure 2: Alignment of RNA-guided A>I base editor RNA sequencing reads to *DMD* gene. Alignment showing RNA sequencing read pile-up across *DMD*-targeting cadRNA and U7smOPT snRNA replicates at the guide target on *DMD*.



Supplementary Figure 3: Differential splicing analysis of RNA-guided A>I base editor RNA sequencing data. Scatterplots of local splicing variations (LSVs) against empty control (pUC19) of cadRNA backbone vs. U7smOPT snRNA backbone for *RAB7A*- and *DMD*-targeting guides. Cutoffs for significance are p-value < 0.05 and various dPSI (differential Percent Spliced In) values used in Fig. 2.



Supplementary Figure 4: Splicing gels for A>I editing-targeted pre-mRNA of *DENND4A*, *FBXL4*, and *PDE4DIP*. Full RT-PCR gels for all replicates of experiments in Fig. 4c. n = 3 biological replicates per condition.



Supplementary Figure 5: Splicing gels for A>I editing-targeted pre-mRNA of *AHCY*, *CTNNA1*, and *HSF1*. Full RT-PCR gels for all replicates of experiments in Figure 4d. n = 3 biological replicates per condition.

Supplementary Dataset 1: DESeq2 output for Fig. 2.

Spreadsheet containing standard DESeq2 output for conditions tested in Fig. 2 (RAB7A-targeting cadRNA, RAB7A-targeting U7smOPT snRNA, DMD-targeting cadRNA, and DMD-targeting U7smOPT snRNA) relative to pUC19 control.

Supplementary Table 1: Plasmid sequences.

Name	Sequence
U1 promoter-terminator-U1_snRNA backbone	taacacaggctaaggaccagcttctttgggagagaacagacgcaggggcgggagggaaaaagggagaggca gacgtcacttccccttggcggctctggcagcagattggtcggttgagtggcagaaaggcagacggggactggg caaggcactgtcggtgacatcacggacagggcgacttctatgtagatgaggcagcgcagaggctgctgcttcgc cacttgctgcttcaccacgaaggagttcccgtgccctgggagcgggttcaggaccgctgatcggaagtgagaat cccagctgtgtgtcagggctggaaagggctcgggagtgcgcggggcaagtgaccgtgtgtgtaaagagtgag gcgtatgaggctgtgtcggggcagaggcccaagatctca**<guide>**gcaggggagataccatgatcacgaag gtggttttcccagggcgaggcttatccattgcactccggatgtgctgacccctgcgatttccccaaatgtgggaaac tcgactgcataatttgtggtagtgggggactgcgttcgcgctttcccctgactttctggagtttcaaaagtagactgta cgctaa
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Supplementary Table 2: Guide and snoRNA sequences.

Name	Sequence
RAB7A A>I guide	AGACAGTTGTCCCCCTGGAGAGATGAAATCGATGTTGGCTCTT AATGGAAAGATAAAAGGCGTACATTCAAGATGTGTCTACTGTA CAGAATACTGCCGCCAGCTGCTAATCCCAATTCTGAGTATGTGT CTGCAATCCAAACACCCATCAACCCTCCACCTTTGTCGCCTGCA TTACAGGAGAATAACACATAATCCAA
DAXX A>I guide	GCTCCTGTAACCTGATGCCCACATCTCGGAAGGCATCCTGAGC CATGAGCTGGAGCTGCTGTCGGGGGAGGCCAAGGCTGTGTCG GGCAGCTGCCTTCTCCACAGCCCGAAGCACATCCCCATAGTCA GGGAAGGTATCAGGCCCTGGCTTGTTGATGAGCCGCTCAATGC GCCTGTTAACCTCTGGGTAGCGGGTGCCA
GAPDH A>I guide	GGCCATCCACAGTCTTCTGGGTGGCAGTCTACGCATGGACTGT GGTCTACTGTCCTTCCACGATACGTTCGTTGTCATGGATGACCT TGGCCAGGGGTGCCAAGCACAACGTGGTGCAGGAGGCAAACG TGATGATCTTGAGGCACAAGTCATACTTCTCATGCAAGACACCC ATGACGAACATGGGGGCATCAGCAGAG
TARDBP A>I guide	TGTGTTTCATATTCCGTAAAACGAACAATCGGAAACCCCTTTGA ATGTGGTGTCTTAAGATCTTTCAACTCCTGCACCATAAGAACTT CTCCAAAGGTACCAAAATTGAGTTTCAGGTCCTGTTCCCAAGT GTTCCATGGGAGAGGGTACACTATTAAATCGGTACAGTTCTGGA CTGCTCTTGTCACTTTCACTGCTGA
ALDOA A>I guide	GTCCGTCCTTCTTGTACTGGGCACAGCGCTCAGACAGCCCATC CAACCCTTGGGTGGTAGTCTCGCCATTTGTCCCTGCCAGGGGG ACCACGCCCTTGTCCACCTTGATGCCCACAACACCGCCCTTGG ATTTGATAACTTGGGGGAAGGGACGCCCATCATCCGCCTTCTGG TAGAGTGTCTCATGGAAGAGGATGACAC
SMAD4 A>I guide	TTGTAGTCCACCATCCTGATAAGGTTAACCCGCCCAACGGTAAA AGAGGAGAGTCTAAAGGTTGTGCCAGTGCAATCGGCATGGTAT GAAGTACTTCGTCCAGGAGGACCAGGGCCCGGTGTAAGACGG TTTCAATCCAGCAAGCACATTCTTTGATGCTCTGAGAAGGGTAA TCCGGTCCCCAGCCTTTCACAAAACTC
FANCC A>I guide	GAGTCTGGGCTGAGGGACCTGGCTCTGCTAAATGTAAAATAGA TACTTCGTGATTGTCCCAAGATGACATCAGCTCATTCTCACAGC CCAGCGAGGGCACCTACTCGTGTAATGCGTGGCCACAGCAGTT CACCTGTCCTGTGGGGGAGGCGAGCCTGATCCCAGTGGCCGGG CACCCACACGGCCTGCGTGCCTTCTAG
GAA A>I guide	tggtgtccaggggggccggcagcgtcacccactgcccctcgctgtggatggctggctcacggggagc tgcaggtgggggtgggaggctgccaagggcctcCactggcaccgtctgcaggtcgtaccatgtgccc aaggggaagtagccagtcacttcggccttcccggcctggagcactggggtgatgagcagggcctccc
BLM A>I guide	gtggtgtaacaaatgattttgaagtctcagaagtatcaaagtcatccatatcatcccaatcattgatggtact taaagaatctggtgaagaactaaattcCaatttcttgagagcagtatcccgggatttctttacagttggtgt gttttgggtagtgcatacaacttccttcggagtctgcaagaaatctggcaataatg

CHD7 A>I guide	gttcatactgattatagtgatcaaaatgtgtcagctttgtttgattttgattagttgaaggatgatgaagggat ggctgtaaagaggcaaagccttggtcCattggcatttgctgacccataggatttactggattttccgggta accacattctccgaggccttcaagaccttcactgaaaatattcccatcctcgccaa
FANCD2 A>I guide	acttaatctcttcaccctgcaagtcccggtttttagattgcccagccagaaagcctctctacaattgttgag agtgagcatagctttgactctgcaaacCaaaagttccagggtctttttgagcagaggcacatgttgggtg agtctcgtgtcctggtgaatcttggaatgcccacacaggtgatgaagcagccttgtgt
COL4A5 A>I guide	actgcatcctaggaattttatatatatatatatcacattttaaaacacaaaaggaattcttcaaaatgttatgtc ctcttcatgcacacttgacatcggcCaattcgtgtcctcaagtctcctgctttcagcgtttctgactgaggtt tactgaacatgtctgacacatctacagttgccagccaaaagctgtaggagttg
DMD A>I guide	aaagctaattacacttgatgtcagcccactctccaaaagctaattacacttgatgtcagaggtaacagattt gcaaaattataggtcacacggtggtatcCattgaatgaatgatttaaaaatcaaaaagaaataaaatggc atgaaagagtaaagctttttcctaccagtccttagcttttcctcttgagcttttctcct
MDN1 A>I guide	acaataaaatttttgtagttgtccaaaagggagcacctgggtaagcaatgtgaccttctgaccacagtta agtctcactttggactcttctttctgttcCatgggtggtcagaggctgtcaccaactcaaaccactgtctga gggcatcgctgagtgtctcaggaagtgcgtttacatctcgaagaatgatatagtatgg
UBR4 A>I guide	acaactcatggctcctaggtatgtacaggccctttgatggcttgggttacagacaacctcatagctggtgc accacacacacgagataaaacaggaagccCaaaaaccccaagccacaccaagaaaaatgagagag gggagggcggggtaacaatgcagcatcccgcggagggaacttaatgcacaaggagggagaacaga
HOTAIR A>I guide	ggaagttcaggcattgggaatggtaatctccatctgctgatttttttctgttcttctgtacttctattatttctgt cttttaaataccccttctgtgtcCacatgcatcacttatttaagtgttctcctatgtctatttttctactgcaacttt tgtcccaagctggggtctatatttagagtgcaaagtcccgtttgca
MALAT1 A>I guide	gaaaaatcttaaaaaaaggcttagcgcccacctcacccctccacccccacgccaacacagtttgctcac atgccagttactccagcataaagctgaaatcCattcaatactattgtcccataactgatctgactttgtatgt aaatacagaaaaagcttgttcacctgttttcctcattttgtccactggtgaattcaact
XIST A>I guide	tgaataaacttgttaaatgacttttggtctggatctcacacctatattacttcatttccttctgtgagcactctat aatgataacatcatttttatatccCagggcatgtagttccgagccccacagaaagtaatcaccattcagta agccaatagttcattcctatctgtatagaactgtaggctttgtaaatctacaca
DENND4A A>I guide	gatgaggtactcccactaatatttgcggggcgcccatagggagtactctgaataatttcacaaccctgttt caatctttctttccagtcatataaaacccCaaaaataaatttttaaaaataaatacacaaagcactttaaatat gaaaagtaatattctcaggcatcatcaactgatccttaaatgtagtagcatggtaa
FBXL4 A>I guide	aggaagactggagactcctatccagcttcaaagcttcttgaaaatccaagcgaatgaagcaaatggaga aggcaagggaaccaggccaggaagaaaaatcCaaaagcagagcaaaaatctcaaaaaccagaggt aaacagtaccactctcttcgaggaatcaaggtagatctcaaaaatgcaaggaaataatccaaaaagt
PDE4DIP A>I guide	gagcctgaagtcttcgattgtcttccctgaggactctgttctcattgcagagctgaggtatggactccagg ccctgactgtagaagttagaagtggatccCgtcccagaaagtagacatttgggtaacagaaactttcaa aagtttcccattcgttatctctcaaagatactgccccaacccagcagaaaaccccaaggac
DENND4A antisense guide	gatgaggtactcccactaatatttgcggggcgcccatagggagtactctgaataatttcacaaccctgttt caatctttctttccagtcatataaaacccctaaaaataaatttttaaaaataaatacacaaagcactttaaatat gaaaagtaatattctcaggcatcatcaactgatccttaaatgtagtagcatggtaa
FBXL4 antisense guide	aggaagactggagactcctatccagcttcaaagcttcttgaaaatccaagcgaatgaagcaaatggaga aggcaagggaaccaggccaggaagaaaaatctaaaagcagagcaaaaatctcaaaaaccagaggta aacagtaccactctcttcgaggaatcaaggtagatctcaaaaatgcaaggaaataatccaaaaagt
PDE4DIP antisense guide	gagcctgaagtcttcgattgtcttccctgaggactctgttctcattgcagagctgaggtatggactccagg ccctgactgtagaagttagaagtggatcctgtcccagaaagtagacatttgggtaacagaaactttcaaa agtttcccattcgttatctctcaaagatactgccccaacccagcagaaaaccccaaggac

AHCY A>I guide	cacgaagctggggtggcccatggcacaacccaggttgaccagccgaccctcggccagcaggatgat gcggcgcccattcttcaaccgataccggtccaccCacacgcaggcagggcaacagtgaaggcaggc agggccccgctcccacagcccaccctctgatctggcaggcctctctgcctccaacagtgcccatgagg a
CTNNA1 A>I guide	catcaaggcagccccactaatgatgctttccagacgctcctccagggaaggcctaaagcgctcctcgct gaagctcaaggggtccacaatgatttgtttcCgcagagaaagtattaccgaatgttagtactcatctctgtt cccttctttattcaaggtgagaaaagtgttattagtaatatcaagatttaacacaaaaat
HSF1 A>I guide (~150 nt guide)	tcgttccccctcacccccgcccgcctacgcacactggccaggctgctgtcaaggtcaggcaggctca tgtcgggcacggtcaccgaggggctgaacagcCgcggaggagggagggaagtcagaacagcacc cgggggcggggcggggagg
IDUA H/ACA box snoRNA	GTGCACATcttcgccGACCTGCTTTCTTCTATGTGAGTAGTGTgactgc ATGTGCTATACAAATAATTGAAGGctttggtcGCAGTATAACTATAAA TAGTAATGCTGCgagttgcCCTTCAGACAAAA
CFTR H/ACA box snoRNA	GTGCACATCTTTCCTTGACCTGCTTTCTTCTATGTGAGTAGTGTC CTGTTGCATGTGCTATACAAATAATTGAAGGCTTTCCTTGCAGT ATAACTATAAATAGTAATGCTGCCTGTTCCCTTCAGACAAAA
ACTB-U1226 H/ACA box snoRNA	GTGCACATAACGCAACGACCTGCTTTCTTCTATGTGAGTAGTGT CAGTCATAATGTGCTATACAAATAATTGAAGGACGCAACGCAGT ATAACTATAAATAGTAATGCTGCAGTCAACCTTCAGACAAAA
EEF2-U2881 H/ACA box snoRNA	GTGCACATTAAGTCCCGACCTGCTTTCTTCTATGTGAGTAGTGT CCTAAGAGATGTGCTATACAAATAATTGAAGGAAGTCCCGCAG TATAACTATAAATAGTAATGCTGCCTAAGACCTTCAGACAAAA
RPS6-U514 H/ACA box snoRNA	GTGCACATGGCTTTCTGACCTGCTTTCTTCTATGTGAGTAGTGT TCAACATAATGTGCTATACAAATAATTGAAGGCCTTTCTGCAGT ATAACTATAAATAGTAATGCTGCCAACATCCTTCAGACAAAA

Supplementary Table 3: Oligonucleotide sequences for PCR, qPCR, Sanger sequencing, NGS, pseudouridylation standardization, and RCA FISH.

Name	Sequence
RAB7A A>I FOR	CCTCCCTCCTTGAAGGCTACC
RAB7A A>I REV	AAGCTCCGCTAACCTAAGAATACC
GAPDH A>I FOR	GATGCTGGCGCTGAGTACGT
GAPDH A>I REV	CACCACTGACACGTTGGCAGT
TARDBP A>I FOR	CCATCGGAAGACGATGGGACG
TARDBP A>I REV	CCTGAATGGCTTGGGGATGAAG
FANCC A>I FOR	CCTGCACAACAGCTGATCAGGC
FANCC A>I REV	TTCTTTAATGGTTCATGACCAAATTCTTGG
ALDOA A>I FOR	GACAGCTGACGACCGCGTGAACC
ALDOA A>I REV	CCCCAATCTTCAGCACACAACGCCA
DAXX A>I FOR	CTGACCGGCCGTGTCATAGAGCAGC
DAXX A>I REV	GTGAGGTGGCAGCCAAAGTTGTAGATGA
SMAD4 A>I FOR	GCGTGCACCTGGAGATGCTG
SMAD4 A>I REV	ACAGGTGAAGAATTAATAAGAATGTGTTTCTCCT
GAA A>I FOR	ttctacccttcatgcggaac
GAA A>I REV	ggtgaagttggagacaggga
BLM A>I FOR	cccaacaccacaaatcagcaa
BLM A>I REV	aggagggtggaggcaaatca
CHD7 A>I FOR	gtgaagtgaagcacaggcaag
CHD7 A>I REV	gagcagtagaggggtggtga
FANCD2 A>I FOR	tcttccgtgtgatgatggct
FANCD2 A>I REV	tctcatctgctgtgctctcc
COL4A5 A>I FOR	agtttcgttcagctcccttca
COL4A5 A>I REV	ccgggatacagcaggattag
MDN1 A>I FOR	cagaggaagaccaagacccc
MDN1 A>I REV	AAAACCTCAGCCCAGGCAAA
UBR4 A>I FOR	GAGTACATCCGCCACAACGA
UBR4 A>I REV	agtatgaagctggccggga
DMD A>I FOR	GCGAGTAGTTCCACACAGGT
DMD A>I REV	TCAGGAACACCCCAAAACCA
NEAT1 qPCR FOR	GCTGGACCTTTCATGTAACGGG
NEAT1 qPCR REV	TGAACTCTGCCGGTACAGGGAA
GAPDH qPCR FOR	GTCTCCTCTGACTTCAACAGCG
GAPDH qPCR REV	ACCACCCTGTTGCTGTAGCCAA
HOTAIR A>I FOR	gcaccgcttttctaactggc
HOTAIR A>I REV	acacaaagtgcatacctaccca
MALAT1 A>I FOR	tgtgtgggtttctctctccc
MALAT1 A>I REV	ccgcttgagatttgggcttt
XIST A>I FOR	acgcaagggattggttgtct
XIST A>I REV	ctcaatcaggccaggaagca

RAB7A guide qPCR FOR	AGTTGTCCCCCTGGAGAGATG
RAB7A guide qPCR REV	CCTGTAATGCAGGCGACAAA
GAPDH guide qPCR FOR	CGCATGGACTGTGGTCTACT
GAPDH guide qPCR REV	CCATGTTCGTCATGGGTGTC
TARDBP guide qPCR FOR	GAGTTTCAGGTCCTGTTCCCA
TARDBP guide qPCR REV	AAGTGACAAGAGCAGTCCAGAA
DENND4A A>I FOR	GCCAAAATGCCCAGTTGCTT
DENND4A A>I REV	TACTCATTGCTTTTGTAGTGGGC
FBXL4 A>I FOR	TTCCTTCAGTTCCTTTTTCTGCTT
FBXL4 A>I REV	AGTGTCAGCATGGAAACTACTCA
PDE4DIP A>I FOR	GTAAGGGTCCTCCCACCTCT
PDE4DIP A>I REV	GCTGTGAGTTTGGGTTGGTG
DENND4A RT-PCR FOR	TTACCCCAACTGGATTGTCAG
DENND4A RT-PCR REV	TACAGTGTTCGTCTTTGCCAC
FBXL4 RT-PCR FOR	TTGTGCCGCATCTAGAGAGTC
FBXL4 RT-PCR REV	CCAGGTACCCTGAACTTTGC
PDE4DIP RT-PCR FOR	GAACACCGGCTGACCTCTAC
PDE4DIP RT-PCR REV	CTTCGATTGTCTTCCCTGAGGAC
AHCY A>I FOR	GAGACGGGCTTTCACTGTGTTG
AHCY A>I REV	AACGGGGTACTTGTCTGGATGG
CTNNA1 A>I FOR	GTAGGCCATCTTCTGTGGGACA
CTNNA1 A>I REV	TGTACTCCGAAAGCAGGTCCTG
HSF1 A>I FOR	CTGTTCTGACTTCCCTCCCTCC
HSF1 A>I REV	TGGGACTTGGCTCACCTGAATC
AHCY RT-PCR FOR	gtcaagtggctcaacgagaacg
AHCY RT-PCR REV	tccaagaccactgagctcatgg
CTNNA1 RT-PCR FOR	caccctgatgtcgcagcctata
CTNNA1 RT-PCR REV	ctgaaacgtggtccatgacagc
HSF1 RT-PCR FOR	tgcctggacaagaatgagctca
HSF1 RT-PCR REV	ctctaggagacagtggggtcct
CFTR snoRNA guide FOR	ACATCTTTCCTTGACCTGCTTTC
CFTR snoRNA guide REV and cDNA primer	AGGGAACAGGCAGCATTACTA
ACTB snoRNA guide FOR	CGCAACGACCTGCTTTCTTC
ACTB snoRNA guide REV and cDNA primer	ATACTGCGTTGCGTCCTTCA
EEF2 snoRNA guide FOR	TAAGTCCCGACCTGCTTTCTT
EEF2 snoRNA guide REV and cDNA primer	CTGAAGGTCTTAGGCAGCATT
RPS6 snoRNA guide FOR	CATGGCTTTCTGACCTGCTTT
RPS6 snoRNA guide REV and cDNA primer	TCTGAAGGATGTTGGCAGC
PuroR qPCR FOR	atgaccgagtacaagcccac
PuroR qPCR REV	acaccttgccgatgtcgag

ANXA5 qPCR FOR	CAAGCCTTTCATAGCCTTCC
ANXA5 qPCR REV	AGTCTGGTCCTGCTTCACCT
Targeted amplicon CMC sequencing ACTB-U1226-TAG-F	ACACTCTTTCCCTACACGACGCTCTTCCGATCTN NNNtccatcgtccaccgcaaatgct
Targeted amplicon CMC sequencing ACTB-U1226-TAG-R	TGGAGTTCAGACGTGTGCTCTTCCGATCTNNNN NNgccaatctcatcttgttttctgcgca
Targeted amplicon CMC sequencing EEF2-U2881-TAG-F	ACACTCTTTCCCTACACGACGCTCTTCCGATCTN NNNcagagtccggaggcagcag
Targeted amplicon CMC sequencing EEF2-U2881-TAG-R	TGGAGTTCAGACGTGTGCTCTTCCGATCTNNNN NNaaagtgttgggtgtcccatccc
Targeted amplicon CMC sequencing RPS6-U514-TAA-F	ACACTCTTTCCCTACACGACGCTCTTCCGATCTN NNNcgcaaacttttcaatctctcTAAa
Targeted amplicon CMC sequencing RPS6-U514-TAA-R	TGGAGTTCAGACGTGTGCTCTTCCGATCTNNNN NNaggacacgtggagtaacaag
Targeted amplicon CMC sequencing Universal NGS Primer 1	AATGATACGGCGACCACCGAGATCTACACTCTTT CCCTACACGACGCTCTTCCGATCT
Targeted amplicon CMC sequencing Index NGS Primer 2-1	CAAGCAGAAGACGGCATACGAGATCATACCACG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-2	CAAGCAGAAGACGGCATACGAGATGAAGTTGGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-3	CAAGCAGAAGACGGCATACGAGATATGACGTCG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-4	CAAGCAGAAGACGGCATACGAGATTTGGACGTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-5	CAAGCAGAAGACGGCATACGAGATAGTGGATCG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-6	CAAGCAGAAGACGGCATACGAGATGATAGGCTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-7	CAAGCAGAAGACGGCATACGAGATTGGTAGCTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-8	CAAGCAGAAGACGGCATACGAGATCGCAATCTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-9	CAAGCAGAAGACGGCATACGAGATGATGTGTGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC

Targeted amplicon CMC sequencing Index NGS Primer 2-10	CAAGCAGAAGACGGCATACGAGATGATTGCTCG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-11	CAAGCAGAAGACGGCATACGAGATCGCTCTATG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-12	CAAGCAGAAGACGGCATACGAGATTATCGGTCG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-13	CAAGCAGAAGACGGCATACGAGATAACGTCTGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-14	CAAGCAGAAGACGGCATACGAGATACGTTCAGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-15	CAAGCAGAAGACGGCATACGAGATCAGTCCAAG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-16	CAAGCAGAAGACGGCATACGAGATTTGCAGACG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-17	CAAGCAGAAGACGGCATACGAGATCAATGTGGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-18	CAAGCAGAAGACGGCATACGAGATACTCCATCG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-19	CAAGCAGAAGACGGCATACGAGATGTTGACCTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-20	CAAGCAGAAGACGGCATACGAGATCGTGTGTAG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-21	CAAGCAGAAGACGGCATACGAGATACGACTTGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-22	CAAGCAGAAGACGGCATACGAGATCACTAGCTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-23	CAAGCAGAAGACGGCATACGAGATACTAGGAGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-24	CAAGCAGAAGACGGCATACGAGATGTAGGAGTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC

Targeted amplicon CMC sequencing Index NGS Primer 2-25	CAAGCAGAAGACGGCATACGAGATCCTGATTGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-26	CAAGCAGAAGACGGCATACGAGATATGCACGAG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-27	CAAGCAGAAGACGGCATACGAGATCGACGTTAG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-28	CAAGCAGAAGACGGCATACGAGATTACGCCTTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-29	CAAGCAGAAGACGGCATACGAGATCCGTAAGAG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-30	CAAGCAGAAGACGGCATACGAGATATCACACGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-31	CAAGCAGAAGACGGCATACGAGATCACCTGTTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-32	CAAGCAGAAGACGGCATACGAGATCTTCGACTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-33	CAAGCAGAAGACGGCATACGAGATTGCTTCCAG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-34	CAAGCAGAAGACGGCATACGAGATAGAACGAGG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-35	CAAGCAGAAGACGGCATACGAGATGTTCTCGTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Targeted amplicon CMC sequencing Index NGS Primer 2-36	CAAGCAGAAGACGGCATACGAGATTCAGGCTTG TGACTGGAGTTCAGACGTGTGCTCTTCCGATC
Pseudouridylation standardization EEF2 standard (Ψ site underlined)	CACAAAGAGCCGGACCACAGTAGAGAcGcAGGA cAcGAAGGccacacgggcaccaaggac
Pseudouridylation standardization RPS6 standard (Ψ site underlined)	CACAAAGAGCCGGACCACCGTAAAGAcGcAGGA cAcGAAGGccacacgggcaccaaggac
Pseudouridylation standardization ACTB standard (Ψ site underlined)	CACAAAGAGCCGGACCACCTTAGAGAcGcAGGA cAcGAAGGccacacgggcaccaaggac

Pseudouridylation standardization CFTR standard (Ψ site underlined)	CACAAAGAGCCGGACCACCGTGAAGAcGcAGGAcAcGAAGGccacacgggcaccaaggac
Pseudouridylation standardization FOR primer for generating IVT template (PCR1)	TAATACGACTCACTATAGGGAGGGAACAGAAACAGAGACTAGGAGGGGCGCGTAGGATAAATAATTCACACAAAGAGCCGGACCACA
Pseudouridylation standardization FOR primer for generating IVT template (PCR2)	TAATACGACTCACTATAGGGAGGGAACAGA
Pseudouridylation standardization REV primer for generating IVT template (PCR1, PCR2)	TGTGTGGTCCTTGGTGCCCGTGTG
BID-Seq FOR primer for Ψ standard	ACACTCTTTCCCTACACGACGCTCTTCCGATCTATAAACGGGCGGAGGGAACAGAAACAGAGA
BID-Seq REV primer for Ψ standard	GACTGGAGTTCAGACGTGTGCTCTTCCGATCTTATTAGTTATGTGTGGTCCTTGGTGCCCGTGTG
BID-Seq FOR primer for CFTR luciferase reporter	ACACTCTTTCCCTACACGACGCTCTTCCGATCTAAGTGAGACACCGGGTACGA
BID-Seq REV primer for CFTR luciferase reporter	GACTGGAGTTCAGACGTGTGCTCTTCCGATCTGCATCGGCAGAACCTATCACT
RCA FISH GAPDH A>I RT primer	A+GA+AG+TA+TG+AC+TT+GTGCCTCAAGAT
RCA FISH GAPDH A>I padlock probe	/5phos/AGGAGGCAAACGTGATGATCTTGAGctcctgttcgacacctacccacctcatcccactcttcaGTGCCAAGCACAACGTGGTGC
RCA FISH GAPDH A>I hybridization probe	/5TYE665/cacctcatcccactcttcaAGGAGGCAAACGTGA
RCA FISH EEF2 U>Ψ RT primer	A+CT+AT+TT+AT+AG+TT+ATACTGCGGGACTTC
RCA FISH EEF2 U>Ψ padlock probe	/5phos/AATAATTGAAGGAAGTCCCGCctcctgttcgacacctacccacctcatcccactcttcaGTCCTAAGAGATGTGCTATACA
RCA FISH EEF2 U>Ψ hybridization probe	/5TYE665/cacctcatcccactcttcaGTCCTAAGAGATGTG