

Table SI. Sequences for the Bio-control, Bio-XIST and Bio-XIST-Mutant.

Bio-control:

CCUUCAGUUCUUAAGCGCUGCAAUUCGCGCUGCAGCCAUAUUUCUUAACUCUCUCGGGG
 CUGGAAGCUUCCUGACUGAAGAUCUCUCUGCACUUGGGGUUCUUUCUAGAACAUUUUCUA
 GUCCCCAACACCCUUUAUGGCGUAUUUCUUUAAAAAAUACCCUAAAUCCAUA AAAUA
 UUUUUUAAAUUCUAUACUUCUCCUAGUGUCUUCUUGACACGUCCUCCAUAUUUUUUUA
 AAGAAAGUAUUUGGAAUAUUUUGAGGCAAUUUUUAAUAUUUAAGGAAUUUUUCUUUGGAA
 UCAUUUUUGGUUGACAUCUCUGUUUUUUGUGGAUCAGUUUUUACUCUCCACUCUCUUU
 UCUAUAUUUUGCCCAUCGGGGCUGCGGAUACCUGGUUUUAUUAUUUUUUCUUUGCCCAAC
 GGGGCCGUGGAUACCUGCCUUUAAUUCUUUUUUAUUCGCCCAUCGGGGCCGCGGAUACC
 UGCUUUUUUAUUUUUUUUUCCCUUAGCCCAUCGGGGUUAUCGGAUACCUGCUGAUUCCCUCC
 CCUCUGAACCCCCAACACUCUGGCCCAUCGGGGUGACGGAUAUCUGCUUUUAAAAAUU
 UCUUUUUUUGGCCCAUCGGGGCUUCGGAUACCUGCUUUUUUUUUUUUUUAUUUUCCCUUGC
 CCAUCGGGGCCUCGGAUACCUGCUUUAUUUUUUGUUUUUCUGGCCCAUCGGGGCCGCGGA
 UACCUGCUUUGAUUUUUUUUUUUAUCGCCCAUCGGGUGCUUUUUAUGGAUGAAAAAUGU
 UGGUUUUGUGGGUUGUUGCACUCUCUGGAAUAUCUACACUUUUUUUUGCUGCUGAUCAUU
 UGGUGGUGUGUGAGUGUACCUACCGCUUUGGCAGAGAAUGACUCUGCAGUUAAGCUAAGG
 GCGUGUUCAGAUUGUGGAGGAAAAGUGGCCGCCAUUUUAGACUUGCCGCAUAACUCGGCU
 UAGGGCUAGUCGUUUGUGCUAAGUUAACUAGGGAGGCAAGAUGGAUGAUAGCAGGUCAG
 GCAGAGGAAGUCAUGUGCAUUGCAUGAGCUAAACCUAUCUGAAUGAAUUGAUUUGGGGCU
 UGUUAGGAGCUUUGCGUGAUUGUUGUAUCGGGAGGCAGUAAGAAUCAUCUUUUAUCAGUA
 CAAGGGACUAGUUA AAAAUGGAAGGUUAGGAAAGACUAAGGUGCAGGGCUUAAAAUGGCG
 AUUUUGACAUUGCGGCAUUGCUCAGCAUGGCGGGCUGUGCUUUGUUAAGGUUGUCCAAAAU
 GGCGGAUCCAGUUCUGUCGAGUGUUAAGUGGCGGGAAGGCCACAUCUGAUGGGGCGAG
 GCUUUGUUAAGUGGUUAGCAUGGUGGUGGACAUGUGCGGUCACACAGGAAAAGAUGGCGG
 CUGAAGGUCUUGCCGAGUGUAAAACAUGGCGGGCCUCUUGUCUUUGCUGUGUGCUUUU
 CGUGUUGGGUUUUGCCGAGGGACAAUAUGGCAGGCGUUGUCAUAUGUAUAUCAUGGCUU
 UUGUCACGUGGACAUCUGGCGGGCUUGCCGCAUUGUUAAGAUGGCGGGUUUUGCCGCC
 UAGUGCCACGCAGAGCGGGAGAAAAGGUGGGGAUGGACAGUGCUGGAUUGCUGCAUAACCC
 AACCAAUAGAAAUGGGGGUGGAAUUGAUACACAGCCAAUAGAGCAGAAGAUGGAAUAG
 ACUGAUGACACACUGUCCAGCUACUCAGCGAAGACCUGGGUGAAUAGCAUGGCACUUCG
 CAGCUGUCUUUAGCCAGUCAGGAGAAAGAAGUGGAGGGGCCACGUGUAUGUCUCCAGUG
 GGCGGUACACCAGGUGUUUUAAGGUCUUUUAAGGACAUUUAGCCUUUCCACCUCUGUC
 CCCUCUUAUUUGUCCCCUCCUGUCCAGUGCUGCCUCUUGCAGUGCUGGAUAUCUGGCUGU
 GUGGUCUGAACCUCUCCUCCAUUCUCUGUAUUGGUGCCUCACCUAAGGCUAAGUAUACCU
 CCCCCCCCACCCCCCAACCCCCCAACUCCCCACCCCCACCCCCACCCCCACCUCCCC
 ACCCCCCUACCCCCCUACCCCCCUACCCCCCUCUGGUCUGCCCUGCACUGCACUGUUGCC
 AUGGGCAGUGCUCCAGGCCUGCUUGGUGUGGACAUGGUGGUGAGCCGUGGCAAGGACCAG
 AAUGGAUCACAGAUGAUUCGUUGGCCAACAGGUGGCAGAAGAGGAAUUCUGCCUCCUCA
 AGAGGAACACCUACCCCCUUGGCUAAUGCUGGGGUCGGAUUUUGAUUUUAUUUUACUUUU
 GGAUGUCAGUCAUACAGUCUGAUUUUUGUGGUUUGCUAGUGUUUGAAUUUAAGUCUUAAGU
 GACUAUUUAUAGAAAUGUAUUUAAGAGGCUUUUAUUUGUAGAAUUCACUUUAAUUAUUAU
 UGAGUUUUUGUUUUGAGUUCUUUAAAAUCCCUUAAAGUUUUUAGCUUCUCAUUAUUAU
 CCUUAACCUUUUUUUGGCAGUAGAUAGUCAAAAGUCAAAUCAUUUCUAAUGUUUUAAAAAU
 GUGCUGGUCAUUUUUCUUUGAAAUUGACUUAACUUAUUUCCCUUGAAGAGUCUGUAGCACA
 GAAACAGUAAAAAAUUUAACUUCUAGACCUAAUGUAAAAAAGAGUGUUUGAAGGUUUAACA
 CAGGUCCAGGCCUUGCUUUGUUCUCCAUCCUUGAUGCUGCACUAAUUGACUAAUACCUAC
 UUAUCAGACAGGAAACUUGAAUUGCUGUGGUCUGGUGUCCUCUUAUCAGACUUAUUAU
 UGGAGUAUUUCAAUUUUUGCUUGUAUCCUGCCUGCCUAGCAUCCAGUUCUCCUCCAGCCC
 UGCUCCAGCAAACCCCUAGUCUAGCCCCAGCCCUACUCCACCCCGCCCCAGCCUUGCC
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 CCGCCCAGCUUCUCUCGAAAGUCACUCUAAUUUUAUUGAUUCAGUGCUCAAAAUAAGUU
 GUCCAUUGCUUAUCCUAUUUAUACUGGGGAUAUCCGUUUACCCUUGGCAUUGCUGAUUCU
 AGUACUGACUCCUUGACCAUUUUUCAGUUAUUGCAUACAAUCCCAUUUGUCUGUGAUCUCA
 GGACAAAGAAUUUCCUUAUCUGGUACGUUGAAGUUAGGGAAUGUCAAUUGAGAGCUUUCU
 AUCAGAGCAUUAUUGCCCACAAUUUGAGUUACUUAUCAUUUUCUGAUCCCCUGCCCUUA
 AAGGAGAAACCAUUUCUCUGUCAUUGCUUCUGUAGUCACAGUCCCAUUUUUGAGUAGUGA
 UCUUUUCUUGUGUACUGUGUUGGCCACCUAAAACUCUUUGCAUUGAGUAAAAUUCUAAU
 GCCAAUAAUCCUACCAUUGGAUUAGACAGCACUCUGAACCCCAUUUGCAUUCAGCAGGG
 GGUCGCAGACAACCCGUCUUUUGUUGGACAGUUA AAAAUGCUCAGUCCCAUUUGUCAUAGC
 UUUGCCUAUUAAACAAGGCACCCUACUGCGCUUUUUGCUGUGCUUCUGGAGAAUCCUGC

Table SI. Continued.

Bio-control:

UGUUCUUGGACAAUUAAGAACAAGUAGUAAUUGCUAAUUGUCUCACCCAUUAAUCAUG
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 GUUUCUUAUUUAUUGAGUAAAAUCCCAAUUAUCCAUGUUCUGUUAAGUUAACACUAUGGC
 CUUUGCAAACAUCUUUGCAUAAACAGCAGUGGGACUGACUCAUUCUUAAGAGCCCCUCCCCU
 UGGAAUUAUAAUGGAUACAAUAGUAAUUAUUAUGGUUCUGCGUAACAGAGAAGACCCAC
 UUAUGUGUAUGCCUUUAUCAUUGCUCCUAGAUAGUGUGAACUACCUACCACCUUGCAUUA
 AUAUGUAAAACACUAAUUGCCCAUAGUCCACUCAUUAAGUCUAGGAUGUCCUCUUUGCCA
 UUGCUGCUGAGUUCUGACUACCCAAGUUUCCUUCUCUUAACAGUUGAUUAUGCAUAAUUG
 CAUAUAUUAUGGUUCUGUGCAAUAAAAAUGGAUUCUCACCCCAUCCACCUUCUGUGGG
 AUGUUGCUAACGAGUGCAGAUUAUCAAUAACAGCUCUUGAACAGUUAUUUGCACAGUU
 GCAAUUGUCCAGAGUCCUGUCCAUAAGAAAGGGACUCUGUAUCCUAUUUGCACGCUACAA
 UGUGGGCUGAUCACCCAAGGACUCUUCUUGUGCAUUGAUGUUAUUAUUGUAUUUGUCCA
 CGAUCUUGUGCACUAACCCUCCACUCCCUUUGUAUCCAGCAGGGGACCCUACUACUC
 AAGACCUCUGUACUAGGACAGUUUAUGUGCACAUAUCCUAAUUGAUUAGAACUGAGUCUUU
 UUAUCAAGGUCCUGCAUCAUCUUUGCUUUACAUAAGAGGGUGCUGGUUACCUAAUGC
 CCCUCCUCCAGAAAUUAUUGAUGUGCAAAAUGCAAUUUCCCUAUCUGCUGUUAGUCUGGG
 GUCUCAUCCCCUCAUAUCCUUUUUGUCUUACAGCAGGGGGUACUUGGGACUGUUAUUGCG
 CAUAUUGCAAUUAUGGUCUUUUCCAUAUAAUUAAGAUCCAACUGCUCACACCCUCUUA
 GCAUUAACAGUAGAGGGUGCUAAUACAAGGACAUAUUCUUUUUGUACUGUUAUUGUGCUACU
 UGCAUUUGUCCCUUCUCCUGUGCACUAAAGACCCACUCACUUCCCUAGUGUUCAGCAGU
 GGAUGACCUCUAGUCAAGACCUUUGCACUAGGAUAGUUAUUGUGAACCAUGGCAACUGAU
 CACAACAAUGUCUUUCAGAUCAUCCAUAUUUAUCCUCCUUGUUUUACAGCAAGGGAUAU
 UAAUUAACCUAUGUUACCUUCCCUUGGGACUAUGAAUGUGCAAAAUUCCAUGUUCUUGGU
 CUCUCCCUUUAACCUAUAUUCUACCCCUUUUACAUAUAGAAAGGGAUGCUGGAAACCC
 AGAGUCCUUCUCUUGGGACUCUUAUUGUGUAUUUCUAAUUAUCCAUGACUCUUAUUGUGC
 AUUUUUCAAUUGCCUAAUUGAUUUCAAUUGUCUAAGACAUAUCAAUUGUCUAAUUGAUU
 AGAACUGAGUCUUUUUAUUAAGCUAAUAUCUAGCUUUUAUUAUCAAAGCUAAUAUCUUGAC
 UUCUCAGCAUCAUAGAAGGGGGUACUGAUUUCCUAAAGUCUUUCUUGAAUUUCUAAUUAUG
 CAAAUUGCCCUGAGGGCCGGGUGUGGUGGCUCACACCCUGUAAUCCAGCACUUUGGGAGG
 CUGAGGUGGGGAAGAUCUUUACUGCCAGGAGUUUGAGACCAGCCUGGCCAACAUUAAAAA
 AAAAAAAAAAGUAAGACAAUUGCCCUGGAAUCCCAUCCCCUCACACCUCCUUGGCAAAGC
 AGCAGGAGUGCUAACUAGCUAGUGCUUCUUCUCUUAUACUGCUUAAAUGCGCAUAAUUAAG
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 CUGCAGGAGCUUCUAAUAGCCUGAAUUCACUCUCUUGGACUGUUAUUGUGCAUACUUAU
 AUUUGCUGCUGUACUUUUUUAACCAUGUAAGGACCCACCCACUGUAUUUAUACUCCAGCU
 GGAAGUACCUACUACUUAAGACCCUUAAGACUAGUAAAGUUAAGCGUGCAUAAUCUUAAGGUG
 UUAUAUACACAUAUUUCAGUUGCAUACAGUUGUGCCUUUUUAUCAGGACUCCUGUACUUAUC
 AAAGCAGAGAGUGCUAAUCAAUAUUAAGCCCUUCUCUUCGAACUGUAGAUGGCAUGUAU
 UGCAGUUGUCAAUUGGUCCUCAAUAAGACUUGGGUUCUGACCUAUCACACCCUCUUGC
 UUUUAUUGCAUGGGGUACUAUUCACUUAAGGCCCUUUCUCAAACUGUUAUUGUGCCUAAU
 GACAAUUAUACUAGUAUCCUUCUUUGAAGGACAGCAUGGUUGGUGACACCUAAGGCC
 CAUUUCUUGGCCUCCCAAUAUGUGUGAUUGUAUUUGUCGAGGUUGCUAUGCACUAGAGAA
 GGAAAGUGCUCCCCUCAUCCCCACUUUCCCUUCCAGCAGGAAGUGCCCACCCCAUAAGA
 CCCUUUUUAUUUGGAGAGUCUAGGUGCACAAUUGUAAGUGACCACAAGCAUGCAUCUUGGA
 CAUUUAUGUGCGUAAUCGCACACUGCUCAUUAUGUGAAUAAGGUCCUACUCUCCGACC
 CCUUUUGCAAUACAGAAGGGUUGCUGAUAAACGCAGUCCCCUUUUCUUGGCAUGUUGUGUG
 UGAUUAUAAUCGUCUGGGAUCCUAUGCACUAGAAAAGGAGGGUCCUCUCCACAUACCUC
 GUCUCACCUUUCUUCCUCCAGCAGGGAGUGCCCACUCCAUAAGACUCUCACAUUUGGACAG
 UCAAGGUGCGUAAUUGUUAAGUGAACACAACCAUGCACCUUAGACAUGGAUUUGCAUAA
 UACACACAGCUCAACCUAUCUGAAUAAAAUCCUACUCUCAGACCCCUUUGCAGUACAGC
 AGGGGUGCUGAUCACCAAGGCCCUUUUCCUGGCCUGGUUAUGCGUGUGAUUAUGUUUGUC
 CCGGUUCCUGUGUAUUAGACAUGGAAGCCUCCCCUGCCACACUCCACCCCAUUCUCCU
 UUCCCUUCCGGCAGGGAGUGCCCUUCCAUAAGACGCUUACGUUUGGACAAUCAAAGGUGC
 ACAGUUGUAAGUGACCACAGGCAUACACCAACGCCAAGGGGCCAAUAUACCACUUUGCCC
 AUUCCAUCUGAAUAAGGUCCUACUCUCAGACCCCUUUGCAGUACAGCAGGGGUGCUGAU
 CACCAAGGCCCUUUCUUGGCCUGUUAUGUGCGUGAUUAUUAUUUGUCUGGGUCCUGUG
 UAUUAGACAAGGAAGCCUUCUU
 CAGCAGGGAGUGCCCCCUCCAUAAGAUCAUUAUUAUUGGACAAUCAAAGGUGCACAAUUAU
 AAGUGACCACAGCCAUGCACCUUGGACAUUAUUGGACAUUAUUGUGCGUAACUGCACAU

Table SI. Continued.

Bio-control:

GCCCAUCCCAUCUGAAUAAGGUCCUACUCUCAGAUGCCCUUUGCAGUACAGCAGGGGUAC
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 CUGUGUAAUAGACAUGAAAGCCUCCCCUGCCACACCCCAACCUCCAUCUUCCUUCUCCU
 CCACCAGGGAGUGUCCACUCCAUAUACCCUUAACAUUUGGACAAUCAAGGUGCACAAUUGU
 AAGUGAGCAUAGGCACUCACCUUGGACAUGAAUGUGCAUAACUGCACAUGGCCCAUCCCA
 UCUGAAUAAGGUCCUACUCUCAGACCCUUUUUGCAGUACAGCAGGGGUGCUGAUCACCAA
 GGCCCCUUUCCUGGCCUGUUAUGUGUGUGAUUAUAUUUGUCCAGUUCUGUGUAAUAG
 ACAUGGAAGCCUCCCCUGCCACACUCCACCCCCAAUCUCCUUCUCCUUCUGGCAGGAAG
 UACCCGCUCCAUAAGACCCUUAACAUUUGGACAGUCAAGGUGCACAAUUGUAUGUGACCAC
 AACCAUGCACCUUGGACAUAUAUGUGUGUAACUGCACAUGGCCCAUCCCAUCUGAAUAAG
 GUCCUACUCUCAGACCCCUUUUGCAGUACAGUAGGUGUGCUGAUAACCAAGGCCCCUCU
 CCUGGCCUGUUAACGUAUGUGAUUAUAUUUGUCUGGGUCCAGUGUAUAAGACAUGGAAG
 CCUCCCCUGCCCCACCCACCCUCAUCUUCUUCUCCUUCUGGCAGGGAGUGCCAGCUC
 CAUAAGAACCUUAACAUUUGGACAGUCAAGGUGCACAAUUCUAAGUGACCGCAGCCAUGCA
 CCUUGGUCAAUAUAUGUGUGUAACUGCACACGGCCUAUCUCAUCUGAAUAAGGCCUUAUC
 UCAGACCCCUUUUGCAGUACAGCAGGGGUGCUGAUAACCAAGGCCCAUUUUCUGGCCUG
 UUAUGUGUGUGAUUAUAUUUGUCCAGGUUUCUGUGUACUAGACAAGGAAGCCUCCUCUG
 CCCAUCCCAUCUACGCAUAAUCUUCUUCUUCUCCUCCAGCAGGGAGUGCUCACUCCAUAAG
 ACCCUUAACAUUUGGACAAUCAAGGUGCACAAUUGUAAGUGACCACAACCAUGCAUCUUGG
 AAUUAUAUGUGCAUAACUGCACAUGGCCUUAUCCUAUUUGAAUAAGGUCCUACUCUCAGAC
 CCCCUCUUGCAGUAUAGCUGGGGUGCUGAUCACUGAGGCCUCUUCUGCUUGGCUUGUCUAUA
 UUCUUGUGUACUAGAUAAAGGGACCUUCUCAUGGACUCCCUUUGCUUUUCAACAAGGAGU
 ACCCACUACUUUUUAAGAUUCUUAUAUUUGUCCAAAGUACAUGGUUUUAUUGACCACAA
 CAUGUCCCUUGGACAUAUAUGUAUGUAAUCACCACAUGGUUCAUCCUAAUUAACAAAG
 UUCUACCUUCUCACCCUCCAUAUUGCAGUAUACCAGGGUUGCUGACCCCUAAGUCCCCU
 UUCUUGGCUUGUUGACAUGCAUAUUGCAUUUAUGUUGGUUCUUGUGCCCUAGACAAGGA
 UGCCCCACCUCUUUCAAUAGUGGGUGCCCACUCCUUAUGAUCUUUACAUAUUGAACAGUU
 AAUGUGAAUAUUGCAGUUGUCCACAACCCUAUCACUUCUAGGACCAUUAUACCUCUUUU
 GCAUUAUCUGUGGGGUAUACUGUUUCCCUCCAAGGCCCUUCUGGGUGGACUAUCAACUAU
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 UUUUAGCAGGUAGUGCCCACUACUAAAGACUGUCACUUGGAAUGUUAUGUGCACAACU
 CAUUCUCUAAGCAUGUUCUGUACCACCUUUGCUUAGAGCAGGGGGAUGAUUAUUCACU
 AAGUGCCCCUUCUUUUGGACUUAUAUGCAUUAUUGCAUUGUCCACCUCUUCUUUAGA
 CUAAGAGUUGAUCUCCACAUUAUCCCCUUGCAUCAGGGGCAUGUUAUAUUGAAUGAAC
 CUUUUCUUUUAUAUUAUUGUCAUAAUUGUAUUUGUGGACCUGUGUAGGAGAAAAAGACC
 CUAUGUUCUCCCAUUAACCCUUGGAUUGCUGCUGAGAAGUGUUAACUACUCAUAUUCUC
 AGCUCUUGGACAAUUAUAGCAUUAUAUACAUAAGGGCACUGAUCAUUAGAUAAAG
 ACUCCUGCUUCCUCGUUGCUUACAUCGGGGGUACUGACCCACUAAGGCCCUUGUACUGU
 UAAUGUGAAUAUUGCAUUAUAUUAUGUCUCCUUCUGGUAGAGUGGGAUUAUUGCCCUA
 GUAUCCCCUUGCAUUAUCUGCAGGGGCGUGCUGACUACUCAAACUUCUCCUGGGACUGUU
 AAUAGGCACAAUGGCAGUUAUCAUUGGUUUUCUCCUCCUGACCUUGUUAAGCAAGCGC
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 AUCACAGGUAGCCAUGGUGUCAUGCUUUAUAUACGAAGUCUCCUCUCUCUGCCCCUUG
 UGUGCCCUUGGCCCUUUUACAGACUAUUGCUCACAAUCUCAGGUGUCCAUAUUUGCAG
 CUAAUAGGUAAGAUUGUGCUGUCUCCCUUCCCUUCCCUUGCCCUGCCCUUUUGCCU
 CUUUGCUGGGUAAUGUUGACCAGACAAGGCCCUUUCUCUUGGACUUAACAAUUCUCAGU
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 CUGAGUAUGCUGACUACCCAAAGCCCCUUCUGUGUUAUUAUAAACACAGUACUGAUUGU
 CCCAUUUUUCAGCCCAUCAGUCCAAGAUCUCCCUUACCACUUGGUGUGUUGGUGCAGUGU
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 UGUGUUAUCUGCUUUAUCUGUGCAAAUACUGAAGGCAAGUCAGACCCAGGGAGCUGGAUUG
 CCAUCCUUUAUUUUGUGUUAUCCAGUGUACACUAUAAAAUUGUCUCCCAAGGAAGGAAGG
 UGGCACUUCUCUGCAUUCUUCUUCUCCAGAGCAGAUUGCCUGGUUAAGAAUCUCUUGUUG
 UCCCCUUGUAUAUUGUUAUUGUAAAGUGCCAAUUGCCAGGAUACAGCCAGAAAAAUUGC
 UUAUUAUUAUAAAAAAUUUUUUAAGAAAGACAUCUGGAUUGUAGGGUGGACUCGAUA

Table SI. Continued.

Bio-control:

ACCUGGUCAUUAUUUUUUUGAAGCCAAAAUAUCCAUUUAUACUAUGUACCUGGUGACCAG
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 CAGCAUUCACUUUUAGAAAAACUACCUAAAUUUUUAUAAUCCUUAAUUUCUUCAUCUGGA
 GCACCUGCCCCUACUUAUUUCAAGAAGAUUGCAGUAAAACGAUUAUAAUGAGGGAACAUAU
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 CAUUUAAUUUAUGUAAUAAUUUGAAGUAGUUUGAAGUACCACACUGAGGUGAGGACUUA
 AAAUGAUAAAGACGAGUCCCCUAAUUUAUAAAGAAAAUAAGCCAAAAUAAAUAUUCUUUU
 GGAUUAUAAAUUUAACAGUGAGAUAGCUGCCUAGUGGAAAUGAAUAAUAUCCCAGCCACU
 AGUGUACAGGGUGUUUUGUGGCACAGGAUUAUGUAAUAUGGAACUGCUCAAGCAAUAAC
 UAGUCAUCACAACAGCAGUUCUUGUAAUAACUGAAAAAGAAUAUUGUUUCUCGGAGAAG
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 GUAAAGAAGAGUCUCUGGCUCUUUAGAAUACUGAUCCCAUUGAAGAUACCACGCUGCAUG
 UGUCCUUAGUAGUCAUGUCUCCUAGGCUCCUCUUGGACAUCUGAGCAUGUGAGACCUG
 AGGACUGCAAACAGCUAUAAGAGGCUCCAAAUAAUCAUAUCUUUCCCUUUGAGAAUCUG
 GCCAAGCUCCAGCUAAUCUACUUGGAUGGGUUGCCAGCUAUCUGGAGAAAAAGAUUCUCC
 UCAGAAGAAUAGGCUUGUUGUUUUACAGUGUUAUGUAUCCAUCUCCCUUUGACGAUCCCUA
 GGUGGAGAUGGGGCAUGAGGAUCCUCCAGGGGAAAAGCUCACUACCACUGGGCAACAACC
 CUAGGUCAGGAGGUUCUGUCAAGAUACUUUCCUGGUCCAGAUAGGAAGAUAAAGUCUCA
 AAAACAACCACCACAGCUAAGCUCUUAUUGUCCUAUCUGCCAAAUCAUUAUACUUC
 UACAAGCAGUGCAGAGAGCUGAGUCUUCAGCAGGUCCAAGAAAUUGAACACACUGAAGG
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 AAUGAAUGUGUAUUUCUUGUCUCUUUCUUCUUGUCUUUGCUCUUUGUUCUCUAUCUAA
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 CAUUUUCUCUUUUUGUUCACAAGAGUGGUCUGUGUCUUGUCUUAAGACAUUCUCUCAUUU
 UUCAUUUUGUUGCUAUUUCUCUUGCUCUCCUAGAUGUGGCUCUUCUUUCACGCUUUAU
 UCAUGUCUCCUUUUUGGGUCACAUGCUGUGUGCUUUUUGUCCUUUUCUUGUUCUGUCUAC
 CUCUCCUUUCUCUGCCUACCUCUCUUUUCUCUUUGUGAACUGUGAUUAUUUGUUACCCU
 UCCCCUUCUCGUUCGUUUUAAAUUUACCUUUUUUCUGAGUCUGGCCUCCUUUCUGCUGU
 UUCUACUUUUUAUCUCACAUUUUCUUAUUUCUGCAUUUCCUUUCUGCCUCUCUUGGGCUAU
 UCUCUCUCUCCUCCCCUGCGUGCCUCAGCAUCUCUUGCUGUUUGUGAUUUUCUAAUUUCAG
 UAUUAAUCUCUGUUGGCUUGUAUUUGUUCUCUGCUUCUUCUUUCUACUCACCUUUGAG
 UAUUUCAGCCUCUUAUGAAUCUAUCUCCUCUCUUGAUUUAUGUAAUUCUCUCCUUA
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 UUCCUAACCCUGCCUGAUAGGUGCAGAACGUCGGCUAUCAGAGCAAGCAUUGUGGAGCG
 GUUCCUUAUGCCAGGCUGCCAUGUGAGAUGAUCCAAGACCAAACAAGGCCCUAGACUGC
 AGUAAAACCCAGAACUCAAGUAGGGCAGAAGGUGGAAGGCUCAUAUGGAUAGAAGGCCCA
 AAGUAUAAGACAGAUUGGUUUGAGACUUGAGACCCGAGGACUAAGAUGGAAAGCCCAUGU
 CCAAGAUAGAUAAGAAGCCUCAGGCCUGAAACCAACAAAAGCCUCAAGAGCCAAGAAAACA
 GAGGGUGGCCUGAAUUGGACCGAAGGCCUGAGUUGGAUGGAAGUCUCAAGGCUUGAGUUA
 GAAGUCUUAAGACCUGGGACAGGACACAUGGAAGGCCUAAGAACUGAGACUUGUGACACA
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 AAGACCUGGGGAAAUCCCAAGAUGAGAACCCUAAACCCUACCUCUUUUCUAUUGUUUACA
 CUUCUUAUCUCUUAAGAUUUUCCAGUUCUCCUGUUUAUCUUUAAGCCUGAUUCUUUUGAGA
 UGUACUUUUUGAUGUUGCCGGUACCUUUAGAUAUGACAGUAUUUAUGCCUGGGCCAGUCUU
 GAGCCAGCUUUAAAUACAGCUUUUACCUAUUUUGUUAAGGCUAUAGUGUUUUGUAAACUUC
 UGUUUCUAUUCACAUUCUUCUCCACUUGAGAGAGACACCAAAAUCCAGUCAGUAUCUAAUC
 UGGCUUUUUGUUAACUUCUCCUACAGGAGCAGACAUUCAUAUAGGUGAUACUGUAUUUCAGUC
 CUUUCUUUUGACCCCAAGGCCUAGACUGAGAAGAUAAAAUGGUCAGGUUGUUGGGGAA
 AAAAAAGUGCCAGGCUCUCUAGAGAAAAAUUGUGAAGAGAUAGCUCCAGGCCAAUGAGAAGA
 AUUAGACAAGAAAUACACAGAUUGUGCCAGACUUCUGAGAAGCACCUGCCAGCAACAGCUU
 CCUUCUUUUGAGCUUAGGUGAGCAGGAUUCUGGGGUUUGGGAUUUCUAGUGAUGGUUAUGG
 AAAGGGUGACUGUGCCUGGGACAAAGCGAGGUCCCAAGGGGACAGCCUGAACUCCUUGCU
 CAUAGUAGUGGCCAAAUAAUUUGGUGGACUGUGCCAACGCUACUCCUGGGUUUAAUACCC
 AUCUCUAGGCUUAAAGAUGAGAGAACCUGGGACUGUUGAGCAUGUUUAAUACUUCUCCUUG
 AUUUUUUUCUUCUCCUGUUUAUGUGGGGAAGUUGAUUUAAAUGACUGAUAAUGUGUAUGAAAG
 CACUGUAAAACAUAAAGAGAAAAACCAAUAGUGUAUUGGCAAUCAUGCAGUUAACAUUUG

Table SI. Continued.

Bio-control:

AAAGUGCAGUGUAAAUUGUGAAGCAUUAUGUAAAUCAGGGGUCCACAGUUUUUCUGUAAG
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Table SI. Continued.

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Bio-XIST:

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Table SI. Continued.

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Bio-XIST:

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Table SI. Continued.

Bio-XIST:

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Table SI. Continued.

Bio-XIST-Mutant:

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Table SI. Continued.

Bio-XIST-Mutant:

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Table SI. Continued.

Bio-XIST-Mutant:

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Table SI. Continued.

Bio-XIST-Mutant:

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Table SI. Continued.

Bio-XIST-Mutant:

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Table SI. Continued.

Bio-XIST-Mutant:

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