

Sequences of Inserted Molecules

DNA sequences that were used to construct the various pUC19 plasmid molecules. In each case, 5' indicates the strand labeled in green while 3' indicates the one in red (in Figure-S2). Sites of the restriction endonucleases used to integrate the homologous DNA segments into the pUC19 were labeled out with different color codes: **EcoRI**, **HindIII**, **KasI**, **NdeI**, and **AatII**. The **orange** nucleotides in sequence xxx are the PX-homologous major groove nucleotides in the second-site reversion experiment.

(i) 22A

22A-5'

CAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCCAGTCACGACGTTGTA
 ACGACGGCCAGTGAATTCCTCGAGGGTACCACCACGATGCCTGTAGCAATGGT
 GCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTGTGAAATT
 GTTATCCGCTCACAATTCCACACAACATAC

22A-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTCACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCACCATTGCTACAGGCATCGTGGT
 GGTACCCTCGAGGAATTCACTGGCCGTCGTTTTACAACGTCGTGACTGGGAAA
 ACCCTGGCGTTACCCAACCTAATCGCCTTG

(ii) 44A

44A-5'

CAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCCAGTCACGACGTTGTA
 ACGACGGCCAGTGAATTCGACGAGCGTGACACCACGATGCCTGTAGCAATGGC
 AACAACGTTGAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTGTGAAATT
 GTTATCCGCTCACAATTCCACACAACATAC

44A-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTCACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTCAACGTTGTTGCCATTGCTACAGGCATCGTGGT
 GTCACGCTCGTCGAATTCACTGGCCGTCGTTTTACAACGTCGTGACTGGGAAA
 CCCTGGCGTTACCCAACCTAATCGCCTTG

(iii) 66A

66A-5'

CTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAA
 ATACCGCATCAGCGCCCTCGAGCATTGAGGCTGCGCAACTGTTGGGAAGGGC
 GATCGGTCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCA
 ACAACGTTGCGCAAACCTAATACGCCAGGGTTTTCCCAGTCACGACGTTGTA

ACGACGGATATCGAATTCGAGCTCGGTACCCGGGGATCCTCTAGAGTCGACCT
GCAGGCATGCAAGCTTGGCGTAATCATGGTCATA

66A-3'

TATGACCATGATTACGCCAAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCC
CCGGGTACCGAGCTCGAATTCGATATCCGTCGTTTTACAACGTCGTGACTGGGA
AAACCCTGGCGTTAATAGTTTGGCGCAACGTTGTTGCCATTGCTACAGGCATCGT
GGTGTACGCTCGTCGTTTGGTATGACCGATCGCCCTTCCCAACAGTTGCGCAG
CCTGAATGCTCGAGGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGG
TATTTACACCCGCATATGGTGC ACTCTCAG

(iv) 88A

88A-5'

CTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAA
ATACCGCATCAGGCGCCTCGAGCATTAGGCTGCGCAACTGTTGGGAACTGA
ATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCA
ACAACGTTGCGCAA ACTATTA ACTGGCGAACTTCCAGTCACGACGTTGTA
ACGACGGATATCGAATTCGAGCTCGGTACCCGGGGATCCTCTAGAGTCGACCT
GCAGGCATGCAAGCTTGGCGTAATCATGGTCATA

88A-3'

TATGACCATGATTACGCCAAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCC
CCGGGTACCGAGCTCGAATTCGATATCCGTCGTTTTACAACGTCGTGACTGGGA
AAGTTCGCCAGTTAATAGTTTGGCGCAACGTTGTTGCCATTGCTACAGGCATCGT
GGTGTACGCTCGTCGTTTGGTATGGCTTCATTAGTTCCCAACAGTTGCGCAG
CCTGAATGCTCGAGGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGG
TATTTACACCCGCATATGGTGC ACTCTCAG

(v) 154S

154S-5'

TCAGCGGGTGTGGCGGGTGTGCGGGCTGGCTTAACTATGCGGCATCAGAGCA
GATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAA
GGAGAAAATACCGCATCAGGCGCCTGGTAAGCCCTCCCGTATCGTAGTTATCT
ACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGA
GATAGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATA
TATACTTTAGATTGATTTATGAATTCGAGCTCGGTACCCGGGGATCCTCTAGAG
TCGACCTGCAGGCATGCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTG
TGAAATTGTTATCCGCTCACAATTCCACACAACATAC

154S-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACAGGAAACAGCTAT
GACCATGATTACGCCAAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCCCC

GGGTACCGAGCTCGAATTCATAAATCAATCTAAAGTATATATGAGTAAACTTG
 GTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCT
 ATTTTCGTTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACG
 GGAGGGCTTACCAGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGGT
 ATTTACACCCGCATATGGTGCCTCTCAGTACAATCTGCTCTGATGCCGCATAG
 TTAAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(vi) 220A

220A-5'

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGAGCTAACC
 GCTTTTTTGCACAACATGGGGGATCATGTAACCTCGCCTTGATCGTTGGGAACCG
 GAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGC
 AATGGCAACAACGTTGCGCAAACCTATTAACCTGGCGAACTACTTACTCTAGCTTC
 CCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACAGT
 CGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTGT
 GAAATTGTTATCCGCTCACAATTCCACACAACATAC

220A-3

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTGTGGTCCTGCAACT
 TTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGT
 TCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTG
 TCACGCTCGTCGTTTGGTATGGCTTCATTAGCTCCGGTTCCCAACGATCAAGG
 CGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCTGTGCGGTAT
 TTCCTCGAGCATATGGTGCCTCTCAGTACAATCTGCTCTGATGCCGCATAGTT
 AAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(vii) 220AR

220AR-5'

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGTGGTCCTG
 CAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAA
 GTAGTTTCGCCAGTTAATAGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCG
 TGGTGTCACGCTCGTCGTTTGGTATGGCTTCATTAGCTCCGGTTCCCAACGAT
 CAAGGCGAGTTACATGATCCCCCATGTTGTGCAAAAAAGCGGTTAGCTCAGTC
 GACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTGTG
 AAATTGTTATCCGCTCACAATTCCACACAACATAC

220AR-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTGAGCTAACCGCTTT

TTTGCACAACATGGGGGATCATGTAACCTCGCCTTGATCGTTGGGAACCGGAGCT
 GAATGAAGCCATAACAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGG
 CAACAACGTTGCGCAAACCTATTAACCTGGCGAACTACTTACTCTAGCTTCCCGGC
 AACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTGTGCGGT
 ATTCCTCGAGCATATGGTGCCTCTCAGTACAATCTGCTCTGATGCCGCATAG
 TTAAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(viii) 220A–PX65

220A–PX65–5’

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGAGCTATAA
 GGTTTTTTTACCGACATGGGCGCCCATGTACATTCCTTGACGCAAGGGAACGG
 AAGCTGAATCGGTGCATACCTCTTCACGAGCACGCCACCACGCGAAATGTAGC
 TGTGCCAACAAGCGATCGCAAAGGGTAACTGGGGGTTTACTTAGTCACGCTT
 CCGTAAAACAATTGCCAGACTGGACGAGCGCGGATCCCGGTGCAGGTCTAGAG
 TCGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTG
 TGAAATTGTTATCCGCTCACAATTCCACACAACATAC

220A–PX65–3’

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCTAGACCTGCACCG
 GGATCCGCGCTCGTCCAGTCTGGCAATTGTTTTACGGAAGCGTGACTAAGTAAA
 CCCCAGTTTACCCTTTGCGATCGCTTGTGGCACAGCTACATTCGCGTGGTG
 GCGTGCTCGTGAAGAGGTATGCACCGATTCAGCTTCCGTTCCCTTGCGTCAAGG
 GAATGTACATGGGCGCCCATGTTCGGTAAAAAACCTTATAGCTCTGTGCGGTA
 TTTCTCGAGCATATGGTGCCTCTCAGTACAATCTGCTCTGATGCCGCATAGT
 TAAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(ix) 220A–PX75

220A–PX75–5’

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGAGCTAAAA
 GGATTTTTGCCCGCAATGGGGGCCATTGTAACCTCCAGGCGATCGTTCTGTTCCG
 GAGCGCGATGAAGCCAGGCCTAACGACGATTACGACACCAGGCGACCTGTAGA
 TGTGGCAACAAGCGATCGCAAACGGTAACTGGCGGTTTTCTTACTCACGACTC
 CCGCAACGATTAATAGTGAATATGGAGGCGGTAAAAGTTGATCCTCTAGAGT
 CGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTGT
 GAAATTGTTATCCGCTCACAATTCCACACAACATAC

220A–PX75–3’

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCTAGAGGATCAACT

TTTACCGCCTCCATATTCACTATTAATCGTTGCCGGGAGTCGTGAGTAAGAAAA
 CCGCCAGTTTACCGTTTTCGATCGCTTGTGGCCACATCTACAGGTCGCCTGGTG
 TCGTAATCGTCGTTAGGCCTGGCTTCATCGCGCTCCGGAACAGAACGATCGCCT
 GGAGTTACAATGGCCCCATTGCGGGCAAAAATCCTTTTAGCTCTGTGCGGTAT
 TTCTCGAGCATATGGTGCACCTCAGTACAATCTGCTCTGATGCCGCATAGTT
 AAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(x) 220A–PX85

220A–PX85–5’

TCAGCGGGTGTGGCGGGTGTCCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGAGCTAACA
 GGAGTTTTGCACGCATCGGGGGATCTTCGCACTCGCCTCTGCGGTTGGGAAGG
 GAAGCTGAATGGGTGCATACCAAATCGCTAGCGTGACAGCTGGATGCCTGGGG
 ATATGGCAACAGGCGTGCGCAAAGGGTAACTGGCGGTTTTCTTACTCTCGAC
 GCCCGGCAACGACGAATAGACTATTCGGAGGCGGAACCCGTTGCAGGACTAGA
 GTCGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGT
 GTGAAATTGTTATCCGCTCACAATCCACACAACATAC

220A–PX85–3’

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCTAGTCCTGCAACG
 GGTCCCGCCTCCGAATAGTCTATTCGTGCTTGGCCGGGCGTCGAGAGTAAGAAA
 ACCGCCAGTTTACCCTTTGCGCACGCTGTTGCCATATCCCCAGGCATCCAGCT
 GTCACGCTAGCGATTTGGTATGCACCCATTCAGCTTCCCTTCCCAACCGCAGAG
 GCGAGTGCGAAGATCCCCGATGCGTGCAAACCTCCTGTTAGCTCTGTGCGGT
 ATTTCTCGAGCATATGGTGCACCTCAGTACAATCTGCTCTGATGCCGCATAG
 TTAAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xi) 220A–PX95

220A–PX95–5’

TCAGCGGGTGTGGCGGGTGTCCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGAGCTAACC
 GGAGATTTGCACAAATCAGGGGATCATGGCCATCGCCTTGATGCAACGGAACC
 GGAGGGCGATGAAGCCAGGCCTAACGACGAGTACGCCACCACGATAAAGGTA
 GCAATGGTGCAAACGTTGCGCGTTGGATTAAGTGGGGTTTACTTACTCACGAC
 TCCCGGCAACGACGAATAGACTGTTTGAAGGCGGATACCGGGGCAGGACCAG
 AGTCGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTG
 TGTGAAATTGTTATCCGCTCACAATCCACACAACATAC

220A–PX95–3’

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCTGGTCCTGCCCCG

GTATCCGCCTTCGAACAGTCTATTCGTCGTTGCCGGGAGTCGTGAGTAAGTAAA
 CCCCCAGTTAATCCAACGCGCAACGTTTGCACCATTTGCTACCTTTATCGTGGTG
 GCGTACTCGTCGTTAGGCCTGGCTTCATCGCCCTCCGGTTCGGTTGCATCAAGG
 CGATGGCCATGATCCCCTGATTTGTGCAAATCTCCGGTTAGCTCTGTGCGGTAT
 TTCTCGAGCATATGGTGCACCTCTCAGTACAATCTGCTCTGATGCCGCATAGTT
 AAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xii) 220A–PX105

220A–PX105–5’

TCAGCGGGTGTGGCGGGTGTCCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGAGCTAACCC
 GGAGAATTGCACAACACAGGCGATCATGTAAATTCACCTTGATCGTTCTGTTCCG
 GAGCTGAATCGGGCCATACCAATTCGCGAGCGTGACAGCTGGATGCCTGTAGA
 TGTGGCAACAACGTATTA AAAACTATTAAGCCAGGAACTACTTAGTCACGCTTC
 CCGGCAACGATTAATAGACTATTCGGAGGCGGATACCGGGGCAGGACCACAGT
 CGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTGT
 GAAATTGTTATCCGCTCACAAATCCACACAACATAC

220A–PX105–3’

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTGTGGTCCTGCCCCG
 GTATCCGCCTCCGAATAGTCTATTAATCGTTGCCGGGAAGCGTGAAGTAGT
 TCCTGGCTTAATAGTTTTTAATACGTTGTTGCCACATCTACAGGCATCCAGCTGT
 CACGCTCGCGAATTGGTATGGCCCGATTAGCTCCGGAACAGAACGATCAAGT
 GAATTTACATGATCGCCTGTGTTGTGCAATTCCTCCGGTTAGCTCTGTGCGGTATT
 TCCTCGAGCATATGGTGCACCTCTCAGTACAATCTGCTCTGATGCCGCATAGTTA
 AGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xiii) 220S

220S–5’

TCAGCGGGTGTGGCGGGTGTCCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGTCTCGCGG
 TATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTA
 CACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAG
 ATAGGTGCCTCACTGATTAAGCATTGGTAAGTGTGACAGCAAGTTTACTCATAT
 ATACTTTAGATTGATTTAAAACCTTCAATTTTTAATTTAAAAGGATCTAGGTGAGT
 CGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTGT
 GAAATTGTTATCCGCTCACAAATCCACACAACATAC

220S–3’

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCACCTAGATCCTTT

TAAATTA AAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGT
 CTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTAT
 TTCGTTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGG
 AGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACTGTGCGGTA
 TTCTCTCGAGCATATGGTGCACTCTCAGTACAATCTGCTCTGATGCCGCATAGT
 TAAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xiv) 220SR

220SR-5'

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACACACCTAGAT
 CCTTTTAAATTA AAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAAC
 TTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTG
 TCTATTTTCGTTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATA
 CGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACAGTCG
 ACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTGTGA
 AATTGTTATCCGCTCACAATTCCACACAACATAC

220SR-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTTCACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTGTCTCGCGGTATCA
 TTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGA
 CGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGG
 TGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATATACT
 TTAGATTGATTTAAAACCTTCATTTTTAATTTAAAAGGATCTAGGTGTGTGCGGT
 ATTTCTCGAGCATATGGTGCACTCTCAGTACAATCTGCTCTGATGCCGCATAG
 TTAAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xv) 220S-PX85

220S-PX85-5'

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGTCTCGCGA
 GGAGATTGCAGCGCATCGGCCAGATTTTCGCGCCCTCCCCTGCGGTAGTTATGGG
 AACGACGGGGGGTGCGGCAACTATCGCTGAACGAAAAGCTGAGATCGCTGGG
 ATAGGTGCTTAGGCGATTAAGCAGGGTAACTGTCAGTTTTAGTTTACTCGACG
 ATACTTTACGACGATTTAAAATTCGTTTTTAATACCCGAGGATCTACTAGAGT
 CGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTGT
 GAAATTGTTATCCGCTCACAATTCCACACAACATAC

220S-PX85-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTTCACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCTAGTAGATCCTCG

GGTATTA AAAACGAATTTTTAAATCGTCGTAAAGTATCGTCGAGTAAACTAAA
 ACTGACAGTTTACCCTGCTTAATCGCCTAGGCACCTATCCCAGCGATCTCAGCT
 TTTCGTT CAGCGATAGTTGCCGCACCCCCGTCGTTCCATAACTACCGCAGGG
 GAGGGCGCGAAATCTGGCCGATGCGCTGCAATCTCCTCGCGAGACTGTGCGGT
 ATTCCTCGAGCATATGGTGC ACTCTCAGTACAATCTGCTCTGATGCCGCATAG
 TTAAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xvi) 220S–PX95

220S–PX95–5’

TCAGCGGGTGTGGCGGGTGTGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGTCTCGCGG
 GGAGATTGCAGCACATCAGCCAGATGGTGCCATCTCCCGTATGCAACTTATCTA
 CAGGGCGGGGAGTCAGGGCCTTATGGATGATACGCATAGACAGAAAAGGGAG
 ATAGGTTGCAAACTGATTAAGTTGGGGTAACTGTGGGTTCAAGTTTACACGACT
 ATACTTTACGACGATTTAAAACCTTCGATTTTAAATTTCCGGGGATCTAGGTGAGT
 CGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTGT
 GAAATTGTTATCCGCTCACAAATCCACACAACATAC

220S–PX95–3’

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCACCTAGATCCCCG
 GAAATTA AAAATCGAAGTTTTAAATCGTCGTAAAGTATAGTCGTGTAACCTTGA
 ACCCACAGTTACCCCAACTTAATCAGTTTGCAACCTATCTCCCTTTTCTGTCTAT
 GCGTATCATCCATAAGGCCCTGACTCCCCGCCCTGTAGATAAGTTGCATACGGG
 AGATGGCACCATCTGGCTGATGTGCTGCAATCTCCCCGCGAGACTGTGCGGTAT
 TTCCTCGAGCATATGGTGC ACTCTCAGTACAATCTGCTCTGATGCCGCATAGTT
 AAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xvii) 440S

440S–5’

GTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGG
 GTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGCTAAGAAACCCTCCCCG
 TATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATA
 GACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGAC
 CAAGTTTACTCATATATACTTTAGATTGATTTAAAACCTTCATTTTTAATTTAAA
 GGATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAATCCCTTAACGTG
 AGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTT
 GAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAAACCACCGC
 TACCAGCGGTGGTTTTGTTTGGCCGATCAAGAGCTACCAACTCTTTTTCCGAAGG
 TAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTTCTTCTAGTGTAGCCGT
 AGTGACGGCCAGTGAATTCGAGCTCGGTACCCGGGGATCCTCTAGAGTCGACC
 TGCAGGCATGCAAGCTTGGCGTAATCATGGTCATA

440S-3'

TATGACCATGATTACGCCAAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCC
 CCGGGTACCGAGCTCGAATTCACTGGCCGTCCTACGGCTACACTAGAAGAAC
 AGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGG
 TAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTT
 CAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCT
 TTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACACGTTAAGGGATTTTGG
 TCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAAATTAATAATGAA
 GTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAAT
 GCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTTCGTTTCATCCATAG
 TTGCCTGACTCCCCGTCGTGTAGATAACTACGATACGGGAGGGTTTCTTAGACG
 TCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCT
 AAATACATTCAAATATGTATCCGCTCATGAGAC

(xviii) 440SR

440SR-5'

GTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGG
 GTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGTCCTCGAGACCACTACG
 GCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCT
 TCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGC
 GGTGGTTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCA
 AGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAAC
 ACGTTAAGGGATTTTGGTTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCT
 TTTAAATTAATAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTG
 GTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCT
 ATTTTCGTTTCATCCATAGTTGCCTGACTCCCCGTCGTGTAGATAACTACGATACG
 GGAGGACGGATATCGAATTCGAGCTCGGTACCCGGGGATCCTCTAGAGTCGAC
 CTGCAGGCATGCAAGCTTGGCGTAATCATGGTCATA

440SR-3'

TATGACCATGATTACGCCAAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCC
 CCGGGTACCGAGCTCGAATTCGATATCCGTCCCTCCCGTATCGTAGTTATCTACA
 CGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGAT
 AGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATAT
 ACTTTAGATTGATTTAAACTTCATTTTTAATTTAAAAGGATCTAGGTGAAGAT
 CCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGAGTTTTTCGTTCCACTGA
 GCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTTCTG
 CGCGTAATCTGCTGCTTGCAAACAACAAAAACCACCGCTACCAGCGGTGGTTT
 TTTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAACCTGGCTTCAGCAG
 AGCGCAGATACCAAATACTGTTCTTCTAGTGTAGCCGTAGTGGTCTCGAGACG
 TCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCT
 AAATACATTCAAATATGTATCCGCTCATGAGAC

(xix) 440S–PX65

440S–PX65–5'

GTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGG
 GTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGCTAAGAAACCCTCCCG
 ATCATTAGTTAAACCTACGACGATAGGTCAGGCACGAGTGGATGTCGTCAATA
 GAGTTTCCGCTGAGACGGGTGCCTCCTCTATTAAGTGCAGGTAAGTGCAGACACC
 AAGAGCTTTCATATAAGCGTTAGATGGGAGTAAAACAGCCCTTTTAAGCGCGA
 AGGATGGTGTGAAGAGTGTCTTTGATGGCTTCATGACGCGGCTCCCTTGCAGA
 GAGTTTGGAGACCACTGCATATCAGACCTGAAAGAAAAGACAGAAGGATCAGG
 AGGAGATCCCGCATTCTGGCCATAATCTGTTTCAGTGCAAACAATAACCAA
 AGGGACCAGCGTGCCTTTGTTTTGCGGATCAAGCCAGACCAACAAAGGTTCCG
 ATGCTGACTGGCGATTACAGAGCGTAACTACCAAGTTTTGTTCTTCACGAGTAG
 CCAAACGACGGCCAGTGAATTCGAGCTCGGTACCCGGGGATCCTCTAGAGTC
 GACCTGCAGGCATGCAAGCTTGGCGTAATCATGGTCATA

440S–PX65–3'

TATGACCATGATTACGCCAAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCC
 CCGGGTACCGAGCTCGAATTCACTGGCCGTCGTTTTGGCTACTCGTGAAGAACA
 AAAGTTGGTAGTTACGCTCTGTAATCGCCAGTCAGCATCGGAACCTTTGTTGGT
 CTGGCTTGATCGCGAAAACAAACGCACGCTGGTCCCTTTGGTTTAGTTGTTTGC
 ACTGAACAGATTATGGCCAGAAATGCGGGATCTCCTCCTGATCCTTCTGTCTTT
 TCTTTCAGGTCTGATATGCAGTGGTCTCAAACTCTCTGCAAGGGAGCCGCGTC
 ATGAAGCCATCAAAGACACTCTTCAACACCATCCTTCGCGCTTAAAAGGGCTGT
 TTTACTCCCATCTAACGCTTATATGAAAGCTCTTGGTGTCTCAGTTACCTGCACT
 TAATAGAGGAGGCACCCGTCTCAGCGGAAACTCTATTGACGACATCCACTCGT
 GCCTGACCTATCGTCGTAGGTTTAACTAATGATCGGGAGGGTTTCTTAGACGTC
 AGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTATTTTTCTA
 AATACATTCAAATATGTATCCGCTCATGAGAC

(xx) 440S–PX75

440S–PX75–5'

GTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGG
 GTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGCTAAGAAACCCTCCCG
 TTCATGAGTTATCCCTATGACGGGGGGCGTGGCAACTGGCCCTGAACGATCGC
 GACAGATCGTGATGATAGGTAACAACACTGATTACATGTTGGTAACGGAGAGAC
 CAACAGCTCTCATATAAGCGTTAGATTGGAGCAAACTTCCCGTTTAATTTTCGT
 CAGATCTAGTTGGCGATCCTTGGGGCTAATCTCACTATCAAAATCCAGAGACGT
 GAGTACTGGTTCACACCATGTCAGACGTGAAAGAAAAGACAGAAGGATCTGG
 AGAAGATCCTGCATCTCTGCGCATTCGCTGCTGCGGCTGAACAAAAGTTGGAC
 CGCTAGATCGGGTGGTTCCCTCTGCCGGATTACGCGCTACCACGAAATTTCCCG
 TGCTAACTGGCGATTACAGAGCGTAAACGACCAATTTTCTCTTCTAGACGTGC

CGTAGCGACGGCCAGTGAATTCGAGCTCGGTACCCGGGGATCCTCTAGAGTCG
ACCTGCAGGCATGCAAGCTTGGCGTAATCATGGTCATA

440S-PX75-3'

TATGACCATGATTACGCCAAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCC
CCGGGTACCGAGCTCGAATTCACTGGCCGTCGCTACGGCACGTCTAGAAGAGG
AAAATTTGGTCGTTACGCTCTGTAATCGCCAGTTAGCACCGGAAAATTTTCGTGG
TAGCGCGTAATCCGGCAGAGGAACCCCGATCTAGCGGTCCAACTTTTGTTCA
GCCGCAGCAGCGAATGCGCAGAGATGCAGGATCTTCTCCAGATCCTTCTGTCTT
TTCTTTCACGTCTGACATGGTGTGGAACCCAGTACTCACGTCTCTGGATTTTGAT
AGTGAGATTAGCCCCAAGGATCGCCAACTAGATCTGACGAAATTAACGGGAA
GTTTTGCTCCAATCTAACGCTTATATGAGAGCTGTTGGTCTCTCCGTTACCAAC
ATGTAATCAGTGTTTTACCTATCATCACGATCTGTTCGCGATCGTTCAGGGCCAG
TTGCCACGCCCCCGTCATAGGGATAACTCATGAACGGGAGGGTTTCTTAGAC
GTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTT
CTAAATACATTCAAATATGTATCCGCTCATGAGAC

(xxi) 440S-PX85

440S-PX85-5'

GTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGG
GTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGCTAAGAAACCCTCCCG
TACATGAGTTATCTATAACGGGGAGTGTATCAACTATGGCTTTCCGAAATAG
CGTTTTCGCTGAGACGGTTGCCTCACCTGACAAGCATTGCTCCCTGTCAGACTC
ACATTACTCATGTAAGCTTTAGATGGGAGTAAAACCTCCCGTTAATTTAGTCA
GATCTAGGTGGCGGTCTTTTTGCTGGTCTCATGATGCGGATCCCTTACAGATA
GTTTTCGGAGTGCTGAGCGTGCGGTCCCGTAGACCGCATCAAAGGATAAGGTT
GAGATCCCGCATTTCTGCGCATTCTCTGCTGCGGCTGAACAAAAATTGGGCCCG
TACCTCGGTTGGTTTGTCTTCGGGATCAAGCCAGCCAACTCTGGGGGCGAAGG
TACAAGGCTTCAGCATTGGGCAGATACCGGGTTCTGTTCTTCACGAGTAGCCGT
AACGACGGCCAGTGAATTCGAGCTCGGTACCCGGGGATCCTCTAGAGTCGACC
TGCAGGCATGCAAGCTTGGCGTAATCATGGTCATA

440S-PX85-3'

TATGACCATGATTACGCCAAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCC
CCGGGTACCGAGCTCGAATTCACTGGCCGTCGTTACGGCTACTCGTGAAGAAC
AGAACCCGGTATCTGCCAATGCTGAAGCCTTGTACCTTCGCCCCAGAGTTGG
GCTGGCTTGATCCCGAAGACAAACCAACCGAGGTAGCGGCCCAATTTTTGTTT
AGCCGCAGCAGAGAATGCGCAGAAATGCGGGATCTCAACCTTATCCTTTGATG
CGGTCTACGGGACCGCACGCTCAGCACTCCGAAAACCTATCTGTAAGGGATCCG
CATCATGAGACCAGCAAAAAGGACCGCCACCTAGATCTGACTAAATTAACGG
GAAGTTTTACTCCCATCTAAAGCTTACATGAGTAATGTGAGTCTGACAGGGAGC
AATGCTTGTGAGGTGAGGCAACCGTCTCAGCGAAAACGCTATTTTCGGAAAGCC
ATAGTTGATACACTCCCGTTATATAGATAACTCATGTACGGGAGGGTTTCTTA

GACGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATT
TTTCTAAATACATTCAAATATGTATCCGCTCATGAGAC

(xxii) 440S–PX95

440S–PX95–5'

GTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGG
GTTCCGCGCACATTTCCCCGAAAAGTGCCACCT**GACGTC**TAAGAAACCCTCCCG
TATATGACTTATCTACATAAAAGGGAGTCAGTCACGTATGGATGACGTCTATAG
ACAGACGGTGGAGATAGGTAAAACACTGATTAATGCAGGTAACGTGACGGC
AAGTTTACGTCTGTATACTTTAGCCGGATTTAAAACAGCCCTTTTAATTTTCGTCA
GATCTAGGTGGCGGTCTTTTTGCTGGCCTCATGACCCGGCACCCCTTAACGATT
GTTTTCGTTCCGCACCGCGTCAGACGTGAAAGAAAAGATAGATGGATCTTCTTA
AAATCCTTTTTTTGGCGCCGTAATCTGTTCAAGTGCACAACTGTTCCACCGCT
AGATCGGGTGGTTTTGTCTTCCGGATCAAGCCAGCCCAACTCTTGGGGAGAAGG
TAACAGGCGTCAGCAGAGGGTAAATACCAAATTTTCTCTTCTAGTCGTTGTAA
AACGACGGCCAGT**GAATTC**GAGCTCGGTACCCGGGGATCCTCTAGAGTCGACC
TGCAGGCATGCAAGCTTGGCGTAATCATGGTCATA

440S–PX95–3'

TATGACCATGATTACGCCAAGCTTGCATGCCTGCAGGTCGACTCTAGAGGATCC
CCGGGTACCGAGCTC**GAATTC**ACTGGCCGTCGTTTTACAACGACTAGAAGAGG
AAAATTTGGTATTTACCCTCTGCTGACGCCTGTTACCTTCTCCCAAGAGTTGG
GCTGGCTTGATCCGGAAGACAAACCACCCGATCTAGCGGTGGAACAGTTGTTT
GCACTGAACAGATTACGGCGCCAAAAAAGGATTTTAAGAAGATCCATCTATC
TTTTCTTTCACGTCTGACGCGGTGCGGAACGAAAACAATCGTTAAGGGTGCCGG
GTCATGAGGCCAGCAAAAAGGACCGCCACCTAGATCTGACGAAATTAAGG
GCTGTTTTAAATCCGGCTAAAGTATACAGACGTAAACTTGCCGTCACAGTTACC
TGCATTTAATCAGTGTTTTACCTATCTCCACCGTCTGTCTATAG**GACGTC**ATCCAT
ACGTGACTGACTCCCTTTTATGTAGATAAGTCATATACGGGAGGGTTTCTTAGA
CGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTT
TCTAAATACATTCAAATATGTATCCGCTCATGAGAC

(xxiii) 220A–PX115

220A–PX115–5'

TCAGCGGGTGTGGCGGGTGTGCGGGCTGGCTTA ACTATGCGGCATCAGAGCA
GATTGTACTGAGAGTGCAC**CATATG**CTCGAGGAAATACCGCACAGAGCTAACC
GCAGAAATGCACAACATGGGCGCTCATGTA ACTCCAGGCGATCGTTGGGATGG
GAAGCTGAATGAATGCGGACCAACGACGATTACGACACCACGATAAAGGTA
GCAATGGCACAAGGGTTGCGCAAACGGTAAACTGGCGAACTTCCCACTCTAGC
TTCCGTAAAACAATTAATAGTGAATATGGAGGCGGAACCCGTTGCAGGACCAG
AGTCGACCTGCAGGATATC**AAGCTT**GGCGTAATCATGGTCATAGCTGTTTCTG
TGTGAAATTGTTATCCGCTCACAAATCCACACAACATAC

220A-PX115-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCTGGTCCTGCAACG
 GGTTCCGCCTCCATATTAATTAATTGTTTTACGGAAGCTAGAGTGGGAAGT
 TCGCCAGTTTACCGTTTTCGCAACCCTTGTGCCATTGCTACCTTTATCGTGGTGT
 CGTAATCGTCGTTTGGTCCGCATTCATTCAGCTTCCCATCCCAACGATCGCCTG
 GAGTTACATGAGCGCCCATGTTGTGCATTTCTGCGGTTAGCTCTGTGCGGTATT
 TCCTCGAGCATATGGTGCACCTCTCAGTACAATCTGCTCTGATGCCGCATAGTTA
 AGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xxiv) 220A-PX64

220A-PX64-5'

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGAGCTATAA
 GCTTTTTATACCAACATAGGCGATCATCGCCCTCGCCGCTGTCGTTGTGTTCCG
 GAGGGCGATGAAGGCGGACCAAATCGCGAGCGTGCCACCACGAGAAATGTAG
 CTGTGGCAACAGGCGTGCGCATTGGATTAACCCAGGAACTACCCACTCTAGAC
 GTCCGGCAACGATTAATAGTGAGGATGGGCTCGGATAACGGGGCAGGACTAGA
 GTCGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGT
 GTGAAATTGTTATCCGCTCACAATTCCACACAACATAC

220A-PX64-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCTAGTCCTGCCCCG
 TTATCCGAGCCCATCCTCACTATTAATCGTTGCCGGACGTCTAGAGTGGGTAGT
 TCCTGGGTAAATCCAATGCGCACGCCTGTTGCCACAGCTACATTTCTCGTGGTG
 GCACGCTCGCGATTTGGTCCGCCTTCATCGCCCTCCGGAACACAACGACAGCG
 GCGAGGGCGATGATCGCCTATGTTGGTATAAAAAGCTTATAGCTCTGTGCGGT
 ATTTCTCGAGCATATGGTGCACCTCTCAGTACAATCTGCTCTGATGCCGCATAG
 TTAAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xxv) 220A-PX510

220A-PX510-5'

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGATGCGTAA
 GCTTTTAATACCGCATTGGGGGCCATTCGCCCTCGCGGCTGCGCAAGGGAAGG
 GAAGGGCGATGAATGCGGGCCTCACGACTATTACGCCACCACGCGAAAGGGG
 GCAATGCTGCAAGGCGTGCGCGTTGGGTAACTGGCGGTTTTCCACTCTAGAC
 GTTGTAACAACGGCCAGTGAGGATGAGCTCGGTACAAGTTGATCCTCTAGA
 GTCGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGT
 GTGAAATTGTTATCCGCTCACAATTCCACACAACATAC

220A-PX510-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCTAGAGGATCAACT
 TGTACCGAGCTCATCCTCACTGGCCGTTGTTTTACAACGTCTAGAGTGGGAAAA
 CCGCCAGGTTACCCAACGCGCACGCCTTGCAGCATTGCCCCCTTTCGCGTGGTG
 GCGTAATAGTCGTGAGGCCCGCATTTCATCGCCCTTCCCTTCCCTTGCAGCCG
 CGAGGGCGAATGGCCCCAATGCGGTATTAAGCTTACGCATCTGTGCGGTA
 TTTCCCTCGAGCATATGGTGCCTCTCAGTACAATCTGCTCTGATGCCGCATAGT
 TAAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xxvi) 220A-PX57

220A-PX57-5'

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGATGCGTCC
 GCTGAAAATAACAACCTCAGGCGATCATCGCCATTGCCCTTTCGCAAGGGGAAGG
 GAAGGTGAATCGGTGCGTACCACTTCGCTAGCGTGCCAGCTCGATGAAGGGGG
 CAATGCTGCAAGCGTTGTAAGTTGTATTACGCCAGGAACTACCCAGTCTAGCTG
 TTGTAACAACCGGCCAGACTGGTTCGAGCTCGGATCCCGGGGCAGGACTAGAG
 TCGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTG
 TGAAATTGTTATCCGCTCACAATTCCACACAACATAC

220A-PX57-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTCTAGTCCTGCCCCG
 GGATCCGAGCTCGACCAGTCTGGCCGTTGTTTTACAACAGCTAGACTGGGTAGT
 TCCTGGCGTAATAACAACCTTACAACGCTTGCAGCATTGCCCCCTTCATCGAGCTG
 GCACGCTAGCGAAGTGGTACGCACCGATTACCTTCCCTTCCCTTGCGCAAAGG
 CAATGGCGATGATCGCCTGAGTTGTTATTTTCAGCGGACGCATCTGTGCGGTAT
 TTCCCTCGAGCATATGGTGCCTCTCAGTACAATCTGCTCTGATGCCGCATAGTT
 AAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xxvii) 220A-PX56

220A-PX56-5'

TCAGCGGGTGTGGCGGGTGTTCGGGGCTGGCTTAACTATGCGGCATCAGAGCA
 GATTGTACTGAGAGTGCACCATATGCTCGAGGAAATACCGCACAGATGCGACC
 GCAGAAAAGCACACATCAGGGGATATTCGCACTCGAGGCTGTCGTTCTGTTGC
 GGAGGGCGATGAAGCCGGGCCAAACGGCTATTGTGACAGCTGGATGCCGGGG
 GAAATGGTGCAAGCGTTGTAAGTTCTATTACGCCACGAACTTCCACTCTAGAC
 GTTCGGCAACGACGAATAGTGAATTTGGAGTCGGTAAAAGTGGATCCACCACA
 GTCGACCTGCAGGATATCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGT
 GTGAAATTGTTATCCGCTCACAATTCCACACAACATAC

220A-PX56-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAGGTCGACTGTGGTGGATCCACT
 TTTACCGACTCCAAATTCATCTTCGTCGTTGCCGAACGTCTAGAGTGGGAAGT
 TCGTGGCGTAATAGAACTTACAACGCTTGCACCATTTCCCCCGGCATCCAGCTG
 TCACAATAGCCGTTTGGCCCGGCTTCATCGCCCTCCGCAACAGAACGACAGCCT
 CGAGTGCGAATATCCCCTGATGTGTGCTTTTCTGCGGTTCGCATCTGTGCGGTAT
 TTCCTCGAGCATATGGTGCACCTCTCAGTACAATCTGCTCTGATGCCGCATAGTT
 AAGCCAGCCCCGACACCCGCCAACACCCGCTGA

(xxviii) 22AR

22AR-5'

CAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCAGTCACGACGTTGTAAA
 ACGACGGCCAGTGAATTCCTCGAGGGTACCCATTGCTACAGGCATCGTGGTT
 GCAGGATATCAAGCTTGGCGTAATCATGGTTCATAGCTGTTTCTGTGTGAAATT
 GTTATCCGCTCACAAATCCACACAACATAC

22AR-3'

GTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACACAGGAAACAGCTAT
 GACCATGATTACGCCAAGCTTGATATCCTGCAACCACGATGCCTGTAGCAATG
 GGGTACCCTCGAGGAATTCCTGACGCTCCCGGAGACGGTTCACAGCTTGTCTG
 TAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTGG
 CGGGTGTGCGGGGCTGGCTTAACCTATGCGGCATCAGAGCAGATTGTACTGAGAG
 TGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCGC
 ATCAGGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGT
 GCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGC
 GATTAAGTTGGGTAACGCCAttaccTCCCACaccgaACGTTgcgagaCGACGgggcctGAA
 TTtacgccCGGTAttatagGATCCtgtcatGTTCGAtaatggGGCATGCAGCTTGGCGTAATCA
 TGGTCATAGC

(xxix) 88-PX65

88-PX65-5'

TTCCCCGAAAAGTGCCACCTGACGTCTAAGAAAACCATTAATTATCATGACATTAA
 CCTATAAAATAGGCGTATCACGAGGCCCTTTCGTCCTCGCGCGTTCGGTGATG
 ACGGTGAAACCTCTGACACATGCAGCTCCCGGAGACGGTTCACAGCTTGTCTG
 TAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTGG
 CGGGTGTGCGGGGCTGGCTTAACCTATGCGGCATCAGAGCAGATTGTACTGAGAG
 TGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCGC
 ATCAGGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGT
 GCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGC
 GATTAAGTTGGGTAACGCCAttaccTCCCACaccgaACGTTgcgagaCGACGgggcctGAA
 TTtacgccCGGTAttatagGATCCtgtcatGTTCGAtaatggGGCATGCAGCTTGGCGTAATCA
 TGGTCATAGC

88-PX65-3'

GCTATGACCATGATTACGCCAAGCTTGCATGCCCCATTATCGACATGACAGGAT
 CCTATAATACCGGGCGTAAATTCAGGCCCGTCGTCTCGCAACGTTCCGGTGTGG
 GAGGTGAATGGCGTTACCCAACCTAATCGCCTTGCAGCACATCCCCCTTTCGCC

AGCTGGCGTAATAGCGAAGAGGGCCCGCACCGATCGCCCTTCCCAACAGTTGCG
 CAGCCTGAATGGCGAATGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGTG
 CGGTATTTACACCCGCATATGGTGC ACTCTCAGTACAATCTGCTCTGATGCCGC
 ATAGTTAAGCCAGCCCCGACACCCGCCAACACCCGCTGACGCGCCCTGACGGG
 CTTGTCTGCTCCCGGCATCCGCTTACAGACAAGCTGTGACCGTCTCCGGGAGCT
 GCATGTGTCAGAGGTTTTACCGTCATCACCGAAACGCGCGAGACGAAAGGGC
 CTCGTGATACGCCTATTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGA
 CGTCAGGTGGCACTTTTCGGGGAA

(xxx) 88-PX65-4nt-mutation

88-PX65-4nt-mutation-5'

TTCCCCGAAAAGTGCCACCTGACGTCTAAGAAAACCATTAATTATCATGACATTA
 CCTATAAAATAGGCGTATCACGAGGCCCTTTCGTCTCGCGCGTTCGGTGATG
 ACGGTGAAACCTCTGACACATGCAGCTCCCGGAGACGGTCACAGCTTGTCTG
 TAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTGG
 CGGGTGTCCGGGCTGGCTTA ACTATGCGGCATCAGAGCAGATTGTACTGAGAG
 TGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCGC
 ATCAGGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGT
 GCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGC
 GATTAAGTTGGGTAACGCCAtggttcTCCCActgacaACGTTgtacaaCGACGgccagtGAAT
 TtgacgcCGGTAtccgggGATCCtcaagtGTTCGAtctgcgGGCATGCAAGCTTGGCGTAATCA
 TGGTCATAGC

88-PX65-4nt-mutation-3'

GCTATGACCATGATTACGCCAAGCTTGCATGCCCGCAGATCGACACTTGAGGA
 TCCCCGGATACCGGCGTCAAATTC ACTGGCCGTCGTTGTACAACGTTGTCAGTG
 GGAGAACCATGGCGTTACCCA ACTTAATCGCCTTGCAGCACATCCCCCTTTCGC
 CAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGC
 GCAGCCTGAATGGCGAATGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGT
 GCGGTATTTACACCCGCATATGGTGC ACTCTCAGTACAATCTGCTCTGATGCCG
 CATAGTTAAGCCAGCCCCGACACCCGCCAACACCCGCTGACGCGCCCTGACGG
 GCTTGTCTGCTCCCGGCATCCGCTTACAGACAAGCTGTGACCGTCTCCGGGAGC
 TGCATGTGTCAGAGGTTTTACCGTCATCACCGAAACGCGCGAGACGAAAGGG
 CCTCGTGATACGCCTATTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAG
 ACGTCAGGTGGCACTTTTCGGGGAA

(xxxi) 88-PX65-2nd-mutation

88-PX65-2nd-mutation-5'

TTCCCCGAAAAGTGCCACCTGACGTCTAAGAAAACGCAGATTATCACTTGATTAA
 CCCCCGAAAATAGCGTCATCACGACTGGCTTTCGTTGTACGCGTTTGTACAGATG
 ACGAACCAAACCTCTGACACATGCAGCTCCCGGAGACGGTCACAGCTTGTCTG
 TAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTGG

CGGGTGTCTGGGGCTGGCTTAACTATGCGGCATCAGAGCAGATTGTACTGAGAG
TGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCGC
ATCAGGCGCCATTCGCCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGT
GCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGGGATGTGCTGCAAGGC
GATTAAGTTGGGTAACGCCAtgggtcTCCCActgacaACGTTgtacaaCGACGgccagtGAAT
TtgacgcCGGTAtccgggGATCCtcaagtGTCGAtctgcgGGCATGC**AAGCTT**GGCGTAATCA
TGGTCATAGC

88-PX65-2nd-mutation-3'

GCTATGACCATGATTACGCC**AAGCTT**GCATGCCCGCAGATCGACACTTGAGGA
TCCCCGGATACCGGCGTCAAATTCCTGGCCGTCGTTGTACAACGTTGTCAGTG
GGAGAACCATGGCGTTACCCAACCTTAATCGCCTTGCAGCACATCCCCCTTTCGC
CAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGC
GCAGCCTGAATGGCGAATGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGT
GCGGTATTTACACCGCATATGGTGCCTCTCAGTACAATCTGCTCTGATGCCG
CATAGTTAAGCCAGCCCCGACACCCGCCAACACCCGCTGACGCGCCCTGACGG
GCTTGTCTGCTCCCGGCATCCGCTTACAGACAAGCTGTGACCGTCTCCGGGAGC
TGCATGTGTCAGAGGTTTGGTTCGTCATCTGACAAACGCGTACAACGAAAGCC
AGTCGTGATGACGCTATTTTCCGGGGTAAATCAAGTGATAATCTGCGTTTCTTA
GACGTCAGGTGGCACTTTTCGGGGAA