

Sequences of Optogenetic Constructs

OMM-PAC Related to Figure 1

ATGGCCATCCAGCTGCGGAGCCCCTTCCCCCTGGCCCTGCCCGGCATGCTGGCCCTGCTGGGCTGGTGGTGGTTCT
TCAGCCGGAAGAAGGGTACCGGTGGCAGTGGTGGCACCGTGAGCAAGGGCGAGGAGGATAACATGGCCATCAT
CAAGGAGTTCATGCGTTCAAGGTGCACATGGAGGGCTCCGTGAACGGCCACGAGTTCGAGATCGAGGGCGAGG
GCGAGGGCCGCCCTACGAGGGCACCCAGACCGCCAAGCTGAAGGTGACCAAGGGTGGCCCCCTGCCCTTCGCC
TGGGACATCCTGTCCCCTCAGTTCATGTACGGCTCCAAGGCCTACGTGAAGCACCCCCGCCGACATCCCCGACTACT
TGAAGCTGTCCTTCCCCGAGGGCTTCAAGTGGGAGCGCGTGATGAACTTCGAGGACGGCGGCGTGGTACCCTG
ACCCAGGACTCCTCCCTGCAGGACGGCGAGTTCATCTACAAGGTGAAGCTGCGCGGCACCAACTTCCCCTCCGAC
GGCCCCGTAATGCAGAAGAAGACCATGGGCTGGGAGGCCTCCTCCGAGCGGATGTACCCCGAGGACGGCGCCCT
GAAGGGCGAGATCAAGCAGAGGCTGAAGCTGAAGGACGGCGGCCACTACGACGCTGAGGTCAAGACCACCTAC
AAGGCCAAGAAGCCCGTGCAGCTGCCCGCGCCTACAACGTCAACATCAAGTTGGACATCACCTCCACAACGAG
GACTACACCATCGTGGAACAGTACGAACGCGCCGAGGGCCGCACTCCACCGCGGCATGGACGAGCTGTACAA
GACTAGTGGCGGAGGTGGCAGTGGTGGCGGAGGTAGTGGCAGTGGTGGCGGAGGTAGTGGCAGTGGTGGCGG
AGGTAGTGGCGGAGGCGGTAGTATGATGAAACGACTGGTGTATATTAGCAAAATCTCAGGGCATCTGTCTCTGGA
AGAAATTCAGCGGATCGGGAAAGTGTCAATCAAAAACAATCAGAGGGACAATATTACCGGAGTGTCTGTACCT
GCAGGGCCTGTTCTTTCAGATCCTGGAGGGAGAAAACGAGAAGGTGGATAAACTGTACAAGAAAATCCTGGTGG
ACGATCGCCACACAAAATATTCTGTGCCTGAAGACAGAATATGACATCACTGATCGAATGTTCCCAAATGGGCCAT
GAAAATATCAACCTGAATGAAAATCTGAGCTGATGATCCAGCCATTAAGAGTCTGCTGCAGACCATCACACAG
TCACATCGAGTGTGGAGAAATACATGCCTGCTCGGGTCACTATCTGATTAATCAGGGGATTAACCCCTGACAG
TGGAACCTCAGCTGGTCGAGAAGATCATTTTCTTTTCAGACATCCTGGCCTTCAGCACTCTGACCGAAAACTGCCA
GTGAATGAGGTGGTCATCCTGGTCAACAGGACTTTTTCCATTTGCACCCGCATCATTTCTGCTTATGGCGGGGAAG
TGACAAAGTTCATTGGGGATTGCGTGATGGCCAGCTTCACCAAAGAGCAGGGAGACGCCGCTATCCGGACCAGCC
TGGACATCATTAGTGAAGTGAAGCAGCTGAGGCACCATGTGGAGGCCACCAATCCCCTGCACCTGCTGTACACAG
GAATCGGCCTGTCTATGGCCATGTGATTGAAGGGAATATGGGAAGCTCCCTGAAGATGGACCACACCCTGCTGG
GGGATGCAGTGAACGTCGACGACGGCTGGAGGCCCTGACAAGACAGCTGCCTTACGCTCTGGCATTCACTGCCG
GCGTGAAGAAATGCTGTCAGGCTCAGTGGACTTTTATTAATCTGGGCGCTCATCAGGTGAAGGGGAAAACAGGAA
GCAATCGAGGTGTATACCGTCAACGAGGCCAGAAATACTACGATACCCTGCAGATTACTCAGCTGATTAGACAG
ACCCTGGAAAACGACAAGGACTACAAAGACGACGATGACAAGTGAG

PM-PAC Related to Figure 1

ATGGTGAGCAAGGGCGAGGAGGATAACATGGCCATCATCAAGGAGTTCATGCGCTTCAAGGTGCACATGGAGGG
CTCCGTGAACGGCCACGAGTTCGAGATCGAGGGCGAGGGCGAGGGCCGCCCTACGAGGGCACCCAGACCGCCA
AGCTGAAGGTGACCAAGGGTGGCCCCCTGCCCTTCGCTGGGACATCCTGTCCCCTCAGTTCATGTACGGCTCCAA
GGCCTACGTGAAGCACCCCGCCGACATCCCCGACTACTTGAAGCTGTCTTCCCCGAGGGCTTCAAGTGGGAGCG
CGTGATGAACTTCGAGGACGGCGGCGTGGTACCCTGACCCAGGACTCCTCCCTGCAGGACGGCGAGTTCATCTA
CAAGGTGAAGCTGCGCGGCACCAACTTCCCCTCCGACGGCCCCGTAATGCAGAAGAAGACCATGGGCTGGGAGG
CCTCCTCCGAGCGGATGTACCCCGAGGACGGCGCCTGAAGGGCGAGATCAAGCAGAGGCTGAAGCTGAAGGAC
GGCGGCCACTACGACGCTGAGGTCAAGACCACCTACAAGGCCAAGAAGCCCGTGCAGCTGCCCGCGCCTACAA
CGTCAACATCAAGTTGGACATCACCTCCACAACGAGGACTACACCATCGTGAACAGTACGAACGCGCCGAGGG
CCGCCACTCCACCGCGGCATGGACGAGCTGTACAAGACTAGTGGCGGAGGTGGCAGTGGTGGCGGAGGTAGT
GGCAGTGGTGGCGGAGGTAGTGGCAGTGGTGGCGGAGGTAGTGGCGGAGGCGGTAGTATGATGAAACGACTG
GTGTATATTAGCAAAATCTCAGGGCATCTGTCTGGAAGAAATTCAGCGGATCGGGAAAGTGTCAATCAAAAAC
AATCAGAGGGACAATATTACCGGAGTGTCTGTACCTGCAGGGCCTGTTCTTTCAGATCCTGGAGGGAGAAAAC
GAGAAGGTGGATAAACTGTACAAGAAAATCCTGGTGGACGATCGCCACACAAAATATTCTGTGCCTGAAGACAGAA
TATGACATCACTGATCGAATGTTCCCAAATGGGCCATGAAAATATCAACCTGAATGAAAATCTGAGCTGATGA
TCCAGCCCATTAAGAGTCTGCTGCAGACCATCACACAGTCACATCGAGTGTGGAGAAATACATGCCTGCTCGGGT
CATCTATCTGATTAATCAGGGGATTAACCCCTGACAGTGGAACTCAGCTGGTGCAGAAAGATCATTTTCTTTTCAG
ACATCCTGGCCTTCAGCACTCTGACCGAAAACTGCCAGTGAATGAGGTGGTCAACAGGTACTTTTC
CATTTGCACCCGCATCATTTCTGCTTATGGCGGGGAAGTGACAAAGTTCATTGGGGATTGCGTGATGGCCAGCTTC
ACCAAAGAGCAGGGAGACGCCGCTATCCGGACCAGCCTGGACATCATTAGTGAAGTGAAGCAGCTGAGGCACCA
TGTGGAGGCCACCAATCCCCTGCACCTGCTGTACACAGGAATCGGCCTGTCTATGGCCATGTGATTGAAGGGAA
TATGGGAAGCTCCCTGAAGATGGACCACACCCTGCTGGGGGATGCAGTGAACGTCGACGACGGCTGGAGGCC

TGACAAGACAGCTGCCTTACGCTCTGGCATTCACTGCCGGCGTGAAGAAATGCTGTCAGGCTCAGTGGACTTTTAT
TAATCTGGGCGCTCATCAGGTGAAGGGGAAACAGGAAGCAATCGAGGTGTATACCGTCAACGAGGCCAGAAAT
ACTACGATACCCTGCAGATTACTCAGCTGATTAGACAGACCCTGGAAAACGACAAGGACTACAAAGACGACGACG
ACAAGAGCGGCAAGAAGAAGAAGAAGAAGAGCAAGACCAAGTGCCTGATCATGTGA

Nu-PAC Related to Figure 1

ATGGTGAGCAAGGGCGAGGAGGATAACATGGCCATCATCAAGGAGTTCATGCGCTCAAGGTGCACATGGAGGG
CTCCGTGAACGGCCACGAGTTCGAGATCGAGGGCGAGGGCGAGGGCCGCCCTACGAGGGCACCCAGACCGCCA
AGCTGAAGGTGACCAAGGGTGGCCCCCTGCCCTTCGCTGGGACATCCTGTCCCCTCAGTTCATGTACGGCTCCAA
GGCTACGTGAAGCACCCCGCCGACATCCCCGACTACTTGAAGCTGTCTTCCCCGAGGGCTTCAAGTGGGAGCG
CGTGATGAACTTCGAGGACGGCGGCGTGGTACCCTGACCCAGGACTCCTCCTGCAGGACGGCGAGTTCATCTA
CAAGGTGAAGCTGCGCGGCACCAACTTCCCCTCCGACGGCCCCGTAATGCAGAAGAAGACCATGGGCTGGGAGG
CCTCCTCCGAGCGGATGTACCCGAGGACGGCGCCCTGAAGGGCGAGATCAAGCAGAGGCTGAAGCTGAAGGAC
GGCGGCCACTACGACGCTGAGGTCAAGACCCTACAAGGCCAAGAAGCCCGTGCAGCTGCCCGGCGCCTACAA
CGTCAACATCAAGTTGGACATCACCTCCACAACGAGGACTACACCATCGTGGAACAGTACGAACGCGCCGAGGG
CCGCCACTCCACCGGCGGCATGGACGAGCTGTACAAGACTAGTGCCGGAGGTGGCAGTGGTGGCGGAGGTAGT
GGCAGTGGTGGCGGNAGGTAGTGGCAGTGGTGGNCGGAGGTAGTGGCGGNNAGGCGGTAGTATGATGAAACG
ACTGGTGTANTATTAGCAAAATCTCAGGGCATCTGTCTCTGGAAGAAATTNCAGCGGATCGGGAAAGTGTCAATC
AAAAACAATCAGAGGGACAATATTACCGGAGTGTCTGTACCTGCAGGGCCTGTTCTTTCAGATCCTGGAGGGA
GAAAACGAGAAGGTGGATAAACTGTACAAGAAAATCTGGTGGACGATCGCCACACAAATATTCTGTGCCTGAAG
ACAGAATATGACATCACTGATCGAATGTCCCAAATGGGCCATGAAAATCAACCTGAATGAAAATCTGAGC
TGATGATCCAGCCATTAAGAGTCTGCTGCAGACCATCACACAGTCACATCGAGTGTGGAGAAAATACATGCCTGC
TCGGGTCACTATCTGATTAATCAGGGGATTAACCCCTGACAGTGGAACTCAGCTGGTCGAGAAGATCATTTTC
TTTTCAGACATCCTGGCCTTCAGCACTCTGACCGAAAATGCCAGTGAATGAGGTGGTCATCCTGGTCAACAGGT
ACTTTTCCATTTGCACCCGCATCATTTCTGCTTATGGCGGGGAAGTGACAAAAGTTCATTGGGGATTGCGTGATGGC
CAGCTTCACCAAAGAGCAGGGAGACGCCGCTATCCGACCAGCCTGGACATCATTAGTGAAGTGAAGCAGCTGAG
GCACCATGTGGAGGCCACCAATCCCCTGCACCTGCTGTACACAGGAATCGGCCTGTCTATGGCCATGTGATTGAA
GGGAATATGGGAAGCTCCCTGAAGATGGACCACACCCTGCTGGGGGATGCAGTGAACGTGCGAGCACGGCTGGA
GGCCTGACAAGACAGCTGCCTTACGCTCTGGCATTCACTGCCGGCGTGAAGAAATGCTGTCAGGCTCAGTGGAC
TTTTATTAATCTGGGCGCTCATCAGGTGAAGGGGAAACAGGAAGCAATCGAGGTGTATACCGTCAACGAGGCCCA
GAAATACTACGATACCCTGCAGATTACTCAGCTGATTAGACAGACCCTGGAAAACGACAAGGACTACAAAGACGA
CGACGACAAGCCCAAGAAGAAGCGGAAGGTGGAGGACGCCTGA

Nu-Reporter Related to Figure 2

ATGTACCCATACGATGTTCCAGATTACGCTATGGTGAGCAAGGGCGAGGAGCTGTTACCCGGGGTGGTGGCCATC
CTGGTCGAGCTGGACGGCGACGTAAACGGCCACAAGTTCAGCGTGTCCGGCGAGGGCGAGGGCGATGCCACCTA
CGGCAAGCTGACCCTGAAGTTCATCTGCACCACCGCAAGCTGCCCGTGCCTGGCCACCCTCGTGACCACCCTG
TCCTGGGGCGTGCAGTGCTTCGCCGCTACCCCGACCACATGAAGCAGCACGACTTCTTCAAGTCCGCCATGCCCCG
AAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCCGCGCCGAGGTGAAGTTCG
AGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCAC
AAGCTGGAGTACAACATCAGCGACAACGTCTATATACCCGCCGACAAGCAGAAGAACGGCATCAAGGCCAAC
TTCAAGATCCGCCACAACATCGAGGACGGCGGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGC
GACGGCCCCGTGCTGCTGCCCGACAACCACTACCTGAGCACCCAGTCCAAGCTGAGCAAAGACCCCAACGAGAAG
CGCGATCAGATGGTCTGCTGGAGTTCGTGACCGCCGCGGGATCACTCTCGGCATGGACGAGCTGTACAAGAGC
GAGCACATCGAGCGGCGGGTGAAGCAACGCCGGCGGCCCCCCCGCCCCAAAAAAGAAGAGAAAGGTAGATCCAA
AAAAGAAGAGAAAGGTAGATCCAAAAAAGAAGAGAAAGGTATGA