

**DATA S1. Related to STAR Methods.** DNA sequences of BERKY constructs.

Yellow highlighted regions are **restriction sites**

**Gai\*-BERKY1** (for pcDNA3.1, pLVX-IRES-Hygro and pLenti-hSynapsin-WPRE constructs)

Lyn11 (membrane anchor)

Flexible linker (GSG x 4)

NLuc - donor

Flexible linker (GSG x 2)

ER/K linker (10nm)

Flexible linker (GSG x 2)

YFP (Citrine)- acceptor

Flexible linker (GSGGTGSG)

KB-1753

Myc tag

**Stop codon**

ATGGGATGTATAAAATCAAAAAGGGAAAGACAGCAAGCTTGGATCAGGCGGTAGCGGGGGATCAGGCGGTAGCGGGAT  
GGTCTTCACACTCGAAGATTTTCGTTGGGGACTGGCGACAGACAGCCGGCTACAACCTGGACCAAGTCCTTGAACAGG  
GAGGTGTGTCCAGTTTGTTCAGAAATCTCGGGGTGTCCGTAACCTCCGATCCAAAGGATTGTCCTGAGCGGTGAAAAAT  
GGGCTGAAGATCGACATCCATGTTCATCATCCCGTATGAAGGTCTGAGCGGCGACCAAATGGGCCAGATCGAAAAAT  
TTTTAAGGTGGTGTACCCTGTGGATGATCATCCTTTAAGGTGATCCTGCACACTATGGCACACTGGTAATCGACGGG  
TTACGCCGAACATGATCGACTATTTTCGGACGGCCGTATGAAGGCATCGCCGTGTTTCGACGGCAAAAAGATCACTGTA  
ACAGGGACCCTGTGGAACGGCAACAAAATTATCGACGAGCGCCTGATCAACCCCGACGGCTCCCTGCTGTTCCGAGT  
AACCATCAACGGAGTGACCGGCTGGCGGCTGTGCGAACGCATTCTGGCGGAATTCGGATCTGGTGGTTCAGGCGAAA  
ACCTGTATTTTCAGGGCGGAAGCGGAGAAGAGGAGGAAAAGAAAAACAACAGGAGGAGGAGGCGGAGAGGCTGAGG  
AGGATACAAGAGGAAATGGAAAAAGAAAGAAAGCGGCGAGAGGAAGATGAGCAGCGACGCCGCAAGGAGGAGGAAGA  
GAGAAGGATGAAATTGGAGATGGAGGCAAAACGCAAACAAGAAGAGGAAGAACGGAAGAAACGGGAGGATGATGAAA  
AGCGGAAGAAAAAGGGATCTGGAGGGTCAGGGGGCGGCCCATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTT  
GTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGC  
GACCTATGGAAAACGACCTTAAATTTATTTGTACTACGGGTAAATTGCCCGTTCCTGGCCGACATTGGTAACTA  
CATTCCGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATG  
CCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTT  
CGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA  
AGCTGGAGTACAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTTC  
AAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGCGACGG  
CCCCGTGCTGCTGCCCGACAACCACTACCTGAGCTACCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATC  
ACATGGTCCTGCTGGAGTTTCGTGACCGCCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGTGGC  
ACCGGTGGATCAGGCTCTTCTCGAGGTTACTACCATGGTATTTGGGTGGGTGAAGAAGGTCGACTTTCTCGAGGTGG  
AGAACAAAACTTATTTCTGAAGAAGATCTGTGA

**Gai\*-BERKY2** (for pcDNA3.1)

Lyn11 (membrane anchor)

Flexible linker (GSG x 4)

NLuc - donor

Flexible linker (GSG x 2)

ER/K linker (10nm)

Flexible linker (GSG x 2)

YFP (Citrine)- acceptor

Flexible linker (GSGG)

YFP (Citrine)- acceptor

Flexible linker (GSGGTGGSG)

KB-1753

Myc tag

**Stop codon**

ATGGGATGTATAAAATCAAAGGGAAAGACAGCAAGCTTGGATCAGGCGGTAGCGGGGGATCAGGCGGTAGCGGGAT  
GGTCTTCACACTCGAAGATTTTCGTTGGGGACTGGCGACAGACAGCCGGCTACAACCTGGACCAAGTCTTGAACAGG  
GAGGTGTGTCCAGTTTGTTCAGAATCTCGGGGTGTCCGTAACCTCCGATCCAAAGGATTGTCCTGAGCGGTGAAAAAT  
GGGCTGAAGATCGACATCCATGTCATCATCCCCTATGAAGGTCTGAGCGGCGACCAAATGGGCCAGATCGAAAAAAT  
TTTTAAGGTGGTGTACCTGTGGATGATCATCACTTTAAGGTGATCCTGCACTATGGCACACTGGTAATCGACGGGG  
TTACGCCGAACATGATCGACTATTTTCGGACGGCCGATGAAGGCATCGCCGTGTTTCGACGGCAAAAAGATCACTGTA  
ACAGGGACCCTGTGGAACGGCAACAAAATTATCGACGAGCGCCTGATCAACCCCGACGGCTCCCTGCTGTTCCGAGT  
AACCATCAACGGAGTGACCGGTGGCGGCTGTGCGAACGCATTCTGGCGGAATTCGGATCTGGTGGTTCAGGCGAAA  
ACCTGTATTTTCAGGGCGGAAGCGGAGAAGAGGAGGAAAAGAAAAACAACAGGAGGAGGAGGCGGAGAGGCTGAGG  
AGGATACAAGAGGAAATGGAAAAAGAAAGAAAGCGGCGAGAGGAAGATGAGCAGCGACGCCGCAAGGAGGAGGAAGA  
GAGAAGGATGAAATTGGAGATGGAGGCAAAACGCAACAAGAAGAGGAAGAACGGAAGAAACGGGAGGATGATGAAA  
AGCGGAAGAAAAGGGATCTGGAGGGTCAGGGGGCGGCCCATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTT  
GTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAAGTGGAGAAGGCGAGGGCGATGC  
GACCTATGGAAAACCTGACCCTTAAATTTATTTGTACTACGGGTAAATTGCCCGTTCCCTGGCCGACATTGGTAACCTA  
CATTCCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATG  
CCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTT  
CGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA  
AGCTGGAGTACAACATAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACTTC  
AAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGCGACGG  
CCCCGTGCTGCTGCCCCGACAACCACTACCTGAGCTACCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATC  
ACATGGTCTGCTGGAGTTTCGTGACCGCCCGGGGATCACTCTCGCATGGACGAGCTGTACAAGGGATCCGGAGGA  
ATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCA  
CAAGTTTTAGTGTAAAGTGGAGAAGGCGAGGGCGATGCGACCTATGGAAAACCTGACCCTTAAATTTATTTGTACTACGG  
GTAAATTGCCCGTTCCCTGGCCGACATTGGTAACTACATTCCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGAT  
CACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGA  
CGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCA  
TCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACATAACAGCCACAACGTCTATATCATG  
GCCGACAAGCAGAAGAACGGCATCAAGGTGAACTTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGC  
CGACCACTACCAGCAGAACACCCCATCGGCGACGGCCCCGTGCTGCTGCCCCGACAACCACTACCTGAGCTACCAGT  
CCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCACATGGTCTGCTGGAGTTCGTGACCGCCCGGGGATCACT  
CTCGGCATGGACGAGCTGTACAAGGGATCCGGTGGCACCGGTGGATCAGGCTCTTCTCGAGGTTACTACCATGGTAT  
TTGGGTGGGTGAAGAAGGTGCAGCTTTCTCGAGGTGGAGAACAACAACTTATTTCTGAAGAAGATCTGTGA

**Gai\*-BERKY3** (for pcDNA3.1, pLVX-IRES-Hygro and pLenti-hSynapsin-WPRE constructs)

Lyn11 (membrane anchor)

Flexible linker (GSG x 4)

NLuc - donor

Flexible linker (GSG x 2)

ER/K linker (10nm)

Flexible linker (GSG x 2)

YFP (Citrine)- acceptor

Flexible linker (GG)

YFP (Citrine)- acceptor

Flexible linker (GSGG)

YFP (Citrine)- acceptor

Flexible linker (GSGGTGGSG)

KB-1753

Myc tag

**Stop codon**

ATGGGATGTATAAAATCAAAAGGGAAAGACAGCAAGCTTGGATCAGGCGGTAGCGGGGGATCAGGCGGTAGCGGGAT  
GGTCTTCACACTCGAAGATTTTCGTTGGGGACTGGCGACAGACAGCCGGCTACAACCTGGACCAAGTCTTGAACAGG  
GAGGTGTGTCCAGTTTGTTCAGAAATCTCGGGGTGTCCGTAACCTCCGATCCAAAGGATTGTCTGAGCGGTGAAAAT  
GGGCTGAAGATCGACATCCATGTTCATCATCCCCTATGAAGGTCTGAGCGGCGACCAAATGGGCCAGATCGAAAAAT  
TTTTAAGGTGGTGTACCCTGTGGATGATCATCACTTTAAGGTGATCCTGCACTATGGCACACTGGTAATCGACGGGG  
TTACGCCGAACATGATCGACTATTTTCGACGGCCGTATGAAGGCATCGCCGTGTTTCGACGGCAAAAAGATCACTGTA  
ACAGGGACCCTGTGGAACGGCAACAAAATTATCGACGAGCGCCTGATCAACCCCGACGGCTCCCTGCTGTTCCGAGT  
AACCATCAACGGAGTGACCGGCTGGCGGCTGTGCGAACGCATTCTGGCGGAATTCGGATCTGGTGGTTTCAGGCGAAA  
ACCTGTATTTTCAGGGCGGAAGCGGAGAAGAGGAGGAAAAGAAAAACAACAGGAGGAGGAGGCGGAGAGGCTGAGG  
AGGATACAAGAGGAAATGGAAAAAGAAAGAAAGCGGCGAGAGGAAGATGAGCAGCGACGCCGAAGGAGGAGGAAGA  
GAGAAGGATGAAATTGGAGATGGAGGCAAAACGCAACAAGAAGAGGAAGAACGGAAGAAACGGGAGGATGATGAAA  
AGCGGAAGAAAAGGGATCTGGAGGGTCAGGGGGCGCCCATATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTT  
GTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGC  
GACCTATGGAAAACCTGACCCTTAAATTTATTTGTAACGCGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAAC  
CATTTCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATG  
CCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTT  
CGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA  
AGCTGGAGTACAACATAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTC  
AAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCCTACCAGCAGAACACCCCATCGGCGACGG  
CCCCGTGCTGCTGCCCGACAACCACTACCTGAGCTACCAGTCCGCCCCTGAGCAAAGACCCCAACGAGAAGCGCGATC  
ACATGGTCTGCTGGAGTTTCGTGACCGCCCGGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGCGCGCCCGGA  
GGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGG  
GCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGACCTATGGAAAACCTGACCCTTAAATTTATTTGTA  
CGGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACACTACATTTCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCG  
GATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAA  
GGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGG  
GCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACATAACAGCCACAACGTCTATATC  
ATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCT  
CGCCGACCACTACCAGCAGAACACCCCATCGGCGACGGCCCCGTGCTGCTGCCCGACAACCACTACCTGAGCTACC  
AGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCACATGGTCTGCTGGAGTTTCGTGACCGCCCGGGGATC  
ACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGAGGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGT  
ACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGA  
CCTATGGAAAACCTGACCCTTAAATTTATTTGTAACGCGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACACTACA  
TTCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCC  
CGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCG  
AGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAG  
CTGGAGTACAACATAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAA  
GATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGCGACGGCC  
CCGTGCTGCTGCCCGACAACCACTACCTGAGCTACCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCAC

ATGGTCCTGCTGGAGTTCGTGACCGCCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGTGGCAC  
CGGTGGATCAGGCTCTTCTCGAGGTTACTACCATGGTATTTGGGTGGGTGAAGAAGGTCGACTTTCTCGAGGTGGAG  
AACAAAACTTATTTCTGAAGAAGATCTGTGA

**Gβγ\*-BERKY3** (for pcDNA3.1 and pLVX-IRES-Hygro)

Lyn11 (membrane anchor)

Flexible linker (GSG x 4)

NLuc - donor

Flexible linker (GSG x 2)

ER/K linker (10nm)

Flexible linker (GSG x 2)

YFP (Citrine)- acceptor

Flexible linker (GG)

YFP (Citrine)- acceptor

Flexible linker (GSGG)

YFP (Citrine)- acceptor

Flexible linker (GSGGTGGSG)

GRK3ct

**Stop codon**

ATGGGATGTATAAAATCAAAAAGGGAAAGACAGCAAGCTTGGATCAGGCGGTAGCGGGGGATCAGGCGGTAGCGGGAT  
GGTCTTACACTCGAAGATTTTCGTTGGGACTGGCGACAGACAGCCGGCTACAACCTGGACCAAGTCTTGAACAGG  
GAGGTGTGTCCAGTTTGTTCAGAAATCTCGGGGTGTCCGTAACCTCCGATCCAAAGGATTGTCCTGAGCGGTGAAAAT  
GGGCTGAAGATCGACATCCATGTTCATCATCCCCTATGAAGGTCTGAGCGGCGACCAAATGGGCCAGATCGAAAAAT  
TTTTAAGGTGGTGTACCCTGTGGATGATCATCACTTTAAGGTGATCCTGCACTATGGCACACTGGTAATCGACGGGG  
TTACGCCGAACATGATCGACTATTTTCGGACGGCCGTATGAAGGCATCGCCGTGTTTCGACGGCAAAAAGATCACTGTA  
ACAGGGACCCTGTGGAACGGCAACAAAATTATCGACGAGCGCCTGATCAACCCCGACGGCTCCCTGCTGTTCCGAGT  
AACCATCAACGGAGTGACCGGCTGGCGGCTGTGCGAACGCATTCTGGCGGAATTCGGATCTGGTGGTTCAGGCGAAA  
ACCTGTATTTTCAGGGCGGAAGCGGAGAAGAGGAGGAAAAGAAAAACAACAGGAGGAGGAGGCGGAGAGGCTGAGG  
AGGATACAAGAGGAAATGGAAAAAGAAAGAAAGCGGCGAGAGGAAGATGAGCAGCGACGCCGCAAGGAGGAGGAAGA  
GAGAAGGATGAAATTGGAGATGGAGGCAAAACGCAACAAGAAGAGGAAGAACGGAAGAAACGGGAGGATGATGAAA  
AGCGGAAGAAAAGGGATCTGGAGGGTCAGGGGGCGCGCCCATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTT  
GTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGC  
GACCTATGGAAAACGACCCTTAAATTTATTTGTAACGCGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACTA  
CATTCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATG  
CCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTT  
CGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA  
AGCTGGAGTACAACATAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTT  
AAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGGCAGCG  
CCCCGTGCTGCTGCCGACAACCACTACCTGAGCTACCGATCCGCTGAGCAAAGACCCCAACGAGAAGCGCATC  
ACATGGTCTGCTGGAGTTTCGTGACCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGCGCGCCCGGA  
GGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGTAACGATTTGTAAGAATTGACGGAGATGTCAACGG  
GCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGACCTATGGAAAACGACCCTTAAATTTATTTGTA  
CGGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACTACATTCCGATATGGTTTTGATGTGCTTTGCAAGGTATCCG  
GATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAA  
GGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGG  
GCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACATAACAGCCACAACGTCTATATC  
ATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCT  
CGCCGACCACTACCAGCAGAACACCCCATCGGCACGGCCCCGTGCTGCTGCCGACAACCACTACCTGAGCTACC  
AGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGGATCACATGGTCTGCTGGAGTTTCGTGACCGCCGCGGGATC  
ACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGAGGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGT  
ACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGA  
CCTATGGAAAACGACCCTTAAATTTATTTGTAACGCGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACTACA  
TTCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCC  
CGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCG  
AGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAG  
CTGGAGTACAACATAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTCAA  
GATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGGCAGCC  
CCGTGCTGCTGCCGACAACCACTACCTGAGCTACAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGGATCAC  
ATGGTCTGCTGGAGTTTCGTGACCGCCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGTGGCAC

CGGTGGATCAGGCTCTTCTCGAGAGAACTTCCCTCTGGTGATCTCTGAGCGCTGGCAGCAGGAAGTGGCGGAAACAG  
TTTATGAAGCAGTAAATGCAGACACGGATAAAATCGAGGCCAGGAAGAGAGCTAAAAATAAGCAGCTTGGCCACGAA  
GAAGATTACGCCCTGGGAAGAGACTGCATCGTGCACGGGTACATGCTGAAGCTGGGGAACCCCTTTCCTGACCCAGTG  
GCAGCGCCGCTATTTTTACCTCTTTCCGAACAGACTTGAGTGGAGAGGAGAAGGCCGAGTCGCGACAAAAGTTTACTGA  
CAATGGAACAGATTGTGTCCGTGGAAGAACTCAGATTAAGACAAAAAGTGCATTTTGTTGAGAATAAAAGGAGGG  
AAGCAGTTCGTTTTGCAGTGTGAGAGTGACCCAGAGTTTGTGCAGTGGGAAGAAAGAGCTGACGGAGACATTCATGGA  
GGCCAGCGGCTGCTACGGCGAGCCCCAAGTTCCTCAACAAATCCCGCTCAGCCGTCGTGGAACCTCTCAAAGCCTC  
CCCTCTGCCATAGGAACAGCAACGGCCTCGGAGGTGACTCGAGGTGGAGAACAAAACTTATTTCTGAAGAAGATC  
TGTGA

**Gaq\*-BERKY3** (for pcDNA3.1 and pLVX-IRES-Hygro constructs)

Lyn11 (membrane anchor)

Flexible linker (GSG x 4)

NLuc - donor

Flexible linker (GSG x 2)

ER/K linker (10nm)

Flexible linker (GSG x 2)

YFP (Citrine)- acceptor

Flexible linker (GG)

YFP (Citrine)- acceptor

Flexible linker (GSGG)

YFP (Citrine)- acceptor

Flexible linker (GSGGTGSG)

GRK2<sup>RH</sup>

**Stop codon**

ATGGGATGTATAAAATCAAAAAGGGAAAGACAGCAAGCTTGGATCAGGCGGTAGCGGGGGATCAGGCGGTAGCGGGAT  
GGTCTTCACACTCGAAGATTTTCGTTGGGGACTGGCGACAGACAGCCGGCTACAACCTGGACCAAGTCTTGAACAGG  
GAGGTGTGTCCAGTTTGTTCAGAAATCTCGGGGTGTCCGTAACCTCCGATCCAAAGGATTGTCTGAGCGGTGAAAAT  
GGGCTGAAGATCGACATCCATGTTCATCATCCCCTATGAAGGTCTGAGCGGCGACCAAATGGGCCAGATCGAAAAAT  
TTTTAAGGTGGTGTACCCTGTGGATGATCATCACTTTAAGGTGATCCTGCACTATGGCACACTGGTAATCGACGGGG  
TTACGCCGAACATGATCGACTATTTTCGGACGGCCGTATGAAGGCATCGCCGTGTTTCGACGGCAAAAAGATCACTGTA  
ACAGGGACCCTGTGGAACGGCAACAAAATTATCGACGAGCGCCTGATCAACCCCGACGGCTCCCTGCTGTTCCGAGT  
AACCATCAACGGAGTGACCGGCTGGCGGCTGTGCGAACGCATTCTGGCGGAATTCGGATCTGGTGGTTCAGGCGAAA  
ACCTGTATTTTCAGGGCGGAAGCGGAGAAGAGGAGGAAAAGAAAAACAACAGGAGGAGGAGGCGGAGAGGCTGAGG  
AGGATACAAGAGGAAATGGAAAAAGAAAGAAAGCGGCGAGAGGAAGATGAGCAGCGACGCCGCAAGGAGGAGGAAGA  
GAGAAGGATGAAATTGGAGATGGAGGCAAAACGCAACAAGAAGAGGAAGAACGGAAGAAACGGGAGGATGATGAAA  
AGCGGAAGAAAAAGGGATCTGGAGGGTCAGGGGGCGGCCCATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTT  
GTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGC  
GACCTATGGAAAACCTGACCCTTAAATTTATTTGTAACGCGGTAATTTGCCCGTTCCCTGGCCGACATTGGTAACATA  
CATTCGGATATGGTTTTGATGTGCTTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATG  
CCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTT  
CGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA  
AGCTGGAGTACAACACTACAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTC  
AAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACAACCCCATCGGGCAGCG  
CCCCGTGCTGCTGCCGACAACCACTACCTGAGCTACCGTCCGCCCTGAGCAAGACCCCAACGAGAAGCGCGATC  
ACATGGTCTGCTGGAGTTTCGTGACCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGCGGCCCGGA  
GGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGG  
GCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGACCTATGGAAAACCTGACCCTTAAATTTATTTGTAATA  
CGGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACACTACATTCGGATATGGTTTTGATGTGCTTTTGCAAGGTATCCG  
GATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAA  
GGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGG  
GCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACACTACAACAGCCACAACGTCTATATC  
ATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTCAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCT  
CGCCGACCACTACCAGCAGAACAACCCCATCGGCACGGCCCCGTGCTGCTGCCGACAACCACTACCTGAGCTACC  
AGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCATCACATGGTCTGCTGGAGTTTCGTGACCGCCGCGGGATC  
ACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGAGGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGT  
ACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGA  
CCTATGGAAAACCTGACCCTTAAATTTATTTGTAACGCGGTAATTTGCCCGTTCCCTGGCCGACATTGGTAACATA  
TTCGGATATGGTTTTGATGTGCTTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCC  
CGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCG  
AGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAG  
CTGGAGTACAACACTACAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTCAA  
GATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACAACCCCATCGGGCAGCGCC  
CCGTGCTGCTGCCGACAACCACTACCTGAGCTACAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCAC  
ATGGTCTGCTGGAGTTTCGTGACCGCCGCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGTGGCAC

CGGTGGATCAGGCTCTTCTCGAGAGAAGTACCTGGAGGACCGGGGCGAGGTGACTTTTGAGAAGATCTTCTCCCAGA  
AGCTGGGGTACCTGCTTTTCCGAGACTTCTGCCTGAAGCACCTGGAGGAGGCCAAGCCCTTGGTAGAGTTCTACGAG  
GAGATCAAGAAATACGAGAAGCTGGAGACAGAGGAGGAGCGCCTGGTCTGCAGCCGAGAGATCTTCGACACGTACAT  
CATGAAGGAGCTGCTGGCCTGCTCACATCCTTTCTCGAAGAGCGCCATTGAGCACGTCCAGGGCCATCTGGTGAAGA  
AGCAGGTGCCTCCGGATCTTCCAGCCATATATTGAAGAAATTTGCCAGAACCTCCGAGGAGACGTGTTCCAGAAA  
TTCATCGAGAGCGATAAATTCACACGGTTTTTGCCAGTGGAAGTGA<sup>CTCGAG</sup>GTGGAGAACAAAACTTATTTCTGAA  
GAAGATCTGTGA



**Gα13\*-BERKY3** (for pcDNA3.1 constructs)

Lyn11 (membrane anchor)

Flexible linker (GSG x 4)

NLuc - donor

Flexible linker (GSG x 2)

ER/K linker (10nm)

Flexible linker (GSG x 2)

YFP (Citrine)- acceptor

Flexible linker (GG)

YFP (Citrine)- acceptor

Flexible linker (GSGG)

YFP (Citrine)- acceptor

Flexible linker (GSGGTGSG)

PRG<sup>RH</sup>

**Stop codon**

ATGGGATGTATAAAATCAAAGGGAAAGACAGCAAGCTTGGATCAGGCGGTAGCGGGGGATCAGGCGGTAGCGGGAT  
GGTCTTACACTCGAAGATTTTCGTTGGGGACTGGCGACAGACAGCCGGCTACAACCTGGACCAAGTCTTGAACAGG  
GAGGTGTGTCCAGTTTGTTCAGAAATCTCGGGGTGTCCGTAACCTCCGATCCAAAGGATTGTCTGAGCGGTGAAAAT  
GGGCTGAAGATCGACATCCATGTCATCATCCCCTATGAAGGTCTGAGCGGCGACCAAATGGGCCAGATCGAAAAAT  
TTTTAAGGTGGTGTACCCTGTGGATGATCATCACTTTAAGGTGATCCTGCACTATGGCACACTGGTAATCGACGGGG  
TTACGCCGAACATGATCGACTATTTTCGGACGGCCGATGAAGGCATCGCCGTGTTTCGACGGCAAAAAGATCACTGTA  
ACAGGGACCCTGTGGAACGGCAACAAAATTATCGACGAGCGCCTGATCAACCCCGACGGCTCCCTGCTGTTCCGAGT  
AACCATCAACGGAGTGACCGGCTGGCGGCTGTGCGAACGCATTCTGGCGGAATTCGGATCTGGTGGTTCAGGCGAAA  
ACCTGTATTTTCAGGGCGGAAGCGGAGAAGAGGAGGAAAAGAAAAACAACAGGAGGAGGAGGCGGAGAGGCTGAGG  
AGGATACAAGAGGAAATGGAAAAAGAAAGAAAGCGGCGAGAGGAAGATGAGCAGCGACGCCGCAAGGAGGAGGAAGA  
GAGAAGGATGAAATTGGAGATGGAGGCAAAACGCAAAACAAGAAGAGGAAGAACGGAAGAAACGGGAGGATGATGAAA  
AGCGGAAGAAAAAGGGATCTGGAGGGTCAGGGGGCGGCCCATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTT  
GTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGC  
GACCTATGGAAAACCTGACCCTTAAATTTATTTGTAACGCGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACCTA  
CATTCGGATATGGTTTTGATGTGCTTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATG  
CCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTT  
CGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA  
AGCTGGAGTACAACACTACAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTC  
AAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACAACCCCATCGGGCAGCG  
CCCCGTGCTGCTGCCGACAACCACTACCTGAGCTACCGTCCGCCCTGAGCAAGACCCCAACGAGAAGCGCGATC  
ACATGGTCTGCTGGAGTTTCGTGACCGCCGCGGATCACTCTCGGCATGGACGAGCTGTACAAGGGCGGCCCGGA  
GGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGG  
GCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGACCTATGGAAAACCTGACCCTTAAATTTATTTGTAAC  
CGGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACCTACATTCGGATATGGTTTTGATGTGCTTTTGCAAGGTATCCG  
GATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAA  
GGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGG  
GCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACACTACAACAGCCACAACGTCTATATC  
ATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCT  
CGCCGACCACTACCAGCAGAACAACCCCATCGGCACGGCCCCGTGCTGCTGCCGACAACCACTACCTGAGCTACC  
AGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCATCACATGGTCTGCTGGAGTTTCGTGACCGCCGCGGGATC  
ACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGAGGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGT  
ACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGA  
CCTATGGAAAACCTGACCCTTAAATTTATTTGTAACGCGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACCTACA  
TTCGGATATGGTTTTGATGTGCTTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCC  
CGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCG  
AGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAG  
CTGGAGTACAACACTACAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAA  
GATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACAACCCCATCGGGCAGCGCC  
CCGTGCTGCTGCCGACAACCACTACCTGAGCTACAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCAC  
ATGGTCTGCTGGAGTTTCGTGACCGCCGCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGTGGCAC

CGGTGGATCAGGCTCTTCTCGAGAGCTGATTATTGGCCCAGAGGAAGATTATGACCCAGGTTATTTCAACAATGAGA  
GTGACATCATCTTCCAAGATCTTGAAAACTGAAGTCACATCCAGCTTACTTGGTAGTTTTTCTACGTTACATCCTC  
TCTCAGGCAGACCCTGGCCCCCTGCTTTTTTATTTGTGTTCAGAAGTTTATCAACAGACAAATCCCAAAGATTCCCG  
AAGTCTGGGGAAAGACATCTGGAACATTTTCCTGGAGAAAAATGCGCCTCTCAGAGTGAAGATCCCTGAGATGTTGC  
AGGCTGAAATTGACCTACGCCTGCGGAACAATGAGGACCCTCGCAATGTGCTCTGTGAAGCTCAGGAGGCAGTCATG  
CTGGAAATCCAGGAGCAGATCAACGACTACAGATCCAAGCGTACTCTGGGCCTGGGCAGCCTCTATGGTGAAAATGA  
CCTGCTAGGCCTGGATGGGGACCCTCTTCGAGAACGCCAAATGGCTGAGAAGCAGCTGGCTGCCCTTGGAGATATCT  
TGTCCAAATATGAGGAAGATCGGAGTGCCCCCATGGACTTTGCTGTTAATACCTTTATGAGCCACGCTGGGATCCGT  
CTTCGGGAGTCTCGATGACTCGAGGTGGAGAACAAAACTTATTTCTGAAGAAGATCTGTGA

**Rho\*-BERKY3** (for pcDNA3.1 constructs)

Lyn11 (membrane anchor)

Flexible linker (GSG x 4)

NLuc - donor

Flexible linker (GSG x 2)

ER/K linker (10nm)

Flexible linker (GSG x 2)

YFP (Citrine)- acceptor

Flexible linker (GG)

YFP (Citrine)- acceptor

Flexible linker (GSGG)

YFP (Citrine)- acceptor

Flexible linker (GSGGTGSG)

Rhotekin RBD (aa 7-89)

**Stop codon**

ATGGGATGTATAAAATCAAAAGGGAAAGACAGCAAGCTTGGATCAGGCGGTAGCGGGGGATCAGGCGGTAGCGGGAT  
GGTCTTCACACTCGAAGATTTTCGTTGGGGACTGGCGACAGACAGCCGGCTACAACCTGGACCAAGTCTTGAACAGG  
GAGGTGTGTCCAGTTTGTTCAGAAATCTCGGGGTGTCCGTAACCTCCGATCCAAAGGATTGTCTGAGCGGTGAAAAT  
GGGCTGAAGATCGACATCCATGTTCATCATCCCCTATGAAGGTCTGAGCGGCGACCAAATGGGCCAGATCGAAAAAT  
TTTTAAGGTGGTGTACCCTGTGGATGATCATCACTTTAAGGTGATCCTGCACTATGGCACACTGGTAATCGACGGGG  
TTACGCCGAACATGATCGACTATTTTCGGACGGCCGTATGAAGGCATCGCCGTGTTTCGACGGCAAAAAGATCACTGTA  
ACAGGGACCCTGTGGAACGGCAACAAAATTATCGACGAGCGCCTGATCAACCCCGACGGCTCCCTGCTGTTCCGAGT  
AACCATCAACGGAGTGACCGGCTGGCGGCTGTGCGAACGCATTCTGGCGGAATTCGGATCTGGTGGTTCAGGCGAAA  
ACCTGTATTTTCAGGGCGGAAGCGGAGAAGAGGAGGAAAAGAAAAACAACAGGAGGAGGAGGCGGAGAGGCTGAGG  
AGGATACAAGAGGAAATGGAAAAAGAAAGAAAGCGGCGAGAGGAAGATGAGCAGCGACGCCGCAAGGAGGAGGAAGA  
GAGAAGGATGAAATTGGAGATGGAGGCAAAACGCAACAAGAAGAGGAAGAACGGAAGAAACGGGAGGATGATGAAA  
AGCGGAAGAAAAGGGATCTGGAGGGTCAGGGGGCGCGCCCATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTT  
GTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGC  
GACCTATGGAAAACCTGACCCTTAAATTTATTTGTAACGCGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAAC  
CATTCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATG  
CCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTT  
CGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA  
AGCTGGAGTACAACATAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTT  
AAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGGCAGCG  
CCCCGTGCTGCTGCCGACAACCACTACCTGAGCTACCGATCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCATC  
ACATGGTCTGCTGGAGTTTCGTGACCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGCGCGCCCGGA  
GGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGTACCGATTCTTGTAGAACTTGACGGAGATGTCAACG  
GCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGACCTATGGAAAACCTGACCCTTAAATTTATTTGTA  
CGGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAACACTACATTCCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCG  
GATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAA  
GGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGG  
GCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACATAACAGCCACAACGTCTATATC  
ATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCT  
CGCCGACCACTACCAGCAGAACACCCCATCGGCACGGCCCCGTGCTGCTGCCGACAACCACTACCTGAGCTACC  
AGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGGATCACATGGTCTGCTGGAGTTTCGTGACCGCCGCGGGATC  
ACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGAGGAATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTTGT  
ACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGCGA  
CCTATGGAAAACCTGACCCTTAAATTTATTTGTAACGCGGTAAATTTGCCCGTTCCCTGGCCGACATTGGTAAC  
TTCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATGCC  
CGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTTCG  
AGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAG  
CTGGAGTACAACATAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAAGTTCAA  
GATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGGCAGCGCC  
CCGTGCTGCTGCCGACAACCACTACCTGAGCTACAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGGATCAC  
ATGGTCTGCTGGAGTTTCGTGACCGCCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGTGGCAC

CGGTGGATCAGGCTCTTCTCGAGGAatcctggaggacctcaatatgctctacatccggcagatggcactcagcctgg  
aggacacagagctgcagaggaaactagatcatgagatccggatgagggatggggcctgcaagctgctggcagcctgc  
tccagcgagaacaggctctggaagccaccaagagcctgctgggtgtgcaacagccgtattctcagctacatgggtga  
gctgcagcggcgaaaggaggccaggtgctggagaagacaggcTAGCTCGAGGTGGAGAACAAAACTTATTTCTGA  
AGAAGATCTGTGA

## Gβγ-BERKY1 (for pLenti-hSynapsin-WPRE constructs)

Lyn11 (membrane anchor)

Flexible linker (GSG x 4)

NLuc - donor

Flexible linker (GSG x 2)

ER/K linker (10nm)

Flexible linker (GSG x 2)

YFP (Citrine)- acceptor

Flexible linker (GSGGTG)

GRK3ct

Stop codon

ATGGGATGTATAAAATCAAAAGGGAAAAGACAGCAAGCTTGGATCAGGCGGTAGCGGGGGATCAGGCGGTAGCGGGAT  
GGTCTTTCACACTCGAAGATTTTCGTTGGGGACTGGCGACAGACAGCCGGCTACAACCTGGACCAAGTCCTTGAACAGG  
GAGGTGTGTCCAGTTTGTTCAGAAATCTCGGGGTGTCCGTAACCTCCGATCCAAAGGATTGTCTTGAGCGGTGAAAAT  
GGGCTGAAGATCGACATCCATGTTCATCATCCCCTATGAAGGTCTGAGCGGCGACCAAATGGGCCAGATCGAAAAAT  
TTTTAAGGTGGTGTACCCTGTGGATGATCATCACTTTAAGGTGATCCTGCACTATGGCACACTGGTAATCGACGGGG  
TTACGCCGAACATGATCGACTATTTCCGACGGCCGTATGAAGGCATCGCCGTGTTTCGACGGCAAAAAGATCACTGTA  
ACAGGGACCCTGTGGAACGGCAACAAAATTATCGACGAGCGCCTGATCAACCCCGACGGCTCCCTGCTGTTCCGAGT  
AACCATCAACGGAGTGACCGGCTGGCGGCTGTGCGAACGCATTTCTGGCGGAATTCGGATCTGGTGGTTTCAGGCGAAA  
ACCTGTATTTTCAGGGCGGAAGCGGAGAAGAGGAGGAAAAGAAAAACAACAGGAGGAGGAGGCGGAGAGGCTGAGG  
AGGATACAAGAGGAAATGGAAAAAGAAAAGAAAGCGGCGAGAGGAAGATGAGCAGCGACGCCGCAAGGAGGAGGAAGA  
GAGAAGGATGAAATTGGAGATGGAGGCAAAACGCAAAACAAGAAGAGGAAGAACGGAAGAAACGGGAGGATGATGAAA  
AGCGGAAGAAAAGGGATCTGGAGGGTCAGGGGGCGCGCCCATGGTTTTCAAAGGGAGAAGAGTTGTTTCACAGGGGTT  
GTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGGCGATGC  
GACCTATGGAAAACCTGACCCTTAAATTTATTTGTAACGCGGTAATTTGCCCGTTCCCTGGCCGACATTGGTAACTA  
CATTCCGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCCGCCATG  
CCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTT  
CGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACA  
AGCTGGAGTACAACATAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTC  
AAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCATCGGCGACGG  
CCCCGTGCTGCTGCCCCGACAACCACTACCTGAGCTACCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATC  
ACATGGTCTGCTGGAGTTTCGTGACCGCCCGCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCCGGTGGC  
ACCGGTAAAGAACTTCCCTCTGGTGATCTCTGAGCGCTGGCAGCAGGAAGTGGCGGAAACAGTTTATGAAGCAGTAAA  
TGCAGACACGGATAAAATCGAGGCCAGGAAGAGAGCTAAAAATAAGCAGCTTGGCCACGAAGAAGATTACGCCCTGG  
GAAGAGACTGCATCGTGCACGGGTACATGCTGAAGCTGGGGAACCCTTTCTGACCCAGTGGCAGCGCCGCTATTTT  
TACCTCTTCCGAACAGACTTGAGTGGAGAGGAGAAGGCGAGTGCAGCAAAAGTTTACTGACAATGGAACAGATTGT  
GTCCGTGGAAGAATACTCAGATTAAGACAAAAGTGCATTTTGTGAGAATAAAAGGAGGGAAGCAGTTTCGTTTTGC  
AGTGTGAGAGTGACCCAGAGTTTGTGAGTGAAGAAAGAGCTGACGGAGACATTCATGGAGGCCAGCGGCTGCTA  
CGGCGAGCCCCCAAGTTCTCAACAAATCCCGCTCAGCCGTCGTGGAACCTCTCAAAGCCTCCCCTCTGCCATAGGAA  
CAGCAACGGCCTCTGAACCGGT

**Gaq\*-BERKY1** (for pLenti-hSynapsin-WPRE constructs)

Lyn11 (membrane anchor)

Flexible linker (GSG x 4)

NLuc - donor

Flexible linker (GSG x 2)

ER/K linker (10nm)

Flexible linker (GSG x 2)

YFP (Citrine)- acceptor

Flexible linker (GSGGTGSG)

GRK2<sup>RH</sup>

Stop codon

GCTAGCATGGGATGTATAAAATCAAAGGGAAAGACAGCAAGCTTGGATCAGGCGGTAGCGGGGGATCAGGCGGTAG  
CGGGATGGTCTTCACACTCGAAGATTTTCGTTGGGGACTGGCGACAGACAGCCGGCTACAACCTGGACCAAGTCCTTG  
AACAGGGAGGTGTGTCCAGTTTGTTCAGAATCTCGGGGTGTCCGTAACCTCCGATCCAAAGGATTTGCTGAGCGGT  
AAAAATGGGCTGAAGATCGACATCCATGTCCATCCCGTATGAAGGTCTGAGCGGCGACCAATGGGCCAGATCGA  
AAAAATTTTTAAGGTGGTGTACCCTGTGGATGATCATCACTTTAAGGTGATCCTGCACTATGGCACACTGGTAATCG  
ACGGGGTTACGCCGAACATGATCGACTATTTTCGACGGCCGTATGAAGGCATCGCCGTGTTTCGACGGCAAAAAGATC  
ACTGTAACAGGGACCCTGTGGAACGGCAACAAAATTATCGACGAGCGCCTGATCAACCCCGACGGCTCCCTGCTGTT  
CCGAGTAACCATCAACGGAGTGACCGGCTGGCGGCTGTGCGAACGCATTCTGGCGGAATTCGGATCTGGTGGTTCAG  
GCGAAAACCTGTATTTTCAGGGCGGAAGCGGAGAAGAGGAGGAAAAGAAAAACAACAGGAGGAGGAGGCGGAGAGG  
CTGAGGAGGATACAAGAGGAAATGGAAAAAGAAAGAAAGCGGCGAGAGGAAGATGAGCAGCGACGCCGCAAGGAGGA  
GGAAGAGAGAAGGATGAAATTGGAGATGGAGGCAAAACGCAACAAGAAGAGGAAGAACGGAAGAAAACGGGAGGATG  
ATGAAAAGCGGAAGAAAAGGGATCTGGAGGGTCAGGGGGCGGCCCATGGTTTTCAAAGGGAGAAGAGTTGTTTACA  
GGGGTTGTACCGATTCTTGTAGAACTTGACGGAGATGTCAACGGGCACAAGTTTTAGTGTAAGTGGAGAAGGCGAGGG  
CGATGCGACCTATGGAAAACGACCCTTAAATTTATTTGTACTACGGGTAAATTGCCCGTTCCCTGGCCGACATTGG  
TAACTACATTCGGATATGGTTTTGATGTGCTTTGCAAGGTATCCGGATCACATGAAGCAGCATGATTTCTTCAAGTCC  
GCCATGCCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGT  
GAAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGG  
GGCACAAGCTGGAGTACAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTG  
AATTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCCCATCGG  
CGACGGCCCCGTGCTGCTGCCCGACAACCACTACCTGAGCTACCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGC  
GCGATCACATGGTCTGCTGGAGTTCGTGACCGCCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGGGATCC  
GGTGGCACCGGTGGATCAGGCTCTTCTCGAGAGAAGTACCTGGAGGACCGGGGCGAGGTGACTTTTGAGAAGATCTT  
CTCCAGAAGCTGGGGTACCTGCTTTTCCGAGACTTCTGCCTGAAGCACCTGGAGGAGGCCAAGCCCTTGGTAGAGT  
TCTACGAGGAGATCAAGAAATACGAGAAGCTGGAGACAGAGGAGGAGCGCCTGGTCTGCAGCCGAGAGATCTTCGAC  
ACGTACATCATGAAGGAGCTGCTGGCCTGCTCACATCCTTTCTCGAAGAGCGCCATTGAGCACGTCCAGGGCCATCT  
GGTGAAGAAGCAGGTGCCTCCGGATCTCTTCCAGCCATATATTGAAGAAATTTGCCAGAACCTCCGAGGAGACGTGT  
TCCAGAAATTCATCGAGAGCGATAAATTCACACGGTTTTTGCCAGTGGAAAGTCACTCGAGGTGGAGAACAAAACCTTA  
TTTCTGAAGAAGATCTGTGATCTAGACCGGT